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I, the undersigned

FAMILY NAME | Asmelash |

NAME | Henok Birhanu |

Student ID no. | 1691138 |

Thesis title:

The Regulation of Energy Subsidies in the WTO: Bridge or Bottleneck for Sustainable Energy Transition?

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Student's Tutor | Professor Giorgio Sacerdoti |

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Bocconi University

PhD School

PhD in International Law and Economics

The Regulation of Energy Subsidies in the WTO: Bridge or Bottleneck for Sustainable Energy
Transition?

PhD Candidate: Henok Birhanu Asmelash

Thesis Supervisor: Prof. Giorgio Sacerdoti

Abstract

This thesis examines the regulation of energy subsidies in the World Trade Organization from a sustainable energy transition perspective. Growing energy security and climate change concerns have heightened the need for a transition away from fossil fuels. The achievement of this transition relies heavily on a substantial increase in the share of renewable energy sources and a massive improvement in energy efficiency. To help accelerate this transition, governments worldwide have introduced a range of policies and incentives mandating and encouraging the use of renewable energy and energy efficiency technologies. However, while the much larger and environmentally harmful fossil fuel subsidies remain pervasive and unchallenged, renewable energy subsidies have recently sparked a spate of legal challenges in the multilateral trading system. This has prompted questions as to whether the existing multilateral disciplines on subsidies support or undermine the ongoing transition towards sustainable energy sources. This thesis addresses this question by examining: whether the WTO subsidy disciplines are flexible enough to accommodate government support measure for the development and deployment of renewable energy; and whether they are tight enough to limit environmentally harmful fossil fuel subsidies. The thesis posits that the existing multilateral subsidy disciplines are inadequate to spur the much-needed energy transition and are in need of reform. Accordingly, it explores and proposes various options to strengthen the multilateral disciplines on energy subsidies so that they can play a more supportive role in the transition towards a sustainable energy future.

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Table of GATT and WTO Dispute Settlement Cases

(In alphabetic order)

Short Title	Full Case Title
<i>Argentina – Financial Services</i>	Appellate Body Report, Argentina – Measures Relating to Trade in Goods and Services, WT/DS453/AB/R, adopted 9 May 2016
<i>Brazil – Aircraft (Article 21.5)</i>	Appellate Body Report, Brazil - Export Financing Program for Aircraft, Recourse by Canada to Article 21.5 of the DSU, WT/DS46/AB/RW, adopted 4 August 2000
<i>Brazil – Aircraft</i>	Appellate Body Report, Brazil – Export Financing Program for Aircraft, WT/DS46/AB/R, adopted 20 August 1999
<i>Brazil – Desiccated Coconut</i>	Appellate Body Report, Brazil - Measures Affecting Desiccated Coconut, WT/DS22/AB/R, adopted 20 March 1997
<i>Brazil – Retreaded Tyres</i>	Appellate Body Report, Brazil – Measures Affecting Imports of Retreaded Tyres WT/DS332/AB/R, adopted 17 December 2007
<i>Canada – Aircraft</i>	Appellate Body Report, Canada – Measures Affecting the Export of Civilian Aircraft WT/DS70/AB/R, adopted 20 August 1999
<i>Canada – Autos</i>	Appellate Body Report, Canada – Certain Measures Affecting the Automotive Industry, WT/DS139/AB/R WT/DS142/AB/R, adopted 19 June 2000
<i>Canada – FIRA</i>	Canada – Administration of the Foreign Investment Review Act, L/5504 - 30S/140, adopted 7 February 1984
<i>Canada – Renewable Energy</i>	Appellate Body Reports, Canada – Certain Measures Affecting the Renewable Energy Generation Sector, WT/DS412/AB/R, adopted 24 May 2013
<i>Canada – Feed-In Tariff Program</i>	GATT Panel Report, Canada – Measures Relating to the Feed-in Tariff Program, WT/DS426/AB/R, adopted 24 May 2013
<i>EC and Certain Member States – Large Civil Aircraft</i>	Appellate Body Report, European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft, WT/DS316/AB/R, adopted 1 June 2011
<i>EC – Asbestos</i>	Appellate Body Report, European

<i>EC – Bananas III</i>	Communities – Measures Affecting Asbestos and Asbestos-Containing Products, WT/DS135/AB/R, adopted 5 April 2001 Appellate Body Report, European Communities – Regime for the Importation, Sale and Distribution of Bananas, WT/DS27/AB/R, adopted 25 September 1997
<i>EC – Biotech</i>	Panel Report, European Communities – Measures Affecting the Approval and Marketing of Biotech Products, WT/DS291/R, WT/DS292/R, WT/DS293/R adopted 21 November 2006
<i>EC – Computer Equipment</i>	Appellate Body Report, European Communities – Customs Classification of Certain Computer Equipment, WT/DS62/AB/R, adopted 22 June 1998
<i>EC – Hormones</i>	Appellate Body Report, European Communities – Measures Concerning Meat and Meat Products (Hormones), WT/DS26/AB/R & WT/DS48/AB/R, adopted 13 February 1998
<i>EC – Seal Products</i>	Appellate Body Report, European Communities – Measures Prohibiting the Importation and Marketing of Seal Products WT/DS400/AB/R, WT/DS401/AB/R, adopted 18 June 2014
<i>EU – Biodiesel</i>	Appellate Body Report, European Union – Anti-Dumping Measures on Biodiesel from Argentina, WT/DS473/R, adopted 26 October 2016
<i>Japan – DRAMs (Korea)</i>	Appellate Body Report, Japan – Countervailing Duties on Dynamic Random Access Memories from Korea, WT/DS336/AB/R, adopted on 17 December 2007
<i>Japan – Alcoholic Beverages II</i>	Appellate Body Report, Japan – Taxes on Alcoholic Beverages, WT/DS8/R, WT/DS10/R, WT/DS11/R, adopted 1 November 1996
<i>India – Solar Cells</i>	Appellate Body Report, India – Certain Measures Relating to Solar Cells and Solar Modules, WT/DS456/AB/R, adopted 14 October 2016
<i>Italy – Agricultural Machinery</i>	GATT Panel Report, Italy – Discrimination Against Imported Agricultural Machinery,

<i>US – Anti-Dumping and Countervailing Duties (China)</i>	L/833 - 7S/60, adopted 23 October 1958 Appellate Body Report, United States – Definitive Anti-Dumping and Countervailing Duties on Certain Products from China, WT/DS379/AB/R, adopted 25 March 2011
<i>US – Anti-Dumping and Countervailing Duties (China)</i>	Appellate Body Report, United States — Definitive Anti-Dumping and Countervailing Duties on Certain Products from China, WT/DS379/R, adopted 25 March 2011
<i>US – Carbon Steel</i>	Appellate Body Report, United States – Countervailing Duties on Certain Corrosion-Resistant Carbon Steel Flat Products from Germany, WT/DS213/AB/R, adopted 19 December 2002
<i>US – COOL(Article 21.5 – Canada and Mexico)</i>	Panel Report, United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 215 of the DSU by Canada and Mexico, WT/DS384/RW, WT/DS386/RW, adopted 29 May 2015
<i>US – Countervailing and Anti-Dumping Measures (China)</i>	Appellate Body Report, United States – Countervailing and Anti-Dumping Measures on Certain Products from China, WT/DS449/AB/R, adopted 22 July 2014
<i>US – Countervailing Duty Investigation on DRAMs</i>	Appellate Body Report, United States – Countervailing Duty Investigation on Dynamic Random Access Memory Semiconductors (DRAMs) from Korea, WT/DS296/AB/R, adopted 20 July 2005
<i>US – Countervailing Measures (China)</i>	Panel Report, United States – Countervailing Duty Measures on Certain Products from China, WT/DS437/R, adopted 16 January 2015
<i>US – Export Restraints</i>	Panel Report, United States - Measures Treating Export Restraints as Subsidies, WT/DS194/R, adopted 23 August 2001
<i>US – Gasoline</i>	Appellate Body Report, United States – Standards for Reformulated and Conventional Gasoline, WT/DS2/AB/R, adopted 20 May 1996
<i>US – Countervailing Measures on Certain EC Products</i>	Appellate Body Report, United States – Countervailing Measures Concerning Certain Products from the European Communities, WT/DS212/AB/R, adopted on 8 January 2003
<i>US – FSC (Article 21.5)</i>	Appellate Body Report, United States – Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the

<i>US – FSC</i>	European Communities, WT/DS108/AB/RW, Adopted on 29 January 2002 Appellate Body Report, United States – Tax Treatment for ‘Foreign Sales Corporations’, WT/DS108/AB/R, adopted 20 March 2000
<i>US – Large Civil Aircraft (2nd complaint)</i>	Appellate Body Report, United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint), WT/DS353/AB/R, adopted 23 March 2012
<i>US – Large Civil Aircraft (2nd complaint)</i>	Panel Report, United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint), WT/DS353/R, adopted 23 March 2012
<i>US – Lead and Bismuth II</i>	Appellate Body Report, United States – Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the United Kingdom, WT/DS138/AB/R, adopted on 07 June 2000
<i>US – Tuna I</i>	GATT Panel Report, United States – Restrictions on Imports of Tuna, DS21/R - 39S/155, circulated 3 September 1991 (not adopted)
<i>US-Tuna II</i>	GATT Panel Report, United States – Restrictions on Imports of Tuna., DS29/R, circulated 16 June 1994 (not adopted)
<i>US – Shrimp (Article 21.5)</i>	Panel Report, United States – Import Prohibition of Certain Shrimp and Shrimp Products, Recourse to Article 21.5 of the DSU by Malaysia, WT/DS58/RW, adopted 21 November 2001
<i>US – Shrimp</i>	Appellate Body Report, United States – Import Prohibition of Certain Shrimp and Shrimp Products, WT/DSS8/AB/R, adopted 6 November 1998
<i>US – Softwood Lumber IV (Article 21.5)</i>	Appellate Body Report, United States – Final Countervailing Duty Determination With Respect to Certain Softwood Lumber from Canada, Recourse by Canada to Article 21.5 of the DSU WT/DS257/AB/R, adopted 20 December 2005
<i>US – Softwood Lumber IV</i>	Appellate Body Report, United States - Final Countervailing Duty Determination With Respect To Certain Softwood Lumber from Canada, WT/DS257/AB/R, adopted 17 February 2004

<i>US – Supercalendered Paper</i>	Panel Report, United States – Countervailing Measures on Supercalendered Paper from Canada, WT/DS505/R, circulated 5 July 2018
<i>US – Superfund</i>	GATT Panel Report, United States – Taxes on Petroleum And Certain Imported Substances, L/6175 - 34S/136) adopted 17 June 1987
<i>US – Tax Incentives</i>	Appellate Body Report, United States — Conditional Tax Incentives for Large Civil Aircraft, WT/DS487/AB/R, adopted 22 September 2017
<i>US – Upland Cotton (Article 21.5)</i>	Appellate Body Report, United States – Subsidies on Upland Cotton, Recourse to Article 21.5 of the DSU by Brazil, WT/DS267/AB/RW, adopted 20 June 2008

List of Acronyms

APEC	Asia-Pacific Economic Cooperation
CTE	Committee on Trade and Environment
CCS	Carbon Capture and Storage
DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding
EC	European Communities
ECJ	European Court of Justice
EU	European Union
EST	Emission Trading Scheme
FFFSR	Friends of Fossil Fuel Subsidy Reform
FIT	Fid-in Tariff
G7	Group of Seven
G20	Group of Twenty
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GSI	Global Subsidies Initiative
ICTSD	International Centre for Trade and Sustainable Development
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	International Panel on Climate Change
IRENA	International Renewable Energy Agency
LCRs	Local Content Requirements
MDGs	Multilateral Development Goals
NDCs	Nationally Determined Contributions
OECD	Organization for Economic Cooperation and Development

OPEC	Organization of Petroleum Exporting Countries
PPM	Process and Production Method
RPS	Renewable Portfolio Standard
SCM	Subsidies and Countervailing Measures
SDGs	Sustainable Development Goals
TPRM	Trade Policy Review Mechanism
TREMs	Trade-Related Environmental Measures
TRIMs	Trade-Related Investment Measures
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
WTO	World Trade Organization

Chapter One

Energy Subsidies at the Intersection of Trade, Energy and the Environment

1.1 Towards Sustainable Energy Transition: The Setting

Energy is critical for virtually every realm of human activity. It is deeply embedded in each of the economic, social and environmental dimensions of human development.¹ The unprecedented economic growth that the world experienced since the industrial revolution has largely been made possible by the abundance of cheap energy in the form of fossil fuels - first coal and then oil and natural gas.² These carbon-intensive fuels have been used for about two centuries as the main sources of energy due in part to their high energy density and ease of transportation. Three fossil fuel energy sources - coal, oil and natural gas - currently account for over 80 percent of the world energy supply (see *figure 1.1* below). However, their continued dominance in the global energy mix has given rise to two major global concerns: climate change and energy security.

Climate change is by far the most pressing concern associated with the overreliance on fossil fuels. The Intergovernmental Panel on Climate Change (IPCC) has concluded that the warming of the climate system is unequivocal.³ The global average temperature has increased by about 0.85 °C during the period 1880 to 2012.⁴ This is in large part due to the exponential increase in the atmospheric concentration of greenhouse gases. Continued greenhouse gas emissions will cause further warming and increase the likelihood of severe, pervasive and irreversible impacts

¹ IEA, *World Energy Outlook 2004* (International Energy Agency 2004), at 330. This sentiment is also expressed by the Court of Justice of the European Union (CJEU) discussing petroleum in the *Campus Oil* case:

‘Petroleum products, because of their exceptional importance as an energy source in the modern economy, are of fundamental importance for a country’s existence since not only its economy but even more its institutions, its essential public services and even the survival of its inhabitants depend upon them’. See Case 72/83, *Campus Oil Limited and Others v Minister for Industry and Energy and Others* [1984] ECR 2727, para 7.

² See Vaclav Smil, *Energy in World History* (Westview Press 1994); Charles Hall and Kent Klitgaard, *Energy and the Wealth of Nations: Understanding the Biophysical Economy* (Springer 2011).

³ IPCC, *Climate Change 2014: Synthesis Report: Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. (Intergovernmental Panel on Climate Change 2014) at 37, The Intergovernmental Panel on Climate Change (IPCC) is the world’s leading international body for the assessment of climate change. It was established in 1988 under the auspices of the UN to provide the world with a clear scientific view on the current state of the knowledge in climate change and its potential environmental and socio-economic impacts. The IPCC reports provide the most comprehensive and authoritative scientific assessment of climate change and its potential impacts.

⁴ IPCC (n 3).

for people and ecosystems.⁵ There is now clear global consensus that mitigating these risks requires substantial and sustained reductions in greenhouse gas emissions. The concretization of this consensus was the adoption of the Paris Agreement to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015.⁶ Over 150 countries have ratified the Paris Agreement, affirming their commitment to reduce greenhouse gas emissions to a level that would keep the increase in global average temperature well below 2 degrees and to strive for a limit of 1.5 degrees above pre-industrial levels.⁷ Achieving these targets will require the fundamental restructuring of the global energy system, which is the largest contributor to global greenhouse gas emissions.⁸ Since fossil fuel combustion accounts for over 90 percent of these emissions, meeting the internationally agreed goal of limiting global average temperature increase to no more than 2 °C requires the vast majority of proven fossil fuel reserves to remain in the ground. In a recent study, McGlade and Ekins found that ‘a third of oil reserves, half of gas reserves and over 80 percent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2 °C’.⁹ Similarly, the International Energy Agency (IEA) found that ‘no more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2 °C goal’.¹⁰ In recognition of this, many countries have now embarked on a transition away from fossil fuels and to renewable energy.

Energy security, which rose to prominence in the wake of the oil price crises of the 1970s, is another major global concern associated with the heavy reliance on fossil fuels.¹¹ Factors such as

⁵ The fifth IPCC assessment reports reveal that some of the severe effects of climate change have already been observed, including sea level rise, more intense hurricanes, flooding, drought, and heat waves. See *ibid.*

⁶ See Paris Agreement to the United Nations Framework Convention on Climate Change (adopted 12 December 2015, entered into force 4 November 2016) FCCC/CP/2015/L.9 (Paris Agreement).

⁷ *ibid.*, Article 2.a.

⁸ Greenhouse gas emissions from the energy sector represent roughly two-thirds of all anthropogenic greenhouse gas emissions. See IEA, *Energy and Climate Change: World Energy Outlook Special Report* (International Energy Agency 2015); see also Thomas Bruckner and others, ‘Energy Systems’ in IPCC (ed), *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2014).

⁹ Christophe McGlade and Paul Ekins, ‘The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2 °C’ (2015) 517 *Nature* 187.

¹⁰ See IEA, *World Energy Outlook 2012* (International Energy Agency 2012), at 25.

¹¹ Energy security is a complex and multifaceted concept that has different meanings depending on the context. While there is no commonly accepted definition of what constitutes ‘energy security’, the following two definitions appear to capture the broad essence of the term. The IPCC defines energy security as: “ensuring long-term security of energy supply at reasonable prices to support the domestic economy”. See Bert Metz and others (eds), *Climate*

the finite nature of fossil fuel reserves and their eventual depletion,¹² oil price fluctuations, the uneven distribution of fossil fuel resources around the world and geopolitical tensions in oil-producing countries are the key driving forces behind concerns about the future security of energy supplies. The recent dramatic increase in global energy demand (driven mainly by the sharp rise in world population and economic growth in emerging economies such as China and India) has accentuated these concerns. Over the last few decades, these concerns have resulted in a global quest for alternative and sustainable sources of energy.

The intertwined concerns of energy security and climate change have heightened the need for a transition away from fossil fuel dependence. As the IEA has pointed out:

The world's energy system is at a crossroads. Current global trends in energy supply and consumption are patently unsustainable – environmentally, economically and socially. But that can – and must – be altered; there is still time to change the road we are on. It is not an exaggeration to claim that the future of human prosperity depends on how successfully we tackle the two central energy challenges facing us today: securing the supply of reliable and affordable energy; and effecting a rapid transformation to a low-carbon, efficient and environmentally benign system of energy supply. What is needed is nothing short of an energy revolution.¹³

Renewable energy sources and energy efficiency are fundamental to achieving such an energy revolution.¹⁴ Renewable energy sources are those that can be ‘obtained from the continuing or repetitive flows of energy occurring in the natural environment and includes resources such as biomass, solar energy, geothermal heat, hydropower, tide and waves, ocean thermal energy and

Change 2007: Mitigation of Climate Change: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge University Press 2007) at 719. For its part, the IEA defines energy security as: ‘the uninterrupted availability of energy at an affordable price’. See IEA, *World Energy Outlook 2014* (International Energy Agency 2014) at 413.

¹² The speed at which it will occur is subject to debate, but the eventual depletion of fossil fuel reserves is widely agreed. The concept of energy resource depletion was first introduced in 1956 by Marion Hubbert who correctly predicted that oil production from the lower 48 American States would peak around 1969. See Vaclav Smil, *Energy at the Crossroads: Global Perspectives and Uncertainties* (MIT Press 2003).

¹³ See IEA, *World Energy Outlook 2008* (International Energy Agency 2008), at 37.

¹⁴ See Bruckner and others (n 8); Ottmar Edenhofer and others (eds), *Renewable Energy Sources and Climate Change Mitigation: Special Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2012); IEA, *World Energy Outlook 2014* (n 11); Joseph P Tomain, ‘Our Generation’s Sputnik Moment: Regulating Energy Innovation’ (2011) 31 *Utah Environmental Law Review* 389 (noting that ‘The intertwined needs to provide sufficient energy, environmental protection, and a vibrant economy in a more secure world will depend, to a significant extent, on technological innovations in the clean energy sector of our economy’).

wind energy’.¹⁵ In contrast to fossil fuels, they produce little, if any, greenhouse gas emissions. They are also inexhaustible and more widely available than fossil fuels. Because of these and many other features, many now see renewable energy sources as having enormous potential to respond to multiple sustainability challenges, ranging from climate change and energy security to energy poverty and economic growth. The earliest case of such recognition at the international level dates back at least to the 1987 Report of the World Commission on Environment and Development – the Brundtland Report’, which referred to renewable energy sources as ‘the untapped potential’ which ‘should form the foundation of the global energy structure during the 21st Century’.¹⁶ At the first International Renewable Energy Conference of June 2004, ministers and government representatives from 154 countries echoed this recognition:

Renewable energies [...] can significantly *contribute to sustainable development*, to providing access to energy, especially for the poor, to mitigating greenhouse gas emissions, reducing harmful air pollutants, thereby creating new economic opportunities, and enhancing energy security through cooperation and collaboration.¹⁷

There is now broad consensus on the role of renewables in tackling climate change and ensuring the security of energy supply. As the European Renewable Energy Council (EREC) pointed out, [a]s links between energy use and global environmental problems such as climate change are widely acknowledged, reliance on renewable energy is not only possible, desirable and necessary, it is an imperative’.¹⁸ The prevailing view within the scientific and policy community holds that the transition of the global energy system from one relying heavily on fossil fuels to one depending mainly on renewable energy sources is both technically and economically feasible.¹⁹

¹⁵ Edenhofer and others (n 14), at 178. Similarly, Art III of the Statute of the International Renewable Energy Agency (adopted 26 January 2009, entered into force 8 July 2010) 2700 UNTS 45 (IRENA Statute) defines ‘renewable energy’ as ‘all forms of energy produced from renewable sources in a sustainable manner, which include, inter alia: bioenergy; geothermal energy; hydropower; ocean energy; solar energy; and wind energy’.

¹⁶ The ‘Brundtland Report’ was named after the Commission’s chairman Gro Harlem Brundtland. See UNGA, ‘Report of the World Commission on Environment and Development: Our Common Future (4 December 1987) UN Doc. A/42/427, Annex (Brundtland Report)’ (UN General Assembly), Chap 0, para 62 & Chap 7, para 88.

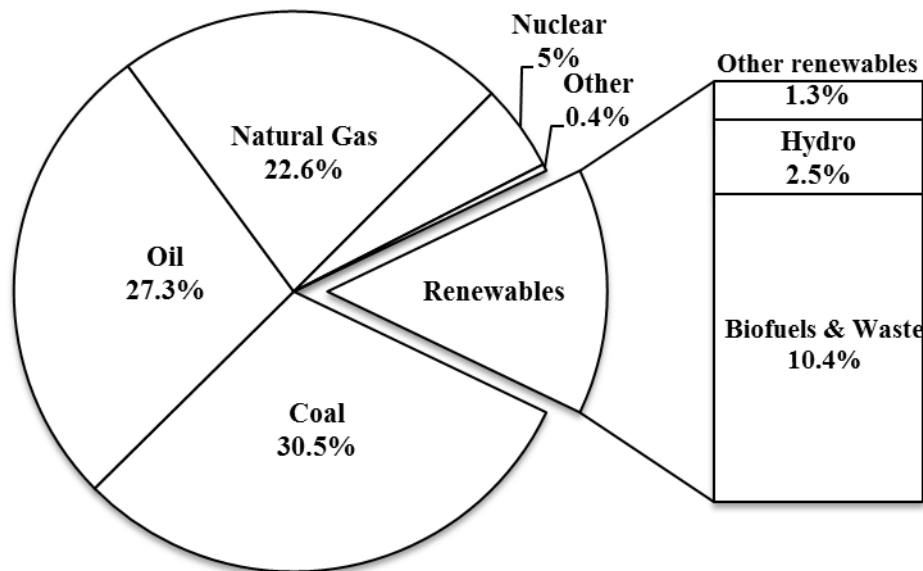
¹⁷ ‘Political Declaration’ (International Conference for Renewable Energies, Bonn, Germany, 1- 4 June 2004). The IPCC has also recognized that: ‘Renewable energy sources can contribute to social and economic development, to energy access, to a secure and sustainable energy supply, and to a reduction of negative impacts of energy provision on the environment and human health’. See Edenhofer and others (n 14), at i; see also Bruckner and others (n 8).

¹⁸ EREC, *Renewable Energy in Europe: Markets, Trends and Technologies* (2nd edn, Earthscan 2010), at 3.

¹⁹ The IPCC projected in 2011 that renewable energy sources could supply 77 percent of global electricity by 2050. Manfred Fischedick and others, ‘Mitigation Potential and Costs’ in Ottmar Edenhofer and others (eds), *Renewable*

This transition is now underway, but not at a sufficient pace to avoid catastrophic climate change.²⁰ Despite the sharp increase in renewable energy deployment over the last decade, the share of renewable energy sources in the global energy mix is still relatively small.

Figure 1.1: The Global Energy Mix in 2013



Source: IEA (2015)

The history of previous energy transitions – from wood to coal and from coal to oil and natural gas – suggests that energy transition is a lengthy process that will take several decades to unfold.²¹ However, the nature and urgency of the climate change and energy security concerns

energy sources and climate change mitigation: special report of the Intergovernmental Panel on Climate Change (Cambridge University Press 2012), at 803; see also Mark Z Jacobson and Mark A Delucchi, ‘Providing All Global Energy with Wind, Water, and Solar Power, Part I: Technologies, Energy Resources, Quantities and Areas of Infrastructure, and Materials’ (2011) 39 *Energy Policy* 1154.

²⁰ See IEA, *World Energy Outlook 2015* (International Energy Agency 2015), at 27-28. See also IEA, *Tracking Clean Energy Progress 2015: Energy Technology Perspectives 2015 Excerpt IEA Input to the Clean Energy Ministerial* (International Energy Agency 2015).

²¹ See Vaclav Smil, *Energy Transitions: History, Requirements, Prospects* (Praeger 2010); Benjamin K Sovacool, ‘How Long Will It Take? Conceptualizing the Temporal Dynamics of Energy Transitions’ (2016) 13 *Energy Research & Social Science* 202; Igor Bashmakov, ‘Three Laws of Energy Transitions’ (2007) 35 *Energy Policy* 3583; Barry D Solomon and Karthik Krishna, ‘The Coming Sustainable Energy Transition: History, Strategies, and Outlook’ (2011) 39 *Energy Policy* 7422; Roger Fouquet and Peter Pearson, ‘Past and Prospective Energy Transitions: Insights from History’ (2012) 50 *Energy Policy* 1; Robert C Allen, ‘Backward into the Future: The Shift to Coal and Implications for the next Energy Transition’ (2012) 50 *Energy Policy* 17.

means that the world no longer has the luxury of decades to wait for the transition to unfold at its own pace. The world needs to accelerate the transition if it is to avert the threat of dangerous climate change. This will require massive investment in renewable energy. According to the International Renewable Energy Agency (IRENA), investment in renewable energy would need to more than triple from current levels (US\$270 billion in 2014) to reach an annual average of US\$900 billion between 2021 and 2030.²² The bulk of this investment has to come from the private sector, but it is up to governments to create an appropriate enabling environment for such investment to occur. This point is well recognized both in the academic and policy literature.²³ In its *World Energy Outlook 2009*, the IEA has stated that:

Governments hold the key to changing the mix of energy investment. The policy and regulatory frameworks established at national and international levels will determine whether investment and consumption decisions are steered towards low carbon options.²⁴

This passage underscores the fact that the key to catalyse renewable energy investment lies in the ability of governments to design and implement clear and predictable policy frameworks.²⁵

²² See IRENA, 'Rethinking Energy: Renewable Energy and Climate Change' (International Renewable Energy Agency 2015), at 17. See also Thomas Johansson and others (eds), *Global Energy Assessment: Toward a Sustainable Future* (Cambridge University Press 2012) (estimating that global investment in renewable energy and energy efficiency technologies will need to increase to between USD\$1.7- USD\$2.2 trillion per year over the coming decades to meet the combined challenges of energy security and climate change).

²³ See, e.g., Edenhofer and others (n 14) (emphasizing that investors would need clear and stable framing regulatory conditions as well as well-developed capital insurance and future markets to diversify investment risks), at 872; Anthony Giddens, *The Politics of Climate Change* (John Wiley & Sons 2013); UNEP, 'Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication' (United Nations Environmental Program 2011); Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge University Press 2007) (noting in particular: 'Effective action on the scale required to tackle climate change requires a widespread shift to new or improved technology in key sectors such as power generation, transport and energy use [...] The private sector plays the major role [...] But closer collaboration between government and industry will further stimulate the development of a broad portfolio of low carbon technologies and reduce costs'.), at 347; Ludivine Tamiotti and others (eds), *Trade and Climate Change: WTO-UNEP Report* (World Trade Organization 2009).

²⁴ See IEA, *World Energy Outlook 2009* (International Energy Agency 2009), at 41. The IEA, *Climate Policy Uncertainty and Investment Risk* (International Energy Agency 2007) further elaborated that: 'Getting the right type of investment in infrastructure for energy supply and consumption is a minimum requirement to enable the transition towards a sustainable energy system. One of the key tasks of climate change policymakers is therefore to create incentives to encourage the necessary investments to be undertaken', at 19'. In a similar vein, Tamiotti and others (n 23) noted that: 'Although the private sector plays the major role in the development and diffusion of new technologies, it is generally considered that a closer collaboration between government and industry would stimulate the development of a broad range of low-carbon technologies at more affordable prices', at 110.

²⁵ OECD, *Policy Guidance for Investment in Clean Energy Infrastructure: Expanding Access to Clean Energy for Green Growth and Development* (OECD Publishing 2015); see also OECD, *Overcoming Barriers to International Investment in Clean Energy* (OECD Publishing 2015); Catherine Mitchell and others, 'Policy, Financing and

Decades of public investment in their infrastructure, pervasive subsidies and failure to put a price on carbon have tilted the energy playing field in favour of fossil fuels. The presence of ‘several obstacles resulting from market and government failures [...] still hamper investment in renewable energy’.²⁶ Without the right policy environment, private sector investment in the energy sector would continue to flow towards the fossil fuel industry.

Creating an enabling environment for renewable energy investment requires putting into place fiscal and regulatory measures that correct market failures and level the playing field between fossil fuel and renewable energy sources.²⁷ Putting a price on carbon (in the form of carbon taxes or emission trading schemes) is the standard economic policy prescription to level the playing field and induce investment in renewable energy technologies.²⁸ However, whilst some countries have imposed carbon taxes and/or established emission-trading schemes, most countries remain reluctant to follow suit due to political economy considerations.²⁹ Even in countries with carbon taxes or emission trading schemes, carbon prices are much lower than necessary to enable the shift away from fossil fuel dependency.³⁰ In the absence of strong carbon prices and in the face of growing climate change and energy security concerns, alternative climate policy instruments have gained increased prominence over the last decade or so. The most prominent of these are subsidies for the development and deployment of renewable energy technologies.

Implementation’ in Ottmar Edenhofer and others (eds), *Renewable energy sources and climate change mitigation: special report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2012).

²⁶ See OECD, *Policy Guidance for Investment in Clean Energy Infrastructure* (n 25), at 7.

²⁷ See *ibid*; OECD, *Overcoming Barriers to International Investment in Clean Energy* (n 25); Stern (n 23).

²⁸ Pricing carbon is commonly viewed as one of the most efficient ways to mitigate climate change. See Stern (n 23); Robert Stavins, ‘Policy Instruments for Climate Change: How Can National Governments Address a Global Problem?’ (1997) 6 *University of Chicago Legal Forum* 293; Gilbert E Metcalf and David Weisbach, ‘The Design of Carbon Tax’ (2009) 33 *Harvard Environmental Law Review* 499.

²⁹ According to the latest World Bank report on carbon pricing, 40 national and over 20 sub-national jurisdictions have adopted carbon taxes or emission trading schemes, covering about 13 percent of global greenhouse gas emissions. It is also worth noting that 31 of the 40 national jurisdictions with carbon pricing instruments are covered by the European Emission Trading System (EU ETS), which operates in the 28 EU Member States as well as in Iceland, Liechtenstein and Norway. See World Bank, *State and Trends of Carbon Pricing 2016* (The World Bank 2016); Even in these countries, the actual price of carbon falls far short of what economists consider to be the Social Cost of Carbon (SCC). The SCC is the monetary value of ‘the total damage from now into the indefinite future of emitting an extra unit of [greenhouse gases] now’. See Stern (n 23).

³⁰ See Edenhofer and others (n 14) citing; Stern (n 23); Richard SJ Tol, ‘The Economic Effects of Climate Change’ (2009) 23 *The Journal of Economic Perspectives* 29.

Governments worldwide have adopted a range of policies and incentives, mandating and supporting the increased use of renewable energy sources. According to the Renewable Energy Policy Network for the 21st Century (REN21), at least 173 countries have adopted concrete renewable energy targets by the end of 2015.³¹ Most of these countries have adopted renewable energy support measures to achieve these targets (see *section 2.4.1*).

However, renewable energy subsidies represent only a fraction of government support measures to the energy sector. The IEA estimated total renewable energy subsidies to be US\$135 billion in 2014, as compared to the US\$493 billion governments around the world spent on fossil fuel consumption subsidies alone.³² The difference between renewable energy and fossil fuel subsidy estimates becomes even more striking when production subsidies and the negative externalities associated with fossil-fuel consumption are taken into account. By accounting for the negative externalities from fossil fuel consumption (e.g., emissions, air pollution, and road congestion), the International Monetary Fund (IMF) recently estimated global fossil fuel subsidies to run close to US\$5.3 trillion in 2015.³³ The growing recognition about their pervasiveness and adverse environmental effects has brought attention to the removal of fossil fuel subsidies as an environmental policy instrument (see *section 1.2.2*). The last few years have witnessed increased calls for and efforts to phase out fossil fuel subsidies in multiple international fora.

The subsidization of renewable energy and the phasing out of fossil fuel subsidies (herein after energy-transition subsidy policies) have now become an essential part of the policy toolkit to help promote the transition towards a sustainable energy future.³⁴ However, while the much larger and

³¹ See REN21, *Renewables 2016 Global Status Report* (Renewable Energy Policy Network for the 21 Century 2016), at 20. REN21 is widely considered as ‘the only source that tracks renewable energy policies annually on a global and comprehensive basis’. Edenhofer and others (n 14). According to the International Renewable Energy Agency, 164 countries around the world have adopted at least one type of renewable energy target as of mid-2015. IRENA, ‘Renewable Energy Target Setting’ (International Renewable Energy Agency 2015).

³² See IEA, *World Energy Outlook 2015* (n 20), at 96.

³³ See David Coady and others, ‘How Large Are Global Energy Subsidies?’ (International Monetary Fund 2015) IMF Working Paper WP/15/105.

³⁴ The IPCC has recognized both renewable energy subsidies and fossil fuel subsidy removal as sectoral policy instruments to tackle climate change. See IPCC, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2014), (Table TS.9); see also Thomas Sterner and Jessica Coria, *Policy Instruments for Environmental and Natural Resource Management* (2nd ed, RFF Press 2012) (noting that ‘perverse subsidies are so common that “subsidy removal” is often classified as an environmental policy instrument in itself’), at 110.

environmentally harmful fossil fuel subsidies remain unchallenged, renewable energy subsidies have recently sparked a spate of legal challenges in the World Trade Organization (WTO) (see *table 1.1*).³⁵ The upsurge in trade disputes over renewable energy subsidies has not only rekindled the decades-long debate on the interface between climate change policies and international trade rules, but it is also shifting the traditional focus of the debate from environmentally motivated trade restrictions towards the so-called “unfair trade practices” (i.e. subsidies and dumping).³⁶ At the heart of this debate is the question whether current WTO rules on subsidies support or undermine efforts to mitigate climate change. This question has become more pressing with the adoption of the Paris Agreement and the fact that the ambitious targets thereof are to be achieved through nationally determined contributions (NDCs).³⁷ Now that climate change mitigation is firmly founded on national action and given the unique role of the energy sector both as the primary cause of climate change and as the primary means of mitigation, the regulation of energy subsidies in the multilateral trading system is likely to play an even more important role.

Table 1.1: WTO Disputes Involving Energy Subsidies (as of 31 December 2018)

Dispute number	Dispute title	Energy source	Request for consultation	Current status
DS563	<i>United States — Certain Measures Related to Renewable Energy</i>	Renewable Energy	14 August 2018	In consultation

³⁵ The past few years have also witnessed a sharp increase in the use of countervailing duties against renewable energy subsidies in the major renewable energy producing countries, such as the European Union, the United States, China, and India. For the list of countervailing duty actions against renewable energy subsidies, see UNCTAD, *Trade Remedies: Targeting the Renewable Energy Sector* (United Nations Publication 2014).

³⁶ As will be discussed at large in Section 1.3, the traditional focus of the trade and environment debate was largely influenced by early environment-related GATT/WTO disputes such as US-Tuna and US-Shrimp. The recent shift in the focus of the trade and environment debate is also observed by Mark Wu and James Salzman, ‘The Next Generation of Trade and Environmental Conflicts: The Rise of Green Industrial Policy’ (2014) 108 *Northwestern University Law Review* 401; Kati Kulovesi, ‘International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law: International Trade Disputes on Renewable Energy’ (2014) 23 *Review of European, Comparative & International Environmental Law* 342; Sadeq Bigdeli, ‘Clash of Rationalities: Revisiting The Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy’ (2014) 6 *Trade, Law and Development* 177.

³⁷ NDCs are individual parties’ targets and action plans for climate change mitigation and adaptation. The Paris Agreement requires each Party to prepare, communicate, maintain and update (every five years starting in 2023) NDCs that it intends to achieve. See Paris Agreement arts.3&4, Articles 4 (2) (9) and 14(2).

(Complainant: China)				
DS510	<i>United States — Certain Measures Relating to the Renewable Energy Sector</i> (Complainant: India)	Renewable Energy	9 September 2016	Panel composed (24 April 2018)
DS459	<i>European Union – Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry</i> (Complainant: Argentina)	Renewable energy	15 May 2013	In consultation
DS456	India – Certain Measures Relating to Solar Cells and Solar Modules (Complainant: United States)	Renewable energy	6 February 2013	Appellate Body Report adopted (14 October 2016)
DS452	<i>European Union and Certain Member States – Certain Measures Affecting the Renewable Energy Generation Sector</i> (Complainant: China)	Renewable energy	5 November 2012	In consultation
DS437	<i>United States - Countervailing Duty Measures on Certain Products from China</i> (Complainant: China)	Renewable energy	25 May 2012	Panel and Appellate Body Report adopted (16 January 2015)
DS426	<i>Canada - Measures Relating to the Feed-in Tariff Program</i> (Complainant: European Union)	Renewable energy	11 August 2011	Panel Appellate Body Report adopted (24 May 2013)
DS419	<i>China –Measures Concerning Wind Power Equipment</i> (Complainant: United States)	Renewable energy	22 December 2010	In consultation*

DS412	<i>Canada - Certain Measures Affecting the Renewable Energy Generation Sector</i> (Complainant: Japan)	Renewable energy	13 September 2010	Panel and Appellate Body Report adopted (24 May 2013)
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*Officially in ‘consultation stage’, but China has revoked the measure unilaterally

Source: Author’s compilation from <http://www.wto.org>.

1.2 The Regulation of Energy Subsidies in the WTO: The Problem

Let me briefly elaborate on these points by referring to clean energy and fossil fuel subsidies — two issues that illustrate the growing interface between trade and energy.

– Pascal Lamy (2013)

The multilateral rules on subsidies constitute the main international legal framework for the regulation of energy subsidies. These rules are embodied in the Uruguay Round Agreement on Subsidies and Countervailing Measures (the ‘SCM Agreement’).³⁸ The SCM Agreement has been in force since the birth of the WTO in 1995, but its environmental implications have come under intense scrutiny only in the last few years. The proliferation of trade disputes and countervailing duty actions against renewable energy subsidy programs have brought the regulation of energy subsidies from obscurity to the forefront of the broader trade and environment debate.

The environmental concerns that arise from the regulation of energy subsidies in the multilateral trading system are commonly categorized along two dimensions. The first dimension represents concerns about the existence or otherwise of adequate ‘green policy space’ under the SCM Agreement.³⁹ These concerns partly stem from the lack of explicit exceptions for subsidies with

³⁸ Agreement on Subsidies and Countervailing Measures, Annex 1A to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1869 UNTS 14 (SCM Agreement). Subsidy rules are also contained in: General Agreement on Tariffs and Trade 1994 (adopted 15 April 1994, entered into force 1 January 1995) Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 UNTS 190 (GATT 1994); Agreement on Agriculture, Annex 1A to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1867 UNTS 410 (Agreement on Agriculture); General Agreement on Trade in Services, Annex 1B to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1869 UNTS 183 (GATS).

³⁹ The expression ‘green policy space’ is often associated with Gary Clyde Hufbauer, Steve Charnovitz and Jisun Kim, *Global Warming and the World Trading System* (Peterson Institute 2009). Hufbauer et al. define ‘green policy space’ as ‘a policy space for climate measures that are imposed in a manner broadly consistent with core World Trade Organization (WTO) principles even if a technical violation of WTO law could occur’. We use this expression

legitimate public policy objectives. The second and often overlooked dimension represents concerns as to whether the existing subsidy rules are tight enough to discipline fossil fuel subsidies. These concerns stem from the lack of legal challenges to environmentally harmful and economically inefficient fossil fuel subsidies in the multilateral trading system.

The fossil fuel and renewable energy subsidy dimensions of the trade and environment debate on the regulation of energy subsidies are two sides of the same coin. Both the subsidization of renewable energy and the elimination of fossil fuel subsidies share the same ultimate objective – addressing the threat of catastrophic climate change. Their shared objective implies that the lack of action against fossil fuel subsidies in the multilateral trading system should cause as much concern as the proliferation of trade disputes against renewable energy subsidy schemes. However, much of the current academic and policy debate on fossil fuel subsidies takes place off the radar screen of the multilateral trading system and often in isolation from the debate on the regulation of renewable energy subsidies. This thesis aims to bring these two dimensions together and explore the key issues underlying the trade and environment debate on the regulation of energy subsidies. This allows for a comprehensive understanding of the extent to which the multilateral subsidy rules help or hinder the transition towards a sustainable energy future. Solely focusing on one of the dimensions risks overemphasizing the negative impact of multilateral subsidy rules and overlooking their potential role in enabling the energy transition. The following two subsections will provide an overview of the main issues at stake in both dimensions of the trade and environment debate on the regulation of energy subsidies.

1.2.1 The Regulation of Renewable Energy Subsidies

Ever since Japan brought the first of such disputes against Canada in 2010, renewable energy subsidy programs have emerged as the latest battleground for the trade and environment disputes at the WTO. Nine formal trade disputes and numerous countervailing duty investigations have been initiated against renewable energy subsidy programs over the last few years. In the seminal *Canada-Renewable Energy* and *Canada-FIT* cases (hereinafter jointly referred to as *Canada-*

in this thesis in the context of the SCM Agreement and the policy space therein for governments to promote the production and use of renewable energy (see the discussion in section 5.2).

Renewable Energy/FIT), Japan and the European Union claimed that the domestic content requirements of Ontario's Feed-In Tariff (FIT) scheme were inconsistent with the non-discrimination principles of the General Agreement on Tariffs and Trade (GATT) and the Agreement on Trade-related Investment Measures (TRIMS Agreement). They also challenged the FIT scheme as a 'prohibited subsidy' under the SCM Agreement. The Appellate Body upheld the finding of the Panel that the domestic content requirements were inconsistent with GATT Article III:4 and TRIMS Agreement Article 2.1.⁴⁰ The controversial part of the Appellate Body's decision was rather related to the question whether the FIT scheme constitutes a 'prohibited subsidy' under the SCM Agreement. Having agreed with the Panel that the FITs constitute a financial contribution (i.e. government purchase of goods), the Appellate Body engaged in an extended analysis of the benefit requirement and ultimately concluded that there were no sufficient factual findings on the record for it to complete the analysis.⁴¹ Its apparent attempt to avoid finding that a scheme with legitimate public policy objectives may conflict with the SCM Agreement has called attention to the availability and adequacy of 'green policy space' under the SCM Agreement.

The ensuing legal uncertainty has raised serious concerns that the SCM Agreement may constrain governments from supporting the development and deployment of renewable energy sources. Underlying these concerns is the recognition that renewable energy sources play a critical role in reducing greenhouse gas emissions and that subsidies (especially in the absence of carbon pricing) are essential to help improve the economic competitiveness of renewable energy sources vis-à-vis their conventional counterparts. These concerns also stem from the fact that subsidies are the most popular policy instruments used by governments in both developed and developing countries to advance the global transition towards a sustainable energy future. The bigger question is, therefore, not whether or not FITs qualify as a 'subsidy' under the SCM Agreement. It is whether there is adequate 'green policy space' under the SCM Agreement for environmentally motivated subsidies. Is the SCM Agreement flexible enough to accommodate environmental objectives?

⁴⁰ *Appellate Body Reports, Canada – Certain Measures Affecting the Renewable Energy Generation Sector (Canada-Renewable Energy)/ Canada - Measures Relating to the Feed-in Tariff Program (Canada- Feed-In Tariff Program), WT/DS412/AB/R, WT/DS426/AB/R, adopted 24 May 2013, paras. 5.75-5.90.*

⁴¹ See *ibid*, para 5.128 & 5.246.

The multilateral trading system has recognized environmental concerns long before the establishment of the WTO.⁴² However, the establishment of the WTO marked a major turning point in the recognition of legitimate environmental concerns in the multilateral trading system (see *section 1.3*). The most visible aspect of this is the inclusion of sustainable development that protects and preserves the environment as an overarching goal of the WTO in the opening paragraph of the preamble to the Marrakesh Agreement establishing the WTO.⁴³ Most WTO Agreements now contain exceptions that allow WTO Members to adopt trade-restrictive measures to pursue legitimate public policy objectives such as the protection of the environment.⁴⁴ Such exceptions were also included in the SCM Agreement. Subsidies for research and development, environmental protection and regional development purposes were made immune from legal challenges under Article 8 of the SCM Agreement (hence the name ‘non-actionable’ subsidies). However, absent an agreement to extend its application as envisaged in Article 31, Article 8 was in force only for a provisional period of five years from the entry into force of the SCM Agreement. The expiry of Article 8 at the end of 1999 has left the SCM Agreement without an explicit exception for subsidies with legitimate public policy objectives.⁴⁵ This has undoubtedly disturbed the carefully negotiated balance between providing sufficient policy space for governments to deploy subsidies in pursuit of socially desirable goals while limiting the negative

⁴² Steve Charnovitz, ‘The WTO’s Environmental Progress’ (2007) 10 *Journal of International Economic Law* 685.

⁴³ Marrakesh Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1867 UNTS 154 Preamble. In the US-Shrimp case, the Appellate Body stated that the preamble ‘informs not only the GATT 1994, but also the other covered agreements’ and “explicitly acknowledges the objectives of sustainable development”. See *Appellate Body Report, United States-Import Prohibition of Certain Shrimp and Shrimp Products (US-Shrimp)*, WT/DSS8/AB/R, adopted 6 November 1998 para 129. The Compliance Panel in US-Shrimp (Article 21.5- Malaysia) has also referred to this preamble to note that ‘sustainable development is one of the objectives of the WTO Agreement’. See *Panel Report, United States – Import Prohibition of Certain Shrimp and Shrimp Products, Recourse to Article 215 of the DSU by Malaysia (US – Shrimp (Article 215))*, WT/DS58/RW, adopted 21 November 2001, para 5.54.

⁴⁴ WTO Agreements with explicit exceptions include: Article XX (b)&(g) of the GATT 1994; Article 6.1 and Annex II paras 2(a), 8(a) 12 of the Agreement on Agriculture; Article 2.2 of the Agreement on Technical Barriers to Trade, Annex 1A to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1868 UNTS 120 (TBT Agreement); Article 27.2 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1869 UNTS 299 (TRIPS); Article XIV(b) of the GATS.

⁴⁵ The premature expiry of Article 8 received scant scholarly attention until recently. In an article published few months after the filing of the Canada-Renewable Energy dispute, Sadeq Bigdeli observed that ‘[t]he story of the birth and premature lapse of the non-actionable subsidies has surprisingly been somewhat overlooked in the literature’. See Sadeq Z Bigdeli, ‘Resurrecting the Dead? The Expired Non-Actionable Subsidies and the Lingering Question of Green Space’ (2011) 8 *Manchester Journal of International Economic Law* 2, at 4.

impact of subsidies on international trade. Government support measures that qualify as a subsidy are now either ‘prohibited’ or ‘actionable’ regardless of their policy objectives (see *section 4.5.3*).

The absence of environmental exceptions under SCM Agreement and the surge in renewable energy subsidy disputes has brought the question of ‘green policy space’ to the forefront of the trade and environment debate. Two issues are at stake in this debate. One is whether the general exceptions contained in GATT Article XX apply to the SCM Agreement. The proponents of this view contend that the SCM Agreement is simply *lex specialis* to the GATT rules on subsidies (Articles VI and XVI) and thus GATT Article XX equally apply to it. Others argue that the general exceptions of GATT Article XX apply only to the GATT itself and there is no legal ground that allows for their application to the SCM Agreement (see *section 5.3.1.3.3*).

The second and broader issue concerns the need for reforming or ‘greening’ the SCM Agreement. Some commentators are of the view that there is no need for legal reform since there is adequate green policy space for governments to support the development of the renewable energy sector under the SCM Agreement.⁴⁶ The thrust of their argument is that not all government support measures constitute a ‘subsidy’ within the meaning of the SCM Agreement and it is up to governments to design their renewable energy support schemes in a manner compatible with the SCM Agreement.⁴⁷ Most others, including the author of this thesis, however, see the need for legal reform. The questionable legal status of renewable energy subsidies is detrimental to the development of the renewable energy sector.⁴⁸ Renewable energy subsidies may not be able to attract as much investment as they would if they have a high likelihood of being successfully challenged (and hence withdrawn) or face unilateral countervailing duty actions. Fear of legal

⁴⁶ This view broadly echoes the concern (of economists) that exceptions or ‘safe harbours’ aimed at promoting public goods can be abused and end up sheltering subsidies that are counterproductive to providing public goods. See Alan O Sykes, ‘The Economics of WTO Rules on Subsidies and Countervailing Measures’ (University of Chicago Law School 2003) Olin Law and Economics Working Paper No.186, at 22-23.

⁴⁷ See Rafael Leal-Arcas and Andrew Filis, ‘Renewable Energy Disputes in the World Trade Organization’ (2015) 12 Oil, Gas & Energy Law Journal 1 (‘the policy space appears to be preserved for WTO members to take measures to support environmental goals, including the promotion of renewables’), at 50.

⁴⁸ See Luca Rubini, ‘ASCM Disciplines and Recent WTO Case Law Developments: What Space for “green” Subsidies?’ in Thomas Cottier and Ilaria Espa (eds), *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge University Press 2017) 311.

challenges may also deter governments from adopting renewable energy support measures.⁴⁹ Regulatory incoherence is another compelling reason for legal reform.⁵⁰ It is incoherent to prevent governments from using subsidies in pursuit of legitimate public policy goals while allowing them to use more trade restrictive measures such as trade bans and import quotas in pursuit of the same goals (e.g. under GATT Article XX). Commentators that recognize the existence of the double standard are unanimous in their call for legal reform. The trade and environment literature on the regulation of renewable energy subsidies is now replete with reform proposals.⁵¹ These proposals range from resurrecting Article 8 of the SCM Agreement and applying GATT Article XX beyond the GATT (see the discussion in *section 6.4.2.2*) to negotiating a completely new sectoral agreement on energy (see *section 6.3*).

This thesis approaches the question of green policy space from a sustainable energy transition perspective. In the absence of an adequate green policy space, the SCM Agreement undermines the transition by depriving governments of their most prized policy instrument to advance the transition. However, the existence or otherwise of explicit environmental exceptions is not the only factor that determines whether the SCM Agreement leaves adequate green policy space for environmental subsidies. Renewable energy subsidies run the risk of being successfully challenged only to the extent that they fall within the ambit of the SCM Agreement.⁵² This means that one cannot answer the question of green policy space without also examining the extent to which subsidies that are commonly employed to promote renewable energy sources fall within the scope of the SCM Agreement. It is imperative to first examine whether there are renewable

⁴⁹ See Steve Charnovitz, 'Green Subsidies and the WTO' (World Bank 2014) WPS 7060, at 73.

⁵⁰ Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48).

⁵¹ See, e.g., Robert Howse, 'Securing Policy Space for Clean Energy under the SCM: Alternative Approaches' in ICTSD (ed), *Clean Energy and the Trade System Group Proposals and Analysis* (International Centre for Trade and Sustainable Development 2013); Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48); Aaron Cosbey and Petros Mavroidis, 'A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO' (2014) 17 *Journal of International Economic Law* 11; Thomas Cottier, 'Renewable Energy and WTO Law: More Policy Space or Enhanced Disciplines' (2014) 5 *Renewable Energy Law and Policy Review* 40; Luca Rubini, 'Ain't Wastin' Time No More: Subsidies for Renewable Energy, The SCM Agreement, Policy Space, and Law Reform' (2012) 15 *Journal of International Economic Law* 525; Bigdeli, 'The Expired Non-Actionable Subsidies and the Lingering Question of "Green Space"' (n 45); Sherzod Shadikhodjaev, 'Renewable Energy and Government Support: Time to "Green" the SCM Agreement?' (2015) 14 *World Trade Review* 479; Wu and Salzman (n 36); Gary Horlick, 'The WTO and Climate Change Incentives' in Thomas Cottier (ed), *International Trade Regulation and the Mitigation of Climate Change* (Cambridge University Press 2009); Charnovitz, 'Green Subsidies and the WTO' (n 49).

⁵² Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48).

energy support measures that may fall under the ambit of the SCM Agreement. The existence or otherwise of environmental exemptions is relevant only to the extent that renewable energy subsidies are subject to the SCM disciplines. The underlying argument here is that the coverage of the SCM Agreement could provide as much green policy space as express exemptions. The notion of green policy space also goes beyond the *de jure* policy space that arises from the coverage of the Agreement and its express exemptions. Countries may enjoy a *de facto* policy space even in the absence of a *de jure* one to the extent that the rules are not enforced (see *section 5.2*). This thesis will examine both the *de jure* and *de facto* green policy space available under the SCM Agreement for the subsidization of renewable energy production and consumption.

1.2.2 The Regulation of Fossil Fuel Subsidies

Governments worldwide subsidize the production and consumption of fossil fuels to achieve a range of policy objectives. Annual fossil fuel subsidy estimates range from US\$325 to US\$5300 billion, depending on how 'subsidies' are defined and measured (see *sections 2.2 and 2.3*).⁵³ These subsidies come either in the form of consumption subsidies that lower the price paid by energy consumers or in the form of production subsidies that lower the cost of fossil fuel production or raise the price received by fossil fuel producers (see *section 2.4.2*).⁵⁴

Governments usually justify fossil fuel subsidies with the argument that they alleviate energy poverty and promote economic growth by enabling access to affordable modern energy services.⁵⁵ Fossil fuel consumption subsidies are, for example, considered to benefit the poor directly (by lowering prices for the energy they use (e.g. cooking, heating or lighting)) and

⁵³ What constitutes a 'subsidy' is an issue that will be discussed in great detail in Chapter 2, but it is worth noting at this juncture that the scope of government support measures that are included in some fossil fuel subsidy estimates is considerably broader than the legal definition of a 'subsidy' under the SCM Agreement. See, Coady and others (n 33); IEA, *World Energy Outlook 2016* (International Energy Agency 2016).

⁵⁴ See, e.g., Elizabeth Bast and others, 'Empty Promises G20 Subsidies to Oil, Gas and Coal Production' (Overseas Development Institute & Oil Change International 2015); Cynthia Lin and others, 'Mapping the Characteristics of Producer Subsidies: A Review of Pilot Country Studies' in Doug N Koplow and Chris Charles (eds), *Untold Billions: Fossil-Fuel Subsidies, Their Impacts and The Path To Reform* (International Institute for Sustainable Development 2010).

⁵⁵ IEA and others, 'Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative' (IEA, OPEC, OECD & World Bank 2010) Joint Report Prepared for submission to the G-20 Summit Meeting in Toronto (Canada), 26-27 June 2010, at 4.

indirectly (by lowering prices for other goods and services that use energy as an input).⁵⁶ Empirical studies, however, indicate that fossil fuel subsidies are often poorly targeted and disproportionately benefit wealthy households (those who consume the most energy). The IMF, for example, estimated that the richest 20 percent of households in low- and middle-income countries receive 43 percent of total fossil fuel consumption subsidies, while the poorest 20 percent receives only 7 percent.⁵⁷ Contrary to their stated policy objectives, fossil fuel subsidies drain public funds away from pro-poor public services such as education and healthcare, encourage the over-extraction and wasteful consumption of carbon-intensive fuels, and undermine the economic competitiveness of renewable energy sources by artificially lowering fossil fuel prices (see the discussion in *section 3.2.2*). The continued subsidization of fossil fuels will lock the world into decades of fossil fuel dependency and unsustainability.

The literature on energy subsidies has long established the economic and environmental benefits of reforming fossil fuel subsidies. In one of the earliest studies on the subject, the World Bank estimated that the elimination of fossil fuel subsidies could reduce global greenhouse gas emissions by 9 percent and leads to a global welfare gain of more than US\$33 billion.⁵⁸ This has been replicated fairly consistently in subsequent studies.⁵⁹ The IEA estimated in 2013 that the partial phasing out of fossil fuel consumption subsidies alone would contribute 12 percent of the

⁵⁶ Andreas Bauer and others, 'Macroeconomic, Environmental, and Social Implications' in Benedict Clements and others (eds), *Energy subsidy reform: lessons and implications* (International Monetary Fund 2013), at 19.

⁵⁷ See *ibid*, at 19-21. See also Javier Arze Del Granado, David Coady and Robert Gillingham, 'The Unequal Benefits of Fuel Subsidies: A Review of Evidence for Developing Countries' (International Monetary Fund 2010) IMF Working Paper (and the citation therein); World Bank, *Climate Change and the World Bank Group: Phase I: An Evaluation of World Bank Win-Win Energy Policy Reforms* (The World Bank 2009).

⁵⁸ See Bjorn Larsen and Anwar Shah, 'World Fossil Fuel Subsidies and Global Carbon Emissions' (World Bank 1992) World Bank Policy Research Working Paper WPS 1002, at 1. For early literature on the adverse economic and environmental impacts of fossil fuel subsidies, see Mark Nicholas Kosmo, *Money to Burn?: The High Costs of Energy Subsidies* (World Resources Institute 1987); Bjorn Larsen, 'World Fossil Fuel Subsidies and Global Carbon Emissions in a Model with Interfuel Substitution' (The World Bank 1994) WPS1256; Lawrence H Summers, 'The Case for Corrective Taxation' (1991) 44 *National Tax Journal* 289; Mathew Saunders and Karen Schneider, 'Removing Energy Subsidies in Developing and Transition Economies', *ABARE Conference Paper* (2001).

⁵⁹ See, e.g., Laura Merrill and others, *Tackling Fossil Fuel Subsidies and Climate Change* (Nordic Council of Ministers 2015); Coady and others (n 33); Bauer and others (n 56); Jennifer Ellis, 'The Effects of Fossil-Fuel Subsidy Reform: A Review of Modeling and Empirical Studies' in Global Subsidies Initiative (ed), *Untold Billions: Fossil Fuel Subsidies: Their Impacts and the Path to Reform* (International Institute for Sustainable Development 2010); Valeria Jana Schwanitz and others, 'Long-Term Climate Policy Implications of Phasing out Fossil Fuel Subsidies' (2014) 67 *Energy Policy* 882; Jean-Marc Burniaux and Jean Chateau, 'Greenhouse Gases Mitigation Potential and Economic Efficiency of Phasing-out Fossil Fuel Subsidies' (2014) 140 *International Economics* 71.

overall greenhouse-gas emission reduction needed by 2020 to keep the door open to achieving the 2 °C climate target.⁶⁰ The latest estimate from the IMF indicates that eliminating fossil fuel subsidies would reduce global carbon dioxide emissions by more than 20 percent and raise global economic welfare by US\$1.8 trillion.⁶¹ The ever-growing empirical evidence on the adverse economic and environmental impacts of fossil fuel subsidies (and the potential benefits of their reform) has led to widespread calls for and efforts to phase out fossil fuel subsidies.

The fossil fuel subsidy issue first emerged on the international environmental agenda in the early 1990s. Fossil fuel subsidy reform was the subject of long discussions during the Kyoto Protocol negotiations.⁶² As will be explained in detail in *section 3.3.2.2.2.2*, these discussions did not result in a specific commitment to phase out fossil fuel subsidies. But they led to the inclusion of the ‘progressive reduction or phasing out of [...] subsidies in all greenhouse gas emitting sectors’ in the Kyoto Protocol’s indicative list of greenhouse gas emissions reduction policies and measures.⁶³ As subsidies to the most greenhouse gas emitting sector, fossil fuel subsidies undoubtedly fall under this provision. However, the lack of legal obligation to implement any of the policies and measures in the indicative list meant that fossil fuel subsidy reform received much less attention than it deserves as climate change mitigation policy.

Serious international attention was given to fossil fuel subsidies only in the aftermath of the 2009 G20 Summit in Pittsburgh (see *section 3.3.2.2.3.2*). The Pittsburgh Summit produced the first intergovernmental agreement that explicitly recognized the adverse environmental impacts of fossil fuel subsidies and committed G20 countries to phase out environmentally harmful subsidies.⁶⁴ It has also prompted the proliferation of intergovernmental agreements to phase out fossil fuel subsidies. Several intergovernmental agreements have been concluded since then in multiple intergovernmental fora from the Asia Pacific Economic Cooperation (APEC) to the

⁶⁰ IEA, *Redrawing the Energy Climate Map: World Energy Outlook Special Report* (International Energy Agency 2013), at 50.

⁶¹ Coady and others (n 33), at 7.

⁶² See Joanna Depledge, ‘Tracing the Origins of the Kyoto Protocol: An Article by Article Textual History’ (United Nations Framework Convention on Climate Change 2000) Technical Paper FCCC/TP/2000/2, at 23-24.

⁶³ Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 148 (Kyoto Protocol), Article 2.1(a)(v).

⁶⁴ See G20 Leaders’ Statement: Pittsburgh Summit, 24-25 September 2009 (Pittsburgh Declaration).

United Nations (see *section 3.3.2.2*). Despite these agreements, however, fossil fuel subsidies remain prevalent worldwide. Their persistence coupled with the recent rise in legal challenges to renewable energy subsidies in the WTO has turned the spotlight on the WTO rules on subsidies and their role in the global fight against environmentally harmful fossil fuel subsidies.

Fossil fuel subsidies have never been challenged in the multilateral trading system. Much of the policy debate on reforming fossil fuel subsidies also takes place outside the multilateral trading system. Speaking at a conference organized by the Energy Charter Secretariat in 2013, the former Director General of the WTO, Pascal Lamy, lamented that:

[T]he ongoing political debate on reforming fossil fuel subsidies has largely bypassed the WTO. The surge in world energy prices in recent years has drawn high-level attention to fossil fuel subsidies, including by the G-20. The link between subsidies, consumption of energy and climate change has added a new dimension to the debate. Given that WTO members have decided to tackle the issue of environmentally harmful subsidies in the fisheries sector ... the absence of this topic from the WTO radar screen can be considered as a missed opportunity.⁶⁵

Lamy was conspicuously silent as to what kept fossil fuel subsidies off the radar screen of the multilateral trading system and how to bring them back. The multilateral trading system was one of the international forums where the fossil fuel subsidy issue was first raised. Dual pricing policies (see *section 2.4.2.1.1*) have been the subject of discussion in the multilateral trading system from as early as the 1982 GATT Ministerial Meeting.⁶⁶ Energy-importing countries have long expressed their concerns that dual pricing can create artificial competitive advantages for the energy-intensive industries of countries with dual pricing policies.⁶⁷ They have accordingly attempted to tackle dual pricing practices during the Uruguay Round negotiations and the WTO accession negotiations of energy producing and exporting countries such as Saudi Arabia and

⁶⁵ Pascal Lamy, 'Energy Policies and the WTO' (Workshop on Intergovernmental Agreements in Energy Policy, Geneva, 29 April 2013) <https://www.wto.org/english/news_e/sppl_e/sppl279_e.htm>.

⁶⁶ The 1982 GATT Ministerial Declaration requested the GATT Council 'to make arrangements for studies of dual-pricing practices and rules of origin; and [t]o consider what further action may be necessary with regard to these matters when the results of these studies are available'. See GATT, 'GATT Ministerial Declaration' (1982) L/5424, at 14.

⁶⁷ See, for example, GATT, 'Communication from the United States' (1987) TN.GNG/NG10/W/1, at 6; WTO, 'Report of the Working Party on the Accession of the Russian Federation to the World Trade Organization' (2011) WT/ACC/RUS/70, WT/MIN(11)/2, para 120; WTO, 'Report of the Working Party on the Accession of the Kingdom of Saudi Arabia to the World Trade Organization' (World Trade Organization 2005) WT/ACC/SAU/61, para 29.

Russia (these efforts are discussed in detail in *section 4.4.4.2*). Given these early efforts to address dual pricing within the multilateral trading system, it is puzzling that little meaningful action has taken place within the multilateral trading system to address fossil fuel subsidies.

The lack of concrete action against fossil fuel subsidies in the multilateral trading system is also puzzling because countries have decided to tackle environmentally harmful fisheries subsidies within the multilateral trading system.⁶⁸ The 2001 Doha Ministerial Conference mandated negotiations on fisheries subsidies ‘to clarify and improve WTO disciplines on fisheries subsidies’.⁶⁹ This mandated was elaborated by the 2005 Hong Kong Ministerial Declaration, which enjoined the negotiating group on fisheries subsidies to ‘strengthen disciplines on subsidies in the fisheries sector, including through the prohibition of certain forms of fisheries subsidies that contribute to overcapacity and overfishing’.⁷⁰ The fisheries subsidies negotiations are yet to be concluded, but the decision to tackle environmentally harmful fisheries subsidies within the multilateral trading system reflects the recognition that the multilateral trading system is an appropriate forum to address environmentally harmful subsidies. This raises the question whether fisheries subsidies are more environmentally harmful than fossil fuel subsidies.

The absence of the fossil fuel subsidy issue from the multilateral trading system is also puzzling because unlike the international organizations that are currently spearheading the global effort to phase out fossil fuel subsidies, the multilateral trading system has binding subsidy rules backed up by an effective dispute settlement system. These rules have never been invoked to challenge fossil fuel subsidies. Given the recent rise in the number of trade disputes over renewable energy subsidies, the absence of legal challenges to fossil fuel subsidies begs the question: why do countries remain reticent to challenge the much larger and environmentally harmful fossil fuel subsidies? What makes fossil fuel subsidies less vulnerable to legal challenges?

⁶⁸ See Derek J Dostal, ‘Global Fisheries Subsidies: Will the WTO Reel in Effective Regulations’ (2005) 26 *University of Pennsylvania Journal of International Law* 815.

⁶⁹ Ministerial Declaration, WT/MIN(01)/DEC/1, adopted 14 November 2001 (‘Doha Declaration’) paras 28 and 31.

⁷⁰ See Doha Work Program: Ministerial Declaration, WT/MIN(05)/DEC, adopted 18 December 2005 (‘Hong Kong Declaration’) para 9 of Annex D.

Legal challenges to fossil fuel subsidies are not yet in sight, but recent years have witnessed growing interest in the regulation of fossil fuel subsidies in the multilateral trading system. The establishment of the Friends of Fossil Fuel Subsidy Reform (FFFSR) reflects this growing interest. The FFFSR, which comprises eight WTO Members (i.e. Costa Rica, Denmark, Finland, New Zealand, Norway, Sweden, Switzerland and Uruguay) and one WTO observer (i.e. Ethiopia), was established in 2010 to advocate for fossil fuel subsidy reform.⁷¹ Led by New Zealand and Norway, the FFFSR has already raised the fossil fuel subsidy issue within the Trade and Environment Committee of the WTO.⁷² The experience of similar informal groups such as the ‘Friends of Fish’ in the multilateral trading system suggests that the establishment of such groupings serves as a catalyst for concrete action in the multilateral trading system. The starting point for any action against fossil fuel subsidies in the multilateral trading system is reflecting on the adequacy of existing multilateral rules on subsidies to discipline environmentally harmful subsidies. The existing multilateral subsidy rules were negotiated more than two decades ago with the primary goal of disciplining trade-distorting subsidies. This raises the question of the extent to which they could also discipline environmentally harmful subsidies. The fossil fuel subsidy dimension of this thesis attempts to answer this question by examining whether commonly applied forms of fossil fuel subsidies qualify as prohibited or actionable subsidies within the meaning of Articles 3 and 5 of the SCM Agreement, respectively. The thesis will further examine the prospect of legal challenges to fossil fuel subsidies and explore ways for addressing the fossil fuel subsidy issue in the multilateral trading system.

1.3 The Trade and Environment Debate on the Regulation of Energy Subsidies

The proliferation of trade disputes and countervailing duty actions against renewable energy subsidies has given fresh impetus and urgency to the trade and environment debate in the

⁷¹ It is worth mentioning that in a 2008 article entitled ‘Will the “Friends of Climate” Emerge in the WTO? The Prospect of Applying the Fisheries Subsidies Model to Energy Subsidies’, Sadeq Bigdeli discussed the importance of such groupings to bring fossil fuel subsidies into the radar screen of the WTO, drawing on how the ‘fisheries subsidies’ issue found its way to the WTO. See Sadeq Z Bigdeli, ‘Will the “Friends of Climate” Emerge in the WTO? The Prospects of Applying the “Fisheries Subsidies” Model to Energy Subsidies’ (2008) 2 Carbon and Climate Law Review 78.

⁷² See WTO, ‘Energy Efficiency and Illegal Logging at Centre of Discussions in Environment Committee’ (22 June 2015) <https://www.wto.org/english/news_e/news15_e/envir_22jun15_e.htm> accessed 15 January 2016.

multilateral trading system. It has also expanded the scope of the debate to encompass trade in energy, and thereby to form a triangle of trade, energy and the environment. The energy subsidy issue that lies at the heart of this triangle is the underlying focus of this thesis. This section attempts to situate this issue within the broader debate on trade and environment.

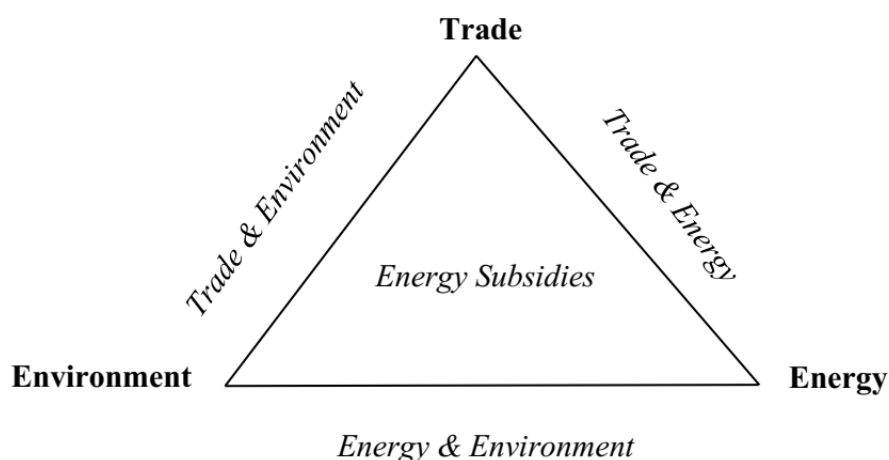


Figure 1.2: Energy Subsidies at the Intersection of Trade, Energy and the Environment

The interaction between trade and environment is one of the most intensely debated issues in the multilateral trading system.⁷³ Underlying the debate are concerns about the impact of international trade on the environment, on the one hand, and the impact of environmental protection measures on international trade, on the other. The origin of the debate dates back at least to the early 1970s when the Club of Rome's report on *The Limits to Growth* (the Meadows Report) was first published.⁷⁴ The Meadows Report ignited a worldwide controversy about the

⁷³ The literature on trade and environment is too extensive to cite here in extenso, but some notable works include: Daniel C Esty, *Greening the GATT: Trade, Environment, and the Future* (Institute for International Economics 1994); Tamiotti and others (n 23); Edith B Weiss, John H Jackson and Nathalie Bernasconi-Osterwalder (eds), *Reconciling Environment and Trade* (2nd edn, Martinus Nijhoff Publishers 2008); Gregory Shaffer, 'The World Trade Organization under Challenge: Democracy and the Law and Politics of the WTO's Treatment of the Trade and Environment Matters' (2001) 25 *Harvard Environmental Law Review* 1; Charnovitz, 'The WTO's Environmental Progress' (n 42); Eric Neumayer, 'The WTO and the Environment: Its Past Record Is Better than Critics Believe, but the Future Outlook Is Bleak' (2004) 4 *Global Environmental Politics* 1; Kym Anderson and Richard Blackhurst, (eds), *The Greening of World Trade Issues* (University of Michigan Press 1992); Petros C Mavroidis, 'Trade and Environment after the Shrimps-Turtles Litigation' (2000) 34 *Journal of World Trade* 73.

⁷⁴ See WTO, *Trade and Environment at the WTO* (World Trade Organization 2004). Steve Charnovitz traces the origin of the trade and environment debate back to the 1920s. See Steve Charnovitz, 'A New WTO Paradigm for Trade and the Environment' (2007) 11 *Singapore Yearbook of International Law* 15; Charnovitz, 'The WTO's Environmental Progress' (n 42).

linkage between economic growth and the environment with its conclusion that: ‘[if] growth trends in world population, industrialization, food production and resource depletion continue unchallenged, the limits to growth on this planet will be reached sometime within the next one hundred years’.⁷⁵ The report also maintained that it is possible to alter these growth trends and to establish sustainable ecological and economic stability, but it was its claim that material growth could not continue indefinitely in a physically limited planet that raised concerns about the interrelationship between economic development and environmental protection.⁷⁶

The publication of the report in March 1972 coincided with the first United Nations Conference on the Human Environment (the ‘Stockholm Conference’) held in Stockholm in June 1972⁷⁷ and served as an important impetus for the ‘highly emotive and polarized’⁷⁸ debate between environmentalists and free trade advocates that has raged ever since.

Environmentalists argue that freer international trade, fostered by free trade agreements is detrimental to the environment. Their argument against free trade and free trade agreements can be distilled into four essential claims:⁷⁹ (i) free trade increases industrial production and transportation, which in turn generates hazardous waste and pollution to the detriment of the environment;⁸⁰ (ii) free trade enhances economic growth and that growth harms the environment

⁷⁵ See Donella H Meadows and others (eds), *The Limits to Growth* (Universe Books 1972) at 23. For a detailed description of the background that led to the report and the subsequent debate over the limits to growth, see Robert McCutcheon, *Limits of a Modern World: A Study of the Limits to Growth Debate* (Butterworths 1979).

⁷⁶ For a brief summary of the report and the misunderstanding about its conclusions, see Jørgen Randers, ‘The Real Message of The Limits to Growth: A Plea for Forward-Looking Global Policy’ (2012) 21 *Gaia* 102.

⁷⁷ Not surprisingly, the relationship between economic development and the protection of the environment was one of the key issues for both developed and developing countries during the preparation of the conference and negotiations of the outcome documents. See UN, ‘Report of United Nations Conference on the Human Environment (Stockholm 5–16 June 1972)’ (United Nations 1973) A/CONF.48/14/Rev. 1.

⁷⁸ This expression is borrowed from Michael Trebilcock, Robert Howse and Antonia Eliason, *The Regulation of International Trade* (4th edn, Routledge 2013) at 656.

⁷⁹ These four claims are drawn from a review of the trade and environment literature in line with the analysis of the environmental case against free trade in Esty (n 73).

⁸⁰ It is also argued that free trade causes environmental and health hazards by facilitating the export of hazardous waste to developing countries, which have limited waste processing and disposal technologies. Although international agreements, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (‘Basel Convention’) restrict the export of hazardous waste in general, they are awash with loopholes and exemptions (e.g., export of hazardous waste for recycling purposes). Some of these loopholes were subsequently closed through amendments to the Basel Convention (e.g., the 1995 Basel Ban), but the international legal framework remains too weak to effectively prevent the export of hazardous waste to developing countries. See Jonathan Krueger, ‘The Basel Convention and the International Trade in Hazardous Wastes’ in Stokke

through the unsustainable use of natural resources;⁸¹ (iii) free trade generates incentives for countries to reduce environmental regulation by inducing a ‘race-to-the-bottom’ in environmental standards;⁸² and (iv) free trade agreements prevent governments from enacting environmental regulations.⁸³ Free trade advocates, on their part, argue that trade liberalization and the resultant increase in economic growth are part of the solution to the environmental problem – not part of the problem.⁸⁴ In their view, trade-led economic growth can improve the environment by altering social preferences for environmental quality and increasing financial resources available to spend on environmental protection.⁸⁵ They also argue that free trade benefits the environment by

Olav Schram and Øystein B Thommessen (eds), *Yearbook of International Cooperation on Environment and Development* (Earthscan Publications 2002); Sotiria Koloutsou-Vakakis and Indu Chinta, ‘Multilateral Environmental Agreements for Wastes and Chemicals: 40 Years of Global Negotiations’ (2011) 45 *Environmental Science & Technology* 10.

⁸¹ For a thorough review of the theoretical and empirical literature on whether economic growth per se harms or benefits the environment, see James Van Alstine and Eric Neumayer, ‘The Environmental Kuznets Curve’ in Kevin Gallagher (ed), *Handbook on Trade and the Environment* (Edward Elgar Publishing 2010).

⁸² In the environmental context, the term ‘race-to-the-bottom’ or ‘pollution haven hypothesis’ is associated with the likelihood of countries relaxing their environmental standards in an effort to retain/attract foreign investment or to prevent the reallocation of pollution-intensive industries from countries with stringent environmental standards to countries with lax environmental standards (pollution heavens). The claim that free trade is responsible for a ‘race-to-the-bottom’ in environmental standard setting rests on two premises: (i) free trade makes it easier for industries to freely choose their location, (ii) ceteris paribus, industries are more likely to choose countries with lax environmental standards in order to reduce their cost of production. Building on these premises, proponents of the race-to-the-bottom theory argue that free trade harms the environment, not only by encouraging countries with lax environmental standards to specialize in pollution-intensive industries, but also by exerting pressure on countries with stringent environmental standards to lower their environmental standards. For a compelling analysis of this argument, see Kirsten H Engel, ‘State Environmental Standard-Setting: Is There a “Race” and Is It “To the Bottom”?’ (1997) 48 *Hastings Law Journal* 271; Esty (n 73). Some scholars, however, question the very existence of race-to-the-bottom in environmental standard setting, see, e.g., Nicole Hassoun, ‘Free Trade and the Environment’ (2009) 31 *Environmental Ethics* 51 (indicating that the race-to-the-bottom argument against free trade is inconclusive); Brian R Copeland, ‘The Pollution Haven Hypothesis’ in Kevin Gallagher (ed), *Handbook on Trade and the Environment* (Edward Elgar Publishing 2010) (contending that environmental standards are not the most important factors affecting trade and investment flows).

⁸³ Environmentalists argue that in the absence of environmental provisions, international trade agreements limit regulatory options (more precisely, the use of domestic trade sanctions) for the protection of the environment. See Esty (n 73) (stating that trade agreements ‘can be used to override environmental regulations unless appropriate environmental protections are built into the structure of the trade system’).

⁸⁴ See, e.g., Jagdish Bhagwati, ‘Trade and Environment: The False Conflict?’ in Durwood Zaelke, Paul Orbuch and Rob Housman (eds), *Trade and the Environment: Law, Economics, and Policy* (Island Press 1993); Werner Antweiler, Brian R Copeland and M Scott Taylor, ‘Is Free Trade Good for the Environment?’ (2001) 91 *The American Economic Review* 877.

⁸⁵ See *World Development Report 1992: Development and the Environment* (Oxford University Press 1992); Wilfred Beckerman, *In Defence of Economic Growth* (Jonathan Cape 1974); Eric Neumayer, *Weak Versus Strong Sustainability: Exploring the Limits of Two Opposing Paradigms, Fourth Edition* (Edward Elgar Publishing 2013); Martin Jänicke, Manfred Binder and Harald MÖnch, ‘“Dirty Industries”: Patterns of Change in Industrial Countries’ (1997) 9 *Environmental and Resource Economics* 467.

increasing the efficiency of resource use⁸⁶ and encouraging the development and dissemination of environmental-friendly technologies (e.g. energy efficiency and renewable energy technologies). Free trade advocates are rather concerned that environmental protection policies could become obstacles to international trade as protectionist trade policies may be applied under the guise of environmental protection.⁸⁷ These concerns became more pronounced with the proliferation of domestic environmental laws and multilateral environmental agreements (MEAs).

The multilateral trading system's formal involvement in the trade and environment debate began in the early 1970s with a study prepared by the GATT Secretariat for the Stockholm Conference.⁸⁸ The study, entitled 'Industrial Pollution Control and International Trade', focused on the implications of environmental protection policies on international trade, and reflected the concerns of free trade advocates that such policies could become an obstacle to international trade.⁸⁹ The major concern for the multilateral trading system at that time was that environmental protection policies could constitute a new form of protectionism. The study was subsequently presented to the GATT Contracting Parties and resulted in the establishment of the Group on Environmental Measures and International Trade (EMIT Group) in 1971.⁹⁰ The EMIT Group was established as a standby working group to examine whether trade-related environmental measures create market access barriers, but its first meeting was convened only 20 years later in response to developments in both the multilateral trade and environmental regimes.

⁸⁶ This line of argument is based on the theory of comparative advantage. The theory of comparative advantage asserts that trade allows countries to specialize in the production of goods and services in which they are relatively most efficient (in other words, to maximize output from a given input resource). In the context of the environment, this implies that trade liberalization enables countries to improve the efficiency of resource use and allocation, and to reduce associated waste. For an extended discussion of the comparative advantage argument for the compatibility of free trade and environmental protection, see Gene M Grossman and Alan B Krueger, 'Economic Growth and the Environment' (1995) 110 *The Quarterly Journal of Economics* 353; Duncan Brack, Michael Grubb and Craig Wndram, *International Trade and Climate Change Policies* (Routledge 2013).

⁸⁷ See Matthew A Cole, *Trade Liberalization, Economic Growth, and the Environment* (Edward Elgar 2000).

⁸⁸ GATT, 'Industrial Pollution Control and International Trade' (GATT Secretariat 1971) GATT Studies in International Trade No 1 L/3538. See also WTO, *Trade and Environment at the WTO* (n 74).

⁸⁹ See WTO, *Trade and Environment at the WTO* (n 74).

⁹⁰ The first EMIT Group Meeting was held in October 1991 at the request of the European Free Trade Area (EFTA) countries. For more on this, see Richard G Tarasofsky, 'The WTO Committee on Trade and Environment: Is It Making a Difference?' (1999) 3 *Max Planck Yearbook of United Nations Law* 471.

The legal aspect of the trade and environment debate began in earnest in the aftermath of the 1990s Tuna/Dolphin disputes (i.e. *US-Tuna I* and *US-Tuna II*). Joost Pauwelyn has succinctly articulated the overarching legal questions that drive the legal debate as follows:

For us [international lawyers] the ultimate questions remain: (i) can a given environmental measure be enacted consistent with international trade law? (i.e., the negative question of the extent to which trade law prevents certain forms of environmental protection); and (ii) how can international trade regimes positively contribute to a healthier environment?⁹¹

Pauwelyn did not frame these questions having energy subsidies in mind, but the questions are the same as those underlying the energy subsidy issue. The most important consideration in both questions is the recognition that trade rules can contribute to environmental protection. The first question deals with what the multilateral trade rules can do for the environment by inaction -by not preventing governments from using trade-restrictive measures to protect the environment. Such inactions typically take the form of environmental exceptions. The scope and adequacy of the environmental exceptions embodied in the various multilateral trade agreements have been and continued to be the pivot of the trade and environment debate. This question is now at the heart of the renewable energy dimension of the energy subsidy issue (see *section 1.2.1*).

The second question deals with what the multilateral trade rules can do for the environment by positive action. Environmentalists and free trade advocates fiercely disagree on whether free trade harms or benefits the environment. Despite this disagreement, however, there is a growing mutual understanding that multilateral trade rules can be used affirmatively to protect the environment.⁹² The regulation of environmentally harmful subsidies (such as fossil fuel and fisheries subsidies) is one of the most commonly cited examples in this regard.

The classical trade and environment disputes such as *US-Tuna* and *US-Shrimp* have largely shaped the legal debate on the interaction between trade and the environment. *US-Tuna I* was initiated by Mexico in 1991 against the US primary embargo on imports of Mexican yellowfin

⁹¹ Joost Pauwelyn, 'Recent Books on Trade and Environment: GATT Phantoms Still Haunt the WTO' (2004) 15 *European Journal of International Law* 575, at 578-579.

⁹² See Pascal Lamy, *The Geneva Consensus: Making Trade Work for All* (Cambridge University Press 2013), at 55 et seq.

tuna caught using nets which resulted in the incidental killing of dolphins.⁹³ One of the key legal questions at heart of this dispute was whether GATT Contracting Parties could take trade measures to protect the environment or natural resources beyond their territorial jurisdiction. The Panel answered this question in the negative and rejected the US claim that the import ban could be justified under Article XX(b) and (g) of the GATT.⁹⁴ The European Economic Communities (EEC) and the Netherlands subsequently brought *US – Tuna II* against the same US measure. As in *US – Tuna I*, the GATT Panel found that the US tuna embargo was inconsistent with GATT Article XI and could not be justified under GATT Article XX.⁹⁵

Neither of these panel reports was formally adopted as legally binding solutions to the dispute, but they ‘provoked a furious reaction and led many environmentalists to believe that [the multilateral trading system] was dedicatedly and irrevocably biased in favour of free trade’.⁹⁶ They were seen as ‘a call to arms for environmentalists’⁹⁷ and ‘came to represent to many people the hostility of the trading system to values other than that of trade liberalization itself’.⁹⁸ The subsequent sharp criticism of the trading system as an environmentally insensitive institution made it hard for the GATT Contracting Parties to ignore environmental concerns. This was particularly manifested in the belated inclusion of environmental issues in the Uruguay Round.

⁹³ *GATT Panel Report, United States – Restrictions on Imports of Tuna (US-Tuna I), DS21/R - 39S/155, circulated 3 September 1991 (not adopted).*

⁹⁴ See *ibid.*, paras.5.22-5.34.

⁹⁵ However, it is worth noting that in contrast to *US-Tuna I*, the *US-Tuna II* Panel found that the US Dolphin Conservation Policy was consistent with GATT and could be applied extraterritorially (provided that the other requirements of GATT Article XX are met). *GATT Panel Report, United States – Restrictions on Imports of Tuna, (US-Tuna II), DS29/R, circulated 16 June 1994 (not adopted).*

⁹⁶ Kati Kulovesi, *The WTO Dispute Settlement System: Challenges of the Environment, Legitimacy and Fragmentation* (Kluwer Law International 2011), at 187. For more critical reactions to the unadopted GATT Panel reports, see Thomas E Skilton, ‘GATT and the Environment in Conflict: The Tuna-Dolphin Dispute and the Quest for an International Conservation Strategy’ (1993) 26 *Cornell International Law Journal* 455; Robert Howse and Donald Regan, ‘The Product/process Distinction - an Illusory Basis for Disciplining “Unilateralism” in Trade Policy’ (2000) 11 *European Journal of International Law* 249; Matthew Hunter Hurlock, ‘The GATT, U. S. Law and the Environment: A Proposal to Amend the GATT in Light of the Tuna/Dolphin Decision’ (1992) 92 *Columbia Law Review* 2098; Stephen J Porter, ‘Tuna/Dolphin Controversy: Can the GATT Become Environment-Friendly, The’ (1992) 5 *Georgetown International Environmental Law Review* 91.

⁹⁷ Henry L Thaggert, ‘A Closer Look at the Tuna-Dolphin Case: “Like Products” and “Extrajurisdictionality” in the Trade and Environment Context’ in James Cameron, Damien Geradin and Paul Demaret (eds), *Trade & the Environment: The Search for Balance* (Cameron May 1994) at 83.

⁹⁸ Howse and Regan (n 96), at 250; See also Steve Charnovitz, ‘The Environment vs. Trade Rules: Defogging the Debate’ 23 *Environmental Law* 475 (noting that ‘the panel seemed to go out of its way to validate the popular caricature of the GATT as an inflexible, myopic, moss-grown institution inherently indifferent, if not downright antagonistic, toward ecological protection.’).

Environmental issues were not on the agenda of the Uruguay Round when it was launched in September 1986.⁹⁹ However, their rapid rise on the international agenda coupled with the pressure from environmental groups in the wake of the *Tuna/Dolphin* disputes brought them onto the agenda.¹⁰⁰ Serious attention was given to the linkage between trade and environment and how the multilateral trade regime can contribute to the protection of the environment during the final phase of the Uruguay Round. This led to the introduction of ‘environmental provisions’ in the various agreements concluded at the end of the Uruguay Round. The most symbolic of this are the preambular recognition of sustainable development under the Marakesh Agreement and the adoption of the 1994 Ministerial Decision on Trade and Environment (DTE).

The DTE established the Committee on Trade and Environment (CTE) with a broad mandate of identifying ‘the relationship between trade measures and environmental measures in order to promote sustainable development’; and making recommendations on ‘whether any modifications of the provisions of the multilateral trading system are required’.¹⁰¹ It has also instructed the CTE to pursue its activities with the aim of ‘making international trade and environmental policies mutually supportive’.¹⁰² The broad terms of reference given to the CTE and the preambular recognition of sustainable development undoubtedly made environment part of the mandate of the multilateral trading system.¹⁰³ This, however, has not resolved the debate.¹⁰⁴ The trade and environment debate continued to evolve with new judicial and treaty-making activity (in all the three domains – policy, judicial and academic).

Despite making environment part of the mandate of the multilateral trading system, the Uruguay Round did not fully address the trade and environmental issues at stake.¹⁰⁵ Most of the issues were actually left to be discussed and negotiated in a post-Uruguay Round. This was partly why

⁹⁹ See Ministerial Declaration on the Uruguay Round 1986 (MIN DEC).

¹⁰⁰ See Simonetta Zarrilli, ‘Trade and Environment: The Rules, Panels and Debate in the World Trade Organization’ (1996) 20 *World Competition* 93, at 93; Kulovesi, *The WTO Dispute Settlement System* (n 96), at 77.

¹⁰¹ Decision on Trade and Environment, MTN/TNC/45(MIN), adopted 15 April 1994.

¹⁰² *ibid.*

¹⁰³ See Charnovitz, ‘A New WTO Paradigm for Trade and the Environment’ (n 74) (‘one can hardly doubt that environment is now part of the WTO’s mandate’), at 19.

¹⁰⁴ Pauwelyn, ‘Recent Books on Trade and Environment’ (n 91); Charnovitz, ‘The WTO’s Environmental Progress’ (n 42), at 685.

¹⁰⁵ See Esty (n 73), at 205 et seq.

the CTE was established and mandated to, *inter alia*, make a recommendation as to the 'need for rules to enhance positive interaction between trade and environmental measures'.¹⁰⁶ Subsequent discussions within the CTE raised not only the question of the extent to which WTO law prevents the use of trade-related environmental measures (TREM)s, but also what it can do for the environment other than simply permitting otherwise WTO-inconsistent TREMs. It was against this background that the Doha Round negotiations on fisheries subsidies and environmental goods and services were launched.¹⁰⁷ These ongoing negotiations reflect the continuity of the policy debate on trade and environment.

The trade and environment debate has also continued in the judicial domain. The first trade dispute that went to the panel stage after the establishment of the WTO in 1995 was one of the classical trade and environment disputes – *US-Gasoline*. In this dispute, Brazil and Venezuela challenged the US Clean Air Act governing reformulated gasoline and its baseline establishment methods.¹⁰⁸ Both the Panel and the Appellate Body found that the measure was inconsistent with GATT Article III:4, and was not justifiable under GATT Article XX. The Appellate Body agreed with the US that the measures were indeed related to the 'conservation of exhaustible natural resources' within the meaning of GATT Article XX (g), but found the measures to be inconsistent with the 'unjustifiable discrimination' or 'disguised restriction on international trade' requirements of the chapeau (the chapeau test).¹⁰⁹ *US – Gasoline* was shortly followed by perhaps the most important trade and environment dispute in the history of the multilateral trading system – *US-Shrimp*¹¹⁰. In this dispute, the Appellate Body found that the US ban on shrimp caught by using technologies that may adversely affect sea turtles was provisionally justified under GATT Article XX (g). It relied on the Convention on International Trade in Endangered Species (CITES) to establish that sea turtles are exhaustible natural resources and hence WTO Members are entitled to take otherwise WTO-inconsistent measures to protect them. The original US ban was nevertheless deemed WTO-inconsistent as it failed to pass the chapeau test of GATT Article

¹⁰⁶ See Decision on Trade and Environment.

¹⁰⁷ See Tamiotti and others (n 23), at 80 et seq.

¹⁰⁸ *Appellate Body Report, United States – Standards for Reformulated and Conventional Gasoline (US – Gasoline), WT/DS2/AB/R, adopted 20 May 1996.*

¹⁰⁹ *ibid*, at 22 & 29.

¹¹⁰ *US-Shrimp* (n 43).

XX.¹¹¹ The US subsequently removed the discriminatory aspect of the shrimp ban and engaged in negotiations towards an international agreement for the conservation of sea turtles. The combination of these two factors convinced both the Panel and the Appellate Body to conclude (during the compliance proceedings) that the ban is fully justified under GATT Article XX (g).¹¹² This was a landmark ruling that represented an important development from the environmental perspective.¹¹³ But it has not settled the trade and environment debate. Several trade and environment debate have been filed since then. The most prominent ones include *EC-Asbestos*, *Brazil-Retreaded Tyres Tyres*, and *EU- Seal*.¹¹⁴ Renewable energy subsidies represent the new generation of trade and environment disputes in the WTO.

The academic debate on trade and environment is largely influenced by case law. This is not uncommon to international legal scholarship. Case commentary has always been at the heart of legal scholarship. In a recent book where he examined the different theories of international law, Andrea Bianchi observed that international legal scholarship is still preoccupied with traditional legal research: ‘The content and scope of rules are frequently discussed, and judicial interpretation is often taken as the ultimate authoritative determination of meaning either to be praised or criticized’.¹¹⁵ This is, even more, the case for international legal scholarship that deals with regime interaction. In his critique of the ‘court-centric’ approach to regime interaction in international legal scholarship, Dunoff argued that: ‘[t]ypically, exploration of regime interaction

¹¹¹ In an attempt to forestall potential criticism (from environmental groups), the Appellate Body famously wrote: “We have not decided that the protection and preservation of the environment is of no significance to the Members of the WTO. Clearly, it is. We have not decided that the sovereign nations that are Members of the WTO cannot adopt effective measures to protect endangered species, such as sea turtles. Clearly, they can and should. And we have not decided that sovereign states should not act together bilaterally, plurilaterally or multilaterally, either within the WTO or in other international fora, to protect endangered species or to otherwise protect the environment. Clearly, they should and do.” *ibid*, at para 185.

¹¹² *US – Shrimp (Article 21.5)* (n 43).

¹¹³ See Kulovesi, *The WTO Dispute Settlement System* (n 96), at 101.

¹¹⁴ *Appellate Body Report, European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (EC – Asbestos), WT/DS135/AB/R, adopted 5 April 2001; Appellate Body Report, European Communities – Measures Prohibiting the Importation and Marketing of Seal Products (EC – Seal Products) WT/DS400/AB/R, WT/DS401/AB/R, adopted 18 June 2014; Appellate Body Report, Brazil – Measures Affecting Imports of Retreaded Tyres (Brazil- Retreaded Tyres), WT/DS332/AB/R, adopted 17 December 2007.*

¹¹⁵ Andrea Bianchi, *International Law Theories: An Inquiry into Different Ways of Thinking* (Oxford University Press 2016), at 6.

starts – and often stops – with analysis of international court and tribunal decisions’.¹¹⁶ The trade and environment debate is a perfect example for this. As shown below, the classical trade and environment disputes discussed above have led the debate to focus on a limited number of issues.

The first set of issues that dominated the scholarly debate were unilateral trade bans that differentiate between products based on production and process methods (PPMs) and extraterritoriality (whether countries may take trade measures to protect the environment beyond their jurisdiction). The elusiveness of a definitive answer to the legality of PPMs-based trade measures even after the series of high-profile disputes (from *US-Tuna* to *US-Gasoline* and *US-Shrimp*)¹¹⁷ meant that the issue had been the subject of one of the 'knotty controversies' in the trade and environment debate.¹¹⁸ Often relying on the *US-Tuna* panel rulings, many commentators argue that PPM-based restrictions are *prima facie* violations of GATT and cannot be justified under GATT Article XX.¹¹⁹ These commentators hold that the GATT categorically prohibits PPM-based trade measures so long as they are outwardly directed (have extraterritorial application or effect). Other commentators have questioned this ‘conventional wisdom’ arguing that it is not fully supported by the text and jurisprudence of the GATT.¹²⁰ The *US-Shrimp* case is the most commonly cited case in this regard. Therein, the Appellate Body stated that: '[it] is not necessary to assume that requiring from exporting countries compliance with, or adoption of, certain policies...prescribed by the importing country, renders a measure a priori incapable of

¹¹⁶ Jeffrey L Dunoff, ‘A New Approach to Regime Interaction’ in Margaret A Young (ed), *Regime Interaction in International Law: Facing Fragmentation* (Cambridge University Press 2012), at 137.

¹¹⁷ The PPMs at issue in these three TREMs-related disputes were: import ban on tuna caught with dolphin-unfriendly nets (US-Tuna I&II); import restrictions based on certain compositional and performance specifications for reformulated gasoline (US-Gasoline); and import ban on shrimps caught without turtle exclusion devices (US-Shrimp). For a PPMs-focused brief summary of these cases, see Robert Read, ‘Process and Production Methods and the Regulation of International Trade’ in Nicholas Perdikis and Robert Read (eds), *The WTO and the Regulation of International Trade: Recent Trade Disputes Between the European Union and the United States* (Edward Elgar Publishing 2005), at 247-59.

¹¹⁸ Steve Charnovitz, ‘The Law of Environmental “PPMs” in the WTO: Debunking the Myth of Illegality’ (2002) 27 *Yale Journal of International Law* 59, at 59.

¹¹⁹ For a critical review of the literature supporting the view that GATT prohibits PPMs in general, see Pauwelyn, ‘Recent Books on Trade and Environment’ (n 91) (referring to this view as one of the ‘GATT-inspired myths’ that keep haunting the WTO and criticize it for fostering unwarranted hostility against the WTO); Charnovitz, ‘Law of Environmental “PPMs”’ (n 118) (referring to it as the ‘myth of illegality’ that has prevented a reasoned discourse about how to distinguish appropriate from inappropriate PPMs).

¹²⁰ See Howse and Regan (n 96); Pauwelyn, ‘Recent Books on Trade and Environment’ (n 91); Charnovitz, ‘Law of Environmental “PPMs”’ (n 118).

justification under Article XX. Such an interpretation renders most, if not all, of the specific exceptions of Article XX inutile, a result abhorrent to the principles of interpretation we are bound to apply'.¹²¹ The Appellate Body went on to find that the measure at issue (import ban on shrimp caught with turtle-unfriendly devices) falls under GATT Article XX(g), but concluded (in the original proceedings) that the measure has been applied in a manner that constitutes 'arbitrary or unjustifiable discrimination' contrary to the chapeau of GATT Article XX.¹²² The key insight from *US-Shrimp* is that the legality of PPM-based trade measures depends on the specific nature of the PPM at issue and can only be determined on case-by-case basis.

The *US-Gasoline* and *US-Shrimp* disputes also elicited considerable scholarly discussion on the relationship between WTO Agreements and MEAs that contain TREMs.¹²³ The Appellate Body in *US-Gasoline* famously held that WTO Agreements are not to be read in clinical isolation from public international law and then used MEAs in interpreting GATT Article XX(g) in *US-Shrimp*.¹²⁴ This has led scholars to question whether MEA-mandated trade restrictions are automatically WTO-consistent or need to pass through the two-tiered test of GATT Article XX.¹²⁵ The answer to this question remains open and controversial.

Another issue that came to dominate the trade and environment debate is the legality of environmental border tax adjustments (environmental BTAs). Environmental BTAs gained prominence in the aftermath of the Kyoto Protocol.¹²⁶ The absence of developing country mitigation commitments and the refusal of the United States to ratify the Protocol caused competitiveness concerns in countries that undertook quantified emission limitation and reduction commitments under the Protocol (Annex I Parties). These concerns were particularly strong in the EU. The introduction of measures to implement the Protocol including the establishment of the EU Emission Trading Scheme (ETS) caused fear within the EU that it will undermine the competitiveness of European industries vis-à-vis their counterparts in non-Kyoto

¹²¹ See *US-Shrimp* (n 43), para 121.

¹²² See *ibid*, para 184.

¹²³ Kati Kulovesi, 'Real or Imagined Controversies? A Climate Law Perspective on the Growing Links between the International Trade and Climate Change Regimes' (2014) 6 *Trade Law & Development* 55.

¹²⁴ *US – Gasoline* (n 108), at 17; *US-Shrimp* (n 43).

¹²⁵ See Pauwelyn, 'Recent Books on Trade and Environment' (n 91).

¹²⁶ See Kulovesi, 'Real or Imagined Controversies?' (n 123), at 72-80.

parties (or parties that refuse or fail to implement their commitments under the Protocol).¹²⁷ Imposing BTAs on imports from countries with more lenient environmental regulations was touted as an effective way of addressing such concerns.¹²⁸ This has led policymakers in the EU to contemplate the adoption of BTAs.¹²⁹ Similar proposals were also made in the United States in the context of the 2009 Clean Air Act. None of these proposals has ever been adopted, but they gave a boost to a lively scholarly debate on the WTO-consistency of environmental BTAs.¹³⁰ Despite the lack of concrete examples of environmental BTAs, their compatibility with multilateral trade rules has and continues to dominate the trade and environment debate.

The regulation of subsidies in general (let alone that of energy subsidies) has not figured much in the trade and environment debate until recently.¹³¹ This is most evident from the scant scholarly attention paid to the premature expiry of the environmental exceptions under Article 8 of the SCM Agreement before the *Canada-Renewable Energy/FIT* disputes. Perhaps the most notable exception in this regard is the discussion on fisheries subsidies (see *section 4.4.4.1*) and

¹²⁷ *ibid.* See also Javier de Cendra, ‘Can Emissions Trading Schemes Be Coupled with Border Tax Adjustments? An Analysis Vis-à-Vis WTO Law’ (2006) 15 *Review of European Community & International Environmental Law* 131; Julia Reinaud, ‘Issues behind Competitiveness and Carbon Leakage: Focus on Heavy Industry’ (International Energy Agency 2008) IEA Information Paper.

¹²⁸ Kulovesi, ‘Real or Imagined Controversies?’ (n 123).

¹²⁹ See Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage, COM (2010) 265 final 2010, at 11-12.

¹³⁰ See Kulovesi, ‘Real or Imagined Controversies?’ (n 123), at 76. See also Joost Pauwelyn, ‘Carbon Leakage Measures and Border Tax Adjustments under WTO Law’ in Geert van Calster and Denise Prévost (eds), *Research Handbook on Environment, Health and the WTO* (Edward Elgar Publishing 2013); Ben Lockwood and John Whalley, ‘Carbon-Motivated Border Tax Adjustments: Old Wine in Green Bottles?’ (2010) 33 *World Economy* 810; Henrik Horn and Petros C Mavroidis, ‘Border Carbon Adjustments and the WTO’ (2010) 53 *Japanese Yearbook of International Law* 19; Ludivine Tamiotti, ‘The Legal Interface between Carbon Border Measures and Trade Rules’ (2011) 11 *Climate Policy* 1202; Kateryna Holzer, *Carbon-Related Border Adjustment and WTO Law* (Edward Elgar Publishing 2014); Lorand Bartels, ‘The WTO Legality of the Application of the EU’s Emission Trading System to Aviation’ (2012) 23 *European Journal of International Law* 429.

¹³¹ Only a handful of scholars commented on the environmental implications of the SCM Agreement before 2010. The most notable among these are: Robert Howse and Antonia Eliason, ‘Countervailing Duties and Subsidies for Climate Mitigation’ in Richard B Stewart, Benedict Kingsbury and Bryce Rudyk (eds), *Climate Finance: Regulatory and Funding Strategies for Climate Change and Global Development* (NYU Press 2009); Robert Howse, ‘World Trade Law and Renewable Energy: The Case of Non-Tariff Measures’ (2006) 3 *Journal for European Environmental & Planning Law* 500; Andrew Green, ‘Trade Rules and Climate Change Subsidies’ (2006) 5 *World Trade Review* 377; Sadeq Z Bigdeli, ‘Incentives Schemes to Promote Renewables and the WTO Law of Subsidies’ in Thomas Cottier, Olga Nartova and Sadeq Bigdeli (eds), *International Trade Regulation and the Mitigation of Climate Change* (Cambridge University Press 2009); Bigdeli, ‘The Prospects of Applying the “Fisheries Subsidies” Model to Energy Subsidies’ (n 71); Francisco Aguayo Ayala and Kevin P Gallagher, ‘Subsidizing Sustainable Development under the WTO’ (2009) 10 *Journal of World Investment and Trade* 131.

uninternalized externalities ignited by Nobel Laureate Joseph Stiglitz in the wake of the Kyoto Protocol. In response to the US refusal to ratify the Protocol, Stiglitz proposed that the EU and other Annex I Parties to the Protocol should impose countervailing duties on imports from the US to exert pressure on the latter to join the Protocol.¹³² The gist of his argument was that not charging a carbon tax on energy-intensive industries for the negative externalities they produce constitutes a countervailable subsidy within the meaning of the SCM Agreement.

Stiglitz's proposal spurred some debate as to whether uninternalized negative externalities constitute a subsidy within the meaning of the SCM Agreement. Most WTO scholars who commented on Stiglitz's proposal dismissed his argument on the basis that uninternalized negative externalities do not meet the 'financial contribution' requirement of the SCM Agreement's subsidy definition (see *section 4.5.2.1*).¹³³ Others contend that uninternalized negative externalities may constitute a 'financial contribution' in the form of revenue forgone and/or provision of goods and services below market prices.¹³⁴ However, this negative externalities debate was short-lived, probably because no country imposed or threatened to impose countervailing duties for failure to internalize negative externalities.

Another subsidy-related issue that has received some attention in the trade and environment debate is the compatibility of free emission allowances with the SCM Agreement. Concerns about the prospect of legal challenges against the allocation of emission allowances free of

¹³² In *Making Globalization Work*, Stiglitz suggested that: 'the countries of Europe and elsewhere could impose countervailing duties to make up for the subsidies that American producers, using energy-intensive technologies, implicitly receive when they degrade the global environment without paying the costs'. See Joseph E Stiglitz, *Making Globalization Work* (1st ed, WW Norton & Co 2006), at 177.

¹³³ See Jagdish Bhagwati and Petros C Mavroidis, 'Is Action against US Exports for Failure to Sign Kyoto Protocol WTO-Legal?' (2007) 6 *World Trade Review* 299 ('Since no subsidy can be shown to exist, no CVDs can be lawfully imposed. Going down the subsidy argument for taking action against the United States therefore will not work'), at 302-303. See also Joost Pauwelyn, 'US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law' (Nicholas Institute for Environmental Policy Solutions 2007) Working Paper 07-02 (concluding that 'even though in economic terms not internalizing the full cost of carbon could be seen as "dumping" or a "subsidy", in legal-WTO terms, the failure of a government to impose a carbon tax or to otherwise force producers to internalize the full price of carbon, does not normally give other WTO members the right to impose offsetting duties on imports. '), at 16.

¹³⁴ See, e.g., Howse and Eliason (n 131), at 263.

charge under the EU ETS Directive were at the heart of this debate.¹³⁵ However, no country has so far brought legal challenges against free emission allowances.

The trade and environment debate on the regulation of energy subsidies started in earnest with *Canada-Renewable Energy/FIT*. The subsequent spate of renewable energy subsidy disputes, along with growing interest in the regulation of fossil fuel subsidies, have shifted the primary focus of the debate from PPM-based trade bans and environmental BTAs to energy subsidies and their regulation. This shift marks a new era in the trade and environment debate.¹³⁶ In contrast to the ‘politically controversial but practically non-existence’ PPM-based trade bans and environmental BTAs, energy subsidies represent the ‘most concrete testing ground’ for the mutual supportiveness of multilateral trade rules and environmental protection policies.¹³⁷ On the one hand, subsidies are the most popular policy instruments used by governments in both developed and developing countries to support the renewable energy sector.¹³⁸ Of the 164 countries that have set renewable energy targets as of mid-2015, more than 75 percent of them have introduced renewable energy subsidies as part of their energy security and climate change policies.¹³⁹ The environmental rationales are, however, increasingly linked to the political economy rationales of job creation and domestic technological progress.¹⁴⁰ This has resulted in the introduction of renewable energy subsidy schemes contingent upon discriminatory criteria. This, in turn, has increased the likelihood of legal challenges to renewable energy subsidies in the multilateral trading system. In the absence of explicit exceptions for environmentally beneficial subsidies, the regulation of renewable energy subsidies poses a significant challenge for the mutual supportiveness of multilateral trade rules and environmental protection policies. On the

¹³⁵ See Lauren Henschke, ‘Going It Alone on Climate Change A New Challenge to WTO Subsidies Disciplines: Are Subsidies in Support of Emissions Reductions Schemes Permissible under the WTO’ (2012) 11 *World Trade Review* 27; Ingrid Jegou and Luca Rubini, ‘The Allocation of Emission Allowances Free of Charge: Legal and Economic Considerations’ (International Centre for Trade and Sustainable Development 2011) Issue Paper 13.

¹³⁶ See Wu and Salzman (n 36); Kulovesi, ‘International Trade Disputes on Renewable Energy’ (n 36).

¹³⁷ See Kulovesi, ‘International Trade Disputes on Renewable Energy’ (n 36).

¹³⁸ The trade and environment debate on the regulation of renewable energy subsidies cut across the traditional developed-developing country divide. This is particularly evident from the cases that have been filed against renewable energy subsidies. China and India have participated in five of the nine renewable energy subsidy disputes either as a defendant or as a complainant. On this point see, Wu and Salzman (n 36), at 405 et seq.

¹³⁹ See IRENA, ‘Renewable Energy Target Setting’ (n 31); REN21, *Renewables 2015 Global Status Report* (Renewable Energy Policy Network for the 21 Century 2015).

¹⁴⁰ See Joanna Lewis, ‘The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development’ (2014) 14 *Global Environmental Politics* 10.

other hand, fossil fuel subsidies offer the best opportunity for ensuring the mutual supportiveness of the two. Multilateral trade rules can benefit both the economy and the environment by disciplining environmentally harmful and trade-distorting fossil fuel subsidies.

1.4 Conceptual Framework: Sustainable Energy Transition

As implied by the title, this thesis builds upon the premise that the WTO law on subsidies has the potential to help promote or hinder the sustainable energy transition. This premise draws heavily on the concept of 'transition' and research in the field of sustainability transitions.¹⁴¹ The transition concept provides a unifying framework that connects the renewable energy and fossil fuel dimensions of the fragmented 'trade and environment' debate on the regulation of energy subsidies. It also offers a specific conceptual lens through which to examine the environmental implications of the WTO rules governing energy subsidies.

The notion of transition is not new but has received significant attention in recent decades as a framework to understand and manage structural shifts to more sustainable societal subsystems. The field of sustainability transitions is an emerging interdisciplinary research field within the broader field of sustainability studies that deal with purposive changes in societal subsystems towards sustainability.¹⁴² The main motivation for using the notion of 'transition' in sustainability studies is that it 'shifts the attention from a vague end goal to stimulating transition processes as a more concrete step'.¹⁴³ This 'shifting of the focal point from a sustainable "end state" to the transition process that transforms the current unsustainable system into a sustainable state adds realism and policy relevance to the analysis'.¹⁴⁴ The focus on transitions draws particular

¹⁴¹The concept of 'energy transition' should not be confused with that of 'transition economy', which refers to economies undergoing a transition from centrally planned to a market economy. On the latter, see The World Bank, *World Development Report 1996: From Plan to Market* (Oxford University Press 1996).

¹⁴² For a brief introduction to the field of sustainability transitions, see Jochen Markard, Rob Raven and Bernhard Truffer, 'Sustainability Transitions: An Emerging Field of Research and Its Prospects' (2012) 41 *Research Policy* 955; Karoline S Rogge and Kristin Reichardt, 'Policy Mixes for Sustainability Transitions: An Extended Concept and Framework for Analysis' (2016) 45 *Research Policy* 1620.

¹⁴³ Jeroen Van den Bergh and Frans Oosterhuis, 'An Evolutionary-Economic Analysis of Energy Transitions' in Jeroen Van den Bergh and Frank Reinier Bruinsma (eds), *Managing the Transition to Renewable Energy: Theory and Practice from Local, Regional and Macro Perspectives* (Edward Elgar Publishing 2008), at 149.

¹⁴⁴ Jeroen Van den Bergh and René Kemp, 'Transition Lessons From Economics' in Jeroen Van den Bergh and Frank Reinier Bruinsma (eds), *Managing the Transition to Renewable Energy: Theory and Practice from Local, Regional and Macro Perspectives* (Edward Elgar Publishing 2008), at 81.

attention to factors that initiate, foster, direct or impede the energy transition. The purpose of this section is not to provide an exhaustive review of the extensive literature in this field, but to situate and conceptualize the role of law in the sustainable energy transition process.

Transition, in general, refers to ‘the process or a period of changing from one state or condition to another’.¹⁴⁵ In the field of transition studies, transitions are understood as processes of radical change in major societal subsystems such as energy, transport, and agriculture.¹⁴⁶ Transition scholars refer to sociotechnical transitions as processes of change that fundamentally alter the dominant way in which societal needs (e.g. energy, transport) are met. One such historical example is the transition from horse-drawn carriages to automobiles, which resulted in a fundamental change in the dominant mode of transportation.¹⁴⁷ An even more relevant example is the shift from wood to coal that took place during the industrial revolution.¹⁴⁸ Oil and natural gas subsequently replaced coal as the dominant source of energy during the twentieth century.

It is this long-term process of change from one dominant and stable energy system to another that is commonly referred to as energy transition. Smil defines energy transitions more precisely as ‘the change in the composition (structure) of primary energy supply, the gradual shift from a specific pattern of energy provision to a new state of an energy system’.¹⁴⁹ This change is an inherently complex and gradual process.¹⁵⁰ Its complexity stems from the fact that energy transitions are more than just changes from one particular fuel or energy technology to another.

¹⁴⁵ Joanna Turnbull and others (eds), *Oxford Advanced Learner’s Dictionary, 8th Edition: Paperback* (8th Revised edition, OUP Oxford 2010), at 1646. In scientific studies the term ‘transition’ was originally used in physics and chemistry to describe the ‘phase transition’ of substances going from solid to liquid and gas, but since then it has been used by several disciplines to describe shifts between qualitatively different states. These include biology (evolution theory), sociology (demographic transition theory), economics (evolutionary economics), and law (transitional justice). See Geert Verbong and Derk Loorbach, ‘Conclusion: Is Governance of Energy Transition a Reality, an Illusion or a Necessity?’ in Geert Verbong and Derk Loorbach (eds), *Governing the Energy Transition: Reality, Illusion or Necessity?* (Routledge 2012), at 17.

¹⁴⁶ See James Meadowcroft, ‘What about the Politics? Sustainable Development, Transition Management, and Long Term Energy Transitions’ (2009) 42 *Policy Sciences* 323, at 324.

¹⁴⁷ See Frank W Geels, ‘The Dynamics of Transitions in Socio-Technical Systems: A Multi-Level Analysis of the Transition Pathway from Horse-Drawn Carriages to Automobiles (1860–1930)’ (2005) 17 *Technology Analysis & Strategic Management* 445.

¹⁴⁸ See Smil, *Energy Transitions* (n 21); Fouquet and Pearson (n 21); Arnulf Grubler, ‘Energy Transitions Research: Insights and Cautionary Tales’ (2012) 50 *Energy Policy* 8.

¹⁴⁹ Smil, *Energy Transitions* (n 21), at vi.

¹⁵⁰ See Derk A Loorbach, *Transition Management: New Mode of Governance for Sustainable Development* (Internat Books 2007), at 18.

They are multidimensional phenomena that entail not only technological changes but also far-reaching social, institutional and cultural changes.¹⁵¹ For example, the historical energy transitions were accompanied, inter alia, by major changes in end-use technologies (e.g. steam engines and gas turbines), infrastructures, regulations, and consumer practices.¹⁵² The ongoing energy transition requires even more extensive changes along all these lines.

Transition studies distinguish between historical energy transitions and the one that is currently unfolding, i.e. the ‘sustainable energy transition’.¹⁵³ There are several reasons why the sustainable energy transition differs from past energy transitions. The most prominent of these is that while historical energy transitions were fueled in large part by technological progress, the ongoing energy transition is normatively motivated. It is a purposive transition towards sustainability, driven mainly by climate change and energy security concerns.¹⁵⁴ Sustainability transitions present three unique problems as compared to historical transitions. First, sustainability is a collective good subject to free rider problems and prisoner’s dilemmas.¹⁵⁵ This is simply to say that private actors have limited incentives to help make the transition happen in time to avoid catastrophic climate change. The normative goal of achieving sustainability makes such transitions highly dependent on policies that influence their speed and direction.

¹⁵¹ That is why the transition literature refers to energy transitions not narrowly as ‘technological transitions’ but more broadly as ‘socio-technical transitions’. See Clark A Miller, Alastair Iles and Christopher F Jones, ‘The Social Dimensions of Energy Transitions’ (2013) 22 *Science as Culture* 135 (arguing that ‘Efforts to transform energy systems involve changes [...] not only to energy technologies and prices but also to the broader social and economic assemblages that are built around energy production and consumption’).

¹⁵² See Grubler (n 148).

¹⁵³ The ongoing energy transition from fossil fuels to renewable energy sources goes by many names, including ‘sustainable energy transition’, ‘clean energy transition’ or, more narrowly, ‘renewable energy transition’. All of them refer to the transition from an energy system based on the consumption of fossil fuels to one based mainly on the use of renewable energy sources. The term ‘sustainable energy transition’ is preferred in this thesis as it captures the broad sustainability (social, economic and environmental) rationales behind the transition .

¹⁵⁴ See Adrian Smith, Andy Stirling and Frans Berkhout, ‘The Governance of Sustainable Socio-Technical Transitions’ (2005) 34 *Research Policy* 1491, at 1502.

¹⁵⁵ See Frank W Geels, ‘The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms’ (2011) 1 *Environmental Innovation and Societal Transitions* 24, at 25. The free rider problem is the situation in which persons or groups lack incentive to, or are incentivized not to, contribute personal resources to common endeavors, whereas the prisoner’s dilemma problem is the game theory problem where persons or groups lacking the ability to communicate make suboptimal decisions. See Inge Kaul, *Global Public Goods: International Cooperation in the 21st Century* (Oxford University Press 1999), at 6-8.

Second, from the viewpoint of consumer benefits, sustainable technologies tend to initially underperform compared to established technologies in terms of price/performance.¹⁵⁶ This is particularly the case in the ongoing energy transition. Previous energy transitions were largely shifts towards cheaper and more convenient forms of energy. The transition from wood to coal and from coal to oil and natural gas were associated with greater energy production efficiencies and lower energy costs.¹⁵⁷ By contrast, the transition from fossil fuels to renewable energies is a shift towards initially more expensive and intermittent (i.e. not available all the time) energy sources.¹⁵⁸ This consideration suggests that renewable sources of energy are unlikely to overcome the dominance of fossil fuels without economic policy and regulatory changes.

Third, the major societal subsystems where sustainability transitions are most needed, such as the energy sector, are characterized by the presence of large and powerful incumbent firms. Such firms possess the necessary resources and competencies to drive the transition towards sustainability.¹⁵⁹ Transition studies, however, suggest that incumbent firms are likely to bring about (at best) incremental changes along established paths rather than the radical change required to achieve sustainability.¹⁶⁰ For example, fossil fuel-producing companies are more interested in Carbon Capture and Storage (CCS) technologies than in renewable energy technologies. The resistance of incumbent firms to radical change is often discussed in terms of ‘path dependence’ and ‘lock-in effects’, whereby incumbent firms defend existing systems and regimes even when change is environmentally and socially beneficial.¹⁶¹ Because of their vested interest in the existing energy system, incumbent firms have strong incentives to impede or at least delay the transition away from fossil fuels.¹⁶² They also have the capacity to capture

¹⁵⁶ Geels (n 155).

¹⁵⁷ See Roger Fouquet, ‘The Slow Search for Solutions: Lessons from Historical Energy Transitions by Sector and Service’ (2010) 38 *Energy Policy* 6586.

¹⁵⁸ Smil, *Energy Transitions* (n 21). The intermittency of some renewable energies stems from the fact that the wind does not always blow and the sun does not always shine. This problem can be overcome through the development of storage technology, but massive and energy storage technology is not yet readily available.

¹⁵⁹ Geels (n 155).

¹⁶⁰ See Markard, Raven and Truffer (n 142), at 955; Tomas Hellström, ‘Dimensions of Environmentally Sustainable Innovation: The Structure of Eco-Innovation Concepts’ (2007) 15 *Sustainable Development* 148.

¹⁶¹ See Gregory C Unruh, ‘Understanding Carbon Lock-In’ (2000) 28 *Energy Policy* 817.

¹⁶² See Ralph EH Sims, ‘Bioenergy to Mitigate for Climate Change and Meet the Needs of Society, the Economy and the Environment’ (2003) 8 *Mitigation and Adaptation Strategies for Global Change* 349 (emphasizing that ‘a rapid

governments and shape energy decision-making in their own interests.¹⁶³ This is exacerbated by the presence of technological and institutional lock-ins.¹⁶⁴ Fossil fuels are deeply embedded in existing financial, technological (e.g. transmission and distribution networks) and institutional structures (e.g. laws and regulations, public finance schemes, cultural values), making it harder for renewables to compete.¹⁶⁵ The key to the sustainable energy transition thus lies in the ability of countries to overcome these political, technological and institutional resistance to change.

These and similar other considerations have prompted transition scholars to pay more attention to the role of policy in the transition process. Their underlying conceptual proposition is that transitions cannot be controlled or managed in the traditional sense because of their complexity and uncertainty.¹⁶⁶ What one can do, however, is influence their speed and direction through various types of steering mechanisms.¹⁶⁷ This can, in principle, be done through market forces, but the unique features of sustainability transitions call for government intervention. This point is well stated by Van den Bergh and Kemp:

The main difference between many historical transition and the ones envisioned in the context of sustainable development is that, whereas the first type are with few exceptions autonomous and unintended, *the latter arguably require purposeful public guidance and interference*[...].¹⁶⁸ [Emphasis added]

transition toward new energy supply systems with reduced carbon intensity needs to be managed to [...] co-opt those stakeholders who retain strong interests in maintaining the status quo’’.’).

¹⁶³ See Neil Gunningham, ‘Confronting the Challenge of Energy Governance’ (2012) 1 *Transnational Environmental Law* 119, at 125.

¹⁶⁴ See Rob Raven, Suzanne Van den Bosch and Rob Weterings, ‘Transitions and Strategic Niche Management: Towards a Competence Kit for Practitioners’ (2010) 51 *International Journal of Technology Management* 57 (noting that the lock-in occurs at three levels: institutional, interest groups and technological), at 59. The sustainable energy transition requires not only changing electricity generation technologies but also ‘technological changes throughout the energy system’s infrastructure – transmission and distribution networks, supply chains, more advanced metering and appliances –as well as more social changes’’. ‘Catherine Mitchell and Bridget Woodman, ‘Regulation and Sustainable Energy Systems’ in Robert Baldwin, Martin Cave and Martin Lodge (eds), *The Oxford Handbook of Regulation* (Oxford University Press 2010), at 573.

¹⁶⁵ See Raven, Van den Bosch and Weterings (n 164); Geels (n 155).

¹⁶⁶ See Derk Loorbach and Jan Rotmans, ‘Managing Transitions for Sustainable Development’ in Xander Olsthoorn and Anna J Wiczorek (eds), *Understanding Industrial Transformation: Views from Different Disciplines* (Springer Science & Business Media 2006) (noting that ‘transitions defy control but they can be influenced’), at 9.

¹⁶⁷ *ibid.*

¹⁶⁸ Van den Bergh and Kemp (n 144), at 84. See also Mitchell and Woodman (n 164) (noting that ‘[a]lthough market-based mechanism may have a role to play in encouraging a shift, on the basis of current evidence it seems unlikely that this role will be more than a secondary one’.), at 573.

Transition scholars commonly assert that a combination of different transition policies is required to help accelerate and guide sociotechnical transitions towards sustainability.¹⁶⁹ The main purpose of these policies is to overcome the socio-technical and institutional lock-ins and to correct market failures. The recommended policy interventions typically take two broad forms. The first set of transition policies includes policies that create more favourable conditions for renewable energy technologies. For example, technology and innovation policies contribute to the generation and diffusion of knowledge, which is vital for new renewable energy technologies to emerge.¹⁷⁰ Deployment policies (e.g. feed-in tariffs) contribute to the formation of markets and up-scaling of renewable energy technologies. The second set of policies includes those that contribute to the destabilization and hence decline of the incumbent energy regime.¹⁷¹ Examples of such policies include the removal of fossil fuel subsidies, the introduction of carbon taxes and emission trading schemes and technology bans (e.g. nuclear power bans in Italy and Germany). Such policies put pressure on the incumbent and thereby facilitate the transition.

While much of the literature in the field of sustainability transitions is focused on the role of public policies in enabling transitions, there is a growing recognition that these policies do not operate in a legal vacuum.¹⁷² The transition literature is starting to pay attention to the regulatory

¹⁶⁹ See Jochen Markard, Marco Suter and Karin Ingold, ‘Socio-Technical Transitions and Policy Change – Advocacy Coalitions in Swiss Energy Policy’ (2016) 18 *Environmental Innovation and Societal Transitions* 215; Jan Rotmans, René Kemp and Marjolein van Asselt, ‘More Evolution than Revolution: Transition Management in Public Policy’ (2001) 3 *Foresight* 15; Derk A Loorbach, ‘Transition Management for Sustainable Development: A Prescriptive, Complexity-Based Governance Framework’ (2010) 23 *Governance* 161; Johan Schot and Frank W Geels, ‘Strategic Niche Management and Sustainable Innovation Journeys: Theory, Findings, Research Agenda, and Policy’ (2008) 20 *Technology Analysis & Strategic Management* 537.

¹⁷⁰ Markard, Suter and Ingold (n 169).

¹⁷¹ *ibid.* See also Bruno Turnheim and Frank W Geels, ‘Regime Destabilisation as the Flipside of Energy Transitions: Lessons from the History of the British Coal Industry (1913–1997)’ (2012) 50 *Energy Policy* 35.

¹⁷² See, e.g., Jan Coen Van Elburg and Derk A Loorbach, ‘A Transition Perspective on Regulation and Renewable Energy’ (2012) 4 *The European Business Review* 67 (making the case for consistent regulatory strategies to guide and accelerate sustainable energy transitions); Anaïs Guerry, ‘A Reflection on Some Legal Aspects of Decision Control in the Energy Transition Process: A Comparison of France and Germany’ in Jordi Jaria i Manzano, Nathalie Chalifour and Louis Kotzé (eds), *Energy, Governance and Sustainability* (Edward Elgar Publishing 2016) (exploring the legal tools used by members of civil society to influence local energy policy in Germany and France); Jorge E Viñuales, ‘Law and the Anthropocene’ (2016) C-EENRG Working Papers 2016–4 (discussing the role of law in managing climate-driven transitions), at 57–69; Klaus Bosselmann, ‘Germany’s “Energiewende”: What Can Environmental Law Scholarship Learn from It?’ in Jordi Jaria i Manzano, Nathalie Chalifour and Louis Kotzé (eds), *Energy, Governance and Sustainability* (Edward Elgar Publishing 2016) (tracing the legal and constitutional origins of the German energy transition policy framework, i.e. Energiewende, and the specific role that environmental lawyers played in initiating the process).

frameworks within which transition policies operate.¹⁷³ However, because of its key function in maintaining stability and predictability, the role of law is seen as one of protecting the status quo.¹⁷⁴ Transition scholars typically associate law with inflexible standards and administrative hurdles that stand in the way of transitions.¹⁷⁵ They claim that regulatory frameworks change slowly and cannot cope with the speed of change required to accelerate sustainability transitions. Van Elburg and Loorbach, for example, concluded that: ‘regulatory frameworks will always stay behind in the fast-moving track of energy transition’.¹⁷⁶ These observations have led to the prevalent view that law and legal institutions are obstacles to the sustainable energy transition.

Legal scholars also admit that law can be a barrier to the energy transition. Professor Uma Outka, for example, argued that ‘law is not exclusively an asset to such a transition - that the potential of resources like renewable energy and energy efficiency is bound up with barriers rooted in law’.¹⁷⁷ The energy sector is subject to laws designed for the pre-climate change energy landscape.¹⁷⁸ These laws have as such perpetuated and legitimized the continued dominance of fossil fuels in the energy market. Perhaps the most notable examples of such laws are found in national tax codes that encourage fossil fuel production and consumption or increase the cost of renewable energy sources (e.g. import duties on renewable energy technologies). Direct barriers to renewable energy development are also built into law in a range of areas.¹⁷⁹ Brown and Rossi, for example, have shown how public utility laws designed for a fossil-dominant energy sector present a barrier to the siting of transmission lines to serve renewable energy resources in the

¹⁷³ See Van Elburg and Loorbach (n 172) (noting back in 2012 that ‘[s]o far, however, there is little fundamental insight in the relation between transitions and the regulatory framework’), at 2.

¹⁷⁴ *ibid.*

¹⁷⁵ See Suvi Borgström and Volker Mauerhofer, ‘Developing Law for the Bioeconomy’ (2016) 34 *Journal of Energy & Natural Resources Law* 373, at 376.

¹⁷⁶ Van Elburg and Loorbach (n 172).

¹⁷⁷ Uma Outka, ‘Environmental Law and Fossil Fuels: Barriers to Renewable Energy’ (2012) 65 *Vanderbilt Law Review* 1679 (explaining how implicit support structure for fossil fuels is written into law in a range of areas including environmental law). Other legal scholars have also asked if environmental law is a barrier to the development of renewable energy sources. See, for example, Amy J Wildermuth, ‘Is Environmental Law a Barrier to Emerging Alternative Energy Sources?’ (2009) 46 *Idaho Law Review* 509 (arguing that current US environmental law neither hinder nor help the development of emerging alternative energy sources).

¹⁷⁸ See Outka (n 177) (noting that ‘Fossil energy dominance remains insulated by law that was crafted for a pre-renewables and pre-climate change equilibrium’), at 1721; see also Jerrold A Long, ‘Realizing the Abstraction: Using Today’s Law to Reach Tomorrow’s Sustainability’ (2009) 46 *Idaho Law Review* 341; Tomain (n 14) (noting that ‘traditional energy policy has outlived its useful life’), at 391.

¹⁷⁹ Outka (n 177).

United States.¹⁸⁰ Planning laws can also serve as barriers to renewable energy development to the extent that they set out restrictive planning permission requirements (e.g. for PV installations).

The importance of removing such legal bottlenecks is quite obvious.¹⁸¹ The growing environmental and energy security concerns are also putting pressure on existing legal frameworks to adapt to the rapidly changing energy landscape. Legal change, however, ‘occurs in context constrained by intrinsic and systemic barriers in and around the legal system’.¹⁸² Several factors, including the fragmentation of international energy/environmental energy law and the resistance of interest groups benefiting from the status quo, constrain the pace of legal change.¹⁸³ These factors also explain why law and policy choices often linger long after their original purpose has disappeared. The US tax code, for example, still has tax breaks that were introduced in response to the 1970s oil price shocks. Such considerations allow one to leap to the conclusion that law plays a role in delaying transitions.¹⁸⁴ This is, however, only one side of the coin: the positive role that law plays in enabling transitions cannot be overlooked. Legal scholarship has long recognized that law is a double-edged sword that can be used to suppress (‘social control’) as well as induce social change (‘social engineering’).

The idea that law can be an instrument of economic or social progress is not new. Much has been written over centuries about the interrelationship between law and social change.¹⁸⁵ Although

¹⁸⁰ Ashley C Brown and Jim Rossi, ‘Siting Transmission Lines in a Changed Milieu: Evolving Notions of the Public Interest in Balancing State and Regional Considerations’ (2010) 81 *Colorado Law Review* 705.

¹⁸¹ Legal obstacles could also be overcome through the interpretation of existing laws and regulations in light of the sustainable energy transition. For such suggestions, see Outka (n 177); Van Elburg and Loorbach (n 172).

¹⁸² Outka (n 177), at 1684.

¹⁸³ See *ibid.*, at 1684-1685; Holly Doremus, ‘Takings and Transitions’ (2003) 19 *Journal of Land Use & Environmental Law* 1 (arguing that it is ‘extraordinarily difficult to change the law’ because of status quo bias and regulatory inertia [i.e. the tendency of regulatory to resist change]), at 23-25; Oona A Hathaway, ‘Path Dependence in the Law: The Course and Pattern of Legal Change in a Common Law System’ (using path dependence theory to explain how/why early legal decisions become locked-in and resistance to change).

¹⁸⁴ The idea that law can be a barrier to progress is not new. Adam Smith, for example, noted in his *Lectures on Jurisprudence* that ‘the imperfection of the law and the uncertainty in its application’ was a factor that greatly retarded commerce’. See Adam Smith, ‘Lectures Jurisprudence’ in R. L. Meek, D. D. Raphael and Peter Stein (eds), *The Glasgow Edition of the Works and Correspondence of Adam Smith* (Oxford University Press 1978).

¹⁸⁵ The enduring debate surrounding the interplay between law and social change has revolved around the question of whether law is a reactor to or initiator of social change. For a comprehensive review of the literature on law and social change, see Steven Vago, *Law and Society* (10th edn, Routledge 2015) (Chapter 7); Catherine R Albiston and Gwendolyn M Leachman, ‘Law as an Instrument of Social Change’ in James D Wright (ed), *International Encyclopedia of the Social and Behavioral Sciences* (2nd edn, Elsevier 2015). It is important to note from the outset

there is no consensus over the efficacy of law to bring about social change on its own, there is general agreement that law is one of the most powerful instruments of social change.¹⁸⁶ As Friedmann noted in *Law in a Changing Society*, 'the law, through legislative and administrative responses to new social conditions and ideas, as well as through judicial re-interpretations of constitutions, statutes or precedents, increasingly not only articulates but sets the course for major social changes'.¹⁸⁷ The role of law as an instrument of change has become more pronounced in contemporary society.¹⁸⁸ Law and legal institutions are now widely used instruments of change across all domains of social life from education and transportation to environmental protection.

Environmental law illustrates the growing use of law to influence change in modern society. Recent decades have witnessed a rapid proliferation of national and international laws addressing climate change. According to the *2015 Global Climate Legislation Study*, over 800 climate laws have been adopted in 99 countries by the end of 2014.¹⁸⁹ An equally large number of environmental agreements have also been adopted at the international level. These laws represent deliberate attempts to regulate human activities to protect and preserve the natural environment.

There are several ways in which law in general and environmental law, in particular, can positively contribute to the transition towards a sustainable energy future. The ideal way would be to set mandatory targets for renewable energy and/or banning fossil fuels. However, although the binding renewable energy target under the EU Renewable Energy Directive and bans on the

that the notion of social change is not necessarily the same as that of sociotechnical transitions. The central focus of sociotechnical transitions is the technology (e.g. energy), while that of social change is social relationships. Social changes are generally understood as process whereby 'large numbers of people are engaging in group activities and relationships that are different from those in which they or their parents engaged in previously' (Vago, at 309). Such changes can be initiated by various factors including law (e.g. the adoption of the one-child policy in China).

¹⁸⁶ The argument that law may bring about social change places some faith in the efficacy of law and legal institutions. See David A Funk, 'Major Functions of Law in Modern Society' (1971) 23 *Case Western Reserve Law Review* 257, at 290; The relative advantages of law as an agent of change are attributed to 'the perception that the law in society is legitimate, more or less rational, authoritative, institutionalized, generally not disruptive, and backed by mechanisms of enforcement and sanctions. See Vago (n 185), at 337.

¹⁸⁷ See Wolfgang Friedmann, *Law in a Changing Society* (2nd edn, Columbia University Press 1972), at 513.

¹⁸⁸ See Yehezkel Dror, 'Law and Social Change' (1958) 33 *Tulane Law Review* 787 ('the growing use of law as a device of organized social action directed toward achieving social change seems to be one of the characteristics of modern society'); Lawrence M Friedman, *The Legal System: A Social Science Perspective* (Russell Sage Foundation 1975) ('attempted social change through law is a basic trait of the modern world').

¹⁸⁹ See Michal Nachmany and others, 'The 2015 Global Climate Legislation Study: A Review of Climate Change Legislation in 99 Countries: Summary for Policy-Makers' (Grantham Institute on Climate Change and the Environment, the Global Legislators Organization (GLOBE) & Inter-Parliamentary Union 2015).

use of nuclear energy in some countries are steps in the right direction, the world is far from ready for this ideal solution. The more realistic way is to create progressive legal frameworks that encourage renewable energy and discourage fossil fuels.¹⁹⁰ This entails not only enacting affirmative laws to promote renewable energy but also dismantling existing laws that support fossil fuels (and/or hinder the development of renewable energy sources).

The main conclusion that emerges from the foregoing discussion is that law can promote or, conversely, hinder the energy transition. This begs the question: which laws promote or hinder the transition? And it is within this context that this thesis sets out to examine the role of the WTO law on subsidies in enabling the transition towards sustainable energy.

1.5 Research Objectives and Methods

The regulation of energy subsidies in the WTO represents an area where international trade rules and climate policies have a significant potential for both conflict and synergy.¹⁹¹ It is crucial to examine the nature and extent of both the conflict and the synergy and explore ways for resolving the conflict and enhancing the synergy. This is particularly important in light of the ongoing sustainable energy transition. The WTO rules applicable to energy subsidies have the potential to help promote or hinder the transition. While they can positively contribute to the transition by deterring the subsidization of fossil fuels, they can also impede the transition to the extent that they prevent the subsidization of renewable energy sources. The overall aim of this thesis is to examine the adequacy or otherwise of existing WTO rules on subsidies in facilitating the energy transition, and thereby to contribute to the rich body of scholarship on trade and environment by providing a sector (energy) and policy (subsidy) specific assessment of the multifaceted interaction between international trade rules and climate change mitigation policies.

¹⁹⁰ These two legal undertakings are distinct but complementary and mutually reinforcing: ‘Law that promotes renewables is likely to be less effective absent reforms to remove the effects of legal frameworks supporting fossil energy. Conversely, removing barriers to renewable energy in existing frameworks may not be sufficient to stimulate a rapid, sector-wide transition without affirmative law to promote its growth’. Outka (n 177).

¹⁹¹ This view is also shared by Bigdeli, ‘The Prospects of Applying the “Fisheries Subsidies” Model to Energy Subsidies’ (n 71); Kulovesi, ‘International Trade Disputes on Renewable Energy’ (n 36).

The overarching research question that guides the thesis is: to what extent the existing WTO rules on subsidies advance or undermine the sustainable energy transition? This overarching research question is further broke down to two sub-questions that have been outlined in *section 1.2* earlier: Whether the WTO rules on subsidies are flexible enough to accommodate renewable energy subsidies (i.e. the negative question of the extent to which existing subsidy rules prevent the subsidization of renewable energy sources); and whether the current WTO rules applicable to energy subsidies are strict enough to deter the subsidization of fossil fuels.

The thesis employs a combination of reform-oriented doctrinal and interdisciplinary approaches to respond to these questions.¹⁹² Doctrinal research is not simply about ascertaining the precise state of the law on a particular point (e.g., whether there is an exception for renewable energy subsidies under the SCM Agreement). As noted by Hutchinson, 'good quality doctrinal research goes well beyond description, analysis, and critique, and invariably suggests ways the law could be amended or the philosophy, processes or administration of the law could be improved'.¹⁹³ This dimension of doctrinal research is often referred to as 'reform-oriented doctrinal research' or, simply, as 'reform-oriented research'.¹⁹⁴ A reform-oriented legal research seeks to 'intensively evaluate the adequacy of existing rules and recommend changes to any rules found wanting'.¹⁹⁵ This thesis takes a reform-oriented approach to evaluate the adequacy of existing WTO rules on subsidies in enabling the sustainable energy transition and recommend changes to these rules to the extent that they are found to be inadequate and not amenable to judicial resolution.

However, given the inherently interdisciplinary nature of energy subsidy regulation, the reform-oriented doctrinal approach needs to be complemented by an interdisciplinary approach in order to adequately address the underlying research questions. The importance of incorporating insights

¹⁹² See Ian Dobinson and Johns, 'Qualitative Legal Research' in Mike McConville and Wing Hong Chui (eds), *Research Methods for Law* (1st edn, Edinburgh University Press 2007) (noting that doctrinal and non-doctrinal legal research methodologies can be part of a large scale research project), at 20.

¹⁹³ Terry Hutchinson, 'The Doctrinal Method: Incorporating Interdisciplinary Methods in Reforming the Law' (2015) 3 *Erasmus Law Review* 1, at 3. See also Theunis Roux, 'Judging the Quality of Legal Research: A Qualified Response to the Demand for Greater Methodological Rigour' (2014) 24 *Legal Education Review* 173.

¹⁹⁴ See Terry Hutchinson and Nigel Duncan, 'Defining and Describing What We Do: Doctrinal Legal Research' (2012) 17 *Deakin Law Review* 83, at 101.

¹⁹⁵ See Enid Mona Campbell and Donald John MacDougall, *Legal Research: Materials and Methods* (Law Book Company 1967), cited in; Hutchinson and Duncan (n 194), at 101. Cited in *ibid*.

from other social science disciplines into legal analysis is well recognized.¹⁹⁶ As Wälde wrote back in 2008, 'leading practitioners and scholars have always been able to sharpen their analysis and application of law and contractual commercial transactions by a more than superficial understanding of the forces which underlie and determine the law'.¹⁹⁷ It is in this spirit that this thesis takes advantage of insights from other social sciences, most notably political science and economics. The preceding section has already established the wider humanities and social science foundations of the overarching research question that this thesis sets out to address. It is also evident from the research questions that this thesis is concerned not only with the nature, scope and limitations of existing multilateral rules on subsidies but also with their impact on policy-making (i.e. the subsidization of renewable energy and fossil fuels).

This thesis will not go as far as to claim like Brandeis that 'a lawyer who has not studied economics ... is very apt to be a public enemy,' but it recognizes the importance of economic insights to legal analysis.¹⁹⁸ To understand the regulation of energy subsidies properly, one needs to understand the non-legal factors that drive the law. Economics is the most important of such factors. To be sure, economics is not exact science. Subsidies and their regulation represent an area where there is much disagreement among economists. Economists also explain only how things work and not how they ought to work. It is rather for policymakers to make normative, value-based decisions.¹⁹⁹ Economics also has many other limitations, but these limitations are not excuses for not using the insights it offers. As Anne van Aaken puts it: 'being short-sighted is usually better than being blind' and 'if law-making and law-application should be firmly grounded in reality and fact-based, [international economic] lawyers should greatly welcome the

¹⁹⁶ See Lee Epstein and Gary King, 'Exchange: Empirical Research and the Goals of Legal Scholarship' (2002) 69 *The University of Chicago Law Review* 1.

¹⁹⁷ Thomas W Wälde, 'Editor's Note' (2008) 1 *The Journal of World Energy Law & Business* 1.

¹⁹⁸ See Louis D Brandeis, 'The Living Law' (1916) 10 *Illinois Law Review* 461, at 470. It should be stated from the outset that the author of this thesis has not studied economics as such, but took enough postgraduate courses in economics to understand the basic principles underlying the economics of energy subsidies.

¹⁹⁹ Luca Rubini, 'The Definition of Subsidy and State Aid. WTO and EC Law in Comparative Perspective' (PhD thesis, King's College London 2006), at 37.

use of social science and economics insights [with their limitations]’.²⁰⁰ No area of international economic law requires economic insights more than multilateral subsidy regulation.

The thesis involves an intensive use of both primary and secondary sources. The primary sources consisted of international legal instruments, WTO Panel and Appellate Body reports, regional and national legislations, and policy documents. The secondary sources of information used in this thesis have come from a range of sources including pertinent reports of international organizations, books, journal articles, newspapers and internet sources.

1.6 Scope and Structure

This thesis is organized in three parts comprising six chapters. The two chapters forming Part I (*chapter two* and *chapter three*) present the necessary background for the thesis. The main purpose of the second chapter is to define what constitutes an energy subsidy and provide a comprehensive overview of energy subsidies and identify their distinctive features. The intent here is to provide illustrative examples, but not to limit the legal analysis in the subsequent chapters to certain forms of energy subsidies. Although particular attention is paid to certain renewable energy and fossil fuel subsidies (e.g. feed-in tariffs and energy dual pricing) and jurisdictions (e.g. the top five greenhouse gas emitters), the scope of the thesis is not limited to certain forms of energy subsidies or jurisdictions. The thesis focuses not so much on specific energy subsidies or jurisdictions, but on the multilateral subsidy rules themselves. Placing the multilateral rules governing energy subsidies as the focal point of the analysis enables for a systematic and comprehensive assessment of their role in enabling or inhibiting the energy transition. *Chapter three* attempts to establish the economic and legal basis for the subsidization of renewable energy and the phasing out of fossil fuel subsidies. In exploring the legal basis, this chapter considers both binding and non-binding legal instruments relevant to energy subsidies

Part II deals with the legal analysis of existing multilateral subsidy rules and issues that arise from their application to energy subsidies (both to fossil fuel and renewable energy subsidies).

²⁰⁰ Anne Van Aaken, ‘Opportunities for and Limits to an Economic Analysis of International Law’ (2011) 3 *Transnational Corporations Review* 27, at 43.

Chapter four starts by discussing the rationales for the regulation of subsidies and the application of existing multilateral subsidy rules to energy subsidies. The chapter will further address the historical evolution of existing multilateral subsidy rules, their scope and coverage, and the policy thrust behind them. While *chapter four* focuses on the scope and application of existing multilateral subsidy rules to energy subsidies, *chapter five* focuses on their implications for the sustainable energy transition. It examines and compares the *de jure* and *de facto* policy space under the SCM Agreement for the subsidization of fossil fuels and renewable energy sources.

The conclusion that emerges from the legal analysis in these two chapters suggests that existing multilateral subsidy rules tend to undermine rather than support the energy transition. The question, therefore, arises as to how to make these rules work for, but not against the transition towards sustainable energy future. Part III addresses this question. *Chapter six* first considers the key issues and avenues for reforming the existing rules. After establishing that adjudication is not the appropriate way forward, the chapter explores various avenues for reform. In particular, it discusses the prospect and challenges of adopting various options ranging from the most ambitious (i.e. a new multilateral agreement on energy subsidies) to those that simply require modifying the existing subsidy rules to conform to the vision of sustainable energy transition.

Part I

Understanding Energy Transition Subsidy Policies

Chapter Two

Energy Subsidies: Definition, Scale and Taxonomy

2.1 Introduction

This chapter lays the foundation for the legal analysis in the subsequent chapters by providing an overview of the important features of both fossil fuel and renewable energy subsidies. Understanding the main features of fossil fuel and renewable energy subsidies is of vital importance for assessing the adequacy of the existing multilateral subsidy rules.

The chapter begins by addressing the thorny issue of defining energy subsidies (*section 2.2*). The term ‘subsidy’ is quite familiar in economics and law, but defining what precisely constitutes a subsidy has always been controversial. This chapter does not attempt to resolve the controversy, but to examine the subsidy definitions commonly used in the academic and policy literature and then sketch a working definition of energy subsidies. The chapter then moves onto the quantification of energy subsidies (*section 2.3*). This section explores the various energy subsidy estimates to understand the extent of global energy subsidies. This is followed by a comprehensive overview of the different forms of renewable energy and fossil subsidies (*section 2.4*). The intent here is to highlight some distinctive features of fossil fuel and renewable energy subsidies and provide illustrative examples. This empirical section will also attempt to highlight issues relevant to subsidy regulation in the multilateral trading system.

2.2 Defining Energy Subsidies

The definition of a subsidy, like that of beauty, varies with the beholder whose eye is focused on the object under scrutiny.

– US Congress, House Committee on Agriculture, 1972²⁰¹

²⁰¹ U.S. Congress, *Government Subsidy Historical Review* (US Government Printing Office 1972). Much in the same vein, Break noted that ‘One remarkable attribute of government subsidies is the capacity of the very words themselves to conjure up marvelously diverse images in different minds’. George F Break, ‘Subsidies as an Instrument for Achieving Public Economy Goals’ in U.S. Congress (ed), *The Economics of Federal Subsidy Programs: A Compendium of Papers* (US Government Printing Office 1972), at 1.

Governments have long used subsidies as policy instruments to advance particular political, economic and social goals.²⁰² One can trace the common usage of the term ‘subsidy’ back to several centuries, but considerable confusion prevails over what precisely constitutes a subsidy.²⁰³ The absence of a single and universally accepted definition of a ‘subsidy’ illustrates this confusion. The wide range of government actions/inactions that may be regarded as a subsidy has made the term notoriously difficult to define.²⁰⁴ This difficulty has led some scholars in the past to conclude that the term is ‘just too elusive’ to even attempt to define.²⁰⁵ While the difficulty of pinning down the concept of a subsidy to a single definition remains, many scholars and international organizations have attempted to define what constitutes a ‘subsidy’.

The SCM Agreement defines a ‘subsidy’ as a financial contribution by a government or any public body that confers a benefit on its recipients.²⁰⁶ This definition is the only internationally agreed legal definition of a subsidy; however, it is important to bear in mind that this definition is devised for (the purpose of) regulating subsidies that affect or distort international trade (see *section 4.5.1*). As Ricketts compellingly writes, subsidy is ‘a normative concept and is defined relative to desired ends’.²⁰⁷ Rubini, who wrote one of the most comprehensive books on the legal definition of subsidy and state aid, adds that the legal concept of subsidy is ‘not a fact, but an artificial construct of a given legal system for a practical purpose’.²⁰⁸ The point is that the notion of a subsidy may have different connotations in different contexts. What one considers as a

²⁰² See IEA, *World Energy Outlook 2011* (International Energy Agency 2011), at 509.

²⁰³ See Robert Looney, ‘Subsidies’ in RJ Barry Jones (ed), *Routledge Encyclopedia of International Political Economy* (Routledge 1999) (tracing the common usage of the term ‘subsidy’ back to the late Middle Ages, when the English Parliament granted funds to the King to supplement or replace royal duties and other taxes), at 1514.

²⁰⁴ Perhaps another reason that has made the term ‘subsidy’ notoriously difficult to define is the fact that it ‘has been frequently used to invoke an emotional response, rather than a clear analytical meaning’. See U.S. Congress, *The Economics of Federal Subsidy Programs* (US Government Printing Office 1972), at 7.

²⁰⁵ See the frequently quoted statement by Hendrik Houthakker: ‘My own starting point was also an attempt to define subsidies. But in the course of doing so, I came to the conclusion that the concept of a subsidy is just too elusive to define’. Hendrik S Houthakker, ‘The Control of Special Benefit Programs’ in U.S. Congress (ed), *The Economics of Federal Subsidy Programs: A Compendium of Papers* (US Government Printing Office 1972), at 7.

²⁰⁶ Art 1 of the SCM Agreement.

²⁰⁷ See Martin Ricketts, ‘The Subsidy as a Purely Normative Concept’ (1985) 5 *Journal of Public Policy* 401.

²⁰⁸ Having compared the definition of state aid (under EU law) and subsidy (under WTO law), Rubini emphasizes this point further: ‘a state aid or a subsidy is an operational concept that is artificially defined within a given legal and political system’. See Luca Rubini, *The Definition of Subsidy and State Aid: WTO and EC Law in Comparative Perspective* (Oxford University Press 2009), at 17 & 90. See also Andrew Lang, ‘Governing “As If”: Global Subsidies Regulation and the Benchmark Problem’ (2014) 67 *Current Legal Problems* 135 (similarly arguing that ‘The notion of a subsidy [...] is only ever defined for a specific purpose and relative to a particular context’), at 157.

‘subsidy’ may not necessarily qualify as a ‘subsidy’ under a specific legal definition. This, in turn, implies that restricting the concept of subsidy to the SCM definition from the outset runs the risk of excluding some government actions or inactions that are regarded as subsidies in the trade and environment debate on the regulation of energy subsidies.²⁰⁹ It is, therefore, imperative to first establish what is generally understood by the term ‘subsidy’ in the literature and then examine what do in fact constitute a ‘subsidy’ under the SCM Agreement. While Chapter 4 discuss the latter in detail, the rest of this section addresses the former.

The concept of subsidy has evolved considerably over the years and has been the subject of multiple definitions along the way. Steenblik nicely sums up this evolution:

When economists in the 18th century spoke of ‘bounties’ and those in the 19th century spoke of subsidies they generally had in mind government grants or, to use a more modern term, ‘state aids’. In recent years, however, the term ‘subsidies’ has been pressed into service as a catch-all for any benefit granted to an individual, firm or sector, including those resulting from government inaction.²¹⁰

Existing subsidy definitions range from as narrow as a direct cash payment by a government to a producer or consumer to as broad as any government action or inaction that affect prices or costs in favour of consumers or producers.²¹¹ This section starts with a detailed discussion of the subsidy definitions adopted by the leading international bodies working on energy subsidies and then attempt to formulate a working definition for the thesis.

One of the narrowest subsidy definitions comes from the United Nations System of National Accounts (UNSNA), which defines subsidies (for national accounting purposes) as:

Current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the

²⁰⁹ For example, as an instrument of international trade, the SCM Agreement may be unduly restrictive in terms of defining all subsidies, which may be environmentally harmful. See Anthony Cox, ‘Overview of Approaches for Assessing Subsidies’ in OECD (ed), *Subsidy reform and sustainable development: economic, environmental and social aspects* (Organization for Economic Co-operation and Development 2006), at 26.

²¹⁰ See Ronald P Steenblik, ‘Previous Multilateral Efforts to Discipline Subsidies to Natural Resource Based Industries’ in Michael Riepen (ed), *Report of proceedings on workshop on the impact of government financial transfers on fisheries management, resource sustainability, and international trade, 17-19 August 1998, Manila, Philippines* (Pacific Economic Cooperation Council 1999).

²¹¹ See UNEP, *Energy Subsidies: Lessons Learned in Assessing Their Impact and Designing Policy Reforms* (United Nations Environment Program 2003), at 21.

quantities or values of the goods or services which they produce, sell or import. They are receivable by resident producers or importers.²¹²

This definition highlights the important point that subsidies are one-way transfers by a government for which the government gets nothing of equivalent value in return. These transfers can be characterized in terms of their form (e.g. direct cash payments, benefit-in-kind, tax reductions); recipients (e.g. producers, consumers); objective (e.g. environmental protection, infant industry); and effect (e.g. changing prices or costs).²¹³ Subsidy definitions usually refer to one of these characteristics to limit their scope. The UNSNA definition, for example, is restrictive in terms of the particular form subsidies may take and the recipients of subsidies. First, the definition belies the fact that subsidies can take many forms other than direct cash payments. For example, it has long been established that tax concessions and exemptions have the same effect as that of direct budgetary transfers on government revenues.²¹⁴ As Ricketts pointed out, it is often the case that to give a firm or a person a direct payment or to reduce the tax which they have to pay will have identical effects.²¹⁵ This consideration has led economists to treat revenue forgone due to preferential tax treatments as a ‘subsidy’.²¹⁶ It has also led to the inclusion of government revenues forgone from not charging full costs for publicly owned assets (e.g. royalty relief) and loan guarantees or insurance liability into the definition of a ‘subsidy’. Moreover, it is now widely recognized that subsidies may also take the form of government provision of goods and services at below-market prices (in-kind subsidies) or government purchase of goods and service above-market prices (procurement subsidies). The UNSNA definition excludes these and other forms of subsidies. Second, the UNSNA definition also excludes subsidies to consumers. It considers transfers as subsidies only insofar as they are given to producers. The UNSNA treats transfers that governments make directly to consumers rather as ‘social benefits’.²¹⁷ Another important limitation of the UNSNA definition is that it only refers to payments linked to the level

²¹² See UN and others (eds), *System of National Accounts 2008* (United Nations 2009), at 148.

²¹³ See WTO, *World Trade Report 2006: Exploring the Links Between Subsidies, Trade and the WTO* (World Trade Organization 2006), at 49 et seq.

²¹⁴ See Ronald Steenblik, ‘Subsidy Measurement and Classification: Developing a Common Framework’ in OECD (ed), *Environmentally Harmful Subsidies: Policy Issues and Challenges* (Organization for Economic Cooperation and Development 2003), at 104-105.

²¹⁵ See Ricketts (n 207), at 403.

²¹⁶ See Steenblik, ‘Subsidy Measurement and Classification’ (n 214); Ricketts (n 207).

²¹⁷ See UN and others (n 212), at 148.

of commercial activity, thereby excluding, for example, grants that governments may make to firms in order to finance their capital formation.

The subsidy definitions commonly used in the energy subsidy literature are much broader than the UNSNA definition. The two most common energy subsidy definitions come from the OECD and the IEA.²¹⁸ The OECD defines a ‘subsidy’ as: ‘Any measure that keeps prices for consumers below market levels, or for producers above market levels or that reduces costs for consumers or producers’.²¹⁹ Much in the same vein, the IEA defines energy subsidies as: ‘Any government action directed primarily at the energy sector that lowers the cost of energy production raises the price received by energy producers or lowers the price paid by energy consumers’.²²⁰

These definitions suggest that any government action that alters energy prices or costs in favour of consumers or producers would constitute a subsidy regardless of the way in which it does so. On the one hand, the broad scope of the definitions leaves the concept of subsidies open-ended because they consider any government action as a subsidy even if it affects energy prices or production costs only indirectly. On the other hand, because of their emphasis on energy prices and production costs both definitions exclude government support measures that do not affect prices or production costs. However, some government support measures do not affect prices but do confer economic advantage.²²¹ Fuel vouchers to low-income households, for example, surely confer benefits upon their recipients, but hardly affect fuel prices.

Also excluded from the IEA/OECD definitions are government inactions. For example, a lack of government action to internalize the negative externalities associated with fossil fuel production and consumption does not constitute a subsidy under these definitions. The economic literature

²¹⁸ Note that, as with subsidies in general, there is no commonly agreed definition of an ‘energy subsidy’.

²¹⁹ See OECD, *Subsidies and the Environment: Exploring the Linkages* (Organization for Economic Cooperation and Development 1996). See also OECD, *Environmentally Harmful Subsidies: Challenges for Reform* (Organization for Economic Cooperation and Development 2005), (defining a subsidy as ‘a result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs’), at 16.

²²⁰ See IEA, *World Energy Outlook 2010* (International Energy Agency 2010), at 570. This definition was also used in the joint report on the scope of fossil fuel subsidies prepared by the IEA, OECD and the World Bank for the 2010 G-20 Summit. See IEA, OECD and World Bank, ‘The Scope of Fossil-Fuel Subsidies in 2009 and a Roadmap for Phasing out Fossil-Fuel Subsidies’ (International Energy Agency, Organization for Economic Cooperation for Development & World Bank 2010) Joint Report Prepared for the G-20 Summit, Seoul, 11-12 November 2010, at 5.

²²¹ See Ellis (n 59), at 13.

defines externalities as ‘benefits or costs, generated as a by-product of an economic activity, that do not accrue to the parties involved in the activity’.²²² External costs that stem from fossil fuel combustion are textbook examples of a negative externality. Greenhouse gas emissions from fossil fuel combustion harm people and the environment, but fuel prices hardly reflect the full costs of such harm –unless, of course, there is an effective carbon pricing policy in place.

Failure to internalize negative externalities leads to prices that do not reflect environmental and social costs. This has led some economists to define subsidies broadly to include a lax tax regime, which does not fully take account of environmental and social externalities as an ‘implicit’ subsidy granted to the entity causing such an externality.²²³ Nash et al., for example, argued that in sectors such as transport, where externalities are very important, the concept of a subsidy should include not only financial (explicit subsidies) but also social costs (implicit subsidies).²²⁴ The most notable of the implicit subsidies included in their definition are those that arise from the failure to internalize negative externalities. As noted in Chapter 1, Joseph Stiglitz also echoed this view when he argued that firms that do not pay for the environmental damage they inflict should be considered as subsidized. For Stiglitz ‘[a] subsidy means that a firm does not pay the full costs of production [and hence] not paying the cost of damage to the environment is a subsidy, just as not paying the full costs of workers would be’.²²⁵ Not paying the full costs of workers due to the existence of low labour standards is another example of an implicit subsidy - what some economists call ‘social subsidies’.²²⁶

Counting negative externalities as subsidies is contentious, however. In a 2003 OECD book on *Environmentally Harmful Subsidies*, Steenblik described the inclusion of uninternalized negative externalities in subsidy definitions as:

²²² See John Carlin, ‘Environmental Externalities in Electric Power Markets: Acid Rain, Urban Ozone, and Climate Change’ in Energy Information Administration (ed), *Renewable Energy Annual 1995* (US Department of Energy 1995), at 15.

²²³ See Steenblik, ‘Subsidy Measurement and Classification’ (n 214), at 107; Bigdeli, ‘Incentives Schemes to Promote Renewables and the WTO Law of Subsidies’ (n 131), at 156-157.

²²⁴ Chris Nash and others, ‘The Environmental Impact of Transport Subsidies’ (Organization for Economic Cooperation and Development 2002) paper prepared for the OECD Workshop on Environmentally Harmful Subsidies.

²²⁵ See Joseph E Stiglitz, ‘A New Agenda for Global Warming’ (2006) 3 *The Economists’ Voice* 1, at 2.

²²⁶ The term ‘social subsidies’ is not an accepted part of the trade policy vocabulary. Walter Goode, *Dictionary of Trade Policy Terms* (Cambridge University Press 2003), at 331.

An approach intuitively appealing to economists accustomed to thinking in terms of Pigouvian (i.e. corrective) taxes and subsidies [but] extremely difficult to reconcile with the way public finance and other practitioners, not to mention non-professionals, understand the concept of a subsidy'.²²⁷

Although it remains difficult to reconcile with the way the concept of a subsidy is generally understood, this approach (i.e. counting uninternalized negative externalities as subsidies) has received increased attention recently. A major factor driving the increased interest in this approach is the fact that the IMF has started using it for estimating fossil fuel subsidies (see *section 2.3.3*). First in 2013 and then in 2015, the IMF published estimates of global fossil fuel subsidies using a broad subsidy definition that includes the difference between what consumers pay for energy and its 'true costs' (that is, its supply costs plus the damage that energy consumption inflicts on people and the environment).²²⁸ Since their publication, the IMF fossil fuel subsidy estimates are widely cited but also widely challenged.

For some economists, counting a failure to internalize the social and environmental costs of energy as a 'subsidy' is simply 'rebranding externalities as subsidies' and a 'misleading abuse of language'.²²⁹ The gist of their argument is that externalities are not subsidies because they stem from a lack of government action, while subsidies are the result of a policy intervention. However, the issue is not just about rebranding externalities. Assigning monetary values for externalities is a controversial and problematic activity. This is because it involves quantifying and valuing social and environmental damages that are often uncertain and country-specific.²³⁰ There is also uncertainty as to the extent to which the externality can be directly attributed to the

²²⁷ Steenblik added that 'For many reasons, however, it is extremely difficult to reconcile with the way public finance and other practitioners, not to mention non-professionals, understand the concept of a subsidy'. Steenblik, 'Subsidy Measurement and Classification' (n 214), at 107-108.

²²⁸ See David Coady and others, 'Defining and Measuring Energy Subsidies' in Benedict Clements and others (eds), *Energy subsidy reform: lessons and implications* (International Monetary Fund 2013); Coady and others (n 33).

²²⁹ See, e.g., Sam Bowman, 'IMF Fuel Subsidies Are Not What They Seem' (24 May 2015) <<http://www.telegraph.co.uk/finance/comment/11627647/IMF-fuel-subsidies-are-not-what-they-seem.html>> accessed 28 September 2015. See also Gary Clyde Hufbauer, 'Mischaracterizing and Exaggerating Fossil Fuel Subsidies' (*Peterson Institute for international economics*, 16 June 2015) <<https://piee.com/blogs/realtime-economic-issues-watch/mischaracterizing-and-exaggerating-fossil-fuel-subsidies>> accessed 8 July 2016.

²³⁰ Frans H Oosterhuis and Patrick ten Brink, 'Introduction: High Hopes and Down-to-Earth Realism' in Frans H Oosterhuis and Patrick ten Brink (eds), *Paying the Polluter: Environmentally Harmful Subsidies and their Reform* (Edward Elgar Publishing 2014), at 5.

production or consumption of a particular fuel.²³¹ For example, the IMF attributes externalities such as traffic congestion and road damages to fossil fuel consumption, but the relationship between these externalities and fuel consumption is far from straightforward.

The foregoing discussion shows the ambiguity and confusion over what constitutes a subsidy. Much of the confusion is not about what a subsidy means as such but rather what should and should not be included in a subsidy definition– the scope. To borrow a metaphor, the concept of a subsidy is like an accordion –it stretches and contracts depending on the purpose at hand.²³² However, defining subsidies too narrowly (e.g. the UNSNA definition) or too broadly (i.e. the IMF definition).has significant implications especially for subsidy governance. An overly broad subsidy definition brings virtually all government actions and inactions under subsidy rules, whereas an extremely narrow definition leaves much out. Where to draw the line is the crucial question that researchers and policymakers alike constantly contend with. Article 1 of the SCM Agreement draws the line as far as international trade law is concerned, but no such clear line exists in international environmental and energy law.

This thesis defines energy subsidies broadly as *any government action that directly or indirectly benefits energy consumers or producers*. This definition applies to a wide range of fossil fuel and renewable energy support measures regardless of their form. Its scope is broader than the subsidy definition of the SCM Agreement in a sense that it is not limited to government support measures that take the form of ‘financial contributions’.²³³ The reason for adopting such a broad definition is to capture the diverse forms of government support measures beyond financial transfers and tax exemptions. Casting the net wide allows for a comprehensive assessment of the extent to which the multilateral subsidy rules constrain the policy space for the subsidization of renewables and fossil fuels. Moreover, solely relying on a legal definition and excluding some support measures from the outset would not reflect the actual practice appropriately.

²³¹ See Masami Kojima and Doug Koplou, ‘Fossil Fuel Subsidies: Approaches and Valuation’ (World Bank 2015) Policy Research Working Paper 7220, at 11.

²³² The metaphor is borrowed from the *Appellate Body Report, Japan - Taxes on Alcoholic Beverages (Japan – Alcoholic Beverages II)*, WT/DS8/R, WT/DS10/R, WT/DS11/R, adopted 1 November 1996, at 21.

²³³ See *section 4.5.2.1* for a detailed discussion on the scope of the subsidy definition of the SCM Agreement.

Perhaps an issue worth clarifying here is that of uninternalized negative externalities. The preceding discussion has made it clear that counting externalities as subsidies is a controversial issue subject to much debate. It is important to recognize that uninternalized externalities associated with fossil fuel combustion benefit those that generated the externalities (i.e. fossil fuel producers and consumers). To this extent, uninternalized externalities of fossil fuel combustion can have a significant effect on the energy market and hence on its environmental performance.²³⁴ However, counting uninternalized negative externalities as subsidies can lead to missing the trees for the forest. In other words, it creates confusion and diverts attention away from the more direct types of measures supporting the fossil fuel industry. The policy solution to uninternalized externalities is also different from the one for the commonly accepted forms of fossil fuel subsidies. Addressing negative externalities entails imposing a price on carbon while tackling fossil fuel subsidies entails merely removing the subsidies in question.

2.3 The Size of Energy Subsidies

The difficulty of measuring the extent of subsidies is well established. Break noted some three decades ago that: ‘whereas for most government spending programs it is only the benefits that are often elusive and difficult to quantify, for subsidy programs it is frequently both benefits and costs’.²³⁵ His observation is still valid today. Several factors contribute to the difficulty of measuring subsidies. First among these is the definitional ambiguity.²³⁶ The varying definitions of what constitutes a subsidy complicate their quantification.

The second source of difficulty is the issue of data availability and reliability. The reluctance of countries to provide subsidy information and the lack of systematic reporting of energy subsidies at the international level makes the task of identifying and quantifying energy subsidies extremely difficult.²³⁷ It is relatively straightforward to measure subsidies that appear on national

²³⁴ Ronald Steenblik, ‘A Global Survey of Potentially Environmentally Harmful Subsidies’, *Paying the Polluter: Environmentally Harmful Subsidies and their Reform* (2014).

²³⁵ Break (n 201), at 4.

²³⁶ IEA, OECD and World Bank (n 220), at 14.

²³⁷ See *ibid*, at 14; Ellis (n 59), at 12.

balance sheets as government expenditure (are therefore called ‘on-budget’ subsidies).²³⁸ The measurement of on-budget subsidies such as direct cash transfers is more of an accounting exercise.²³⁹ However, there are more complex forms of subsidies that do not appear on national accounts as government expenditure (are therefore called ‘off-budget’ subsidies).²⁴⁰ Quantifying off-budget subsidies is much more complex and heavily dependent on the availability of detailed subsidy information. The lack of transparency and wide variation across countries in data availability pose major obstacles to the quantification of energy subsidies.

The difficulty of measuring subsidies has meant that only limited comprehensive attempts have been made to estimate the extent of global energy subsidies. Most studies that measure energy subsidies adopt much narrower subsidy definitions that include only those subsidies that can be quantified and for which data are readily available.²⁴¹ The limited transparency and insufficient comparable information usually restrict the scope of energy subsidy estimates to specific types of subsidies or fuels in selected countries. Estimates for a wide range of countries currently come from three international organizations: IEA, OECD and the IMF.²⁴² It should be noted from the outset that the estimates provided by these three organizations are not directly comparable. This is due to a range of factors including differences in the subsidy definitions, the estimation

²³⁸ On-budget subsidies include the following: direct transfer of funds to producers and consumers; below-cost fees for government-provided infrastructure and services (non-general infrastructure and services); potential direct transfers of funds; and R&D support. See EEA, ‘Energy Subsidies in the European Union: A Brief Overview’ (European Environment Agency 2004) Technical Report 1/2004, at 128 et seq.

²³⁹ See Darryl Jones and Ronald Steenblik (eds), *Subsidy Estimation: A Survey of Current Practice* (Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) 2010), at 10. Perhaps the major challenge in the measurement of ‘on-budget’ subsidies worldwide is the different ways in which subsidies are financed and recorded in the budget across countries. See Elizabeth Bast and others, ‘The Fossil Fuel Bailout: G20 Subsidies for Oil, Gas and Coal Exploration’ (Overseas Development Institute & Oil Change International 2014), at 24 et seq. For a detailed discussion on what is normally included in the budget category ‘subsidies’ in national accounts, see Gerd Schwartz and Benedict Clements, ‘Government Subsidies’ (1999) 13 *Journal of Economic Surveys* 119, at 124 et seq.

²⁴⁰ Off-budget subsidies include: government revenues due are foregone or not collected; tax concessions (exemptions, allowances, credits, rate relief, tax deferral); debt concessions (write-offs and rescheduling); market-price guarantees (e.g. fixed prices, premiums or bonuses); regulatory support mechanisms (e.g. energy-mix requirements); and price support (e.g. production quotas, feed-in tariffs). See EEA (n 238).

²⁴¹ IEA, OECD and World Bank (n 220).

²⁴² Besides these three organizations, the Global Subsidies Initiative (GSI) provides country-specific fossil fuel subsidy estimates for selected countries, while the World Bank monitors subsidies to oil products worldwide. See Hao Xue and others, ‘Subsidies to Coal Production in China’ (Global Subsidies Initiative 2015) GSI Report; Masami Kojima, *Government Response to Oil Price Volatility: Experience of 49 Developing Countries* (World Bank 2009), respectively.

methods, the time period under consideration, and the types of energy and countries covered. There are also gaps and limitations in the energy subsidy estimates provided by all these three organizations. There are two key starting points to bear in mind when considering the energy subsidy estimates provided by these three organizations. First, only the IEA provides subsidy estimates for both fossil fuel and renewable energy subsidies. The OECD and the IMF provide estimates only for fossil fuel subsidies. Second, neither the OECD nor the IMF provides energy subsidy estimates on an annual basis like the IEA. Their energy subsidy estimates, however, will help develop a better picture of the magnitude of fossil fuel subsidies worldwide. *Table 2.1* below provides a comparison of the estimates of the three organizations, while the details behind the subsidy estimates of each organization are discussed in the following subsections.

Table 2.1: Comparison of Global Energy Subsidy Estimates

	Organizations		
	IEA	OECD	IMF
Fossil Fuel Subsidies	✓	✓	✓
Definition	Government actions that lower the price paid by energy consumers below the full cost of supply	Government support measures affecting the production and consumption	Pre-tax (consumer): price paid by consumers below a benchmark price Pre-tax (producer): Price received by producers above a benchmark price Post-tax: pre-tax subsidies plus taxes below efficient levels
Approach	Price-gap	Inventory	Price-gap for consumer subsidies and inventory for producer subsidies
Estimate	US\$525 billion (2015)	US\$160-200/year (2010-2014)	Pre-tax: & post-tax US\$5.3 trillion (2015)
Coverag	Producer	✗	✓
	Consumer	✓	✓
	Externalities	✗	✗

	Countries	39 countries	39 countries	176 countries
	Renewable Energy Subsidies	✓	✗	✗
	Definition	The difference between the levelized cost of electricity and the wholesale electricity price in each region		
	Approach	Survey approach		
	Estimate	US\$150 billion		
Coverage	Producer	✓		
	Consumer	✓		
	Countries	All countries		

Source: IEA (2016), OECD (2015) & Coady et al. (2015)

Despite the pronounced differences between the estimates from the three international organizations, the overall data clearly indicate that energy is heavily subsidized. The data also shows that fossil fuels are subsidized much more heavily than renewable energy sources. There is little doubt that this prevailing pattern of energy subsidies runs counter to the sustainable energy transition path that the world must take to combat the threat of dangerous climate change. The key question is how to reverse this pattern, and in the context of this thesis, what role - positive or negative - the multilateral subsidy rules play towards this end.

2.3.1 The IEA Energy Subsidy Estimates

The IEA is the main source of energy subsidy estimates. It is also the only organization that provides annual subsidy estimates for both fossil fuels and renewable energy. Its methodology and latest estimates of fossil fuel and renewable energy subsidies are discussed below.

2.3.1.1 Fossil Fuel Subsidies

The IEA has been measuring fossil fuel subsidies in a systematic and regular fashion since the late 1990s. Its fossil fuel consumption subsidy estimates are by far the most widely used source of energy subsidy information in the academic and policy literature.²⁴³ The IEA provides estimates of fossil fuel consumption subsidies using the price-gap approach. This approach compares the end-use prices paid by energy consumers with reference prices (i.e. prices that would prevail in a competitive market).²⁴⁴ Subsidies exist to the extent that domestic end-use prices are lower than the reference price. The difference between the two is then multiplied by the volume of energy consumed in the analysed period to calculate the absolute value of energy subsidies. The reference price reflects either the import or export border price adjusted for transportation and distribution costs, plus any country-specific taxes in the case of traded energy products or the long-run marginal cost of production in the case of energy products that are not commonly traded across borders, such as electricity.²⁴⁵ Subsidy estimates derived through the price-gap approach represent the opportunity cost of pricing domestic energy below competitive market levels for net energy exporting countries and explicit cost for net energy importers.

The advantage of the price-gap approach is its relative simplicity compared with other subsidy valuation methods. The price-gap approach does not require analysing individual energy-related policies in specific countries. The approach relies on end-use prices and estimates for reference prices to calculate the price gaps for each form of energy. This avoids the need for hard-to-find information on different types of government interventions in the energy sector. The main disadvantage of the price-gap approach is that it captures only government interventions that collectively result in lower final prices than those that would prevail in a competitive market. For

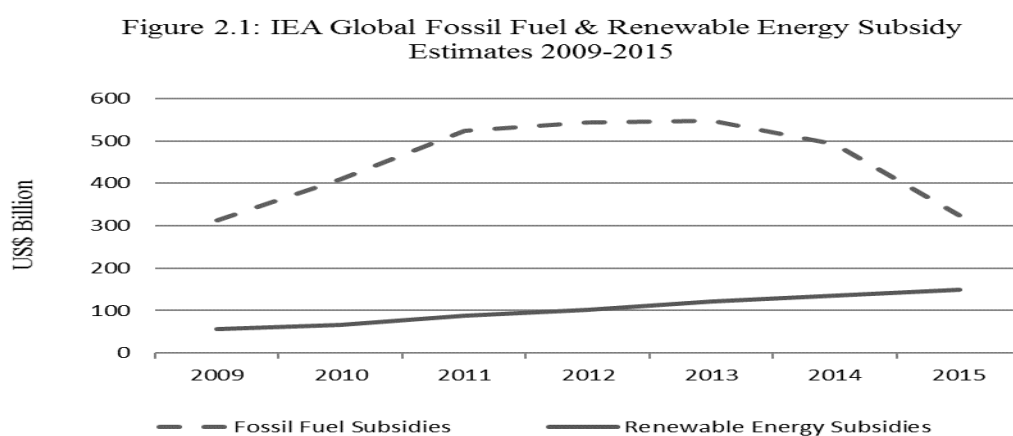
²⁴³ The estimates are published annually in the IEA flagship publication - the World Energy Outlook.

²⁴⁴ Determining the benchmark price for a price-gap analysis is a contentious issue. OPEC, for example, argues that the benchmark price to be used in the case of energy producing countries should be the cost of production but not an international market price. See IEA and others (n 55), at 16.

²⁴⁵ For net energy importing countries, the reference price is energy price at the nearest international hub adjusted for quality differences and the cost of freight and insurance to the importing country, plus the cost of internal distribution and marketing and any value-added tax (VAT). For net energy exporting countries, the reference price is energy price at the nearest international hub adjusted for quality difference, minus the cost of freight and insurance back to the exporting country, and plus the cost of internal distribution and marketing and any VAT. For a detailed discussion on how the IEA calculates end-use prices and reference prices, see IEA, *World Energy Outlook 1999: Looking at Energy Subsidies: Getting the Prices Right* (International Energy Agency 1999), at 73 et seq.

example, it does not capture energy subsidies that take the form of under collection of bills, tax concessions, fuel vouchers or other payments made directly to low-income households. The price-gap approach also excludes subsidies to energy producers. Another limitation of the IEA estimate is that it only covers 40 developing countries. Its narrow scope means that the price-gap approach can only produce a lower-bound estimate of actual fossil fuel subsidies. Since they are obtained through an approach that understates the magnitude of fossil fuel subsidies, the IEA's fossil fuel consumption subsidy estimates should be taken with considerable caution.

The IEA estimated fossil fuel consumption subsidies to be US\$325 billion in 2015.²⁴⁶ This figure represents subsidies to fossil fuels consumed by end-users and subsidies to fossil fuel inputs to electric power generation in 39 developing countries and emerging economies. Most of these subsidies are provided to oil consumption by households, industries and businesses (US\$ 145 billion), followed by electricity (US\$100 billion), natural gas (US\$80 billion) and coal (US\$1 billion).²⁴⁷ As shown in *figure 2.1*, fossil fuel subsidy estimates have fluctuated from year-to-year. This is due to fluctuations in international oil prices, consumption level of the subsidized fuels, exchange rates and general price inflation. Despite the yearly variations, the IEA estimates reveal that fossil fuel subsidies remain significantly high even in the face of growing intergovernmental efforts to eliminate them. The fall in global oil prices since mid-2014 is responsible for the decrease in global fossil fuel subsidies over the last two years.

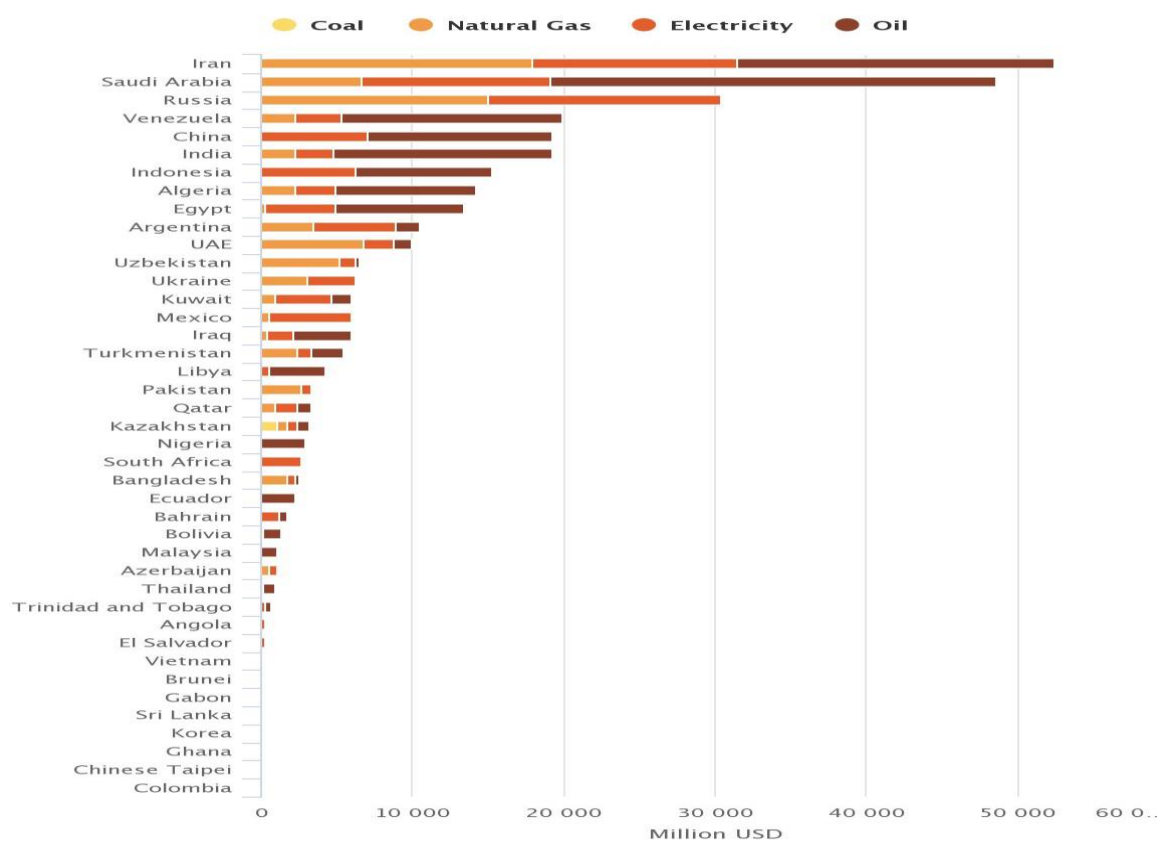


²⁴⁶ IEA, *World Energy Outlook 2016* (n 53).

²⁴⁷ *ibid*, at 99.

Figure 2.2 below shows the list of countries that subsidize the consumption of fossil fuels in 2015. One thing that is immediately apparent from the list is that fossil fuel consumption subsidies are prevalent in oil and gas exporting countries.²⁴⁸ Iran remains the single biggest fossil fuel subsidizing country with total fossil fuel consumption subsidies amounting to US\$52 billion, followed by Saudi Arabia (US\$49 billion), Russia (US\$30 billion), and Venezuela (US\$20 billion) and India (US\$19 billion).²⁴⁹ The top ten countries account for about 80 percent of the estimated global fossil fuel consumption subsidy in 2015.

Figure 2.2: IEA Fossil Fuel Consumption Subsidy Estimate by Country (2015)



Source: IEA 2016

²⁴⁸ The Middle East accounted for 42 percent (US\$130 billion) of global fossil fuel consumption subsidies. *ibid.*

²⁴⁹ See *ibid.*, at 100.

2.3.1.2 Renewable Energy Subsidies

The IEA calculates the overall value of renewable energy subsidies based on the difference between the levelized cost of electricity and the wholesale electricity price in each region.²⁵⁰ The difference between the amount paid to producers for the renewable electricity generated and the market value of electricity (the prevailing market price or reference price) is then multiplied by the volume of renewable energy subsidized. The IEA identifies subsidized renewable energy based on a survey of established national-level policies.²⁵¹

According to the latest estimate, countries around the world spent US\$150 billion in renewable energy subsidies.²⁵² The majority of these subsidies (US\$120 billion) went to the deployment of non-hydro renewables for power generation.²⁵³ The deployment of renewables in transport (biofuels) and other end uses (e.g. heating and cooling) received the remaining US\$30 billion. The IEA estimates indicate that renewable energy subsidies have grown rapidly in recent years, from US\$57 billion in 2009 to US\$150 billion in 2015. Their almost three-fold increase is good news for the renewable energy sector, but one should always bear in mind that they remain much lower than fossil fuel subsidies. This is despite the fact that while the IEA fossil fuel subsidy estimate is limited to consumption subsidies, the renewable energy subsidy estimate represents both production and consumption subsidies to renewable energy technologies.

The IEA attributes the recent rise in renewable energy subsidies to the expansion of subsidies for renewable energy sources in the power sector driven by the strong deployment of wind power and solar PV in OECD countries at first and then in non-OECD countries, most notably in China and India.²⁵⁴ However, although nearly all countries subsidize the development and deployment

²⁵⁰ See *ibid.* For full details of the IEA's methodology for estimating renewable energy subsidies, see IEA, 'Methodology for Calculating Subsidies to Renewables' (International Energy Agency 2012) <<http://www.worldenergyoutlook.org/weomodel/documentation/>> accessed 15 August 2016.

²⁵¹ The IEA and IRENA have built one of the most comprehensive databases for global renewable energy support measures. They established the joint database for global renewable energy support measures in 2012 and the database currently covers 117 countries across the world. See, IEA, 'Global Renewable Energy: IEA/IRENA Joint Policies and Measures Database' <<https://www.iea.org/policiesandmeasures/>> accessed 9 December 2016.

²⁵² See IEA, *World Energy Outlook 2016* (n 53).

²⁵³ Solar PV accounted for 50 percent of the subsidies for power generation, wind power for 30 percent, bioenergy for 17 percent and geothermal and CSP for 2 percent each. See *ibid.*, at 470.

²⁵⁴ IEA, *World Energy Outlook 2015* (n 20).

of renewable energy technologies worldwide, renewable energy subsidies are still concentrated in just a handful of countries. The top-ten countries accounted for almost 85 percent of the total renewable energy subsidies in 2015.²⁵⁵ Germany once again topped the list, followed by the United States, China, Italy, Japan, United Kingdom, Spain, France, India and Belgium.

2.3.2 The OECD Energy Subsidy Estimates

The OECD uses an inventory approach for estimating fossil fuel subsidies. The online *Inventory of Support Measures for Fossil Fuels* was created in 2011 to document and estimate government support measures affecting the production and consumption of fossil fuels.²⁵⁶ The scope of the inventory is defined by the broad concept of ‘support’ to ‘provide comprehensive information about policies that confer some level of support’.²⁵⁷ An important advantage of the inventory approach is that it provides both quantitative and qualitative information on the specific forms of measures that governments use to promote fossil fuel production and consumption.

The inventory has covered almost 800 individual measures supporting the production and use of fossil fuels in the 34 OECD countries and six large partner economies known as the BRICS (Brazil, China, India, Indonesia, Russian, and South Africa) by the end of 2016. All these measures are either direct budgetary transfers or tax expenditures. This is because the OECD decided to first concentrate on support measures for which there are readily available data. Data on budgetary transfers and tax expenditures is relatively easy to obtain from official government documents.²⁵⁸ It should, therefore, be noted that there are several other fossil fuel support measures, which are not yet added to the OECD inventory.

²⁵⁵ For example, the European Union accounted for more than half the estimated global subsidies to renewables for power (more than US\$60 billion), followed by the United States (US\$18 billion), China (almost US\$17 billion) and Japan (US\$10.5 billion). See IEA, *World Energy Outlook 2016* (n 42), at 100.

²⁵⁶ The inventory approach and the price gap approach are considered to be complementary. See OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (OECD Publishing 2015), at 23.

²⁵⁷ The OECD justifies its decision to use the broader concept of support than that of subsidies by noting that ‘the identification of subsidies to any sector or industry requires first taking an inventory of the full set of measures that may qualify as a support to the sector’. See *ibid*, at 26.

²⁵⁸ The fact that the inventory is based on data from government sources makes it reliable, however. OECD, *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* (OECD Publishing 2013), at 22; OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256), at 30.

The range of fuels covered by the inventory comprises both primary fossil-fuel commodities (e.g. crude oil, natural gas, coal, and peat) and secondary refined or processed products (e.g. diesel fuel, gasoline, kerosene, and coal briquettes).²⁵⁹ However, measures supporting the production or use of fossil fuel-generated electricity are not included in the inventory.

The almost 800 fossil fuel support measures contained in the inventory were estimated to have an overall value of US\$160-200 billion annually over the period 2010-2014.²⁶⁰ The bulk of this amount was accounted for by support for the consumption of petroleum products. Reflecting their relative share in countries' total primary energy supply, support for crude oil and petroleum products accounted for 82 percent, whereas coal and natural gas accounted for eight percent and 10 percent of the total amount, respectively.²⁶¹ The OECD estimate also shows the overwhelming predominance of fossil fuel consumption subsidies (more than 80 percent). All the BRICS countries supported consumption way more than fossil fuel production. Within the OECD, support for fossil fuel consumption tends to be predominant in countries with very limited fossil fuel extraction such as Italy, France and Sweden, whereas support for fossil fuel production are relatively significant in countries that extract considerable quantities of fossil fuels (e.g. Canada, Germany, the Russian Federation, and the United States).²⁶² These figures are in line with previous studies on fossil fuel subsidies. They confirm the worldwide prevalence of consumption subsidies and the concentration of production subsidies in energy-endowed countries.

2.3.3 The IMF Energy Subsidy Estimates

The IMF produces two sets of fossil fuel subsidy estimates: pre-tax and post-tax subsidies. Pre-tax consumer subsidies arise when the price paid by consumers is below a benchmark price, whereas pre-tax producer subsidies arise when producers receive either direct or indirect support that increases profitability above what it otherwise would be.²⁶³ The IMF pre-tax subsidy estimate is made up of fossil fuel consumption subsidies calculated using the price-gap approach and

²⁵⁹ See OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256), at 27.

²⁶⁰ See *ibid.*

²⁶¹ See *ibid.*, at 44.

²⁶² See *ibid.*, at 44-45.

²⁶³ Coady and others (n 33), at 11-12; see also Coady and others (n 228).

fossil fuel production subsidy estimate of the OECD (calculated based on the inventory approach).²⁶⁴ Post-tax subsidies, by contrast, include pre-tax subsidies plus a ‘corrective’ or ‘Pigouvian’ tax that accounts for the negative health and environmental externalities associated with fossil fuel consumption and the preferential tax treatment of fossil fuels.²⁶⁵ Post-tax subsidies are substantially higher than pre-tax subsidies – for example, they were 16 times larger than pre-tax-subsidies in 2015 (see *figure 2.3* below).

Figure 2.3: IMF Global Fossil Fuel Subsidy Estimate



Source: Coady et al., 2015

The latest IMF fossil fuel subsidy estimate puts pre-tax subsidies at US\$333 billion and post-tax subsidies at US\$5.3 trillion in 2015.²⁶⁶ The IMF estimates show that while pre-tax subsidies are on the decline, post-tax subsidies remain high. The IMF attributed the former to the fall in global energy prices and subsidy reform efforts in some countries.²⁶⁷ Post-tax subsidies remain significantly high due to high growth in global energy consumption. Coal is the most heavily subsidized energy product (reflecting the substantial undercharging for its environmental impacts) followed by petroleum, natural gas and electricity.²⁶⁸ Post-tax subsidies prevalent

²⁶⁴ However, it is worth noting that the 2013 IMF fossil fuel subsidy estimate included pre-tax producer subsidies of 12 OECD countries only. Coady and others (n 228), at 8; whereas the 2015 estimate included pre-tax producer subsidies of the 35 OECD countries plus the BRICS. Coady and others (n 33), at 12.

²⁶⁵ Coady and others (n 33), at 6.

²⁶⁶ US\$5.3 trillion is equivalent to 6.5 percent of global GDP. See Coady and others, ‘How Large Are Global Energy Subsidies?’ (n 25).

²⁶⁷ See *ibid*, at 18.

²⁶⁸ *ibid*.

throughout the world due to the absence of policy measures to internalize the negative externalities associated with fossil fuels. They are unsurprisingly high in countries with high-energy consumption. China (US\$2.3 trillion) leads the list followed by the United States (US\$699 billion), Russia (US\$335 billion), EU (US\$330 billion) and India (US\$277 billion).

2.4 Taxonomy of Energy Subsidies

Energy subsidies come in many different forms, but there exists no universally accepted taxonomy or classification system. They are categorized in a variety of ways, depending on the purpose of the classification.²⁶⁹ After a brief discussion on how subsidies are categorized in the fields of trade, energy and the environment, this section will overview the global renewable energy and fossil fuel subsidy landscapes. It will also attempt to highlight important issues pertaining to subsidy governance in the multilateral trading system.

The fields of trade, energy and environment classify subsidies in different ways. In international trade, subsidies are typically classified as ‘export subsidies’ and ‘domestic subsidies’.²⁷⁰ Export subsidies are those ‘granted contingent on export performance, or intended to directly stimulate export sales over domestic sales’.²⁷¹ Domestic subsidies, by contrast, are those granted for products regardless of whether they are exported or not. International trade law also makes a distinction between general and specific forms of subsidies (see *section 5.5.2.2*). Another classification of subsidies in international trade law is that of the SCM Agreement. Under the SCM Agreement, subsidies were originally classified into three categories based on their effects on international trade: prohibited subsidies; actionable subsidies; and non-actionable subsidies (see *section 4.5.3*). The SCM Agreement further categorizes subsidies into four specific

²⁶⁹ Although there are various classifications and typologies of subsidies, there is a shared understanding of the essential types of support that subsidies may comprise of. See Sacha Alberici and others, ‘Subsidies and Costs of EU Energy’ (European Commission 2014) Final Report, (Annex 1).

²⁷⁰ See Gary Clyde Hufbauer and Joanna Shelton Erb, *Subsidies in International Trade* (Institute for International Economics 1984); This classification is explicitly used in the Agreement on Agriculture; Agreement on Interpretation and Application of Articles VI, XVI, and XXIII of the General Agreement on Tariffs and Trade (Subsidies Code) 1975.

²⁷¹ U.S. Congress, *Dual Pricing of Natural Resources : Hearing before the Subcommittee on International Trade of the Committee on Finance United States Senate* (US Government Printing Office 1986). Similarly, Article 1(e) of the Agreement on Agriculture defines ‘export subsidies’ as ‘subsidies contingent upon export performance’.

categories based on their financial form: transfer of funds; government revenue forgone; provision of goods or services below market value; and income or price support.

In the environmental policy literature, subsidies are often categorized by their impact on the environment as environmentally harmful subsidies (EHSs) and environmentally friendly subsidies (EFSs).²⁷² Subsidies that have negative environmental effects are treated as environmentally harmful, whereas those that have positive effects on nature and the environment are deemed environmentally friendly or favourable.²⁷³ As noted by Van Beers et al., EHSs are ‘commonly applied with a non-environmental policy goal, and have unintentional environmental impacts’.²⁷⁴ This classification is now increasingly used in the context of energy subsidies to highlight the environmental implications of fossil fuel and renewable energy subsidies.

There are two broad ways of classifying subsidies in the energy sector.²⁷⁵ One way is classifying them by energy sources as ‘renewable energy subsidies’ and ‘fossil fuel subsidies’.²⁷⁶ Renewable energy subsidies are those that benefit renewable energy sources.²⁷⁷ This category comprises both subsidies for renewable energy (electricity) generation and subsidies to the production of renewable energy technologies (e.g. solar panels, solar cells, and wind turbines). Fossil fuel subsidies are those that benefit the production and consumption of fossil fuels.

²⁷² See OECD, *Environmentally Harmful Subsidies* (n 219); Steenblik, ‘A Global Survey of Potentially Environmentally Harmful Subsidies’ (n 234).

²⁷³ IEEP defines environmentally harmful subsidies as: ‘a result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs, but in doing so, discriminates against sound environmental practices’. It should be noted that this definition only encompasses government action. See Carolina Valsecchi and others, ‘Environmentally Harmful Subsidies (EHS): Identification and Assessment; Final Report for the European Commission’s DG Environment’ (Institute for European Environmental Policy 2009).

²⁷⁴ Cees van Beers and Jeroen CJM van den Bergh, ‘Perseverance of Perverse Subsidies and Their Impact on Trade and Environment’ (2001) 36 *Ecological Economics* 475, at 477.

²⁷⁵ See IEA, OECD and World Bank (n 220) (noting that ‘energy subsidies are frequently differentiated according to whether they confer a benefit to producers or consumer, or whether they support traditional fossil fuels or clean forms of energy’), at 6.

²⁷⁶ Nuclear power subsidies are occasionally discussed under the heading ‘subsidies to non-fossil fuel energy sources’ together with renewable energy subsidies. See IEA and others (n 55), at 21-23.

²⁷⁷ The IPCC defines renewable energy as ‘any form of energy from solar, geophysical or biological sources that is replenished by natural processes at a rate that equals or exceeds its rate of use.’ See Edenhofer and others (n 14), at 38. The definition of renewable energy sources encompasses: hydroelectricity, geothermal, solar photovoltaic, solar thermal, tide, wave, ocean, wind, solid biofuels, biogases, liquid biofuels and renewable municipal waste. See IEA, *Renewables Information 2015* (International Energy Agency 2015).

The second and most popular way of classifying energy subsidies is into producer and consumer subsidies. Consumer subsidies arise when the prices paid by consumers, including both firms (intermediate consumers) and households (final consumers), are below supply costs, including transport and distribution costs, while producer subsidies arise when prices received by producers are above this benchmark.²⁷⁸ As discussed in the following chapters, the distinction between producer and consumer subsidies has significant implications for energy subsidy governance in the multilateral trading system. Fossil fuel subsidies are provided to both consumers and producers, but the majority of renewable energy subsidies are targeted at producers. It is important to note, however, that the consumer-producer dichotomy in the renewable energy sector is not as clear-cut as in the conventional energy sector. A significant share of renewable electricity is generated worldwide by individual households that are both producers and consumers of renewable electricity, and hence commonly referred to as ‘prosumers’.²⁷⁹ Prosumers produce electricity from small installations located in their backyards or on residential or commercial buildings (i.e. rooftop solar panels) and either feed the electricity into the grid at feed-in-tariff rates or use it for self-consumption with net metering.

The literature also makes a similar distinction –usually in the context of renewable energy subsidies– between market-pull and technology-push subsidies (also referred to as ‘demand-pull’ and ‘supply-push’ subsidies, respectively).²⁸⁰ The origin of the market-pull versus technology-push dichotomy dates back to the 1960s and the heated debate over whether demand side or supply side factors are the primary determinants of technological progress and innovation.²⁸¹

²⁷⁸ See Coady and others (n 228), at 5.

²⁷⁹ For more on prosumers, see Nikolina Šajin, ‘Electricity “Prosumers”’ (European Parliament 2016) Briefing.

²⁸⁰ See, among others, Heymi Bahar, Jagoda Egeland and Ronald Steenblik, ‘Domestic Incentive Measures for Renewable Energy With Possible Trade Implications’ (2013) OECD Trade and Environment Working Papers 2013/01; Valeria Costantini and others, ‘Demand-Pull and Technology-Push Public Support for Eco-Innovation: The Case of the Biofuels Sector’ (2015) 44 Research Policy 577; Tamiotti and others (n 23), at 112; Emmanuel Guérin and Joseph Schiavo, ‘Pushing and Pulling: The Bumpy Road to Effective Renewable Energy Policy’ (2011) 5 BIORRES 1; Jeffrey M Loiter and Vicki Norberg-Bohm, ‘Technology Policy and Renewable Energy: Public Roles in the Development of New Energy Technologies’ (1999) 27 Energy Policy 85.

²⁸¹ For a comprehensive literature review of the demand-pull versus technology-push debate, see Michael Peters and others, ‘The Impact of Technology-Push and Demand-Pull Policies on Technical Change – Does the Locus of Policies Matter?’ (2012) 41 Research Policy 1296; Rod Coombs, Paolo Saviotti and Vivien Walsh, *Economics and Technological Change* (Rowman & Littlefield 1987); Benoit Godin and Joseph P Lane, ‘Pushes and Pulls: Hi(S)Tory of the Demand Pull Model of Innovation’ (2013) 38 Science, Technology, & Human Values 621; Gregory F Nemet, ‘Demand-Pull, Technology-Push, and Government-Led Incentives for Non-Incremental Technical Change’

Market-pull policies are intended to stimulate demand and pull the technology into the market – they are often equated with consumption subsidies.²⁸² Technology-push policies support the production of the technology in order to increase supply or foster innovation – the literature often equate them with production subsidies.²⁸³ For nearly five decades, scholars of technological change have been arguing over the relative importance of these policies in influencing the rate and direction of technological change. This debate has now substantively resolved. Modern scholarship recognizes the importance of both market-pull and technology-push policies in spurring innovation and that successful innovations are based upon the combination of market-pull and technology-push policies. The energy sector is replete with examples of both market-pull (e.g. grants and rebates, net metering, feed-in tariffs and premiums, sustainability standards and renewable portfolio standards) and technology-push policies and measures (e.g. R&D grants, preferential loans, loan guarantees and production and investment tax credits).

Energy subsidies are also classified according to the means through which they are implemented. The most popular classification of this kind is the one used in the IPCC special report on *Renewable Energy Sources and Climate Mitigation*.²⁸⁴ The report classifies renewable energy support measures into three categories based on their form: (i) fiscal incentives (e.g. grants and rebates, energy production payments, tax credits...etc.), (ii) public finance mechanisms (e.g. preferential loans, loan guarantees, public procurement...etc.) and (iii) regulatory measures (e.g. feed-in tariffs and premiums, renewable portfolio standards, tendering/bidding...etc.). These three broad categories comprise a variety of energy support measures (see *Table 2.2* below).

Table 2.2: Renewable Energy Support Measures

Policy	Explanation
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(2009) 38 Research Policy 700; Jens Horbach, Christian Rammer and Klaus Rennings, ‘Determinants of Eco-Innovations by Type of Environmental Impact — The Role of Regulatory Push/Pull, Technology Push and Market Pull’ (2012) 78 Ecological Economics 112.

²⁸² See Tamiotti and others (n 23), at 112; Bahar, Egeland and Steenblik (n 280).

²⁸³ See Tamiotti and others (n 23), at 112; Bahar, Egeland and Steenblik (n 280).

²⁸⁴ Edenhofer and others (n 14). This classification has also been used by the UN General Assembly and IRENA, see UNGA, ‘Promotion of New and Renewable Sources of Energy: Report of the Secretary-General’ (UN General Assembly 2011) A/66/100; IRENA, ‘Evaluating Policies in Support of the Deployment of Renewable Power’ (International Renewable Energy Agency 2012) IRENA Policy Brief.

Fiscal Incentives	Grants	Monetary assistance that does not have to be repaid and that is bestowed by a government for specified purposes to an eligible recipient.	
	Rebate	One-time direct payment from the government to a private party to cover a percentage or specified amount of the investment cost of a renewable energy system or service.	
	Energy production payment	Direct payment from the government per unit of renewable energy produced	
	Tax credit	Production tax credit	Provides the investor or owner of qualifying property with an annual income tax credit based on the amount of energy that it generates during the relevant year.
		Investment tax credit	Provides the investor or owner of qualifying property with an annual income tax credit based on the amount of money invested in that facility.
	Tax reduction or exemption	Reduction in tax - including but not limited to sales, value-added, energy or carbon tax - applicable to the purchase (or production) of renewable energy or renewable energy technologies.	
	Variable accelerated depreciation	Allows for reduction in income tax burden in first years of operation of renewable energy equipment.	
	Industrial support	Financial incentives to support the manufacturing and development of renewable energy technologies	
Public Finance Mechanisms	Investment	Financing provided in return for an equity ownership interest in a renewable energy company or project.	
	Loan guarantee	Risk-sharing mechanism aimed at mobilizing domestic lending from commercial banks for renewable energy companies and projects that have high perceived credit (i.e., repayment) risk.	
	Loan	Financing provided to a renewable energy company or project in return for a debt (i.e., repayment) obligation.	
	Public procurement	Public entities preferentially purchase renewable energy services (such as electricity) and/or renewable energy equipment.	
Regulations	Renewable	Obligates designated parties (generators, suppliers,	

	portfolio standard	consumers) to meet minimum (often gradually increasing) renewable energy targets, generally expressed as percentages of total supplies or as an amount of renewable energy capacity, with costs borne by consumers.	
	Tendering/bidding	Public authorities organize tenders for given quota of renewable energy supplies or supply capacities and remunerate winning bids at prices mostly above standard market levels.	
	Feed-in Tariff (FIT)	Fixed payment FIT	Guarantees renewable energy supplies with priority access and dispatch, and sets a fixed price varying by technology per unit delivered during a specified number of years
		Premium FIT	Guarantees renewable energy supplies an additional payment on top of their energy market price or end-use value.
	Green energy purchasing	Regulates the supply of voluntary renewable energy purchases by consumers, beyond existing renewable energy obligations.	
	Green labelling	Government-sponsored labelling (there are also some private sector labels) that guarantees that energy products meet certain sustainability criteria to facilitate voluntary green energy purchasing.	
	Net Metering	Allows a two-way flow of electricity between the electricity distribution grid and customers with their own generation.	
	Priority or guaranteed access to network	Provides renewable energy supplies with unhindered access to established energy networks.	
	Priority dispatch	Mandates that renewable energy supplies are integrated into energy systems before supplies from other sources	

Source: Adapted from IPCC, 2012

The distinctions between renewable energy and fossil fuel subsidies and between producer and consumer subsidies are of great relevance to any discussion on energy subsidies. This section uses these distinctions as a basis for discussing the spectrum of energy subsidies. They are, however, too broad to provide a clear and systematic framework for the discussion. Subsidies to the production and consumption of both renewable energy and fossil fuels come in many

different forms. The two options to categorize energy subsidies based on their specific financial form are that of the IPCC and the SCM Agreement.

Using the SCM classification may ease the discussion in the subsequent chapters. However, the problem with this classification is that the distinction between some of the categories is not clear-cut and creates controversy as to whether a particular form of energy subsidy falls under one or another category. One instance of such controversy concerns feed-in tariffs. Among the legal questions raised in *Canada-Renewable Energy/FIT* disputes was whether feed-in tariffs constitute the ‘purchase of goods’ or ‘income or price support’ within the meaning of the SCM Agreement (see *section 5.3.2.1*). Categorizing energy subsidies according to the IPCC classification into fiscal incentives, public finance mechanisms and regulatory measures will not only avoid such controversies but also allows for easier understanding and analysis. This classification also reflects the commonly applied system of classification in the energy policy literature.²⁸⁵ The following two subsections will discuss the more commonly used forms of renewable energy and fossil fuel subsidies (separately) using this classification. The purpose here is not to determine the efficiency or effectiveness of energy subsidies in facilitating the energy transition, but rather to expound their characteristics, and thereby create a broad understanding of the global energy subsidy landscape. In discussing the various forms of renewable energy and fossil fuel subsidies, this section attempts to highlight associated trade concerns and instances in which similar types of support measures have been the subject of adjudication.

2.4.1 Renewable Energy Subsidies

Countries around the world have adopted a broad range of laws and policies at the national and sub-national levels to support different stages of renewable energy production and consumption (from research, development and demonstration to deployment and commercialization). The number of renewable energy support Measures and countries with renewable energy policies has increased considerably, particularly since the late 1990s and early 2000s.²⁸⁶ Most of these policies

²⁸⁵ The main concerns with using the IPCC classification are: that it is predominantly used for categorizing renewable energy subsidies and it does not directly correspond to the SCM Agreement classification.

²⁸⁶ See Edenhofer and others (n 14), 874. There were almost 2000 renewable energy support policies and measures in the joint IEA/IRENA global renewable energy policies and measures database as of late. IEA, ‘IEA/IRENA Joint

were initially concentrated in developed countries, but an increasing number of developing countries have adopted renewable energy support measures over the last two decades.²⁸⁷ There are now more than 146 countries with at least one policy in place to promote renewable energy.²⁸⁸ These policies have been instrumental in accelerating the development and deployment of renewable energy technologies worldwide.²⁸⁹ This section starts by shedding some light on the main characteristics of renewable energy support measures in general and then delves into specific details about some of the most common forms of support mechanisms that may also qualify as ‘subsidies’ within the broad working definition outlined earlier.

Early renewable energy support measures were designed to support R&D in renewable energy technologies, but they have since evolved into technology deployment and market development.²⁹⁰ Fiscal incentives and financing mechanisms are also increasingly deployed to support the domestic manufacturing and development of renewable energy equipment such as solar cells and wind turbines. Government support to the manufacturing of renewable energy technologies is driven as much by the economic rationales of job creation and technological leadership as it is by the political rationales of climate mitigation and energy security.²⁹¹ By creating a fast-growing international market for renewable energy technologies, renewable energy support measures have created global competition in the renewable energy industry. The desire to be at the forefront of this competition has led some countries to pursue a proactive

Policies and Measures Database’ (n 251); these support policies take many different specific forms. In an earlier study, Tonn et al. found that 55 different types of policy mechanisms were in use for supporting renewable energy around the world. Bruce Tonn and others, ‘Power from Perspective: Potential Future United States Energy Portfolios’ (2009) 37 Energy Policy 1432; in another study, Sovacool identified 30 favoured renewable energy support mechanisms in Asia, Europe and North America. Benjamin K Sovacool, ‘The Importance of Comprehensiveness in Renewable Electricity and Energy-Efficiency Policy’ (2009) 37 Energy Policy 1529.

²⁸⁷ See Edenhofer and others (n 14); Wilson Rickerson, ‘Feed-in Tariffs and a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries’ (United Nations Environmental Program 2012).

²⁸⁸ See REN21, *Renewables 2016 Global Status Report* (n 31). To put this into context, only 55 countries had some kind of renewable energy target and/or support policy in early 2005. See REN21, *Renewables 2010 Global Status Report* (Renewable Energy Policy Network for the 21 Century 2010).

²⁸⁹ See among others, Edenhofer and others (n 14); IEA, *World Energy Outlook 2016* (n 53); Govinda R Timilsina, Lado Kurdgelashvili and Patrick A Narbel, ‘Solar Energy: Markets, Economics and Policies’ (2012) 16 Renewable and Sustainable Energy Reviews 449.

²⁹⁰ Evan Musolino, ‘Policy Support for Renewable Energy Continues to Grow and Evolve’ in The Worldwatch Institute (ed), *Vital Signs Volume 21: The Trends That Are Shaping Our Future* (Island Press 2014); Edenhofer and others (n 14).

²⁹¹ See Bahar, Egeland and Steenblik (n 280); Lewis (n 140).

industrial policy focused on renewable-energy technology development.²⁹² The potential adverse effects of renewable energy support measures on international trade have created serious tension between renewable energy support measures and international trade rules. This tension has already given rise to a series of international trade disputes (see *section 5.3.2.1*).

Recent years have witnessed a shift in the focus of renewable energy support policies ‘from a concentration almost entirely on electricity to include the heating/cooling and transportation sectors’, but the majority of these policies still support renewable power generation.²⁹³ By the end of 2015, over 150 countries have adopted policies for power generation, 75 have policies for renewables-based heat/cooling and 72 for renewables in transport.²⁹⁴ The total value of renewable energy subsidies for power generation was also more than four-times higher than subsidies for other sectors (i.e. heating/cooling and transport) in 2015.

The policy landscape for the renewable electricity sector is one of rapid and constant change. Renewable electricity support policies are continuously evolving as governments try to keep pace with changing market conditions brought on by technological innovation, increasing deployment, falling prices and shifting public opinion.²⁹⁵ This change is most apparent in the area of feed-in tariff policies – the most popular renewable energy support policy. Feed-in tariffs are currently in the midst of transition period with significant changes to rates and design in many countries, particularly in Europe (e.g. Spain, Italy, Romania, Czech Republic, Germany and the United Kingdom).²⁹⁶ The scaling back of renewable energy support policies has sparked the initiation of

²⁹² See Bahar, Egeland and Steenblik (n 280), at 11; Lewis (n 140).

²⁹³ See Edenhofer and others (n 14), at 874.

²⁹⁴ IEA, *World Energy Outlook 2016* (n 53), at 402. The gap is even more pronounced in the latest REN21 report: 114 countries with power policies, 66 countries with transport policies and 21 countries with heating and cooling policies. See REN21, *Renewables 2016 Global Status Report* (n 31), at 112 (figure 38).

²⁹⁵ See, among others, REN21, *Renewables 2016 Global Status Report* (n 31), at 109; Lincoln L. Davies, ‘Making Sense of the Rapidly Evolving Legal Landscape of Solar Energy Support Regimes’ (2016) 6 KLRI Journal of Law & Legislation 81.

²⁹⁶ Some of these changes were partly induced by the economic crisis. The recent global financial crisis, for example, has forced Spain to change its feed-in tariff retroactively by cutting the incentive provided to large scale ground-mounted PV systems by 45 percent and to medium-size installations by 25 percent for ongoing projects, and suspended the feed-in tariff for newly installed renewable energy generators. See Arjun Mahalingam and David Reiner, ‘Energy Subsidies at Times of Economic Crisis: A Comparative Study and Scenario Analysis of Italy and Spain’ (University of Cambridge 2016) Cambridge Working Paper in Economics 1608; Bahar, Egeland and Steenblik (n 280), at 33. See also REN21, *Renewables 2016 Global Status Report* (n 31); Lincoln L. Davies (n 295); Toby D Couture and others, ‘The Next Generation of Renewable Electricity Policies: How Rapid Change Is

a veritable wave of investment treaty claims against countries such as Spain, Italy and the Czech Republic in recent years. More than 25 investment treaty claims were pending against Spain, five against Italy, seven against the Czech Republic and one against Bulgaria as of 31 December 2016.²⁹⁷ Almost all of these claims are based on an alleged breach of the fair and equitable treatment standard provisions of the Energy Charter Treaty (ECT).

There are at least three important trends in the evolving renewable electricity policy landscape.²⁹⁸ One is the shift towards market-oriented policies such as tendering/bidding (see *section 2.4.1.1.3*). Renewable electricity support policies are becoming increasingly market-oriented as renewable energy technologies become more cost competitive (e.g. solar and wind power). Many countries are revising their support policies to adapt them to new market realities. Competitive tendering/bidding or renewable energy auctions are the most popular market-oriented renewable electricity support policies. More than 60 countries have adopted some form of auctions for renewable electricity generation in 2015.²⁹⁹ The increasing popularity of market-oriented support mechanisms reflects the increasing maturity of renewable energy technologies.

The second trend is the growing reliance on a combination of different policies. Many countries are now using a menu of policy incentives instead of a single policy approach to attract investment in renewable energy technologies.³⁰⁰ This is evident from *table 2.3* below. According to IRENA, the number of support policies in use per country is correlated with their level of income. While high-income countries employ an average of 4.8 different policies, it is only 2.2

Breaking Down Conventional Labels' (National Renewable Energy Laboratory 2015); Lincoln L Davies and Kirsten Allen, 'Feed-in Tariffs in Turmoil' (2014) 116 *West Virginia Law Review* 937; James Prest, 'The Future of Feed-in Tariffs: Capacity Caps, Scheme Closures and Looming Grid Parity' (2012) 3 *Renewable Energy Law and Policy Review* 25; Pablo del Río and Pere Mir-Artigues, 'A Cautionary Tale: Spain's Solar PV Investment Bubble' (Global Subsidies Initiative 2014).

²⁹⁷ For more details on the numerous investor-state disputes over renewable energy subsidy reforms, see Kim Talus, 'Introduction - Renewable Energy Disputes in the Europe and beyond: An Overview of Current Cases' (2015) 13 *Transnational Dispute Management* 1; A Reuter, 'Retroactive Reduction of Support for Renewable Energy and Investment Treaty Protection from the Perspective of Shareholders and Lenders' (2015) 12 *Transnational Dispute Management* 1; Daniel Behn and Ole Kristian Fauchald, 'Governments Under Cross-Fire? Renewable Energy and International Economic Tribunals' (2015) 12 *Manchester Journal of International Economic Law* 117; Anna De Luca, 'Renewable Energy in the EU, the Energy Charter Treaty, and Italy's Withdrawal Therefrom' (2015) 12 *Transnational Dispute Management* 1.

²⁹⁸ See, Lincoln L. Davies (n 295); Couture and others (n 296); IEA, *World Energy Outlook 2016* (n 53).

²⁹⁹ See REN21, *Renewables 2016 Global Status Report* (n 31); IEA, *World Energy Outlook 2016* (n 53).

³⁰⁰ See UNGA, 'Promotion of New and Renewable Sources of Energy: Report of the Secretary-General' (n 284), para 37. See Edenhofer and others (n 14), at 870.

policies for low-income countries.³⁰¹ Another related trend is the merging of two or more policies together. A typical example is linking feed-in tariffs to domestic content requirements (DCR) (e.g. India, Canada (Ontario and Quebec), Italy and Greece (see *sections 2.4.1.1.1 and 5.3.2.1.1*). This change is ‘breaking down policy labels’ and making policy comparisons that rely on conventional labels inadvisable, if not inappropriate.³⁰²

Table 2.3: Renewable Energy Support Measures by Country (2015)

Countries	Renewable energy targets	Regulatory Mechanisms							Fiscal Incentives and Public Financing				
		Feed-in tariffs and premiums	Renewable Portfolio Standards	Net metering	Biofuel mandates	Heat mandates	Tradable REC	Tendering	Grants or rebates	Tax credits	Tax reductions	Production payments	Public investment, loans or grants
Global (146)	135	81	29	53	66	21	28	64	59	44	100	24	83
High-income countries (49)	46	35	14	22	31	14	20	24	31	20	32	9	33
Middle-income countries (80)	73	42	15	31	30	7	7	36	25	21	52	13	40
Low-income countries (17)	16	4	0	0	5	0	1	4	3	3	16	2	10
Argentina	○	○		○	○			○	○	○	○	○	○
Australia	○	●	○		●	●	○	●	○				○
Brazil	○			○	○	●		○		○	○		○
Canada	●	●	●	●	○			○	○	○	○		○
China	○	○	○		○	○		○	○	○	○	○	○
Ethiopia	○				○						○		○
France	○	○			○	○	○	○	○	○	○		○
Germany	○	○			○	○			○	○	○		○
India	○	○	○	●	○	●	○	○	○	○	○	○	○
Japan	○	○	○	○			○	○	○				○
Italy	○	○		○	○	○	○	○	○	○	○		○

³⁰¹ IRENA, ‘Evaluating Policies in Support of the Deployment of Renewable Power’ (n 284), at 9.

³⁰² See Couture and others (n 296). The changing nature of renewable energy support policies also means that the discussion in this section can only reflect the situation at the time of writing.

Mexico	○			○				○		○			○
New Zealand	○								○				○
Nigeria	○	○			○				○		○		○
Russian Federation	○	○						○	○				
South Africa	○		○		○	○		○	○		○		○
South Korea	○		○	○	○	○	○		○	○	○		○
Turkey	○	○			○				○				○
United Kingdom	○	○	○		○		○		○		○	○	○
United States	●	●	●	●	○	●	●		○	○	○		○

Source: Adapted from REN21 2016³⁰³ ○National ●State/Provincial

The third is the gradual shift in policy targets. As noted by the IEA, the ‘Initial support policies were targeted at bridging a large cost gap between renewable and conventional energy sources, but recent initiatives have moved towards reducing the risk of capital-intensive investments in the renewable electricity sector’.³⁰⁴ Various instruments are now being used worldwide to reduce the costs and risks of investing in renewable energy.

An increasing number of countries have adopted policies to promote the deployment of renewables-based heat and cooling. These policies often take the form of fiscal incentives (e.g. grants and tax credits) and building standards (e.g., countries such as Israel, Spain, Brazil, Denmark, Sweden, and South Africa have building standards that require new buildings to have a certain share of heat supplied from renewables). The French Heat Fund and the German Market Incentive Program are two of the most popular renewable heat support policies.³⁰⁵ Both policies offer a range of fiscal incentives (e.g. R&D grants and tax reductions) for the production of heat from renewable energy sources such as biomass, geothermal and solar power.

³⁰³ These 20 countries are chosen by the author to show the type of renewable energy support policies used by countries in different regions and levels of economic development. For renewable energy support policies used by all countries, see REN21, *Renewables 2016 Global Status Report* (n 31) (Table 4).

³⁰⁴ See IEA, *World Energy Outlook 2016* (n 53), at 402.

³⁰⁵ The French Heat Fund was established in 2008 pursuant to Article 19(4) of Grenelle I to support the production of heat from biomass, geothermal energy, solar thermal and heat pumps. Likewise, the Marktanzreizprogramm was introduced in 1999 to support renewables-based heat generation from biomass, solar power and geothermal energy. For more, see IEA, ‘IEA/IRENA Joint Policies and Measures Database’ (n 251).

A growing number of countries have also implemented a range of policies to support renewables-based transport. Most of these policies are focused on road transport and biofuels.³⁰⁶ Biofuel policies often aim to promote domestic consumption or production through a wide range of instruments. They typically take the form of blending mandates (e.g. Brazil³⁰⁷ and the United States and the EU Member States), exemption from fuel excise taxes (e.g. Canada, United States and the EU Member States), and tax credits for companies that blend biofuels with petroleum fuels (e.g. India and the United States).³⁰⁸ These policies have influenced the development of international trade in liquid biofuels such as ethanol and biodiesel. They have also become sources of international trade disputes in recent years.

In 2013, for example, Argentina requested consultations with the European Union regarding its *Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry*.³⁰⁹ While this dispute remains in the consultations stage (see *section 5.3.2.1*), Argentina brought another case, namely *EU- Biodiesel*, challenging certain aspects of the anti-dumping measures imposed by the EU on imports of biodiesel from Argentina to protect European biodiesel producers from ‘unfair’ trade practices – dumping.³¹⁰ The emergence of trade disputes over biofuel support policies reflects the growing economic importance of the biofuels industry. Several jurisdictions now have biofuel support schemes that discriminate in favour of domestic producers or feedstocks.³¹¹ The Canadian province of Nova Scotia, for example, exempts from the provincial fuel excise taxes only biodiesel produced within the province. The U.S. State of Montana provides fuel-excite tax refund for taxes paid on biodiesel produced

³⁰⁶ See IEA, *World Energy Outlook 2016* (n 53), at 403; Edenhofer and others (n 14), at 153.

³⁰⁷ Brazil enacted a new law (‘Law No 13.263’) in March 2016 increasing the mandatory biodiesel blend target from 5 percent to 8 percent starting from March 2017, to 9 percent from March 2018 and to 10 percent from March 2019. See IEA, ‘Mandatory Biodiesel Requirement’ IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=Brazil>> accessed 23 August 2016.

³⁰⁸ See Bahar, Egeland and Steenblik (n 280), at 50-71. Some jurisdictions have also introduced measures to increase the distribution infrastructure for renewable fuels (e.g. United States [public funds to expand pump infrastructure for ethanol fuel blends]. See IEA, *World Energy Outlook 2016* [n 53].

³⁰⁹ See WTO, ‘Request for Consultations by Argentina, European Union and Certain Member States – Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry (EU – Biodiesel Support Measures)’ (2013) WT/DS459/1.

³¹⁰ See *Appellate Body Report, European Union – Anti-Dumping Measures on Biodiesel from Argentina (EU - Biodiesel)*, WT/DS473/R, adopted 26 October 2016.

³¹¹ See for an overview of discriminatory biofuels support schemes, Bahar, Egeland and Steenblik (n 280).

entirely from biodiesel components made in Montana. In *US-Renewable Energy*³¹², for example, India included this and other parts of the Montana biofuel support scheme in its consultations request with the United States as potential WTO-inconsistent subsidies (see *section 5.3.2.1*).

What emerges from the preceding discussion is that governments use a broad range of policies to support multiple stages in the renewable energy value chain. Using the classification outlined in *Table 2.2*, the following subsections explore the main forms of renewable energy support measures in use today around the world with specific examples.

2.4.1.1 Regulatory Measures

Regulatory measures comprise a broad spectrum of quantity- and price-driven measures designed to promote the deployment of renewable energy technologies (see *Table 2.2*). Price-driven measures such as feed-in tariffs set the price and allow the market to determine the volume, whereas quantity-driven measures such as biofuel blending mandates and renewable portfolio standards set targets for the volume of renewable energy to be achieved and allow the market to determine the price.³¹³ Many countries use a combination of price- and quantity-driven measures to encourage the uptake of renewable energy across all the three end-use sectors (electricity, heating/cooling and transportation) (see *table 2.3*). Some of the most common forms of regulatory policy measures are discussed below for illustrative purposes.

However, before proceeding, it is useful to briefly reflect on why the subsidy literature considers regulatory measures as ‘subsidies’. Governments support the production and consumption of

³¹² WTO, ‘Request for Consultation by India, United States – Certain Measures Relating to the Energy Sector (US – Renewable Energy), WT/DS510/1’ (2016) WT/DS510/1, G/L/1149.

³¹³ There are also quality-based mechanisms such as green energy purchasing and labelling requirements (e.g. Switzerland, Australia, Japan, EU Member States and the United States). These regulations require energy suppliers to provide information about the quality of their energy products to help final consumers make voluntary decisions and drive demand for renewable energy (mostly for renewable electricity but also for heat and transport). See Edenhofer and others (n 14), at 152 & 894. Some of these mechanisms are government mandated, while most are voluntary. The most typical example of the former is Directive 2009/28/EC of the European Parliament and of the Council, which obliges the EU Member States to issue (upon request) green certificates (‘guarantees of origin’) for renewable energy. The certificates serve as a proof to a final customer that a given share or quantity of energy was produced from renewable sources. See Article 2(j) and 15 of the Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, Official Journal of the European Union L 140/63.

goods and services in different ways. We have seen early on that the traditional understanding of subsidies is confined to those support measures that appear in public accounts (and to a lesser extent in tax codes). However, governments also provide equivalent support through regulations. Feed-in tariffs, for example, produce similar effects to traditional forms of subsidies (e.g. direct financial transfers) to the extent that they facilitate the transfer of economic resources from electricity consumers or government to renewable electricity producers by setting an above market price for renewable energy.³¹⁴ Perhaps the only major difference between regulatory measures and the traditional forms of subsidies is the way in which they confer economic advantages or benefits. Feed-in tariffs transfer economic resources from the government or consumers to renewable energy producers through third parties (i.e. public or private utility companies required to buy electricity generated from renewable energy sources at above-market prices), while traditional forms of subsidies transfer economic resources directly and immediately from government to the beneficiaries (i.e. renewable electricity producers).

Much of the controversy over whether regulatory measures qualify as ‘subsidies’ stems from the fact that regulatory measures (unlike the commonly accepted forms of subsidies) do not necessarily involve cost to the government.³¹⁵ The controversy is more pronounced in law than in economics. Most economists accept that regulatory measures qualify as subsidies insofar as they create a transfer of economic resources from one group to another.³¹⁶ What matters most from an economic standpoint is the effect, i.e. the conferred economic advantage, but not the nature or form of the measure, the objectives pursued or the origin of the resources transferred.³¹⁷ The legal notion of subsidy is usually less inclusive than the economic one. Broadly defining subsidies to

³¹⁴ Luca Rubini, ‘Subsidies for Emissions Mitigation under WTO Law’ in Geert van Calster and Denise Prévost (eds), *Research Handbook on Environment, Health and the WTO* (Edward Elgar Publishing 2013), at 572.

³¹⁵ See Luca Rubini, ‘The “Elusive Frontier”: Regulation under EC State Aid Law’ (2009) 8 *European State Aid Law Quarterly* 22. See also Howse, ‘World Trade Law and Renewable Energy’ (n 131); Howse and Eliason (n 131).

³¹⁶ Whether subsidy is what costs the government or benefits the recipient is the subject of decades-long debate in the multilateral trading system. We will return back to this debate in chapter three, but it is worth noting here that the economic notion of subsidies covers not only public-private transfers but also government-induced transfers between private parties (e.g. minimum purchasing price requirements). See WTO, *World Trade Report 2006: Exploring the Links Between Subsidies, Trade and the WTO* (n 213), at 49.

³¹⁷ Cadot et al. for example, demonstrate that preferential rules of origin amount to export subsidies for intermediate goods industries in the preference-providing country. See Olivier Cadot, Antoni Esteveordal and Akiko Suwa-Eisenmann, ‘Rules of Origin as Export Subsidies’ in Olivier Cadot and others (eds), *The Origin of Goods: Rules of Origin in Regional Trade Agreements* (Oxford University Press 2006).

include the broad category of regulatory measures is perceived as a threat to the autonomy of states over domestic policy-making. Such concerns often result in the absence of explicit reference to regulatory measures in legal definitions, leaving room for controversy over the status of regulatory measures under subsidy rules. The emergence of trade disputes in recent years over regulatory measures such as export restraints and feed-in tariffs has given fresh impetus to the controversy in the multilateral trading system. We will take up this debate in chapter five, while the remainder of this section offers a brief overview of some of the common forms of regulatory measures in the renewable energy sector to help inform the debate.

2.4.1.1.1 Feed-in Tariffs and Premiums

Feed-in tariffs (FITs) are price-driven incentives for the production of energy (primarily electricity and heat) from renewable energy sources.³¹⁸ They have been the most common forms of renewable energy support measures both in developed and developing countries alike. Modern FITs were first introduced in Germany in 1990 but quickly spread to the rest of the world.³¹⁹ As can be seen from *table 2.3* above, several variations of FITs are now in force in more than 81 countries, at varying levels of development and across all continents.

³¹⁸ There is an extensive literature that compares the merits and performance of renewable energy support scheme. Most of these studies conclude that well-designed and implemented feed-in tariff schemes have produced the quickest, lowest-cost deployment of renewable technologies. See Miguel Mendonça, *Feed-in Tariffs: Accelerating the Deployment of Renewable Energy* (Earthscan Publications 2007); Benjamin K Sovacool, 'A Comparative Analysis of Renewable Electricity Support Mechanisms for Southeast Asia' (2010) 35 *Energy* 1779; CG Dong, 'Feed-in Tariff vs. Renewable Portfolio Standard: An Empirical Test of Their Relative Effectiveness in Promoting Wind Capacity Development' (2012) 42 *Energy Policy* 476; Lucy Butler and Karsten Neuhoff, 'Comparison of Feed-in Tariff, Quota and Auction Mechanisms to Support Wind Power Development' (2008) 33 *Renewable Energy* 1854; Doerte Fouquet and Thomas B Johansson, 'European Renewable Energy Policy at Crossroads—Focus on Electricity Support Mechanisms' (2008) 36 *Energy Policy* 4079; Janet L Sawin, 'National Policy Instruments: Policy Lessons for the Advancement & Diffusion of Renewable Energy Technologies Around the World' (International Conference for Renewable Energies 2003) Thematic Background Paper; Pablo del Río and Pedro Linares, 'Back to the Future? Rethinking Auctions for Renewable Electricity Support' (2014) 35 *Renewable and Sustainable Energy Reviews* 42.

³¹⁹ Although there is some dispute about where the first feed-in tariff was introduced, the origin of feed-in tariffs is often traced to the 1978 Public Utility Regulatory Policies Act (PURPA) of the United States. For a good historical account of feed-in tariffs, see Lincoln L. Davies (n 295); David Jacobs, *Renewable Energy Policy Convergence in the EU: The Evolution of Feed-in Tariffs in Germany, Spain and France* (Routledge 2012).

A typical feed-in tariff scheme has four key components.³²⁰ First, it offers a guaranteed price or premium for each unit of electricity or heat produced from qualified renewable energy sources and fed into the grid. The tariff rates are usually differentiated according to the technology used and the size of the installation (e.g. industrial scale versus residential rooftop).³²¹ More expensive technologies such as solar PV usually receive higher tariff rates than mature technologies such as hydro and onshore wind.³²² This is notwithstanding the fact that tariff rates are almost always above the prevailing market price for fossil fuels. They are often set high enough to ensure that renewable energy producers/investors obtain a reasonable return on their investment.³²³ In some countries the tariff rates are fixed over the lifespan of the contract (e.g. China), while in others they vary over time, for example, to take into account inflation (e.g. Canada, France, Ireland and Spain) or exchange rates (e.g. Ukraine).³²⁴ Tariff rates usually decline over time as renewables become more cost-competitive with conventional energy sources.³²⁵ The feed-in tariff schemes of countries like Germany and Malaysia offer tariff rates that decline over time.

Second, it guarantees renewable energy producers access to the grid. The guaranteed access to the grid (often supplemented by priority access and dispatch rights) aims to break down a major entry barrier for renewable energy producers.³²⁶ Third, it obliges utility companies or other grid operators to purchase the full amount of energy produced from eligible renewable energy producers (including households and business). The mandatory purchase requirements provide renewable energy producers with much-needed certainty by eliminating the risk of needing to find a

³²⁰ Feed-in tariffs are often presented as two-pronged policy instruments with a ‘feed-in’ and ‘tariff’ element. But such descriptions understate their two other important elements: the mandatory purchase requirement and the long term purchase guarantee. See Lincoln L. Davies (n 295), at 94-98; Felix Mormann, ‘Enhancing the Investor Appeal of Renewable Energy’ (2012) 42 *Environmental Law* 681, at 693-94.

³²¹ See Bahar, Egeland and Steenblik (n 280), at 30; Mendonça (n 318), at 26-27.

³²² Bahar, Egeland and Steenblik (n 280).

³²³ It is important to set the tariffs at the right level. Setting them too low may not attract the desired investment, while setting them too high may lead to windfall profits for investors and affects the cost-effectiveness of the scheme in general. There are many historical examples of feed-in tariff schemes with too high (e.g. Spain, Czech Republic, Italy and the United Kingdom) or too low (e.g. Turkey) tariff rates. See *ibid*, at 33. For approaches to determining the right level of tariff rates, see Michael E Streich, ‘Green Energy and Green Economy Act, 2009: A “FIT”-Ing Policy for North America’ (2010) 33 *Houston Journal of International Law* 419.

³²⁴ Ukraine, for example, adjusts its FITs monthly according to the euro-hryvnia exchange rate. See Bahar, Egeland and Steenblik (n 280), at 30.

³²⁵ Some countries (e.g. Japan) have also introduced a regular review of their FITs in order to account for technological advances or changes in the market place m. See *ibid*, at 31.

³²⁶ Lincoln L. Davies (n 295).

buyer for their energy.³²⁷ Fourth, it guarantees compensation for a long period of time. This allows investors recover the high initial investment costs over time. The guaranteed period of time varies across countries, but it usually ranges from 10-25 years.³²⁸ The long-term purchase guarantee allows producers/investors to calculate the time within which they would be able to recoup their investment.³²⁹ In so doing, it provides much-needed predictability and reduces investment and capital risk associated with renewable energy projects.

Several variations of feed-in tariffs are applied across jurisdictions. The two main types are fixed tariffs and fixed premiums. The former provides a fixed price for the lifespan of the contract irrespective of market fluctuations, whereas the latter provides fixed premiums on top of the conventional market price.³³⁰ Fixed premiums offer a predetermined additional return for renewable energy producers, but they expose them to price fluctuations. The exposure to the extremely volatile electricity market means that the total price (electricity price plus the premium) received by producers is less predictable under fixed premiums than under fixed price feed-in tariffs.³³¹ Perhaps the main advantage of fixed premiums is that they ‘encourage producers to adjust output in response to market price signals’.³³² As such, fixed-premiums encourage producers to produce renewable energy when the market needs it most.

Ratepayers ultimately pay feed-in tariffs to the extent that utilities pass onto consumers the additional cost that they pay above the market price of electricity or heat.³³³ The extra cost may, however, be shifted from ratepayers to taxpayers if the government directly finance part or all of

³²⁷ They also increase investment security by guaranteeing that tariff payment will actually take place as soon as power production is initiated, see Jacobs (n 319), at 43; Lincoln L. Davies (n 295), at 95.

³²⁸ Some countries offer feed-in tariffs for the lifetime of the technology with rates that decline over time (e.g. Spain for certain technologies such as wind power). See Jacobs (n 319), at 77.

³²⁹ The rationale behind the long term contract is to assure investors/producers that the renewable energy market is worth investing into. Arunabha Ghosh and Himani Gangania, ‘Governing Clean Energy Subsidies: What, Why, and How Legal?’ (International Centre for Trade and Sustainable Development 2012), at 22.

³³⁰ Fixed premiums have gained some ground in recent years. They have become the primary form of support in some countries (e.g. Denmark, Italy and the Netherlands), while they operate in parallel with fixed-price feed-in tariffs in others (e.g. the Czech Republic, Slovenia and Spain). See Bahar, Egeland and Steenblik (n 280), at 33.

³³¹ See *ibid*, at 33; Reinhard Haas and others, ‘A Historical Review of Promotion Strategies for Electricity from Renewable Energy Sources in EU Countries’ (2011) 15 *Renewable and Sustainable Energy Reviews* 1003.

³³² Bahar, Egeland and Steenblik (n 280), at 33.

³³³ Some consumers can be exempted from this surcharge on their electricity bills (e.g. heavy industries in Germany, industrial consumers affected by the 2011 earthquake in Japan and low-income households in many developing countries). See *ibid*.

the market premium. Whether the extra cost is passed onto ratepayers or assumed by the government is of great relevance for assessing whether and how feed-in tariffs qualify as subsidies under the SCM Agreement (see *section 5.3.1.1.1.2*). The latter type of feed-in tariff schemes have both regulatory and financial transfer component.

The growing tendency to attach domestic (or local) content requirements to feed-in tariff schemes is relevant to the multilateral governance of renewable energy subsidies. Many countries (e.g. Argentina (Chubut), Canada (Ontario, British Columbia & Quebec), India and Ukraine³³⁴) have added domestic content requirements to their feed-in tariff scheme to increase domestic manufacturing (of renewable energy equipment), create local employment opportunities, and encourage technology transfer.³³⁵ The typical forms of domestic content requirements are those that require renewable energy producers to use locally manufactured equipment in order to become eligible for feed-in tariffs. The most popular of these is that of Ontario, which required wind and solar electricity producers to have up to 60 percent of their project costs incurred within the province. Ontario's feed-in tariff scheme was successfully challenged in the WTO and subsequently withdrawn (see *section 5.3.2.1*). India's Jawaharlal Nehru National Solar Mission (NSM) is another feed-in tariff scheme with a local content requirement.³³⁶ The NSM requires project developers to domestically source 30 to 60 percent (for solar thermal and solar PV) of their equipment in order to be eligible for the fixed feed-in tariff (see *section 5.3.2.1.1.1*).

The latest variation of domestic content requirements comes in the form of premiums on top of the regular feed-in tariff. Under this kind of domestic content requirements, renewable energy

³³⁴ The 2013 amendment to the 2009 feed-in tariff scheme of Ukraine introduced local content requirements whereby facilities commissioned after 1 January 2014 must source at least 50 percent of their aggregate costs (of raw materials, equipment and services) from Ukraine in order to qualify for the feed-in tariff. The 2015 amendment has scrapped this requirement and replaced it with a local content premium whereby facilities using components produced locally will receive additional premium paid on top of the regular feed-in tariff. See IEA, 'Green Tariff (Feed-in Tariff)' (International Energy Agency) IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/pams/ukraine/name-38470-en.php>> accessed 20 August 2016.

³³⁵ See Bahar, Egeland and Steenblik (n 81), at 34-37; Gary Clyde Hufbauer and Jeffrey J Schott, *Domestic content requirements: A Global Problem* (Peterson Institute for International Economics 2013), at 63-74 & 87-102; Jan-Christoph Kuntze and Tom Moerenhout, 'Domestic content requirements and the Renewable Energy Industry: A Good Match?' (International Centre for Trade and Sustainable Development 2013).

³³⁶ See *Appellate Body Report, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)*, WT/DS456/AB/R, adopted 14 October 2016; IEA, 'Jawaharlal Nehru National Solar Mission (Phase I and II)' IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=India>> accessed 24 August 2016.

producers that sourced a certain percentage of their equipment domestically will receive bonus payments. Ukraine, for example, offers 5 percent premium for 30 percent local content sourced and 10 percent premium for 50 percent local content sourced. Similarly, the Italian feed-in tariff scheme offers additional 10 percent bonus payments for solar components manufactured in the European Union. China challenged this aspect of the Italian feed-in tariff scheme in its request for consultations in *EU – Renewable Energy Generation Sector* (see *section 5.3.2.1.1.1*).³³⁷ Similar domestic content requirements have been introduced in the renewable energy sector of several countries including France, Malaysia, and the United States.

2.4.1.1.2 Renewable Portfolio Standards

Renewable Portfolio Standards (RPSs) or quota systems are the most common quantity-driven regulatory instruments used worldwide for promoting the large-scale deployment of renewable energy technologies.³³⁸ As of 2015, 26 national and 74 sub-national RPS policies were in place worldwide, including in Australia, India, China and the United States.³³⁹ These policies have been one of the main policy drivers for renewable energy growth, mainly in the United States (primarily at the state level) and to a lesser extent in Europe.³⁴⁰ More than half of U.S. states currently have some form of mandatory RPS requirements.

RPSs require electricity providers (usually utility companies) to source a minimum percentage of their electricity supply from eligible renewable energy sources. The required percentage varies

³³⁷ WTO, ‘Request for Consultations by China, European Union and Certain Member States – Certain Measures Affecting the Renewable Energy Generation Sector (EU and Certain Member States – Renewable Energy)’ (2012) WT/DS452/1.

³³⁸ RPSs are also known as ‘Renewables Obligation’ in the United Kingdom, ‘Renewable Electricity Standard’ in India, and ‘Renewable Energy Targets’ in Australia. See Bahar, Egeland and Steenblik (n 280), at 24. The main arguments for RPS schemes are: promote least-cost projects – cheapest resources used first, which brings down costs early on; theoretically provide certainty regarding future market share for renewables (often not true in practice); perceived as being more compatible with open or traditional power markets; and more likely to fully integrate renewables into electricity supply infrastructure. The main arguments against RPS schemes are: high risks and low rewards for equipment manufacturers and project developers, which slows innovation: price fluctuation in ‘thin’ markets, creating instability and gaming; tend to favor large, centralized merchant plants and not suited for small investors due to greater investment risk; high transaction costs; lack flexibility – difficult to fine-tune or adjust in short term if situations change. See Mendonça (n 318), at 14.

³³⁹ RPSs are more popular at the sub-national level. See REN21, *Renewables 2016 Global Status Report* (n 31).

³⁴⁰ See Galen Barbose and others, ‘Costs and Benefits of Renewables Portfolio Standards in the United States’ (2015) 52 *Renewable and Sustainable Energy Reviews* 523.

across jurisdictions but usually, increases over time with a specific final target and deadline. The RPS program in the U.S. state of California, for example, requires electric utilities meet 33 percent of their retail sales with renewable energy sources by 2010 and 50 percent by 2030.³⁴¹ Electricity providers prove their compliance with RPSs through renewable energy credits or renewable energy certificates (RECs) submitted to the relevant regulatory authority at regular intervals. RECs (also referred to as ‘green certificates’ or ‘Tradable Green Certificates’ (TGCs)) are awarded to producers of electricity from eligible renewable energy sources. However, they can be traded separately from the underlying electricity. Electricity providers may obtain RECs in three ways: from their own renewable electricity generation; by purchasing renewable electricity and the associated RECs from other producers; and/or; by purchasing RECs from other producers without purchasing the electricity.³⁴² Mandatory RPSs have built-in penalties for non-compliance.

Governments participate in the operation of RPSs at least in three ways. First, they set the minimum requirement of renewable energy, the statutory deadline and eligible sources. This creates market demand for renewable energy technologies and thereby induces artificial flow of benefits to renewable energy producers. RPSs are usually technology neutral as they intend to increase the overarching share of renewables in the total energy mix. However, they often end up supporting only the most mature technologies.³⁴³ This is because they encourage electricity providers to invest first in the cheapest renewable resources such as wind power to meet their quota obligations. Second, they certify RECs and regulate compliance with the quota obligations. Third, governments actively participate in the implementation of RPSs when they own the utility companies in question (e.g. China).

2.4.1.1.3 Tendering/Bidding

Tendering (also known as ‘competitive bidding’ or ‘auctioning’) is another regulatory instrument widely used to promote renewable energy. The use of this instrument has gained momentum in recent years. The number of countries with some kind of tendering instrument has risen from just

³⁴¹ See IEA, ‘Renewable Portfolio Standard: California’ IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/pams/unitedstates/name-21566-en.php>> accessed 22 August 2016.

³⁴² See Haas and others (n 331); Lincoln L Davies, ‘Evaluating RPS Policy Design: Metrics, Gaps, Best Practices, and Paths to Innovation’ (2014) 4 KLRI Journal of Law and Legislation 3.

³⁴³ See Lincoln L. Davies (n 295), at 98-100; Bahar, Egeland and Steenblik (n 280), at 28.

six in 2005 to at least 64 by the end of 2015.³⁴⁴ The European Commission, for example, considers tendering as the most cost-efficient instrument to promote renewable energy.³⁴⁵ Directive 2009/72/EC obliges Member States to implement special tendering procedures to ensure the security of supply.³⁴⁶ Accordingly, many EU Member States have introduced tendering schemes either to replace or to supplement their feed-in tariffs.

Tendering is simply ‘an auction mechanism used to meet a renewable energy target’.³⁴⁷ In tendering schemes, governments issue a call for tender to procure a certain amount of renewable energy and interested entities (investors, developers, and project owners) submit a bid with a price per unit of electricity in response to this call.³⁴⁸ The successful bidders that meet the requirements with the lowest price are awarded a fixed price contract to provide the agreed amount of electricity for a specific period of time. The procured electricity is then sold to electricity providers (utility companies) at market prices. The difference between the market price and the winning bid price is financed by the government - usually through a nondiscriminatory levy on all electricity consumption.³⁴⁹ Tendering schemes can be technology neutral (e.g. Netherlands, Italy) or technology-specific (e.g. Russia, Brazil).

An important aspect of tendering schemes, which is also relevant to the governance of renewable energy subsidies, is the evaluation criteria. Usually, the bidding price is the only or the most important evaluation criteria for winning renewable energy tenders. However, some countries design their tendering schemes with local content and industrial-cluster development

³⁴⁴ See table 2.3 above. According to IRENA, ‘The renewed interest in auction schemes is driven by their potential to achieve deployment in a cost-efficient and regulated manner’. See IRENA, ‘Renewable Energy Auctions in Developing Countries’ (International Renewable Energy Agency 2013); IRENA, *Renewable Energy Auctions: A Guide to Design* (International Renewable Energy Agency 2015).

³⁴⁵ See EC, ‘Communication from the Commission: Delivering the Internal Market in Electricity and Making the Most of Public Intervention’ (European Commission 2013). Tendering schemes are considered as the least-cost option to promote renewable energy because they allocate contracts based on competitive bidding. The competition leads producers to cut costs to make their bid more attractive. This, in turn, reduces the chance of them being overcompensated. See del R o and Linares (n 318).

³⁴⁶ Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 Concerning Common Rules for Internal Market in Electricity and Repealing Directive 2003/54/EC, Official Journal of the European Union, L 211/55, Article 8.

³⁴⁷ See Lincoln L. Davies (n 295), at 114.

³⁴⁸ In some cases, electric utility companies themselves procure electricity through auctions.

³⁴⁹ See Sovacool, ‘A Comparative Analysis of Renewable Electricity Support Mechanisms for Southeast Asia’ (n 318), at 1789.

requirements.³⁵⁰ For example, in order to be eligible to participate in Russia's renewable energy auction scheme (for the year 2016-2020), proposed projects must comply with the high domestic content requirements of 70 percent for solar PV over 5 MW and 65 percent for wind farms over 5 MW.³⁵¹ The tendering scheme in Uruguay requires that suppliers participating in the scheme must include a minimum 20 percent equity participation by a local partner and contract 80 percent of subsequent maintenance locally. In some countries, domestic content requirements are not explicitly part of the prequalification or bid evaluation criteria but are attached to tendering schemes. In Brazil, for example, no local content requirement is necessary to participate in electricity tenders (for wind power). However, to obtain subsidized loans from the state-owned funding agency - Brazilian National Development Bank (BNDES), bid winners seeking to buy wind turbines must buy from wind turbine manufacturers that source at least 60 percent of their components locally.³⁵² Like feed-in tariff with domestic content requirements, tendering schemes with discriminatory evaluation criteria will raise WTO-compatibility issues (see *section 5.3.1.1*).

2.4.1.2 Fiscal Incentives

By the end 2015, at least 100 countries worldwide adopted one or another form of fiscal incentives to promote renewable energy (see *table 2.3*). The specific rationales for using fiscal incentives vary across jurisdictions, but most countries use fiscal incentives to stimulate technology innovation, offset the high upfront investment cost of renewable energy, and promote the domestic manufacturing of renewable energy equipment.³⁵³ Fiscal incentives may be either targeted at renewable energy consumption or production. That is, they may reward the purchase and installation of renewable energy technologies or facilitate investment in renewable energy generation or renewable energy equipment manufacturing.

³⁵⁰ See Bahar, Egeland and Steenblik (n 280), at 35-37.

³⁵¹ IEA, 'Decree No. 449 on the Mechanism for the Promotion of Renewable Energy on the Wholesale Electricity and Market' IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=Russia>> accessed 22 August 2016.

³⁵² IEA, 'Electric Power Auctions - Wind' IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=Brazil>> accessed 23 August 2016.

³⁵³ Fiscal incentives 'can reduce the costs and risks associated with investing in renewable energy by lowering the upfront investment costs associated with installation, reducing the costs of production or increasing the payment received for energy generated with renewable sources'. Edenhofer and others (n 14). See also World Bank, *Sustainable Energy for All: Global Tracking Framework Report* (World Bank Publications 2014), at 187 et seq.

Fiscal incentives take various forms including grants and rebates; tax credits (e.g. income tax credits, personal tax credits, corporate tax credits, production tax credits and investment tax credits); tax reductions (e.g. tax exemptions, tax deduction and tax rebates); and accelerated or variable depreciation of investment expenditure. Some of these incentives are discussed with illustrative examples in this section. Fiscal incentives are generally paid by taxpayers. They constitute either direct financial transfers (e.g. grants and rebates) or forgone government revenue (e.g. tax incentives). They are therefore doubtlessly relevant to the governance of renewable energy subsidies in the multilateral trading system.

2.4.1.2.1 Grants and Rebates

Capital grants and rebates are the most classical forms of subsidies used in at least 59 countries around the world to promote the development and utilization of renewable energy. As is shown in *table 2.3* above, they have been one of the most widely adopted renewable energy support schemes, particularly in high- and middle-income countries. Grants consist of money provided up front to help finance an investment, whereas rebates are refunds provided after an investment has been made.³⁵⁴ Both are paid directly using government funds.

These financial incentives are usually used to reduce the upfront capital costs of renewable energy technologies, and thereby stimulate early market growth for emerging technologies (or technologies with high investment costs). Providing grants and rebates is the most straightforward way of reducing renewable energy investment costs.

Most renewable energy grants and rebates are technology-specific and are often based on per megawatt of installed capacity or percentage of total investment.³⁵⁵ Renewable energy rebates are typically automatic, while grants are ‘usually conditional upon certain qualifications as to the use, maintenance of specified standards, or a proportional contribution by the grantee’.³⁵⁶ Countries provide these financial incentives to both small-scale (e.g. households and businesses producing renewable energy either for self-consumption or for selling) and large-scale (e.g. power plants)

³⁵⁴ Edenhofer and others (n 14), at 889.

³⁵⁵ *ibid.*

³⁵⁶ *ibid.*, at 890.

renewable energy production. Example of existing renewable energy grant and rebate schemes include: Canada (Manitoba) offers one time grant support payment to residential, commercial and industrial customers for installations between 1 and 200 kilowatts (kW)³⁵⁷; India (Uttar Pradesh) provides 30 percent of a capital grant support for mini-grid projects ranging from 10 kW to 500 kW³⁵⁸; and South Africa offers solar water heater buyers a direct rebate ranging from approximately ZAR 1900 to about ZAR 4900 depending on the type of system installed³⁵⁹.

2.4.1.2.2 Tax Incentives

Tax expenditures (also known as ‘tax reliefs’ or ‘tax incentives’) are used worldwide to promote the development of renewable energy markets and industries (see *table 2.3*).³⁶⁰ They are generally ‘concessions that fall outside a tax norm or benchmark’.³⁶¹ The benchmarks vary substantively across countries, making cross-country comparisons of tax-incentives difficult.³⁶² Tax expenditures may take a number of forms, from tax credits and allowances to tax reductions and accelerated depreciation.³⁶³ Whatever the specific form they take, however, tax incentives result in foregone revenue for the government and a reduction in tax liability for taxpayers.

Renewable energy tax expenditures are often used in combination with other support mechanisms to encourage single or sets of renewable energy technologies. Some of these incentives are focused on renewable energy equipment installation, while others are focused on

³⁵⁷ IEA, ‘Manitoba Solar Energy Program’ IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=Canada>> accessed 24 August 2016.

³⁵⁸ IEA, ‘Uttar Pradesh Mini-Grid Policy 2016’ IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=India>> accessed 24 August 2016.

³⁵⁹ IEA, ‘Eskom Solar Water Heating Rebate Program’ IEA/IRENA Policies and Measures Database <<https://www.iea.org/policiesandmeasures/renewableenergy/?country=South%20Africa>> accessed 24 August 2016.

³⁶⁰ David Clement and others, ‘International Tax Incentives for Renewable Energy: Lessons for Public Policy’ (Center for Resource Solutions 2005) prepared for Energy Foundation China Sustainable Energy Program.

³⁶¹ There are also diverging views on what tax benchmark consists in. According to the World Bank, it ‘includes the rate structure, accounting conventions, deductibility of compulsory payments, provisions to facilitate tax administration, and international fiscal obligations’. Zhicheng Li Swift, Hana Polackova Brixi and Christian Valenduc, ‘Tax Expenditures: General Concept, Measurement, and Overview of Country Practices’ in Hana Polackova Brixi, Christian Valenduc and Zhicheng Li Swift (eds), *Tax expenditures--shedding light on government spending through the tax system: lessons from developed and transition economies* (World Bank 2004), at 3.

³⁶² *ibid*; OECD, *Tax Expenditures in OECD Countries* (Organization for Economic Cooperation and Development 2010) (‘Because the choice of a benchmark [...]varies substantially from country to country, identifications of tax expenditures in any given country can be quite different from those in other countries’), 16.

³⁶³ Tax credits and tax reductions are also the two types of taxed-based incentives widely used to encourage participation in climate change mitigation efforts. See Tamiotti and others (n 23), at 114.

manufacturing.³⁶⁴ The former are usually offered as ‘predefined fixed amounts or a percentage of total investment in an installation or on the basis of energy delivered’.³⁶⁵

There are many forms of tax incentives that are currently in use to help stimulate the development and deployment of renewable energy around the world. According to Clement et al. there are at least ten commonly used types of renewable energy tax incentives: investment tax incentives; production tax incentives; property tax reductions; value-added tax (VAT) reduction; sales tax reduction; import duty levels; accelerated depreciation; RD&D and manufacturing tax credits; tax holidays; and taxing conventional resources.³⁶⁶ The following two subsections provide detailed discussions on tax credits and accelerated depreciation.

2.4.1.2.2.1 Investment and Production Tax Credits

Investment tax credits (ITCs) and production tax credits (PTCs) are the two types of tax credits that feature prominently in the promotion of renewable energy worldwide (see *table 2.3*).³⁶⁷ They are respectively used to facilitate renewable energy investment and encourage renewable energy generation.³⁶⁸ ITCs are investment-based incentives that offer favourable tax treatment to taxpayers that invest in renewable energy projects. They often provide a partial tax rebate to investors of a particular renewable energy technology.³⁶⁹ PTCs are performance-based incentives that provide annual tax credits to investors or owners of qualifying renewable energy facilities based on the amount of renewable energy produced from the qualifying renewable energy facilities during the course of a year.³⁷⁰ The main difference between ITCs and PTCs is that ITCs offer tax credits on the purchase of renewable energy equipment, whereas PTCs reward the production of renewable energy. This difference is of particular importance for the governance of

³⁶⁴ Clement and others (n 360).

³⁶⁵ Edenhofer and others (n 14), at 891.

³⁶⁶ Clement and others (n 360).

³⁶⁷ Miguel Mendonça, David Jacobs and Benjamin Sovacool, *Powering the Green Economy: The Feed-in Tariff Handbook* (Routledge 2009) ('At least 30 countries offered ITCs for renewable energy in 2007'), at 170.

³⁶⁸ For the benefits and limitations of ITCs and PTCs, see *ibid*, at 170-174; Sovacool, 'A Comparative Analysis of Renewable Electricity Support Mechanisms for Southeast Asia' (n 318).

³⁶⁹ ITCs lower the cost of, and increase the rate of return to, investing in renewable energy equipment. See Congress Research Service, *Tax Expenditures: Compendium of Background Material on Individual Provisions* (US Government Printing Office 2006); Sovacool, 'A Comparative Analysis of Renewable Electricity Support Mechanisms for Southeast Asia' (n 318).

³⁷⁰ Mendonça, Jacobs and Sovacool (n 367), at 172.

renewable energy subsidies. Subsidies to renewable energy equipment and components are more likely to raise international trade concerns than subsidies to renewable energy itself.

Perhaps the most relevant example of tax credit schemes for the purpose of this thesis is that of the United States. This is not only because tax credits are the primary renewable energy support mechanisms in the United States, but also because they have been the subject of countervailing duty action.³⁷¹ The United States has federal energy tax credit schemes that date back to the 1970s and has been renewed and expanded numerous times. The ITC originates in the *Energy Tax Act* of 1978 and has been modified many times since, including in the *Energy Policy Act* of 2005.³⁷² The most recent of these is the *Consolidated Appropriations Act* of 2016 (signed into law on 18 December 2015).³⁷³ The ITC originally covered a variety of renewable energy technologies, including solar, microturbines, geothermal, and small wind, but the 2016 extension limited its application to geothermal and solar energy facilities.³⁷⁴ The ITC currently provided a tax credit of 30 percent for solar power projects whose construction commences on or before 31 December 2019 and which are brought into service before 2024.³⁷⁵ The tax credit declines for solar projects whose construction commences after 31 December 2019.

The PCT was first enacted as part of the *Energy Policy Act* of 1992 and have been modified on numerous occasions.³⁷⁶ Like the ITC, the PTC is extended and modified in the *Consolidated Appropriations Act* of 2016. The PTC originally provided an inflation-adjusted per-kilowatt-hour (kWh) tax credit for electricity generated from a wide range of eligible renewable energy sources (e.g. wind, biomass, geothermal, landfill gas, and qualified hydropower). The application of the

³⁷¹ The U.S. renewable energy tax credit schemes were subject to countervailing duty actions by China in 2011. See Wu and Salzman (n 36), at 438.

³⁷² For the legislative history of federal renewable energy investment tax credit, see Congress Research Service (n 369), at 109-116; Congress Research Service, *Tax Expenditures: Compendium of Background Material on Individual Provisions* (US Government Printing Office 2012).

³⁷³ As noted by Mai et al, the 2016 Consolidated Appropriations Act ‘extended the solar and wind tax credit deadlines by five years from their prior scheduled expiration dates, but included ramp downs in tax credit value during the latter years of the five-year period’. See, also for detailed discussion on the impact of the extensions, Trieu Mai and others, ‘Impacts of Federal Tax Credit Extensions on Renewable Deployment and Power Sector Emissions’ (National Renewable Energy Laboratory 2016) Technical Report NREL/TP-6A20-65571.

³⁷⁴ See Consolidated Appropriations Act of 2016 (H.R. 2029) Section 303-304.

³⁷⁵ *ibid.*

³⁷⁶ For the legislative history of federal renewable energy production tax credit, see Congress Research Service (n 369), at 117-124; Congress Research Service (n 372).

PTC is now limited only to wind generation facilities. This means other renewable energy projects commencing after 31 December 2014 are not eligible for PTC.³⁷⁷ Wind generation facilities that commenced construction in 2016 are eligible for tax credit for the first ten years of the facility's operations. The tax credit declines annually for wind facilities commencing construction after 31 December 2016. It declines by 20 percent for wind facilities the construction of which begins in 2017; by 40 percent for wind facilities the construction of which begins in 2018; and by 60 percent for wind facilities the construction of which begins in 2019.³⁷⁸ The new PTC allows taxpayers with wind generation facilities commencing construction before 1 January 2020 to irrevocably elect to claim the ITC instead of the PTC.

2.4.1.2.2 Accelerated Depreciation

Accelerated depreciation is another common tax-based incentive for renewable energy. It allows investors in renewable energy technologies to depreciate³⁷⁹ the value of their renewable energy facilities and equipment at a faster rate than is typically allowed, thereby reducing their stated income for the purposes of income taxation.³⁸⁰ By shielding income from taxes in the earliest years of investment, an accelerated depreciation scheme increases cash flows and the after-tax rate of return on the investment in the near term.³⁸¹ This aspect of accelerated depreciation is particularly important for capital-intensive industries like renewable energy that require large up-

³⁷⁷ However, other qualified renewable energy facilities placed in service after 8 August 2005 and before 31 December 2014 will continue to receive PTC up to 10 years after the facility is placed in service.

³⁷⁸ Consolidated Appropriations Act of 2016 (H.R. 2029) Section 301-302.

³⁷⁹ As a recent GSI study puts it, depreciation is an 'accounting concept that allocates an asset's cost towards expense during its period of useful life'. Taxpayers normally deduct depreciation as an expense before calculating their taxable profit, thus reducing their tax burden. Tushar Sud and others, 'India's Accelerated Depreciation Policy for Wind Energy' (International Institute for Sustainable Development 2015) Case Study.

³⁸⁰ Clement and others (n 360).

³⁸¹ It should be noted here that accelerated depreciation benefits investors through the timing of cash flows -not by providing direct financial assistance. As noted, the reduction in taxable income in the early years increases near-term cash flows. There are several reasons why renewable energy investors value near-term cash flows more highly than longer-term cash flows. First among these is interest expense. The capital-intensive nature of renewable energy technologies brings with it high charges for project finance. Near-term cash flows reduce the consequent interest expense. Another reason is the risk associated with long-term cash flows. Renewable energy is an area where technology changes rapidly and a renewable energy asset may become technologically obsolete prior to its originally estimated useful life. Accelerated-depreciation-induced near-term cash flows minimize such risks. See David Richardson, 'The Tax Treatment of Capital Investments in Renewable Energy' (Australia Institute 2008); Sud and others (n 379); Robert M Coen, 'The Effect of Cash Flow on the Speed of Adjustment' in Gary Fromm (ed), *Tax Incentives and Capital Spending: Papers presented at a conference of experts held on November 3, 1967 (Studies of government finance)* (Brookings Institution Press 1971).

front capital investments.³⁸² The relatively higher after-tax profits earned investors in the near-term increases the likelihood and incentive to invest in renewable energy technologies.

Several countries around the world currently use accelerated depreciation schedule to promote investments in manufacturing and production capacity. Examples of countries with accelerated depreciation schedule include Canada, Portugal, Mexico, the Netherlands, India, Peru, Philippines and the United States.³⁸³ The Indian accelerated depreciation scheme, for example, allows investors to take advantage of high depreciation (80 percent) on their renewable energy assets (e.g. wind turbines) in the initial years of the assets' useful life.³⁸⁴ Likewise, the US Federal Accelerated Depreciation scheme allows renewable energy investors to recover investments in solar, wind and geothermal facilities by depreciating them over a period of five years.

2.4.1.3 Public Finance Mechanisms

Renewable energy projects are capital-intensive undertakings that require huge upfront investment. For many of these projects, the availability of private finance is constrained due to business, technology and policy risks, high initial production costs and a wide range of market barriers.³⁸⁵ Public finance mechanisms play a critical role in bringing down market barriers, bridging gaps and sharing risks with the private sector.³⁸⁶ Over 80 countries throughout the world currently use public finance mechanisms to help finance renewable energy projects. According to

³⁸² See Clement and others (n 360), at 13. See also Eric Martinot and Fredric Beck, 'Renewable Energy Policies and Barriers', *Encyclopedia of Energy* (2004) 365, at 373-374.

³⁸³ In Mexico, for example, investments in machinery and equipment for the energy production derived from renewable energy will be fully depreciated in a 12-month period. Likewise, electricity generators from a wide range of renewable energy sources in Peru are eligible for an annual maximum of 20 percent accelerated depreciation for income tax purposes. See REN21, *Renewables 2016 Global Status Report* (n 31).

³⁸⁴ On the Indian accelerated depreciation scheme, see Sud and others (n 379).

³⁸⁵ UNEP, 'Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector' (United Nations Environmental Program 2008), at 13.

³⁸⁶ See Mark Dominik and others, 'Financing Clean Energy and Low-Carbon Technologies' in Giedre Kaminskaite-Salters (ed), *Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries: Section 4 – Spending public finance to leverage private investment: specific instruments for specific challenges* (London School of Economics 2009); UNEP, 'Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector' (n 385).

UNEP, these mechanisms have a twofold objective.³⁸⁷ One is to directly mobilize or leverage commercial investment into renewable energy projects. Their primary role in this regard is to address financing gaps where the private sector is unwilling or unable to provide debt financing on commercial terms. This is particularly the case in developing economies where the private financial sector is less mature and hence unable to provide the necessary capital for renewable energy projects.³⁸⁸ The other is to indirectly create scaled-up and commercially sustainable markets for renewable energy technologies.

Renewable energy public financing mechanisms typically take the form of equity investment by governments in renewable energy companies or projects (i.e. equity infusions) and the provision of preferential loans and loan guarantees.³⁸⁹ These public finance mechanisms constitute subsidies only to the extent that they provide finance to the recipients on terms ‘more favourable than those available on the market’. This means that identifying the subsidy aspects of public finances requires ‘detailed information on the terms of the finance provided and comparable commercial finance information’.³⁹⁰ Since such information is not often publicly available, the extent of renewable energy subsidies provided through public finance is not fully known.

Public finance mechanisms have not been challenged in the multilateral trading system at the time of writing. However, the provision of public finance for other sectors has long been the subject of legal disputes in the multilateral trading system. The most recent high profile dispute in this regard was *EC and Certain Member States - Large Civil Aircraft*, in which the United States challenged *inter alia* five equity infusions by the French Government to Aérospatiale and preferential loans provided by the European Investment Bank (EIB) to various Airbus entities as

³⁸⁷ UNEP, ‘Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector’ (n 385). See also Dominik and others (n 386), at 12.

³⁸⁸ Edenhofer and others (n 14), at 893.

³⁸⁹ For a detailed discussion on the various forms that renewable energy public finance mechanisms may take, see UNEP, ‘Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector’ (n 385); IRENA, ‘Financial Mechanisms and Investment Frameworks for Renewables in Developing Countries’ (International Renewable Energy Agency 2012).

³⁹⁰ Bast and others (n 239), at 27.

actionable subsidies within the meaning of the SCM Agreement.³⁹¹ The existence of these disputes suggests that the provision of public finance for renewable energy projects at less than market rates might face future legal challenges in the multilateral trading system. With this in mind, the remainder of this subsection provides a brief overview of two of the most common public finance mechanisms for renewable energy projects: preferential loans and loan guarantees.

2.4.1.3.1 Preferential Loans

Financing for renewable energy projects is made up of debt (debt financing), equity (equity financing) or the combination of the two.³⁹² Their high upfront capital requirements mean that the majority of the financing needed for renewable energy projects is in the form of debt financing.³⁹³ However, not many countries have sufficiently developed financial sectors to provide the type of debt that renewable energy projects require. Even in countries with well-developed financial sectors ‘new technologies, smaller projects or project developers without a proven track-record often experience difficulties in obtaining commercial loans at reasonable conditions’.³⁹⁴ Governments tackle these challenges by providing concessional loans either directly to renewable energy projects or as credit lines that deliver financing through commercial financial institutions.³⁹⁵ The underlying idea behind the latter is to address the lack of liquidity to meet medium to long-term financing requirements of renewable energy projects.³⁹⁶ These types of credit lines are typically offered at concessional rates to induce borrowing.

³⁹¹ See *Appellate Body Report, European Communities and Certain Member States - Measures Affecting Trade in Large Civil Aircraft (EC and Certain Member States - Large Civil Aircraft)*, WT/DS316/AB/R, adopted 1 June 2011.

³⁹² See Richard Bridle and Lucy Kitson, ‘Public Finance for Renewable Energy in China: Building on International Experience’ (International Institute for Sustainable Development 2014) IISD Report, at 10.

³⁹³ Debt makes up the majority of the investment going into many utility-scale renewable energy projects, either at the project level in the form of non-recourse loans, bonds or leasing; or at the corporate level in the form of borrowings by the utility or project developer. See REN21, *Renewables 2016 Global Status Report* (n 31), at 105; Dominik and others (n 386); UNEP, ‘Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector’ (n 385).

³⁹⁴ GIZ, ‘Legal Frameworks for Renewable Energy: Policy Analysis for 15 Developing and Emerging Countries’ (Gesellschaft für Internationale Zusammenarbeit 2012).

³⁹⁵ UNEP, ‘Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector’ (n 385).

³⁹⁶ *ibid*, at 29.

Public loan schemes are characterized by low-interest rates and longer repayment periods. They can cover up to 100 percent of the financeable costs of renewable energy projects. Public loans of varying degree and type are currently available for renewable energy projects in many countries including Germany, Brazil, India, Norway, Spain, Japan, Norway, and Sweden. In Germany, for example, the state-owned development bank, KfW, provides low-interest loans with a fixed interest period of 10 years including a repayment-free start-up period for investments in a wide range of renewable energy technologies. Through its renewable energy program, KfW lent US\$4.5 billion to renewable energy in 2015.³⁹⁷ These types of loans are typically channelled through and operated by state-owned development banks (e.g. KfW of Germany, BNDES of Brazil, China Development Bank, the European Investment Bank, etc.). In 2014, for example, the world's development lenders invested US\$83.9 billion in 'broad clean energy' projects.³⁹⁸ Over the last decade, the most active of the development banks was KfW, followed by the European Investment Bank, BNDES, China Development Bank, Asian Development Bank, African Development Bank and Japan Bank for International Cooperation Bank.

2.4.1.3.2 Loan Guarantees

This is another frequently used public finance mechanism to mobilize debt financing for renewable energy projects. Guarantees are initiated in response to the perceived high credit risk associated with renewable energy projects. They are particularly used in financial markets where commercial financial institutions have the necessary capacity or liquidity but are reluctant to provide financing to renewable energy projects due to the perception of high credit risk.³⁹⁹ They mobilize commercial lending by sharing credit risk with commercial financial institutions. By ensuring debt repayment to the lending commercial financial institution, loan guarantee schemes reduce risk and hence interest rate, debt term and debt service conditions of the loan.

³⁹⁷ REN21, *Renewables 2016 Global Status Report* (n 31), at 105.

³⁹⁸ The report uses 'broad clean energy' to also include energy efficiency and transmission and distribution. See FS-UNEP Collaborating Centre and BNEF, 'Global Trends in Renewable Energy Investment 2016' (Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance 2016), at 44.

³⁹⁹ See UNEP, 'Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector' (n 385); Edenhofer and others (n 14).

Many governments throughout the developing and developed world currently offer different types of loan guarantees for renewable energy projects.⁴⁰⁰ These guarantees typically cover only a portion of the outstanding loan principal to ensure prudent lending.⁴⁰¹ In the United States, for example, the *Energy Policy Act* of 2005 authorizes the Department of Energy to issue loan guarantees up to 80 percent of the project cost of qualified renewable energy sources.⁴⁰² Under this federal program, the Department of Energy can provide loan guarantees worth up to US\$4.5 billion for renewable energy and energy efficiency projects.

2.4.2 Fossil Fuel Subsidies

Fossil fuel subsidies are as old as the industry itself. The history of fossil fuel subsidies in the United States, for example, can be traced back to the discovery of anthracite (hard coal) in Pennsylvania.⁴⁰³ State officials reacted to the discovery of anthracite in eastern Pennsylvania in the late 1700s by exempting anthracite from taxation, providing incentives for smelters to promote its use, and publicizing its advantages within and outside the state.⁴⁰⁴ The story is similar in Europe and elsewhere. Fossil fuels have benefited from generous government support worldwide for centuries. One should be cognizant of this fact when considering the nature of fossil fuel subsidies and the particular form they take.

The specific ways in which governments support the production and consumption of fossil fuels has evolved along with changes in the global energy mix and economic policy landscape over centuries. Tariffs and monopoly rights were the principal tools of early fossil fuel support policies. Fossil fuel producing countries imposed protective tariffs on imported fuels and granted

⁴⁰⁰ For different loan guarantee structures used for renewable energy financing, see UNEP, 'Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation: An Overview of Mechanisms Being Used Today to Help Scale up the Climate Mitigation Markets, with a Particular Focus on the Clean Energy Sector' (n 385), at 30.

⁴⁰¹ *ibid.*

⁴⁰² See Section 1703 of Title XVII of Energy Policy Act of 2005.

⁴⁰³ Sean Patrick Adams, 'Promotion, Competition, Captivity: The Political Economy of Coal' in Richard R John (ed), *Ruling Passions: Political Economy in Nineteenth-century America* (Penn State Press 2010). Some authors trace the history of U.S. energy subsidies back to 1789, when Congress imposed tariff on imported coal to give domestic producers a major cost advantage. See Nancy Pfund and Ben Healey, 'What Would Jefferson Do? The Historical Role of Federal Subsidies in Shaping America's Energy Future' (DBL Investors 2011).

⁴⁰⁴ Adams (n 403), at 78.

monopoly rights for energy production and distribution to support their fossil fuel industry.⁴⁰⁵ These types of support policies, however, have become less prevalent after the liberalization and privatization of national energy markets since the 1980s.⁴⁰⁶ Import tariffs on fossil fuels, for example, are extremely low, especially in developed countries. The global average bound tariff for petroleum products is 27.9 percent, while the average bound rate among OECD countries is 10.1 percent.⁴⁰⁷ According to the *World Tariff Profiles 2016*, the average applied tariff for petroleum products was 1.9 percent among OECD countries and 7.4 percent among non-OECD countries in 2016.⁴⁰⁸ The relatively high bound tariff among non-OECD countries is partly attributable to the limited participation by petroleum exporting countries in the previous rounds of multilateral trade negotiations (see the discussion in *section 4.2 of chapter 4*).

Besides protective tariffs and monopoly rights, ‘government support for the production of fossil fuels has traditionally been provided through government-financed geologic surveys, government ownership of companies involved in extraction, and the foregoing of royalty or tax collections’.⁴⁰⁹ Unlike renewables, fossil fuel resources are concentrated only in few countries. This has significant implications for the forms fossil fuel subsidies take across the world. On the one hand, countries without fossil fuel resources support only fossil fuel consumption, unless of course,

⁴⁰⁵ For early fossil fuel support policies in the United States and Europe, see *ibid*; Kym Anderson, ‘The Political Economy of Coal Subsidies in Europe’ (1995) 23 *Energy Policy* 485. The energy industry had long been characterized by the presence of natural monopolies run by state-owned enterprises. Thomas Cottier and others, ‘Energy in WTO Law and Policy’ in Thomas Cottier and Panagiotis Delimatsis (eds), *The Prospects of International Trade Regulation: From Fragmentation to Coherence* (Cambridge University Press 2011), at 212; for the continued role of state-owned enterprises in the oil and gas sector, see Silvana Tordo, Brandon S Tracy and Noora Arfaa, *National Oil Companies and Value Creation* (World Bank Publications 2011).

⁴⁰⁶ See, e.g., Michael Gerald Pollitt, ‘The Impact of Liberalization on the Performance of the Electricity Supply Industry: An International Survey’ (1997) 3 *Journal of Energy Literature* 3; RW Bacon and J Besant-Jones, ‘Global Electric Power Reform, Privatization and Liberalization of the Electric Power Industry in Developing Countries’ (2001) 26 *Annual Reviews of Energy and the Environment* 331.

⁴⁰⁷ However, tariffs on crude oil in developed countries such as the United States and Japan remain unbound. See WTO, ITC and UNCTAD, *World Tariff Profiles 2016: Applied MFN Tariffs* (World Trade Organization 2016); UNCTAD, ‘Trade Agreements, Petroleum, and Energy Policies’ (United Nations 2000) UNCTAD/ITCD/TSB/9.

⁴⁰⁸ WTO, *World Trade Report 2010: Trade in Natural Resources* (World Trade Organization 2010). Some fossil fuel producing countries have raised their import tariffs on fossil fuels in an attempt to protect domestic producers from international competition. China, for example, raised its import tariffs on coal from 0 to 3-6 percent in the aftermath of the fall in global oil prices since the second half of 2014. See United States and others, ‘China’s Efforts to Phase out and Rationalize Its Inefficient Fossil-Fuel Subsidies: A Report on the G20 Peer Review of Inefficient Fossil-Fuel Subsidies That Encourage Wasteful Consumption in China’ (G20 2016) <<http://www.oecd.org/site/tadffss/publication/>> accessed 26 July 2017, at 14-15.

⁴⁰⁹ Steenblik, ‘A Global Survey of Potentially Environmentally Harmful Subsidies’ (n 234).

they support overseas fossil fuel production. Japan and South Korea, for example, have limited and declining fossil fuel reserves, but they provide favourable financing for overseas fossil fuel production projects through state-owned financial institutions.⁴¹⁰ On the other hand, fossil fuel-endowed countries may support the production and/or consumption of fossil fuels.

Although there is currently no comprehensive data on how many countries have fossil fuel subsidies, what is clear from the literature on fossil fuel subsidies is that almost all countries support fossil fuels in one form or another. Some studies suggest that developed and developing countries use different sets of support policies. IEA et al., for example, observed that developed countries generally rely on regulatory instruments and tax preferences, supplemented by support for capital formation in the sector and R&D and raw materials, whereas developing countries have often used interventions that reduce the prices of energy to consumers.⁴¹¹

The number of countries that support fossil fuels appears to have increased after the oil price shocks of the 1970s.⁴¹² Many countries introduced various forms of support schemes to address energy security concerns and to soften the impact of high energy prices. Most of these schemes remained in place, partly because energy prices have been volatile ever since, but also because of political economy factors. For example, about two-thirds of fossil fuel support measures contained in the OECD Inventory were introduced prior to 2000.⁴¹³ One implication of this is that some fossil fuel subsidies were put in place at a time when climate change was not yet a global concern.⁴¹⁴ The other implication is that subsidies tend to get locked in once they are introduced.

⁴¹⁰ See for Japan (the 'Oil Producing Countries' Oil Exploration Development Subsidy' scheme), OECD, 'Japan: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; Shakuntala Makhijani, 'Fossil Fuel Exploration Subsidies: Republic of Korea' (Overseas Development Institute & Oil Change International 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production.

⁴¹¹ IEA and others (n 55), at 7.

⁴¹² To be more precise, the rise in energy prices following the oil price shocks prompted many countries to introduce fossil fuel consumption subsidies, while the subsequent fall in global oil prices in 1986 led energy-endowed countries to put in place support schemes to 'shore up domestic production capacity'. See Masami Kojima, 'Drawing a Roadmap for Oil Pricing Reform' (World Bank 2013) Policy Research Working Paper 6450, at 3; OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256), at 45.

⁴¹³ See OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256), at 45.

⁴¹⁴ On this point the OECD has observed that: 'Several federal measures in the United States were, for example, introduced between the 1970s and the 1980s, a period characterized by widespread concerns relating to energy security in the aftermath of the oil crises of the 1970s'. *ibid.*

Perhaps one other feature of fossil fuel subsidies worth discussing before turning to their specific forms is that each stage of the fossil fuel value chain receives government support. The fossil fuel industry encompasses a range of different activities and processes that are usually divided into three broad components: upstream, midstream and downstream.⁴¹⁵ The upstream segment encompasses the exploration, development and extraction of fossil fuels.⁴¹⁶ This initial segment of the value chain involves a number of activities, including geological and geophysical surveys and analysis, drilling, equipment supply, and engineering projects.⁴¹⁷

Governments support such services in many ways, including through direct spending and tax breaks, public finance through development banks and other financial institutions, and investment by state-owned enterprises.⁴¹⁸ A recent study estimated that G20 countries alone spend US\$88 billion every year subsidizing exploration for fossil fuels.⁴¹⁹ The next critical stage in the value chain (known as midstream) involves activities such as processing, storage and transportation of fossil fuels. Many fossil fuel producing countries provide support for such activities (e.g. infrastructure such as transport between production and processing facilities or between processing facilities and final consumers). They also provide free security such as military protection of supply lines. One may question whether such measures constitute a subsidy under the SCM Agreement, but there is no doubt that they offer an advantage to the companies involved.⁴²⁰ The final part of the value chain is usually referred to as ‘downstream’. This is the stage where the processed products are distributed to wholesale, retail, or direct industrial clients (e.g. utility companies or petrochemical industries). Downstream fossil fuel activities receive substantial subsidies in many fossil fuel producing countries, including the United States, Russia,

⁴¹⁵ See Tordo, Tracy and Arfaa (n 405), at 1-3.

⁴¹⁶ Exploration in the oil and gas sector refers to activities to identify and access new reserves and expand proven reserves, whereas in the coal sector exploration activities include initial phases of development of coal deposits and the expansion of existing mines to develop resources that previously were not well-defined. Bast and others (n 239).

⁴¹⁷ Tordo, Tracy and Arfaa (n 405).

⁴¹⁸ Bast and others (n 239).

⁴¹⁹ *ibid.*

⁴²⁰ The OECD, for example, includes the provision of security as a transfer of risk related to the cost of intermediate inputs. See OECD, *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* (n 258).

India, France, Turkey, and South Africa. Russia, for example, provided US\$243 million in 2013 in the form of equity injections to support modernization and construction of power lines.⁴²¹

Fossil fuel subsidies come in many different ways, but discussing their taxonomy is relatively complex than discussing that of renewable energy subsidies due to the limited transparency and insufficient information. The information asymmetry is partly reflected in the number of databases for renewable energy and fossil fuel subsidies. While there are several databases for renewable energy subsidies, there is only one database of fossil fuel subsidies – the OCED online inventory (see *section 2.3.2*).⁴²² Because of the lack of information, the fossil fuel subsidy literature has rarely gone beyond broadly categorizing fossil fuel subsidies into producer and consumer subsidies. The remainder of this section follows the classification of energy subsidies used in the preceding section to outline the various forms of fossil fuel subsidies.

2.4.2.1 Regulatory Measures

Some countries use regulatory measures to discourage fossil fuel production and consumption. Regulatory measures such as emission trading schemes serve as disincentives for fossil fuel production and consumption.⁴²³ However, regulatory measures are also used to promote domestic fossil fuel production or consumption. Most fossil fuel-promoting regulatory measures are price-driven. There are only a few quantity-driven regulatory measures that support fossil fuel producers or consumers.⁴²⁴ The most notable of these are OPEC production quotas.

There is a longstanding debate as to whether OPEC production quotas constitute prohibited quantitative restrictions within the meaning of GATT Article XI.⁴²⁵ This debate is beyond the

⁴²¹ Iuliia Ogarenko and others, 'G20 Subsidies to Oil, Gas and Coal Production: Russia' (Oil Change International & Overseas Development Institute 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production.

⁴²² There are at least four regularly updated renewable energy support policy databases. These are the IEA/IRENA Joint Policies and Measures Database; Climate Change Laws of the World Database; Database of State Incentives for Renewables & Efficiency (DESIRE); and Legal Sources on Renewable Energy Database.

⁴²³ Some commentators consider carbon pricing schemes as renewable energy support policies, see Bahar, Egeland and Steenblik (n 280), at 39-41.

⁴²⁴ Some countries introduce temporary fuel allocations in emerging situations such as natural disasters disrupting fuel supplies. See Kojima (n 412).

⁴²⁵ See, e.g., Melaku Geboye Desta, 'The Organization of Petroleum Exporting Countries, the World Trade Organization, and Regional Trade Agreements' (2003) 37 *Journal of World Trade* 523; Frank R Lautenberg,

scope of this thesis, but it is important to note that OPEC production quotas have never been challenged in the GATT/WTO.⁴²⁶ It is also noteworthy that disciplining OPEC production quotas through the SCM Agreement has not featured in this debate, despite the fact that production quotas have the same economic effects and underlying rationales as other traditional forms of subsidies to domestic producers.⁴²⁷ Perhaps this is because production quotas are highly unlikely to be considered as subsidies within the meaning of the SCM Agreement, but one should note that they are functionally equivalent to any other form of subsidy to the extent that they confer an economic advantage by eventually raising the price received by producers.

In contrast to quantity-driven regulatory measures, price-driven regulatory measures are commonplace in the fossil fuel industry. The compatibility of energy price regulations with WTO rules, and in particular with the SCM Agreement, has also been the subject of recurrent debate over the last two decades. Price regulations determine the minimum or maximum prices and let the market determine the amount of fossil fuels to be produced or consumed. This section discusses price regulation policies that result in price subsidies for fossil fuel consumers. Price regulation policies in fossil fuel exporting countries are commonly referred to as dual pricing policies or practices. The section first provides a brief overview of regulatory pricing policies in general and then focuses on energy dual pricing policies.

‘Busting Up the Cartel: The WTO Case against OPEC’ (2004); Paolo Davide Farah and Elena Cima, ‘OPEC Production Quotas and the World Trade Organization’ in Photini Pazartzis and Maria Gavouneli (eds), *Reconceptualizing the Rule of Law in Global Governance, Resources, Investment and Trade* (Bloomsbury Publishing 2016); Stephen A Broome, ‘Conflicting Obligations for Oil Exporting Nations: Satisfying Membership Requirements of Both OPEC and the WTO’ (2006) 38 *George Washington International Law Review* 409.

⁴²⁶ It is worth mentioning, however, that two cases (*International Association of Machinists and Aerospace Workers v. OPEC and Member Countries* and *Prewitt Enterprises, Inc. v. Organization of the Petroleum Exporting Countries*) were filed by private firms before U.S. domestic courts challenging the OPEC production quotas and price fixing practices as anticompetitive practices under the U.S. antitrust law (Section 1 of the Sherman Act). In both cases the U.S. courts refused jurisdiction pursuant to the Foreign Sovereign Immunities Act and the International organization Immunities Act. For a brief overview of the cases, see Desta, ‘The Organization of Petroleum Exporting Countries, the World Trade Organization, and Regional Trade Agreements’ (n 425).

⁴²⁷ Production quotas may be considered as production subsidies under a broad subsidy definition in the same way some consider import tariffs as subsidies to domestic producers. For example, they constitute subsidies under the IEA and OECD definitions in the form of government action that raises the price received by energy producers.

2.4.2.1.1 Regulatory Pricing Policies

Governments regulate energy prices to counteract the adverse effects of high or low energy prices. The most direct forms of price regulations are price ceilings and price floors. Price floors are usually used to protect fossil fuel producers from low energy prices, whereas price ceilings are used to protect consumers (both industrial and households) from high energy prices. Countries often pursue different regulatory pricing policies for different types of fuels – oil prices being the most regulated of fossil fuels prices worldwide.

Most energy price regulations take the form of price controls or ceilings.⁴²⁸ As noted earlier, the 1970s oil price shocks prompted many countries to regulate energy prices.⁴²⁹ While some countries dismantled their price regulations since then, most developing countries still regulate fuel prices to counteract the adverse effects of high and volatile energy prices.⁴³⁰ To be sure, some developing countries attempted (or are attempting) to deregulate fuel prices for various reasons including ever-tightening budget constraints, pressure from international financial institutions, and in recognition of their adverse economic and environmental effects. However, nearly all developing countries (re)introduce some form of subsidies during energy price spikes. A 2009 World Bank study, which examined the policy response of 49 developing countries to world oil price movements between January 2004 and August 2008, during which oil prices rose from below US\$35 per barrel to an all-time high of US\$145 per barrel, found that:

Governments that had earlier deregulated fuel prices or adopted automatic price adjustment mechanisms froze and subsidized retail prices, while others that had announced fuel price subsidy removal postponed price reform.⁴³¹

Periods of relatively low oil prices are usually suitable for price deregulation, but they also make subsidies more affordable and politically expedient for governments.⁴³² This and other political economy factors meant that many countries use price regulations throughout the energy price

⁴²⁸ On price controls or ceilings, see Yulia Selivanova, *Energy Dual Pricing in the WTO: Analysis and Prospects in the Context of Russia's Accession to the World Trade Organization* (Cameron May 2008), at 6.

⁴²⁹ Some countries started regulating fossil fuel prices way before the 1970s. The United States, for example, used to regulate natural gas prices since the mid-1950s. See IEA and others (n 55), at 60.

⁴³⁰ See Kojima (n 412).

⁴³¹ See Kojima (n 242), at 4.

⁴³² *ibid.*

cycle. Price regulations constitute price subsidies to fossil fuel consumers to the extent they keep domestic prices below prices that would prevail in a competitive market.⁴³³ Such subsidies account for much of the IEA's fossil-fuel consumption subsidy estimates.⁴³⁴ Price regulations in fossil fuel exporting countries attract more attention (at least in the WTO) than those in fossil fuel importing countries because of their relatively large size. However, both fossil fuel exporting and importing countries regulate fossil fuel prices. Keeping domestic prices below international prices imply explicit costs to fossil fuel importing countries and revenue forgone for fossil fuel exporting countries. Fossil fuel importing countries finance the difference between regulated domestic prices and actual import prices often directly through the budget.

Setting price floors for fossil fuels is relatively less common. China is currently one of the very few countries that pursue a floor price policy for fossil fuels.⁴³⁵ The government recently introduced a price floor of US\$40 per barrel for refined oil products such as gasoline and diesel in response to the recent sharp drop in global oil prices.⁴³⁶ Floor price policies generate extra profit for producers when international prices fall below the floor price. However, this is not always easy to discern. In China, for example, the government claims that the extra profit will rather go to a special fund that will be used by the government for energy conservation and pollution control.⁴³⁷ Insofar as it does not benefit fossil fuel producers, China's floor price raises neither environmental nor international trade concerns. It may even contribute to transition by keeping fuel prices artificially high and thereby making renewables more cost competitive.

⁴³³ As discussed in *section 2.3*, the IEA/OECD and IMF use international prices (adjusted world market prices) as reference prices to estimate the magnitude of fossil fuel consumption subsidies.

⁴³⁴ For a comprehensive overview of price deregulation efforts in developing countries, see Benedict Clements and others (eds), *Energy Subsidy Reform: Lessons and Implications* (International Monetary Fund 2013).

⁴³⁵ Argentina also uses fossil fuel price ceilings to attract investment in fossil fuel exploration, production and refining activities. In 2015, for example, the country set oil prices at US\$77 per barrel in early 2015 although global oil prices had fallen below this level. See Sam Pickard, 'G20 Subsidies to Oil, Gas and Coal Production: Argentina' (Overseas Development Institute & Oil Change International 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production.

⁴³⁶ Clifford Krauss and Diane Cardwell, 'Climate Deal's First Big Hurdle: The Draw of Cheap Oil' *The New York Times* (25 January 2016) <<https://www.nytimes.com/2016/01/26/business/energy-environment/climate-deals-first-big-hurdle-the-draw-of-cheap-oil.html>> accessed 21 February 2017.

⁴³⁷ *ibid.* China's G20 fossil fuel subsidy peer review report has also observed that the floor price does not benefit producers of crude oil. See United States and others (n 408).

Some commentators, however, question the rationale behind China's floor price policy. Noting that 'China's biggest oil companies are not equipped to operate and compete in a crude environment below US\$40 per barrel,' they suggest that the policy is rather aimed at 'protecting China's struggling national oil companies'.⁴³⁸ These sentiments are partly fueled by some inconsistent statements from the National Development and Reform Commission (NDRC) – China's primary economic planning agency. Explaining the motives behind setting the price floor, the NDRC said that: 'As a country that is both a big oil importer and consumer, as well as a large producer, prices that are too high or too low will have a negative impact on China's economy. [And despite their short-term benefit, low oil prices] 'may put constraints on China's domestic oil production and reduce supply'.⁴³⁹ This statement suggests that the policy is driven by both environmental and economic motives. However, the lack of transparency makes it difficult to know whether the extra profit actually goes to the special fund or to the industry.

2.4.2.1.1.1 Dual Pricing Policies

Dual pricing policies are regulatory pricing policies used by resource-endowed countries to keep domestic prices substantially below world market prices.⁴⁴⁰ Energy dual pricing is commonly defined as 'a two-tier pricing practice whereby governments of energy-producing and exporting countries keep domestic prices for energy inputs low relative to world or export prices'.⁴⁴¹ Dual pricing policies typically result in two distinct price levels: a domestic price kept artificially low

⁴³⁸ Bloomberg, 'Sinopec, PetroChina Fall After Government Sets \$40 Oil Floor' *Bloomberg* (13 January 2016) <<https://www.bloomberg.com/news/articles/2016-01-13/china-won-t-cut-fuel-prices-when-crude-trades-below-40-a-barrel>> accessed 21 September 2017; Michael Lelyveld, 'China Sets Floor For Fuel Prices' *Radio Free Asia* (1 February 2016) <http://www.rfa.org/english/commentaries/energy_watch/china-sets-floor-for-fuel-prices-02012016110332.html> accessed 21 February 2017. It has also been pointed out that 'China's three big state-controlled oil companies employ millions of people, and leaders in Beijing want to avoid the kind of drastic job cuts the industry has endured around the world.'. Brian Spegele, 'China Tightens Hold Over Prices for Gasoline, Diesel' *Wall Street Journal* (13 January 2016) <<http://www.wsj.com/articles/china-tightens-hold-over-prices-for-gasoline-diesel-1452690523>> accessed 21 February 2017.

⁴³⁹ Ji Xiang, 'China's Planning Agency Sets Floor for Fuel Price Cuts at US\$40 a Barrel' *Shanghai Daily* (13 January 2016) <<http://www.shanghaidaily.com/business/energy/Chinas-planning-agency-sets-floor-for-fuel-price-cuts-at-US40-a-barrel/shdaily.shtml>> accessed 21 February 2017.

⁴⁴⁰ The United States defines dual pricing as 'any government programs or actions to establish domestic prices for natural resources at some level below the value they would otherwise have if determined by market forces'. GATT, 'Submission by the United States' (1987) MTN.GNG/NG3/W/2, at 2.

⁴⁴¹ Simonetta Zarrilli, 'Dual Pricing Practice and WTO Law' (2005) 3 *OGEL Intelligence* 1, at 2; Vitaliy Pogoretsky, 'The System of Energy Dual Pricing in Russia and Ukraine: The Consistency of the Energy Dual Pricing System with the WTO Agreement on Anti-Dumping' (2009) 4 *Global Trade and Customs Journal* 313.

by government intervention and an export price determined by market forces of demand and supply. Many energy-producing countries, including Iran, Russia, Pakistan and the United Arab Emirates currently use dual pricing policies.

Energy dual pricing is implemented through a variety of policy instruments, including domestic price controls or ceilings, export taxes or the sale of energy inputs by state trading enterprises at preferential rates.⁴⁴² Regardless of the particular policy instrument used, however, dual pricing policies function to keep domestic energy prices well below the prevailing international prices. Export taxes, for example, have the same economic effect as other conventional dual pricing policies such as price controls.⁴⁴³ It was not without reason after all that Adam Smith discussed at length about Spanish and Portuguese export restrictions on precious metals (gold and silver) in the subsidies chapter of his seminal book *The Wealth of Nations*.⁴⁴⁴ Export restrictions reduce domestic energy prices – albeit indirectly - by imposing a price on exports, which in turn reduces exports and increase the domestic supply of the energy product in question.⁴⁴⁵ In recognition of their effect, some countries unsuccessfully attempted to tackle the issue of export restrictions through multilateral subsidy rules during the Uruguay Round negotiations.⁴⁴⁶ The status of export taxes and other export restrictions under the SCM Agreement was also the subject of a legal dispute in the WTO (i.e. *US- Export Restraints*) but remains uncertain.

Energy-endowed countries pursue various economic and social objectives through dual pricing. The most common of these are improving access to energy for low-income households and

⁴⁴² Selivanova (n 428), at 6; Vitaliy Pogoretsky, ‘Energy Dual Pricing in International Trade: Subsidies and Anti-Dumping Perspectives’ in Julia Selivanova (ed), *Regulation of energy in international trade law: WTO, NAFTA, and Energy Charter* (Kluwer Law International 2012).

⁴⁴³ Iliaria Espa, ‘The Role of the WTO in Addressing Regulatory Pricing Policies in the Energy Sector’ in Photini Pazartzis and Maria Gavouneli (eds), *Reconceptualizing the Rule of Law in Global Governance, Resources, Investment and Trade* (Bloomsbury Publishing 2016), at 394.

⁴⁴⁴ Having compared English corn subsidies (bounties) with Spanish/Portuguese export restrictions on precious metals, Smith concluded that these two ‘absurd’ policies operate in exactly the same way. See Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Edwin Cannan ed, Modern Library 1994), at 673.

⁴⁴⁵ Iliaria Espa, *Export Restrictions on Critical Minerals and Metals: Testing the Adequacy of WTO Disciplines* (Cambridge University Press 2015), at 247-252; Reinhard Quick, ‘Export Taxes and Dual Pricing : How Can Trade Distortive Government Practices Be Tackled?’ in Joost Pauwelyn (ed), *Global challenges at the intersection of trade, energy and the environment* (Graduate Institute, Centre for Trade and Economic Integration ; Centre for Economic Policy Research 2010) Quick argued that ‘an export duty would create a differential between a price available to domestic processors and the price charged to foreign processors. This differential would provide a competitive advantage to domestic downstream processors’, at 194 .

⁴⁴⁶ See GATT, ‘Subsidies and Countervailing Measures’ (1987) Note by the Secretariat MTN.GNG/NG10/W/4.

enhancing the competitiveness of domestic energy-intensive industries (such as petrochemicals, aluminium, cement, glass, paper and steel industries).⁴⁴⁷ As an economic policy instrument, dual pricing is aimed at helping energy-endowed countries diversify their economy, and thereby reduce their heavy reliance on finite resources and vulnerability to energy price fluctuations.⁴⁴⁸ However, energy-endowed countries, usually justify dual pricing on the basis of social protection. For example, in addressing concerns expressed by WTO Members during their accession negotiations, Saudi Arabia and Russia claimed that their energy dual pricing policies were aimed at ‘securing the needs and welfare of consumers and preserve important social interests of the Kingdom’ and the ‘prevention of abuse of monopoly position and protection of consumers’ interest from monopoly price increases’, respectively.⁴⁴⁹ Although energy-endowed countries usually stress the social objectives of dual pricing policies, these policies are most often applied across all sectors of the economy.⁴⁵⁰ That is, they provide access to artificially cheap energy for all domestic energy consumers including energy-intensive industries. Dual pricing policies have long been sources of trade and environmental concerns.

Although it has been the subject of longstanding policy and academic debate, there has been no legal dispute over dual pricing in the multilateral trading system.⁴⁵¹ As one commentator pointed

⁴⁴⁷ The provision of low-priced energy is seen as an important means of redistributing natural resource wealth in favour of the poor. See IEA, ‘Fossil Fuel Subsidies in APEC Economies and the Benefit of Reform’ (International Energy Agency 2011) An IEA background paper for the Asia-Pacific Economic Cooperation see also; Pogoretsky (n 442), at 183; Selivanova (n 428), at 6. Governments in some energy-endowed countries may also use the provision of cheap energy as a means of bolstering their legitimacy. Writing on the topic in 2014, Krane noted that ‘In more autocratic settings such as Saudi Arabia and the other Gulf monarchies, the public may attribute low energy prices to “generosity” of the ruler or consider it a “government responsibility” or a representation of their “fair share” of the country’s natural resources’. Jim Krane, ‘Navigating the Perils of Energy Subsidy Reform in Exporting Countries’ (2014) Baker Institute Policy Report 58.

⁴⁴⁸ Zarrilli (n 441) is of the view that dual pricing is of fundamental importance to energy-endowed countries’ twofold objective of upgrading along the oil value chain and horizontal diversification into non-oil sectors, at 2; see also IEA, ‘Fossil Fuel Subsidies in APEC Economies and the Benefit of Reform’ (n 447) (noting that dual pricing policies are used in an effort to encourage economic diversification and employment by improving the competitiveness of energy-intensive industries), at 14; and Selivanova (n 428) (also noting that dual pricing policies are used to support the development of domestic industries), at 6.

⁴⁴⁹ See WTO, ‘Report of the Working Party on the Accession of the Kingdom of Saudi Arabia to the World Trade Organization’ (n 67), para 26; WTO, ‘Report of the Working Party on the Accession of the Russian Federation to the World Trade Organization’ (n 67), para 123.

⁴⁵⁰ Espa (n 443), at 393.

⁴⁵¹ It is, however, noteworthy that energy dual pricing practices have been litigated at the domestic level. The United States, for example, imposed countervailing duties on carbon black imports from Mexico. See *Cabot Corp v United States*, 620 F Supp 722, 726 (Court of International Trade 1985).

out ‘dual pricing is among the few issues in the WTO whose legality remains uncertain’.⁴⁵² The key questions from the perspective of energy subsidy governance are the following. Do dual pricing schemes constitute subsidies under the SCM Agreement? Can dual pricing schemes be successfully challenged under the SCM Agreement? And, if so, why they have not been challenged so far? These questions are of fundamental importance to understanding the adequacy of the SCM Agreement in disciplining fossil fuel subsidies.

2.4.2.2 Fiscal Incentives

As discussed in *section 2.4.1.2*, fiscal incentives can take various forms. These forms can broadly be categorized into grants/rebates and tax expenditures. Tax expenditures, in particular, are widely used to support the production and consumption of fossil fuels. This subsection discusses these incentives with illustrative examples. It also highlights potential issues relating to the regulation of energy subsidies in the multilateral trading system.

2.4.2.2.1 Grants and Rebates

Grants and rebates are relatively more prevalent in developed countries than in developing countries. A few developing countries such as Iran and India provide direct cash transfers or fuel vouchers to low-income households, but the use of such schemes is not as widespread as other forms of fossil fuel subsidies in developing countries.⁴⁵³ The limited use of these financial incentives in developing countries is associated with their administrative costs and difficulty in identifying beneficiaries.⁴⁵⁴ Developing countries lack the institutional capacity to gather information about targeted beneficiaries. This problem is further exacerbated by the existence of large informal economies in these countries. Partly due to these challenges, most developing countries support low-income households rather through fuel price controls or the provision of

⁴⁵² Pogoretskyy (n 441).

⁴⁵³ Developing countries that have fossil fuel grant schemes include: Brazil (Fuel Consumption Fund). OECD, ‘Brazil: OECD Database of Budgetary Support and Tax Expenditures’ (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁵⁴ See Bassam Fattouh and Laura El-Katiri, ‘Energy Subsidies in the Arab World’ (United Nations Development Program Regional Bureau for Arab States 2012) Arab Human Development Report.

cheap energy via state-owned enterprises. Such enterprises usually receive compensation from the government for losses they may sustain due to the regulated energy prices.

Developed countries use grants/rebates mainly to support fossil fuel consumption. These incentives are often targeted at certain economic sectors or households. The former are often aimed at encouraging certain economic activities (e.g. farming, fisheries) and tend to cover certain percentage of the increase in fuel prices. Fossil fuel consumption grants/rebates to households are often specifically targeted at low-income households. In the United States, for example, the federal *Low Income Home Energy Assistance Program* (LIHEAP) provides grants to poor households to help them pay their energy bills.⁴⁵⁵ The program was first set up in 1981 to help the poor and most vulnerable pay their heating or cooling bills. Payments under the LIHEAP are often made directly to energy providers or landlords. There are a number of similar programs in developed countries, including Australia, Canada, France, Belgium and the UK.⁴⁵⁶

Fossil fuel production grants/rebates are relatively uncommon, but few jurisdictions offer such incentives for a variety of reasons, including attracting investment.⁴⁵⁷ Some of the fossil fuel production grant schemes are not directly related to current fossil fuel production. A typical example of such schemes is the early retirement payments in Germany, which provides older, unemployed hard coal miners with early retirement payments until they become eligible for regular pension payments.⁴⁵⁸ This scheme was first introduced in 1972 and is set to expire in 2018, but payments are likely to continue until the end of 2027.⁴⁵⁹ The proposed expiry of the

⁴⁵⁵ OECD, *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* (n 258), at 332-333.

⁴⁵⁶ See *ibid*; and (for fossil fuel consumption subsidies to low-income households in Europe) Milieu Ltd and Ricardo Energy & Environment, 'Feasibility Study to Finance Low- Cost Energy Efficiency Measures in Low-Income Households from EU Funds' (European Commission 2016) Final Report for DG Energy.

⁴⁵⁷ For examples of fossil fuel production grant/rebate schemes, see OECD, *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* (n 258).

⁴⁵⁸ Similar program also exist in the United Kingdom ('Inherited Liabilities Related to Coal-Mining'), OECD, 'United Kingdom: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; South Korea ('Inherited Social Liabilities'), OECD, 'South Korea: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; Poland ('Early-Retirement Benefits for Laid-Off Miners') OECD, 'Poland: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; and Spain ('Inherited Liabilities Due to Coal Mining'), OECD, 'Spain: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁵⁹ OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256).

scheme is in line with the 2010 *EU Council Decision on State Aid to Facilitate the Closure of Uncompetitive Coal Mines*.⁴⁶⁰ This Decision allows EU Member States to provide financial assistance that facilitates the closure of uncompetitive coal mines by 2018.

2.4.2.2.2 Tax Incentives

Tax expenditures are widely used both in developed and developing countries to support fossil fuel production and consumption. For example, the majority of the about 800 fossil fuel support measures contained in the OECD Inventory are tax expenditures of one form or another. Most fossil fuel tax expenditure schemes are targeted at fossil fuel consumption. Such tax incentives are typically provided through reductions or exemptions from value-added taxes (VAT) and excise taxes.⁴⁶¹ By directly affecting final fuel prices, these tax incentives tend to encourage higher fossil fuel consumption than would otherwise be the case.

Some fossil fuel consumption-related tax expenditures are applied broadly through general exemptions or reductions in countries' VAT rates. The United Kingdom, for example, applies a five percent VAT rate to all fuel and power for domestic and residential use, compared to the standard rate of 17.5 percent.⁴⁶² However, most tax incentive schemes are targeted at either specific group of consumers or specific types of fuels.⁴⁶³ Tax incentives targeted at a specific group of consumers are intended to achieve social goals. Such tax incentives usually target low-income households in general or residents of particular regions that are deemed geographically or

⁴⁶⁰ See Article 3 and 9 of Council Decision of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines Official Journal of the European Union 2010/787/EU.

⁴⁶¹ OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256), at 31-35.

⁴⁶² The OECD estimated the tax revenue thereby foregone to be equivalent to 0.25 percent of UK's GDP. OECD, *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* (n 258) Likewise, Italy applies a 10 percent VAT rate to the first 480 cubic meters of natural gas supplied annually to each household, compared with the standard rate of 20 percent.

⁴⁶³ Fuel-specific fossil fuel consumption tax incentives exempt or reduce taxes for specific fossil fuels 'even though these fuels are intended for the same end purposes as other fuels taxed at higher rates'. Some countries, for example, levy lower excise tax on fuels deemed cleaner than gasoline or diesel fuel in an effort to encourage the uptake of those fuels. One such country is Australia, which completely exempts compressed natural gas and liquidities petroleum gas from the excise duty applied to other fossil fuels. See OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256).

economically disadvantaged.⁴⁶⁴ Some countries also provide targeted tax incentives for other groups of users. For example, government institutions, as well as diplomatic representations and international organizations, enjoy exemptions from fuel taxes in many countries, including the United States.⁴⁶⁵ Another type of targeted fossil fuel consumption tax incentives are those targeted at particular economic activities such as farming, forestry, and fisheries. Several OECD countries have tax incentive schemes that exempt or reduce excise taxes otherwise levied on the use of diesel fuel for such economic activities.⁴⁶⁶ Many countries also provide tax reductions or exemptions for fossil fuels used as input in production processes, including electricity generation.⁴⁶⁷ Brazil, for example, exempts coal- and gas-fired power plants from the payment of excise taxes for their purchase of coal and natural gas.⁴⁶⁸ Such tax incentives are likely to account for the majority of fossil fuel consumption-related tax incentives because manufacturers and service providers consume a significant portion of fossil fuels.

⁴⁶⁴ France, for example, provides VAT exemption for petroleum products consumed in certain overseas French territories or departments. See OECD, 'France: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁶⁵ The Netherlands, for example, provides a 50 percent energy tax rebate on natural gas and electricity used in heating the buildings of non-profit organizations. OECD, 'Netherlands: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁶⁶ See for the Netherlands (reduced energy tax rate on fuels used in the horticulture sector), *ibid*; for France (excise tax refund on fuel used in agriculture), OECD, 'France: OECD Database of Budgetary Support and Tax Expenditures' (n 464); for Germany (energy tax refund for diesel used in agriculture and forestry), OECD, 'Germany: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁶⁷ Countries that have such tax incentive schemes include Australia (excise tax exemption for fossil fuels used by off-road users), OECD, 'Australia: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; Germany (a manufacturer's privilege that exempts companies from paying a tax on fuel used in fossil-fuel production), OECD, 'Germany: OECD Database of Budgetary Support and Tax Expenditures' (n 466); Mexico (a tax credit for the end use of diesel fuel in general machinery, with the exception of vehicles), OECD, 'Mexico: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>; Sweden (30 percent reduction from the standard energy tax for the use of heating fuels by industrial consumers), OECD, 'Sweden: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁶⁸ Ravenna Nuaimey-Barker, 'G20 Subsidies to Oil, Gas and Coal Production: Brazil' (Oil Change International & Overseas Development Institute 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production. Similar tax incentives are available, for example, in France (excise tax exemption for fossil fuels used in refining and electricity generation), OECD, 'France: OECD Database of Budgetary Support and Tax Expenditures' (n 464); and Portugal (exemption from fuel excise tax for coal, coke, and fuel oil used by electric utilities), OECD, 'Portugal: OECD Database of Budgetary Support and Tax Expenditures' (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

Tax expenditures are also used by energy producing countries to support the extraction or production of fossil fuels. Fossil fuel production tax expenditures have the effect of lowering the cost of production and thereby ‘provide an incentive for more investment and potentially greater production than would otherwise be the case’.⁴⁶⁹ However, the special tax and royalty regimes usually applied to natural resources makes fossil fuel production tax incentives different from renewable energy production tax incentives. Since fossil fuels in the ground are public resources, in addition to levying the regular corporate income tax on profits earned in resource extraction, governments typically levy additional charges in various forms such as royalties, supplement income taxes and state participation through production sharing contracts.⁴⁷⁰ Therefore, fossil fuel production tax incentives take the form of exemptions or reductions not only from the corporate income taxes but also from the special taxes and royalties. In the UK, for example, oil and gas companies pay 32 percent supplementary charge on their income in addition to the corporate income tax (30 percent).⁴⁷¹ However, to encourage the development of oil and gas reserves, the *Finance Act 2009* introduced the ‘field-allowance scheme’ whereby companies that operate in small or technically challenging fields can claim an exemption from the supplementary charge.⁴⁷² Many fossil fuel producing countries also levy lower royalty rates (i.e. royalty concessions) on less productive or more costly fields. Italy, for example, provides royalty relief for the first 20,000 tons of oil produced onshore annually, and for the first 25 million cubic meters of natural gas produced each year.⁴⁷³ Qualifying oil and natural gas companies, therefore, benefit from the exemption from the standard 10 percent royalty rate applied to oil and gas production. Another common form of fossil fuel production tax incentive is accelerated depreciation allowances for capital expenditure.⁴⁷⁴ OECD countries including the United States, Canada and Australia, for

⁴⁶⁹ While some fossil fuel production tax incentives are specific to fossil fuels, others apply to natural resources in general. OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256).

⁴⁷⁰ *ibid.*

⁴⁷¹ Oil and gas companies are subject to higher corporate income tax (30 percent) than most other companies (21 percent). See Shakuntala Makhijani, ‘Fossil Fuel Exploration Subsidies: United Kingdom’ (Overseas Development Institute & Oil Change International 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production.

⁴⁷² *ibid.*

⁴⁷³ Italy’s royalty regime, which was introduced in 1996 pursuant to Decreto Legge No. 625, is characterized by relatively low rates. See OECD, ‘Italy: OECD Database of Budgetary Support and Tax Expenditures’ (Organization for Economic Cooperation and Development) <<http://www.oecd.org/site/tadffss/data/>>.

⁴⁷⁴ OECD, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015* (n 256).

example, use accelerated tax depreciation allowances for capital equipment to promote oil and natural gas exploration and production.⁴⁷⁵ While some countries provide such schemes only for successful exploration expenditures (e.g. the United States), others allow both for successful and unsuccessful exploration expenditures (e.g. Canada, India).

2.4.2.3 Public Finance Mechanisms

Governments use the same public finance mechanisms to help finance renewable energy and fossil fuel projects: equity infusions, preferential loans and loan guarantees.⁴⁷⁶ Perhaps the main difference between the provision of public finance for renewable energy and fossil fuel projects is that wholly or partially state-owned enterprises dominate the fossil fuel industry.⁴⁷⁷ Investment in and by these enterprises represents a major source of financial support for fossil fuel exploration and production.⁴⁷⁸ However, the limited publicly available information about government transfers to state-owned enterprises makes the task of identifying the subsidy components of such transfers extremely difficult.⁴⁷⁹ It is relatively easier to identify the subsidy components of equity investments when governments purchase equity in private fossil fuel companies. However, the mere fact that a government purchases equity in a private company does not necessarily mean that it is subsidizing the company. For example, the Italian Government (through the state-owned bank Cassa Depositi e Prestiti) purchased equity stakes in two oil and gas exploration companies at a total cost of US\$630 million in 2013.⁴⁸⁰ Some studies count total value of these investments

⁴⁷⁵ See (for Australia) Shakuntala Makhijani and Alex Doukas, 'G20 Subsidies to Oil, Gas and Coal Production: Australia' (Overseas Development Institute & Oil Change International 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production; (for Canada) Yanick Touchette, 'G20 Subsidies to Oil, Gas and Coal Production: Canada' (Oil Change International & Overseas Development Institute 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production; (for the United States) Alex Doukas, 'G20 Subsidies to Oil, Gas and Coal Production: United States' (2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production; (for India) Vibhuti Garg and Ken Bossong, 'G20 Subsidies to Oil Gas and Coal Production: India' (Overseas Development Institute & Oil Change International 2015) Background paper for the report Empty promises: G20 subsidies to oil, gas and coal production.

⁴⁷⁶ This is partly because fossil fuel and renewable energy projects generally operate with the same financing structures. See Dominik and others (n 386), at 12 (and the discussion in Section 2.4.1.3).

⁴⁷⁷ See IEA, *World Energy Investment 2016* (International Energy Agency 2016).

⁴⁷⁸ See Bast and others (n 239) (and the background country reports).

⁴⁷⁹ Bast and others (n 54).

⁴⁸⁰ For fossil fuel equity investments, see the background country reports to Bast and others (n 239).

as subsidies,⁴⁸¹ but equity investments constitute subsidies only insofar as the investments are made on terms more favourable than those available in the market. As noted in *section 2.4.1.3*, identifying the subsidy components of equity investments requires detailed information on whether the investments were made on more favourable terms than those commercially available.

Many countries also provide loans on preferential terms for fossil fuel projects. Such loans are often provided through state-owned financial institutions for both domestic and overseas fossil fuel projects.⁴⁸² Some of these preferential loan schemes are not specific to fossil fuels. The Export-Import Bank of Korea (Kexim), for example, provides special loans and guarantees to companies conducting exploration, development and production of natural resources.⁴⁸³ However, the lack of transparency means that neither the share of fossil fuel projects nor the extent of subsidies provided through this scheme is known. What is well known is that the provision of preferential loans and guarantees keeps fossil fuel companies afloat. Government guarantees against risks associated with fossil fuel projects have the same effect. They reduce the costs of capital for fossil fuel projects by shifting risk to taxpayers. In Norway, for example, the Petroleum Tax Law allows oil and gas companies to reclaim 78 percent of their unsuccessful exploration costs.⁴⁸⁴ Such guarantees of government reimbursement are instrumental in stimulating private investment in fossil fuel production.

⁴⁸¹ Shakuntala Makhijani, 'Fossil Fuel Exploration Subsidies: Italy' (Overseas Development Institute 2014) A background paper to the report 'The Fossil Fuel Bailout: G20 Subsidies for Oil, Gas and Coal' by Oil Change International (OCI) and the Overseas Development Institute (ODI).

⁴⁸² See Bast and others (n 54) (and the background country reports).

⁴⁸³ Makhijani, 'Fossil Fuel Exploration Subsidies: Republic of Korea' (n 410). It is noteworthy that preferential loans provided by KEXIM to other sectors have been the subject of trade disputes. In *Korea - Commercial Vessels*, the Panel dispute found that certain KEXIM re-shipment loans and advance payment refund guarantees are prohibited export subsidies under the SCM Agreement. *Panel Report, Korea - Measures Affecting Trade in Commercial Vessels (Korea-Commercial Vessels), WT/DS273/R, adopted 11 April 2005*.

⁴⁸⁴ 'The Petroleum Tax Law guarantees that an oil and gas company will receive the government's share of the loss in the future when and if the company is closed down'. GSI, 'Fossil Fuels – At What Cost? Government Support for Upstream Oil and Gas Activities in Norway' (Global Subsidies Initiative 2012), at 37.

Chapter Three

The Law and Economics of Energy-Transition Subsidy Policies

3.1 Introduction

It is not entirely for the WTO to determine whether countries should pursue sustainable energy transition and what policies they should use to make the transition happen. In the words of Pascal Lamy: ‘trade regulations are not, and cannot be, a substitute for environmental regulations’.⁴⁸⁵ Nor does international trade law has ‘rules and regulations that are specific to climate change’ or that ‘directly dictate what the goals of a government's environmental policy should be or what instruments can be used’.⁴⁸⁶ Such rules and regulations primarily come from outside the international trade law regime. To quote Pascal Lamy once more:

It is not in the WTO that a deal on climate change can be struck, but rather in an environmental forum, such as the United Nations Framework Convention on Climate Change. Such an agreement must then send the WTO an appropriate signal on how its rules may best be put to the service of sustainable development; in other words, a signal on how its particular toolbox of rules should be employed in the fight against climate change. Without such a signal, confusion will persist on what constitute an appropriate response by the multilateral trading system.⁴⁸⁷

This raises the question whether there is an adequate legal foundation for energy-transition subsidy policies. Are there international laws that justify or call for the subsidization of renewable energy and the phasing out of fossil fuel subsidies? Do these laws send the necessary signal to the multilateral trading system to accommodate renewable energy subsidies and discipline fossil fuel subsidies? The existence of such legal foundations is of paramount importance for energy subsidy governance in the multilateral trading system. The *India- Solar*

⁴⁸⁵ Lamy, *The Geneva Consensus* (n 92), at 61. De Sadeleer also echoed this view when he argued in the context of EU State Aid rules that ‘competition law will not on its own resolve the problems of pollution, as it is nothing more than an instrument in the service of environmental policy’. See Nicolas de Sadeleer, *EU Environmental Law and the Internal Market* (Oxford University Press 2014).

⁴⁸⁶ See Lamy, *The Geneva Consensus* (n 92), at 60; Charnovitz, ‘A New WTO Paradigm for Trade and the Environment’ (n 74), at 19.

⁴⁸⁷ Lamy, *The Geneva Consensus* (n 92), at 62; He made these remarks first at the Informal Trade Ministers’ Dialogue on Climate Change in Bali on 8-9 December 2007. Pascal Lamy, ‘Doha Could Deliver Double-Win for Environment and Trade’ (9 December 2007) <https://www.wto.org/english/news_e/sppl_e/sppl83_e.htm> accessed 23 October 2016.

Cells dispute (see *section 5.3.2.1.1*) illustrates this point quite clearly. In this dispute, India relied upon national and international legal instruments in its attempt to justify that its renewable energy support measures were necessary to secure compliance with laws or regulations' within the meaning of GATT Article XX(d).⁴⁸⁸ Notwithstanding the question whether the general exceptions of GATT Article XX apply to the SCM Agreement, the existence or otherwise of legal foundations for energy-transition subsidy policies play an important role in the interpretation of existing multilateral subsidy rules and future negotiations on energy subsidies. As the Appellate Body suggested in *US - Gasoline*, we are ought to read international trade law as an integral part of public international law, but not in a clinical isolation.

It is against this background that this chapter seeks to explore international laws relevant to the sustainable energy transition to establish the legal foundations of energy-transition subsidy policies (*section 3.3*). Before turning to the legal foundations, however, the chapter explores the economic foundations upon which energy-transition subsidy policies are based (*section 3.2*).

3.2 The Economics of Energy-Transition Subsidy Policies

Does economics provide a theoretical basis for energy-transition subsidy policies? This is not an easy question to answer. Subsidies have always been controversial in economics. This controversy dates back at least to Adam Smith and the subsidization of corn exports in England. Mercantilists viewed such subsidies as important instruments to maintain a positive trade balance – which they (erroneously) thought would maximize the wealth of the nation. This mercantilist idea drew serious criticism from Adam Smith. In his *Inquiry into the Nature and Causes of the Wealth of Nations*, he argued that the effect of subsidies 'can only be to force the trade of a country into a channel much less advantageous than that in which it would naturally run its own accord'.⁴⁸⁹ This understanding remains the prevailing view in economics. The *laissez-faire* economic theory treats subsidies and other forms of policy interventions as distortions that spawn

⁴⁸⁸ See *India - Solar Cells* (n 336), paras 7.188-7.390 (and Section 4.2.3 of this thesis).

⁴⁸⁹ Smith (n 444), at 663. For detailed analysis of Adam Smith's critique of subsidies (what he then referred to as 'bounties'), see Bruce Elmslie, 'Adam Smith's Analysis of Bounties as an Early Example of the Concept of Noneconomic Objectives' (2004) 63 *American Journal of Economics and Sociology* 899; John Leazer, 'A Case for Subsidies? Adam Smith and the Eighteenth Century Scottish Herring Fishery' (2013) 75 *Historian* 47.

inefficiency. This is consistent with the underlying premises of the theory that market forces (demand and supply) are the most efficient means of resource allocation in a perfectly competitive market.⁴⁹⁰ The problem is that markets are not always perfect in reality and they fail to allocate resources efficiently under certain circumstances. Even if they were perfect, and distribute resources with optimal efficiency, economic efficiency is not the only goal of a society. There are many important social goals other than economic efficiency (such as equity and environmental sustainability) that the societies seek to achieve.

Most economists now accept that the presence of market failures or imperfections implies a role for government intervention in the form of subsidies or otherwise. The specific form of government intervention varies depending on several factors including the size of the economy and the market failure in question. The market failures or imperfections relevant to the analysis of subsidies range from natural monopolies and information asymmetries to public goods and externalities. The *laissez-faire* economic theory asserts that there is no economic case for subsidies in the absence of market failure. Implicit in this argument is the assumption that in the absence of market failure, subsidies can lead only to economic inefficiency.

This simple economics of subsidies suggests that the presence or otherwise of market failure in the energy sector determines the presence or otherwise of an economic case for energy-transition subsidy policies. With this in mind, this section aims to explore the economic arguments for the subsidization of renewable energy and the removal of fossil fuel subsidies. However, one needs to bear in mind that ‘economic efficiency is not everything’.⁴⁹¹ Most economists recognize that it might be worth enduring some economic inefficiency to achieve other social goals. Auerswald captured this point well when he argued in the context of technology policy that:

⁴⁹⁰ See WTO, *World Trade Report 2006: Exploring the Links Between Subsidies, Trade and the WTO* (n 213), at 55-58.

⁴⁹¹ Paul R Krugman, *Currencies and Crises* (MIT Press 1995), at 203.

[A] perfectly competitive market achieves an efficient outcome but not necessarily an equitable one. Consequently, even in the absence of market failure, concerns over equity rather than efficiency may suggest an important and legitimate role for government.⁴⁹²

The idea that non-economic considerations may justify government intervention in the absence of market failure is not new. Despite his general criticism of subsidies, Adam Smith admitted that even export subsidies could be justified under certain circumstances:

If any particular manufacture was necessary, indeed, for the defence of the society, it might not always be prudent to depend upon our neighbours for the supply; and if such manufacture could not otherwise be supported at home, it might not be unreasonable that all the other branches of industry should be taxed in order to support it. The bounties upon the exportation of British-made sailcloth and British-made gunpowder may, perhaps, both be vindicated upon this principle.⁴⁹³

The gist of his argument is that non-economic considerations (in this case, national security) can justify the use of subsidies (even if such subsidies are economically inefficient). Ever since Adam Smith, many economists have come to realize that government interventions can be economically inefficient and yet socially desirable at the same time. The standard economic arguments for and against subsidies and other forms of interventions are therefore relevant only insofar as economic efficiency is the only criterion to assess their significance.

3.2.1 The Case for Renewable Energy Subsidies

The preceding chapters have emphasized the need for substantial investment in renewable energy to accelerate the sustainable energy transition. They have also revealed how countries worldwide introduced various renewable energy subsidy schemes to stimulate such investment. There is little doubt in the literature that these subsidies are environmentally desirable and have been instrumental in accelerating the development and deployment of renewable energy technologies

⁴⁹² Philip E Auerswald, 'The Simple Economics of Technology Entrepreneurship: Market Failure Reconsidered' in David B Audretsch, Isabel Grilo and A Roy Thurik (eds), *Handbook of Research on Entrepreneurship Policy* (Edward Elgar Publishing 2007) 18, at 18.

⁴⁹³ See Smith (n 444), at 685. In similar fashion, the French political economists, Jean Baptiste Say argued that 'Though bounties are chargeable, and a dead loss to the gross national wealth, there are cases in which it is politic to incur that loss; (1) as when a particular product is necessary to public security, and must be had at any rate, however extravagant'. See Jean Baptiste Say, *A Treatise on Political Economy, or the Production, Distribution, and Consumption of Wealth* (4th edn, Augustus M Kelley Publishers 1971), at 172.

over the last few decades.⁴⁹⁴ The central question in the economic literature is whether these subsidies are economically efficient. Put differently, the question is whether renewable energy subsidies make sense economically – not just environmentally.

What is clear from the discussion above is that any economic case for renewable energy subsidies depends on the presence of market failures relevant to renewable energy. Insofar as there is no market failure, there is *as such* no economic case for these subsidies. While market failures are prevalent in the renewable energy sector, the literature focuses on two well-established market failures to explain the economic rationale for the subsidization of renewable energy.⁴⁹⁵ These dual market failures stem from environmental externalities and technological externalities. This section briefly explores these two market failures and shows how they create an economic rationale for the subsidization of renewable energy technologies. These are by no means the only market failures or arguments economists use to justify the subsidization of renewable energy. However, they are by far the most persuasive ones. The intent here is not to outline all the economic arguments for renewable energy subsidies, but rather to illustrate the presence or otherwise of economic arguments in favour of renewable energy subsidies.

3.2.1.1 Environmental Externalities

The famous Stern Review on *the Economics of Climate Change* described climate change as ‘the greatest market failure the world has ever seen’.⁴⁹⁶ The primary sources of this failure are environmental externalities. The economic literature cites both negative and positive environmental externalities as a justification for renewable energy subsidies.

The preceding chapter noted that fossil fuel combustion creates negative externalities to society in the form of air pollution and climate change. It also pointed out that energy prices do not reflect the external environmental costs associated with fossil fuel combustion. Economic theory suggests that the non-internalization of these costs results in the over-production/consumption of

⁴⁹⁴ The IPCC noted that an increasing number and variety of renewable energy policies have driven substantial growth of renewable energy technologies in recent years. See Mitchell and others (n 25), at 869.

⁴⁹⁵ See *ibid*, at 872; Adam B Jaffe, Richard G Newell and Robert N Stavins, ‘A Tale of Two Market Failures: Technology and Environmental Policy’ (2005) 54 *Ecological Economics* 164.

⁴⁹⁶ Stern (n 23), at viii.

fossil fuels. Without any mechanism to internalize environmental costs, fossil fuel producers/consumers lack direct incentive to reduce their fuel production/consumption. Such lack of incentive leads to underinvestment in energy efficiency and renewable energy technologies to the detriment of the economies. There is an almost universal consensus among economists that this classic market failure warrants government intervention and the first-best policy response is to put a price on carbon (i.e. carbon pricing). The market failure literature suggests that the most efficient policy response to a market failure is the one that directly aim at the market failure at stake. The most efficient policy response to negative environmental externalities is, therefore, the one that internalize the negative externalities. Negative environmental externalities justify renewable energy subsidies only under limited circumstances: (i) where carbon pricing is politically difficult to implement; and (ii) where carbon prices are too low to have any meaningful impact on fossil fuel production/consumption. What is clear from the relevant literature is that these limited circumstances currently exist.

First, many countries are reluctant to impose carbon pricing due to competitiveness concerns. In the absence of a global carbon pricing regime, they worry that domestic industries may lose their competitive edge to like industries from countries where there is no carbon pricing in place.⁴⁹⁷ In the absence of carbon pricing, renewable energy subsidies serve as a *temporary* second-best option.⁴⁹⁸ The urgency of climate change makes politically feasible second-best policies (e.g. renewable energy subsidies) preferable than waiting for an optimal policy option.⁴⁹⁹

Second, even in countries where there are carbon-pricing mechanisms in place, current carbon prices are too low to provide the necessary incentive for transitioning to a sustainable energy system.⁵⁰⁰ A recent OECD study, which examined effective carbon rates across 41 countries, found that ‘60 percent of carbon emissions from energy use are unpriced’ across the 41 countries

⁴⁹⁷ See Pauwelyn, ‘Carbon Leakage Measures and Border Tax Adjustments under WTO Law’ (n 130).

⁴⁹⁸ However, the economic literature is clear that renewable energy subsidies are too costly as a permanent substitute to carbon pricing. See Matthias Kalkuhl, Ottmar Edenhofer and Kai Lessmann, ‘Renewable Energy Subsidies: Second-Best Policy or Fatal Aberration for Mitigation?’ (2013) 35 *Resource and Energy Economics* 217.

⁴⁹⁹ On second-best climate change policies, see Jonathan M Gilligan and Michael P Vandenberg, ‘Accounting for Political Feasibility in Climate Instrument Choice’ (2014) 32 *Virginia Environmental Law Journal* 1.

⁵⁰⁰ See, for example, OECD, *OECD Economic Surveys: Denmark* (OECD Publishing 2012) (noting that EU carbon prices are too low to encourage sufficient investment in renewable energy technologies in Denmark), at 29.

and even ‘where carbon is priced, the price tends to be low’.⁵⁰¹ Where carbon prices are too low, renewable energy subsidies complement carbon pricing by lowering the costs of renewable energy and thereby accelerating the sustainable energy transition.⁵⁰²

Positive environmental externalities also offer additional justification for the subsidization of renewable energy. Even assuming that fuel prices reflect the environmental costs resulting from fossil fuel combustion, renewables warrant public support for their contribution to environmental sustainability. Renewable energy sources create environmental benefits to society by reducing energy-related greenhouse gas emissions. While everyone enjoys the environmental benefits, only renewable energy producers/consumer incur the costs. Renewable energy subsidies avoid the potential free-rider problem by reducing the costs of renewable energy technologies

3.2.1.2 Technological Externalities

The second market failure relevant to renewable energy technologies is common to all kinds of technologies. The transition towards a sustainable energy system heavily relies on rapid technological advances in renewable energy.⁵⁰³ There are, however, several market failures along the technological innovation pathway that limit the ability of the market to bring about the necessary technological development on its own.⁵⁰⁴ The most crucial of these is what economists refer to as ‘knowledge spillovers’ or ‘knowledge externalities’ from R&D.

The theory of knowledge spillovers arises from the ‘public good’ nature of knowledge. Economists consider any technological knowledge that enters the public domain (through patents

⁵⁰¹ See OECD, *Effective Carbon Rates* (OECD Publishing 2016). According to this study, carbon must be priced at least €30 per ton to reflect the environmental damage resulting from carbon emissions. .

⁵⁰² See Samuela Bassi and Sam Fankhauser, ‘The Economics of Wind Power: Submission to the Inquiry by the House of Commons Select Committee on Energy and Climate Change’ (The Centre for Climate Change Economics and Policy 2012); Kalkuhl, Edenhofer and Lessmann (n 498).

⁵⁰³ According to the IPCC, R&D is required even after renewable energy technologies reach commercial deployment not only to improve their performance but also to reduce their costs. See Mitchell and others (n 25)865, at 885. For example, advancement in mass storage technologies is crucial to the widespread use of renewable energy technologies. See Ashish Gulagi, Dmitrii Bogdanov and Christian Breyer, ‘The Demand for Storage Technologies in Energy Transition Pathways Towards 100% Renewable Energy for India’ (2017) 135 *Energy Procedia* 37.

⁵⁰⁴ The technological innovation process consists of multiple stages from basic research to diffusion in the market. The major market failures that occur along this pathway include knowledge spillovers, public goods, coordination or network failures, imperfect and asymmetric information. See for details Oxera, ‘Innovation Market Failures and State Aid: Developing Criteria’ (2005) Report prepared for the European Commission.

or publications) as a public good because of its non-rivalrousness in consumption and non-excludability. R&D is the primary source of new technological knowledge. Since new technological knowledge spills over from one firm to another, firms that invest in R&D create benefits for others while incurring all the costs.⁵⁰⁵ Such firms cannot keep other firms from also benefiting from the new technological knowledge brought about by their R&D. The inability of innovating firms to reap the full benefits of the new knowledge diminishes their incentive to invest in R&D. Without government intervention, economists argue, private firms underinvest in socially desirable or climate-friendly technologies.⁵⁰⁶ The risk of having too little R&D investment in such technologies provides the motivation for government intervention.

How best to address knowledge spillovers remain a matter of debate, but there is broad consensus among economists that R&D subsidies are an integral part of the policy response.⁵⁰⁷ Several empirical studies have confirmed that such subsidies are effective in stimulating private R&D investment.⁵⁰⁸ Some of these studies also suggest that R&D subsidies are more effective when

⁵⁰⁵ See David Popp, Richard G Newell and Adam B Jaffe, 'Energy, the Environment, and Technological Change' in Bronwyn H Hall and Nathan Rosenberg (eds), *Handbook of the Economics of Innovation*, vol 2 (North-Holland 2010)873, at 877. There is ample empirical evidence that confirms the existence of knowledge spillovers in the innovation process. For a brief review of the literature, see Stephen Martin and John T Scott, 'Market Failures and the Design of Innovation Policy' in Stephen Martin and John T Scott (eds), *Financing and Leveraging Public/Private Partnerships* (OECD 1998). For energy-specific studies, see Thomas Bue Bjørner and Janne Mackenhauer, 'Spillover from Private Energy Research' (2013) 35 *Resource and Energy Economics* 171; Joëlle Noailly and Victoria Shestalova, 'Knowledge Spillovers from Renewable Energy Technologies: Lessons from Patent Citations' (2017) 22 *Environmental Innovation and Societal Transitions* 1.

⁵⁰⁶ See Jaffe, Newell and Stavins (n 495); Daron Acemoglu and others, 'The Environment and Directed Technical Change' (2012) 102 *American Economic Review* 131.

⁵⁰⁷ Intellectual property protection is by far the popular policy response, but it is insufficient on its own. This is because, first, not every innovation is patentable. Second, innovations are vulnerable to reverse engineering. Third, even under strong intellectual property protection regimes, 'a successful innovator captures relatively little of the value from the innovation'. See, among others, Gregory F Nemet, 'Subsidies for New Technologies and Knowledge Spillovers from Learning by Doing' (2012) 31 *Journal of Policy Analysis and Management* 601; Richard R Nelson, 'Government Stimulus of Technological Progress: Lessons from American History' in Richard R Nelson (ed), *Government and technical progress: a cross-industry analysis* (Pergamon Press 1982).

⁵⁰⁸ See Yonghong Wu, 'The Effects of State R&D Tax Credits in Stimulating Private R&D Expenditure: A Cross-State Empirical Analysis' (2005) 24 *Journal of Policy Analysis and Management* 785; Jaffe, Newell and Stavins (n 495); Isabel Busom, 'An Empirical Evaluation of The Effects of R&D Subsidies' (2000) 9 *Economics of Innovation and New Technology* 111; David Popp, 'R&D Subsidies and Climate Policy: Is There a "Free Lunch"?' (2006) 77 *Climatic Change* 311 (R&D subsidies induce more R&D than carbon taxes in the long-run); Tor Jakob Klette, Jarle Møen and Zvi Griliches, 'Do Subsidies to Commercial R&D Reduce Market Failures? Microeconomic Evaluation Studies We Have Benefited from Comments by Tore Nilssen, John van Reenen and Participants at the NBER Productivity Meeting in December 1998. This Project Has Received Partial Financial Support from the Research Council of Norway.' (2000) 29 *Research Policy* 471.

they are technology and sector neutral.⁵⁰⁹ Underlying this argument is the concern that subsidy-induced private R&D investment in one technology/sector will likely come at the expense of R&D investment in other important technologies or sectors.⁵¹⁰ At the same time, most economists acknowledge that cross-sector R&D subsidies are less politically acceptable and difficult to implement than targeted R&D subsidies.

Another technological market failure that economists often cite as rationale for subsidizing renewable energy is what they refer to as ‘learning-by-doing’ or ‘learning spillovers’. The underlying assumption behind the theory of learning-by-doing is that firms gain more experience and hence become more efficient over time.⁵¹¹ That is, learning from experience improves productivity (often equated with improved technical performance and cost reductions).⁵¹² Because of experience spillovers, the learning experience of one firm leads to improved productivity across the entire industry.⁵¹³ The existence of this positive externality implies that firms do not only improve their productivity but also that of their competitors. Markets, however, hardly account for such positive externalities to other firms. The resultant free-rider problem dampens the incentive for firms to learn through their own experience – as they would be tempted to wait until other firms make the learning investment. Such a waiting game could lead to underinvestment in the development of climate-friendly technologies. Under such circumstances, subsidies and other government interventions play a crucial role in accelerating the development and deployment of renewable energy technologies.

3.2.2 The Case for Phasing Out Fossil Fuel Subsidies

The economic case against fossil fuel subsidies is relatively straightforward from a market failure perspective. There is a broad consensus in the economic literature on the absence of market failure that justifies the subsidization of fossil fuels. The major market failure relevant to fossil

⁵⁰⁹ Stephen H Schneider and Lawrence H Goulder, ‘Achieving Low-Cost Emissions Targets’ (1997) 389 *Nature* 13.

⁵¹⁰ Popp (n 508).

⁵¹¹ See Richard McDowell, ‘Learning by Doing and Spillovers in Renewable Energy Evidence From U.S. Wind and Solar Farms’.

⁵¹² Borenstein (n 507), at 82.

⁵¹³ There is some evidence of learning externalities in the renewable energy sector. See Martin Junginger, Wilfried van Sark and André Faaij, *Technological Learning in the Energy Sector: Lessons for Policy, Industry and Science* (Edward Elgar Publishing 2010); Bjørner and Mackenhauer (n 505); Noailly and Shestalova (n 505).

fuels is the aforementioned negative externalities. However, these externalities do not justify the subsidization of fossil fuels. In fact, they do precisely the opposite – they require the removal of fossil fuel subsidies. It is well recognized that fossil fuels are generally underpriced due to no or low carbon prices internalizing their environmental costs. Subsidies exacerbate this problem by making fossil fuels even cheaper. In doing so, they ‘distort markets and entail an inefficient allocation of resources’.⁵¹⁴ Removing fossil fuel subsidies is a *prima facie* first order priority in any effort to tackle the negative externalities associated with fossil fuel combustion.

However, the lack of a market failure justification is not the only economic argument against fossil fuel subsidies. Fossil fuel subsidies create additional greenhouse gas emissions by inducing the over-production or over-consumption of fossil fuels. Empirical studies have consistently shown the potential reduction of greenhouse gas emissions from the removal of fossil fuel subsidies (see *section 1.2.2*). The underlying assumption in these studies is that removing fossil fuel subsidies results in increased energy prices, which in turn leads to reduced fossil fuel production/consumption. Fossil fuel subsidies also undermine the competitiveness of renewable energy technologies. The substitutability of energy products (e.g. electricity) means that lower fuel prices directly affect renewable energy. The competitiveness of renewables has shown tremendous growth over the past decade, but most renewable energy technologies are not yet fully competitive. Together with the absence or low carbon prices, the subsidization of fossil fuels is currently holding back the competitiveness of renewable energy technologies in the market. The literature on fossil fuel subsidies suggests that the removal of fossil fuel subsidies benefits renewables in two significant ways. First, it makes them relatively more competitive with their dirtier counterparts. Second, the removal of fossil fuel subsidies frees up necessary public funds that can be used to support the development and deployment of renewable energy technologies.⁵¹⁵ Switching current fossil fuel subsidies to renewable energy will enhance the competitiveness of renewables and thereby accelerate the sustainable energy transition.

⁵¹⁴ OECD, *OECD Economic Surveys: India 2011* (OECD Publishing 2011), at 108.

⁵¹⁵ See Laura Merrill and others, ‘Making the Switch From Fossil Fuel Subsidies to Sustainable Energy’ (Nordic Council of Ministers 2017) TemaNord 2017:537; Jon Sampedro, Iñaki Arto and Mikel González-Eguino, ‘Implications of Switching Fossil Fuel Subsidies to Solar: A Case Study for the European Union’ (2017) 10 Sustainability 50.

Another case for fossil fuel subsidy reform is ineffectiveness or failure to meet their intended objective. As also noted in Section 1.2.2, the provision of access to modern energy is the oft-cited justification for fossil fuel consumption subsidies. Governments often claim that these subsidies protect low-income households from high energy prices. There is little doubt in the literature that this is a legitimate public policy objective. The problem is that many current fossil fuel consumption subsidies are not targeted enough to benefit the poor and vulnerable. Fossil fuel subsidies are often available to the general public. Because of their regressive nature, they benefit middle/ high-income households more than low-income households who consume relatively less energy than their wealthier counterparts. The empirical studies mentioned in Section 1.2.2 strongly support this claim. These studies suggest direct cash transfers as more efficient alternatives.⁵¹⁶ Some countries (e.g. Iran and India) recently introduced direct cash transfer for low-income households in response to these suggestions.

3.3 The Legal Foundations of Energy-Transition Subsidy Policies

There is no single international agreement on sustainable energy as of yet. This has meant that the sustainable energy transition does not rest on a single legal foundation, but rather on a plethora of disjointed legal foundations. This section attempts to map these fragmented legal foundations and explore the extent to which they justify or require the subsidization of renewable energy and the removal of fossil fuel subsidies. Before delving into the details of the specific international legal instruments relevant to the energy transition, however, it is imperative to review the main features of the global regime for energy governance.

3.3.1 Global Energy Governance

The global energy governance regime is characterized by underdevelopment and fragmentation. The two subsections below discuss these two interrelated features and highlight their implications for the legal foundations of energy-transition subsidy policies.

⁵¹⁶ The lack of institutional resources and insufficient information about household income levels are some of the challenges that impede the widespread implementation of direct cash transfer schemes in developing countries.

3.3.1.1 Underdevelopment

Energy governance has traditionally been seen as a matter of national sovereignty. Because of the close linkage between energy security and national security, ‘national governments have historically held close control over energy-related decisions’.⁵¹⁷ Governments addressed energy issues mainly under national law until a combination of several factors brought them into the realm of international law in the 1970s.⁵¹⁸ The most prominent of these factors include the shifting of power from the ‘seven sisters’⁵¹⁹ to national oil companies, the growing recognition of energy-related environmental concerns, the rise in global energy demand and the increase in international trade in energy. These factors led to the establishment of multiple intergovernmental energy organizations and the ‘internationalization’⁵²⁰ of energy law.

There is now an increasingly complex web of international organizations and legal instruments regulating the various facets of energy policy. At the same time, the resultant global energy

⁵¹⁷ Ann Florini and Navroz K Dubash, ‘Introduction to the Special Issue: Governing Energy in a Fragmented World’ (2011) 2 *Global Policy* 1, at 3. The fact that energy is a subject over which countries fiercely want to preserve their sovereignty is openly recognized – so much so that it is explicitly written into international law. See Energy Charter Treaty (adopted 17 December 1994, entered into force 16 April 1998) 2080 UNTS 95 (ECT) (Article 18); the ECT’s principle of sovereignty over energy resources echoes the General Assembly resolution 1803 (XVII) of 14 December 1962 (Permanent Sovereignty over Natural Resources). Principle 2 of the Rio Declaration also recognizes the sovereignty of states over their natural resources but it also imposes ‘responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction’. Rio Declaration on Environment and Development, Annex I to the Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992) A/CONF.151/26 (Vol. I) 12 August 1992 (Rio Declaration).

⁵¹⁸ Professor Adrian Bradbrook noted that ‘Although public international law has existed for many centuries, it is only since the 1970s that it has concerned itself with energy issues’. See Adrian J Bradbrook, ‘The Development of Renewable Energy Technologies and Energy Efficiency Measures through Public International Law’ in Donald N Zillman and others (eds), *Beyond the Carbon Economy: Energy Law in Transition* (Oxford University Press 2008), at 112; see also Alexandra S Wawryk, ‘International Energy Law as an Academic Discipline’ in Paul Babie and Paul Leadbeter (eds), *Law as Change: Engaging with the Life and Scholarship of Adrian Bradbrook* (2014) (arguing that there was no international energy law prior to the 1970s), at 229.

⁵¹⁹ The ‘Seven Sisters’ was a term coined by Enrico Mattei to disparagingly refer to the seven major Anglo-American and Dutch oil companies that controlled the global oil industry until the 1960s: Anglo-Persian Oil Company; Gulf Oil; Royal Dutch Shell; Standard Oil Company of California (SoCal); Texas Oil Company (Texaco); Standard Oil Company of New Jersey (Esso); and Standard Oil Company of New York (Socony).

⁵²⁰ The literature on international energy law uses the expression ‘internationalization’ of energy law to refer to two distinct but interrelated concepts: the ‘growing importance and influence of international law in energy markets and energy market operations’ and the growing ‘internationalization of principles of national energy law’. See Kim Talus, ‘Internationalization of Energy Law’ in Kim Talus (ed), *Research Handbook on International Energy Law* (Edward Elgar Publishing 2014), at 5 et seq; Wawryk (n 518), at 228 et seq.

governance regime remains weak and underdeveloped.⁵²¹ Energy security concerns continue to undermine the development of the international regime for energy governance. Many countries still perceive energy politics as zero-sum game in which one country's gain is another's loss.⁵²² This narrow perception erroneously suggests that there is limited room for international cooperation and thereby reinforces the widespread aversion to international energy regulation.⁵²³ The combination of this and several other factors means that 'energy policy remains overwhelmingly under national control'.⁵²⁴ The underdevelopment of international energy law implies that international energy law is less likely to provide clear and well-established legal basis for energy-transition subsidy policies, and hence we need to look beyond international energy law to find the legal basis of energy-transition subsidy policies.

3.3.1.2 Fragmentation

To the extent that it exists, the global energy governance regime is highly fragmented. Fragmentation is not new or specific to international energy law.⁵²⁵ The 'fragmentation' of international law into highly specialized and 'functionally defined issue areas' is a long-observed phenomenon that has been the subject of heated debate among legal scholars and practitioners for at least the last two decades.⁵²⁶ That debate lies outside the scope of this thesis, but understanding

⁵²¹ Some commentators go even further and question the existence of 'international energy' and a 'global energy governance regime' altogether. See, for example, Karen Makuch, Ricardo Pereira and Ricardo Pereira (eds), 'The Exploration and Exploitation of Energy Resources in International Law', *Environmental and Energy Law* (John Wiley & Sons 2012) (arguing that 'International energy law is not a specialized field of law in the strict sense - as in the case of "criminal law" or "commercial law" - as it could not be regarded as a self-contained regime with its own unique rules'), at 203; Rafael Leal-Arcas, Andrew Filis and Ehab S Abu Gosh, *International Energy Governance: Selected Legal Issues* (Edward Elgar Publishing 2014) (arguing that 'global energy governance today is a theoretical concept that does not exist in actuality'), at 16.

⁵²² Gunningham (n 163), at 131; Andreas Goldthau and Jan Martin Witte, 'The Role of Rules and Institutions in Global Energy: An Introduction' in Andreas Goldthau and Jan Martin Witte (eds), *Global energy governance: the new rules of the game* (Global Public Policy Institute ; Brookings Institution Press 2010), at 2 et seq.

⁵²³ Seeing energy security as a zero-sum game ignores the international collaboration and coordination needed to achieve the transition towards a sustainable energy future. See Gunningham (n 163); Goldthau and Witte (n 522).

⁵²⁴ See Florini and Dubash (n 517), at 2.

⁵²⁵ The term 'fragmentation' is simply used here to refer to a landscape where various international institutions and legal instruments are overlapping in terms of substantive issue coverage. This definition is borrowed from Harro Van Asselt, 'Managing the Fragmentation of International Climate Law' in Erkki Hollo, Kati Kulovesi and Michael Mehling (eds), *Climate Change and the Law* (Springer Science & Business Media 2012), at 335.

⁵²⁶ The academic literature on the fragmentation of international law is vast and highly contentious, see, e.g., UNGA, 'Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law' (United Nations General Assembly 2006) Report of the Study Group of the International Law Commission

some aspects of the ‘institutional’ and ‘substantive’ fragmentation of the global energy governance regime is important to understand the nature of the prevailing legal foundations upon which energy-transition subsidy policies are based.⁵²⁷

In contrast to other transnational issue areas such as health and trade, there is no single international organization (i.e. world energy organization) dealing with global energy issues.⁵²⁸ What exists, instead, is a patchwork of parallel and overlapping organizations with a ‘partial scope, limited membership and/or weak authority’.⁵²⁹ As the former IAEA Director General, Mohamed ElBaradei has put it: ‘[a] number of institutions focus on energy, but none with a mandate that is global and comprehensive and that encompasses all energy forms’.⁵³⁰ Existing international organizations are fragmented along energy sources and energy issues. Even organizations that exclusively deal with energy, such as the Atomic Energy Agency (IAEA) (atomic energy), IRENA (renewable energy) and OPEC (oil), concentrate on selected energy sources. The few organizations that cover all energy sources (e.g. IEA and the Energy

Finalized by Martti Koskeniemi A/CN.4/L.682; Joost Pauwelyn, ‘Fragmentation of International Law’ in Rüdiger Wolfrum (ed), *Max Planck Encyclopedia of Public International Law* (Oxford University Press 2006); Mario Prost, *The Concept of Unity in Public International Law* (Bloomsbury Publishing 2012); Anne Van Aaken, ‘Defragmentation of Public International Law through Interpretation: A Methodological Proposal’ (2009) 16 *Indiana Journal of Global Legal Studies* 483; Margaret A Young, *Regime Interaction in International Law: Facing Fragmentation* (Cambridge University Press 2012); Joel P Trachtman, ‘Fragmentation, Coherence and Synergy in International Law’ (2011) 2 *Transnational Legal Theory* 505.

⁵²⁷ The International Law Commission (ILC) made the distinction between institutional and substantive fragmentation in its famous report on the fragmentation of international law. Institutional fragmentation refers to ‘the competence of various institutions applying international legal rules and their hierarchical relations inter se’, whereas substantive fragmentation refers to ‘the splitting up of the law into highly specialized ‘boxes’ that claim relative autonomy from each other and from general law’. See UNGA, ‘Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law’ (n 526), at para 13.

⁵²⁸ See Mohamed ElBaradei, ‘A Global Agency Is Needed for the Energy Crisis’ *Financial Times* (23 July 2008) <<https://www.ft.com/content/b3630dd0-58b5-11dd-a093-077b07658>> accessed 21 February 2017, noting that: We have a World Health Organization, two global food agencies, the Bretton Woods financial institutions and organisations to deal with everything from trade to civil aviation and maritime affairs. Energy, the motor of development and economic growth, is a glaring exception. Although it cries out for a holistic, global approach, it is actually dealt with in a fragmented, piecemeal way.

⁵²⁹ See Florini and Dubash (n 517), at 3.

⁵³⁰ ElBaradei (n 528). For the institutional fragmentation of global energy governance, see Benjamin Sovacool and Ann Florini, ‘Examining the Complications of Global Energy Governance’ (2012) 30 *Journal of Energy & Natural Resources Law* 235 (they documented no less than 50 international organizations directly or indirectly addressing various energy-related governance issues), at 239-251; Sybille Roehrkasten, *Global Governance on Renewable Energy: Contrasting the Ideas of the German and the Brazilian Governments* (Springer 2015). For the role of international institutions in the fragmentation of international law, see Mario Prost and Paul Kingsley Clark, ‘Unity, Diversity and the Fragmentation of International Law: How Much Does the Multiplication of International Organizations Really Matter?’ (2006) 5 *Chinese Journal of International Law* 341.

Secretariat) have either limited membership or are mandated to address only a subset of energy-related issues (e.g. trade and investment in the Energy Secretariat).

The fragmentation of global energy governance stems from a multitude of factors. Foremost among these is the fact that most energy-related organizations were created in response to specific issues or crises rather than as part of an overall plan.⁵³¹ There has been no concerted effort to set up a coherent and comprehensive global energy governance regime.

The fragmentation also stems from the fact that energy issues are crosscutting in nature. They are interrelated with many other policy areas such as security, environment, trade and investment.⁵³² This has meant that energy issues are subject to the legal and institutional frameworks pertaining to various policy domains. There are now energy-related provisions in almost all regimes of international law.⁵³³ One such regime of great importance for energy governance is international trade law (see *chapter four*). Another (especially for the legal foundations of energy-transition subsidy policies) is international environmental law. This is not only because energy and environmental law are inextricably intertwined (because energy accounts for about two-thirds of global greenhouse gas emissions), but also because environmental concerns drive the sustainable energy transition.⁵³⁴ International environmental law provides the core legal foundations for energy-transition subsidy policies, but there are few considerations to bear in mind.

⁵³¹ As Meyer has put it, '[a]t no time did negotiators ever sit down and think about what an ideal international energy institution would look like. Instead, institutions were created to deal with issues and crises as they arose'. See Timothy Meyer, 'The Architecture of International Energy Governance' (2012) 106 *American Society of International Law Proceedings* 389, at 390; see also Navroz K Dubash and Ann Florini, 'Mapping Global Energy Governance: Mapping Global Energy Governance' (2011) 2 *Global Policy* 6 (noting that '[international energy organizations] have arisen in idiosyncratic fashion, in response to specific problems or crises').

⁵³² See Roehrkasten (n 530), at 100; Adrian J Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14 *Journal of Energy & Natural Resources Law* 193 (noting that energy is the most interdisciplinary of all subjects), at 206; Ann Florini and Benjamin Sovacool, 'Who Governs Energy? The Challenges Facing Global Energy Governance' (2009) 37 *Energy Policy* 5239 (arguing that 'energy problems cross a varied set of policy domains and agendas, from military interests...to environmental interests ...to humanitarian interests').

⁵³³ Some of these provisions are not specifically directed towards the energy sector, but have a significant indirect impact on the regulation and development of the sector. See (in relation to renewable energy), Leslie Parker, 'International Law and the Renewable Energy Sector' in Kevin R Gray, Richard Tarasofsky and Cinnamon Carlarne (eds), *The Oxford Handbook of International Climate Change Law* (2016).

⁵³⁴ The critical role of the energy sector both as a cause and solution to climate change is discussed in details in chapter one. For further details on this, see Ivan Scrase and others, 'Introduction: Climate Policy Is Energy Policy' in Ivan Scrase and Gordon MacKerron (eds), *Energy for the Future* (Palgrave Macmillan 2009), at 3-19; Fariborz Zelli

First, international environmental law itself is deeply fragmented. The field of international environmental law has long been characterized by ‘treaty congestion’.⁵³⁵ There are currently over 1200 multilateral environmental agreements (MEAs).⁵³⁶ Environmental provisions are also contained in numerous other international agreements pertaining to trade, investment, human rights...etc.⁵³⁷ The absence of a coherent body of international environmental law complicates the search for the international legal foundations of energy-transition subsidy policies.

Second, international environmental law rarely addresses energy issues directly. International environmental agreements hardly impose legal obligations to use or increase the share of renewable energy.⁵³⁸ Nor do they set forth explicit restrictions on the production and use of fossil fuels. The major international environmental agreements – from the 1972 Stockholm Declaration to the 2015 Paris Agreement – make no explicit mention of energy.⁵³⁹ One immediate explanation for this is the above-mentioned energy sovereignty concerns. The strong emphasis placed on sovereignty over energy resources means that energy issues have only recently moved to the

and others, ‘Global Climate Governance and Energy Choices’ in Andreas Goldthau (ed), *The Handbook of Global Energy Policy* (John Wiley & Sons Ltd 2013). However, there is a historical disconnect between energy and environmental law both at the national and international level. For the disconnect between environmental law and energy law at the national level, see Lincoln L Davies, ‘Alternative Energy and the Energy-Environment Disconnect’ (2010) 46 *Idaho Law Review* 473; Amy J Wildermuth, ‘The Next Step: The Integration of Energy Law and Environmental Law’ (2011) 31 *Utah Environmental Law Review* 369.

⁵³⁵ For a detailed discussion on why international environmental law is fragmented, why fragmentation is a problem and how to manage the fragmentation, see Harro Van Asselt, ‘Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes’ (2011) 44 *International Law and Politics* 1205; Edith Brown Weiss, ‘International Environmental Law: Contemporary Issues and the Emergence of a New World Order’ (1993) 81 *Georgetown Law Journal* 695.

⁵³⁶ See ‘International Environmental Agreements (IEA) Database Project’ <<https://iea.uoregon.edu/>>.

⁵³⁷ See Jorge E Viñuales, *Foreign Investment and the Environment in International Law* (Cambridge University Press 2012) (for environmental provisions in investment agreements); Sikina Jinnah and Elisa Morgera, ‘Environmental Provisions in American and EU Free Trade Agreements: A Preliminary Comparison and Research Agenda’ (2013) 22 *Review of European, Comparative & International Environmental Law* 324 (for environmental provisions in preferential trade agreements); Dale Colyer, *Green Trade Agreements* (Springer 2011) (for environmental provisions in multilateral and regional trade agreements).

⁵³⁸ For studies that note the conspicuous absence of specific and legally binding international obligations to use renewable energy (and energy efficiency technologies), see Stuart Bruce, ‘International Law and Renewable Energy: Facilitating Sustainable Energy For All’ (2013) 14 *Melbourne Journal of International Law* 18; Bradbrook (n 518); Marco Citelli, Marco Barassi and Ksenia Belykh, ‘Renewable Energy in the International Arena: Legal Aspects and Cooperation’ (2014) 2 *Groning Journal of International Law* 1.

⁵³⁹ Hodas captured this point well when he said ‘energy issues have always been treated as an unwanted stepchild’ within the international climate change regime. See David Hodas, ‘International Law and Sustainable Energy: A Portrait of Failure’ in Jamie Benidickson and others (eds), *Environmental Law and Sustainability after Rio* (Edward Elgar Publishing 2011) 432.

centre of the policy debate on climate change. Another explanation is the reluctance of international environmental law to prescribe specific emission reduction policies and measures.⁵⁴⁰ This is, even more, the case under the Paris Agreement, which leaves it up to individual countries to determine both their emission reduction targets and the specific policy measures they may use to achieve their targets (see *section 3.3.2.1.3.3*). This ‘bottom-up’ approach limits the extent to which international environmental law provides legal bases for energy-transition subsidy policies. However, as the discussion below reveals, international environmental law comprises several legal principles and instruments that influence national energy policies, albeit often indirectly. The indirect nature of their influence calls for a legal interpretation in examining whether and if so to what extent international environmental principles and instruments provide legal basis for energy-transition subsidy policies.

Third, international environmental law heavily relies on non-binding or ‘soft law’ instruments.⁵⁴¹ To be sure, international environmental law has the same sources as other branches of international law: treaties, customary international law, general principles, judicial precedents and scholarly works (the last two being only subsidiary sources).⁵⁴² Soft law may not belong to these classical sources of international law, but its role in the development of international environmental law is well documented.⁵⁴³ Many instruments of international environmental law

⁵⁴⁰ See Zelli and others (n 534) (arguing that ‘the international climate regime is marked by a continuing transformation toward a “bottom-up” approach to policy-making, leaving the determination of climate change mitigation actions largely up to individual countries.’), at 342. A similar explanation is the fact that the international climate change regime focuses on the output side, i.e. the emission reduction, but not on what produced the emissions in the first place. For this line of argument, see Bernd Hirschl, ‘International Renewable Energy Policy—between Marginalization and Initial Approaches’ (2009) 37 *Energy Policy* 4407.

⁵⁴¹ The literature often attributes the prevalence of soft law instruments in international environmental law to the newness of the topic and the uncertainty about the effective response to environmental problems. The uncertainty not only calls for flexibility but also leads to reluctance to undertake legally binding commitments. See Dinah Shelton, ‘The Environment and Natural Resources’ in Dinah Shelton (ed), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System* (Oxford University Press 2000), at 121.

⁵⁴² See Article 38 (1) of the Statute of the Court International Court of Justice (adopted 26 June 1945, entered into force 24 October 1945), 33 UNTS 933 (ICJ Statute); see also, for a detailed analysis of the sources of international environmental law, Jutta Brunnée, ‘Sources of International Environmental Law: Interactional Law’ in Jean d’Aspremont and Samantha Besson (eds), *The Oxford Handbook of the Sources of International Law* (Oxford University Press 2017), at 960 - 983.

⁵⁴³ For the international environmental law-related lively debate on the hard law/soft law dichotomy, see Sumudu Atapattu, ‘International Environmental Law and Soft Law: A New Direction or a Contradiction?’ in Cecilia M Bailliet (ed), *Non-State Actors, Soft Law and Protective Regimes* (Cambridge University Press 2012).

take the form of soft law. This implies that one needs to look beyond hard law to find the legal foundations of energy-transition subsidy policies.

These three considerations highlight the complexity associated with global energy and environmental governance. This complexity reinforces the need for a coherent and comprehensive global energy and environmental governance architecture.

3.3.2 The International Legal Foundations

Even though there is no comprehensive and well-developed legal framework for global energy governance, several legally binding and non-binding international instruments directly or indirectly influence domestic energy policy.⁵⁴⁴ There are also important customary and general principles of international environmental law relevant to the sustainable energy transition. The most pertinent of these principles and instruments are discussed below to explore the extent to which they provide legal foundations for energy-transition subsidy policies. Existing treaty, customary and soft law that provide the international legal foundations for renewable energy subsidies and for the removal of fossil fuel subsidies are discussed separately.

3.3.2.1 Legal Foundations for Renewable Energy Subsidies

3.3.2.1.1 Principles of International Environmental Law

Several principles of international environmental law have emerged in recent decades that might be relied upon by States as a basis for promoting renewable energy. While their precise legal status and normative content remain controversial, these principles are gradually finding their place in customary international law and in binding and non-binding international instruments.⁵⁴⁵

⁵⁴⁴ Notwithstanding the practical difficulties, it is not necessary that the legal foundations of a given policy or measure are contained in a single legal instrument. First in Argentina – Financial Services and then in India – Solar Cells, the Appellate Body held - albeit in the specific context of GATT Article XX(d) - that the legal basis of a certain policy or measure may derive from several instruments or parts thereof. See *India - Solar Cells* (n 336), para 5.111; *Appellate Body Report, Argentina – Measures Relating to Trade in Goods and Services (Argentina – Financial Services) WT/DS453/AB/R, adopted 9 May 2016*, (footnote 505).

⁵⁴⁵ The Arbitral Tribunal in *Iron Rhine* admitted that ‘There is considerable debate as to what, within the field of environmental law, constitutes “rules” or “principles”; what is “soft law”; and which environmental treaty law or

The most notable of these principles include the principle of sustainable development, the precautionary principle, the no harm principle, the principle of common but differentiated responsibility and the polluter-pays principle. None of these principles is specific to energy per se, but many have indirect relevance to the sustainable energy transition.

Foremost among these is the principle of sustainable development, which refers to ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.⁵⁴⁶ Sustainable development enjoys substantial support in international instruments.⁵⁴⁷ International courts and tribunals including the Appellate Body and the International Court of Justice (ICJ) have also invoked this principle.⁵⁴⁸ The general understanding is that sustainable development expresses the need to reconcile economic and social development with protection of the environment. Considerable confusion remains over how the reconciliation between these three dimensions is to be achieved, but there is little doubt that the pursuit of

principles have contributed to the development of customary international law’. See *PCA, Iron Rhine* (‘Ijzeren Rijn’) *Arbitration, Belgium v Netherlands, Award, 24th May 2005, 27 RIAA 35*, para 58.

⁵⁴⁶ UNGA, ‘Brundtland Report’ (n 16). The status of the principle of sustainable development in international law is the subject of continued debate. For some it is merely a ‘concept’, while for others it has crystalized into a fully-fledged ‘principle’ of customary international law. For an overview of both sides of this debate, see Gabrielle Marceau and Fabio C Morosini, ‘The Status of Sustainable Development in the Law of the World Trade Organization’ in Umberto Celli Junior, Maristela Basso and Alberto do Amaral Júnior (eds), *Arbitragem e Comércio Internacional* (Quartier Latin 2013); Christina Voigt, *Sustainable Development as a Principle of International Law: Resolving Conflicts between Climate Measures and WTO Law* (Martinus Nijhoff Publishers 2009).

⁵⁴⁷ The concept of ‘sustainable development’ was first articulated by the World Commission on Environment and Development in the 1987 Brundtland Report, but the idea underlying the concept dates back at least to the 1972 Stockholm Conference. Principle 4 of the Stockholm Declaration, for example, clearly establishes the link between economic development and environmental protection. It was however the 1992 United Nations Conference on Environment and Development (UNCED) that officially endorsed the concept of sustainable development as a guiding principle of social, economic and environmental policymaking. See UNGA, ‘Brundtland Report’ (n 16); Stockholm Declaration of the United Nations Conference on the Human Environment, adopted at the UN Conference on the Human Environment (Stockholm 5–16 June 1972) A/CONF.48/14/Rev. 1 (‘Stockholm Declaration’); Rio Declaration. For an overview of the major international instruments that refer to the concept of ‘sustainable development’, see Philippe Sands and others, *Principles of International Environmental Law* (3rd edn, Cambridge University Press 2012), at 206-217.

⁵⁴⁸ The ICJ in *Gabčíkovo-Nagymaros* and then the Appellate Body in *US-Shrimp* invoked the ‘concept’ of sustainable development to inform the interpretation and application of international law and international trade law. See *ICJ, Gabčíkovo-Nagymaros Project, Hungary v Slovakia, Judgment, 25 September 1997, ICJ Rep 7; US-Shrimp* (n 43). For a critical discussion on how these two international courts applied the concept of sustainable development, see Philippe Sands, ‘International Courts and the Application of the Concept of Sustainable Development’ (1999) 3 *Max Planck Yearbook of United Nations Law* 389.

sustainable development requires changes in production and consumption patterns towards sustainability.⁵⁴⁹ Energy is one area where such change is most desirable.

It is widely accepted that current energy production and consumption patterns are unsustainable and detrimental to the environment. Changing these unsustainable patterns will undoubtedly require the rapid development and diffusion of energy efficiency and renewable energy technologies. To this extent, one may argue that the principle of sustainable development encourages, if not requires, the promotion of renewable energy.⁵⁵⁰ This consideration has led India in *India-Solar Cells* to invoke sustainable development as embodied in four different international instruments to justify its domestic content requirements.⁵⁵¹ Although the Appellate Body rejected India's argument in this particular case (see *section 5.3.2.1*), the invocation by itself indicates the growing recognition of the role that the principle (or concept) of sustainable development can play as a justification or basis for renewable energy support policies.

Another principle of indirect relevance to the promotion of renewable energy is the precautionary principle.⁵⁵² The use of fossil fuels accounts for the bulk of anthropogenic greenhouse gas emissions that are driving climate change. Transitioning towards renewable energy is central to tackling the threat of climate change. However, the market failures and other barriers discussed in the first part of this chapter imply that market forces alone are unlikely to make this transition happen in time to avoid the catastrophic and irreversible consequences of climate change. In the face of such uncertainty, the precautionary principle calls upon governments to take action -

⁵⁴⁹ The Brundtland Report stated that: 'Sustainable global development requires that those who are more affluent adopt lifestyles within the planet's ecological means – in their use of energy for example'. See UNGA, 'Brundtland Report' (n 16), at para 29. This aspect of sustainable development was elaborated in Principle 8, Rio Declaration; and Chapter 4, Agenda 21: Annex II to the Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992) A/CONF.151/26 (Vol. I) 12 August 1992 (Agenda 21).

⁵⁵⁰ For such arguments, see Bradbrook (n 518); Bruce (n 538); Peter Kayode Oniemola, 'International Law on Renewable Energy: The Need For a Worldwide Treaty' (2013) 56 *German Yearbook of International Law* 281.

⁵⁵¹ *India - Solar Cells* (n 336). It is important to bear in mind two points here. First, India invoked sustainable development as contained in international legal instruments not as a principle of customary international environmental law. Second, India referred to sustainable development to justify its 'domestic content requirements' within the specific provision of GATT Article XX (d). See the detailed discussion in Section 5.3.

⁵⁵² Many international environmental instruments expressly endorse the precautionary principle. The most prominent of these instruments is the Rio Declaration. Principle 15 of the Declaration states that 'Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

including (but not limited to) market intervention - to accelerate the transition.⁵⁵³ It is to this extent that renewable energy support policies can be considered as precautionary policies. As George Shultz, the former U.S. Secretary of State pointed out, they are ‘insurance policies’ against catastrophic climate change.⁵⁵⁴

Similar arguments have also been advanced for other principles of international environmental law.⁵⁵⁵ However, it is noteworthy that all these principles have only limited and indirect relevance for the promotion of renewable energy.⁵⁵⁶ None of them imposes direct obligations to use (let alone to subsidize) renewable energy. Furthermore, the status of most of these principles as principles of general or customary international law is highly contested. At the same time, it is important to recognize that they are likely to provide some guidance in the development and interpretation of international law applicable to renewable energy subsidies.⁵⁵⁷ *India-Solar Cells* suggest that countries may invoke such principles (at least as contained in international instruments) in future cases to justify their renewable energy support measures.

3.3.2.1.2 Non-Binding International Instruments

The vast majority of international instruments relevant to renewable energy are not legally binding per se. They typically contain hortatory, aspirational, or promotional obligations. Such soft law instruments have been around for a long time, but their place within the framework of

⁵⁵³ The precautionary principle is often framed in terms of proactive but

⁵⁵⁴ George Shultz was Secretary of State under President Ronald Reagan and has recently become a vocal advocate for renewable energy support policies. See George Shultz, ‘How to Think about Energy and the Climate’ <<https://www.hoover.org/research/how-think-about-energy-and-climate>> accessed 6 December 2016.

⁵⁵⁵ See Bradbrook (n 518) (for the no harm principle); Oniemola (n 550) (for the polluter pays principle).

⁵⁵⁶ Professor Adrian Bradbrook seems to share this view. See Bradbrook (n 518) (arguing that principles of customary international law ‘appear to be of least assistance’), at 115.

⁵⁵⁷ Article 3.2 of the Dispute Settlement Understanding states that one of the key purposes of the dispute settlement system is to clarify the provisions of the WTO Agreements in ‘accordance with customary rules of interpretation of public international law’. This provision allows WTO Panels and the Appellate Body to use relevant principles of general and customary international law in interpreting WTO provisions. See Understanding on the Rules and Procedures Governing the Settlement of Disputes, Annex 2 to Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1869 UNTS 401 (DSU). Examples of trade disputes where WTO Panels and the Appellate Body dealt with such principles include: *Appellate Body Report, European Communities – Measures Concerning Meat and Meat Products (Hormones) (EC – Hormones)*, WT/DS26/AB/R & WT/DS48/AB/R, adopted 13 February 1998 (precautionary principle); *US-Shrimp* (n 43) (sustainable development); *Panel Report, European Communities – Measures Affecting the Approval and Marketing of Biotech Products (EC – Biotech)*, WT/DS291/R, WT/DS292/R, WT/DS293/R adopted 21 November 2006 (precautionary principle).

international law remains uncertain.⁵⁵⁸ Some commentators have gone so far as to claim that soft law is not law at all, while most others accept that soft law is ‘a relevant category that encompasses norms with a range of legal effects’.⁵⁵⁹ This extensive doctrinal debate is beyond the scope of this section.⁵⁶⁰ The aim here is not to examine whether countries can rely upon international soft law instruments to justify their WTO-inconsistent renewable energy support measures before WTO dispute settlement proceedings.⁵⁶¹ It is rather to simply explore whether there are international soft law instruments that require or encourage the promotion of renewable energy sources. The basic assumption underpinning this section is that even though soft law instruments are not legally binding as such, they carry normative force that influences the

⁵⁵⁸ Andrew T Guzman and Timothy L Meyer, ‘International Soft Law’ (2010) 2 *Journal of Legal Analysis* 171.

⁵⁵⁹ See Brunnée (n 542), at 977-981.

⁵⁶⁰ There is a wide range of views on the legal nature of soft law. At one extreme there are those who deny the very concept of soft law. Soft law sceptics perceive law in binary terms, whereby an instrument is either law or not law at all. For Klabbbers, for example, ‘law can be more or less determinate, more or less wide in scope, more or less pressing, more or less serious, more or less far-reaching; the only thing it cannot be is more or less binding’. See Jan Klabbbers, ‘The Redundancy of Soft Law’ (1996) 65 *Nordic Journal of International Law* 167, at 181; see also Kal Raustiala, ‘Form and Substance in International Agreements’ (2005) 99 *The American Journal of International Law* 581 (arguing that ‘there is no such thing as ‘soft law’’); Jean d’Aspremont, ‘Softness in International Law: A Self-Serving Quest for New Legal Materials’ (2008) 19 *European Journal of International Law* 1075 (explaining why ‘an act is a legal act or is not a legal act’); Prosper Weil, ‘Towards Relative Normativity in International Law?’ (1983) 77 *American Journal of International Law* 413 (‘arguing that soft law obligations ‘are neither soft law nor hard law: they are simply not law at all’). At the opposite extreme are those who consider soft law as an essential element of international law or even as a new quasi source of international law. They recognize the important role that soft law plays in the making, interpretation and development of international law. See CM Chinkin, ‘The Challenge of Soft Law: Development and Change in International Law’ (1989) 38 *The International and Comparative Law Quarterly* 850 (arguing that both hard and soft law ‘play a major role in the development of international law and both are needed for the regulation of states’ activities and for the creation of expectations’); Bruno Simma, ‘A Hard Look at Soft Law: Remarks by Bruno Sima’ (1988) 82 *Proceedings of the Annual Meeting (American Society of International Law)* 377 (arguing in the context of international human right law that soft law plays roles as significant as defining the precise content of hard law); Alan E Boyle, ‘Some Reflections on the Relationship of Treaties and Soft Law’ (1999) 48 *The International and Comparative Law Quarterly* 901 (arguing that soft norms are precursors to customary law); Kenneth W Abbott and Duncan Snidal, ‘Hard and Soft Law in International Governance’ (2000) 54 *International organization* 421 (arguing that ‘Soft law is valuable on its own, not just as a steppingstone to hard law’); Pierre-Marie Dupuy, ‘Soft Law and the International Law of the Environment’ (1990) 12 *Michigan Journal of International Law* 420 (arguing in the context of international environmental law that ‘Albeit indirect, the legal effect of ‘soft’ law is nevertheless real’); Brunnée (n 542) (arguing that ‘the fact alone that violations of ‘soft’ standards do not have all of the same legal consequences as violations of [hard] law does not suffice to exclude them from the range of sources international law’).

⁵⁶¹ Whether rules and principles contained in soft law instruments constitute ‘laws and regulations’ within the meaning of GATT Article XX(d) was a subject of much controversy in India-Solar Cells (see the discussion in Section 5.4). It should also be noted that WTO Panels and the Appellate Body ‘regularly applied or referred to’ soft law instruments in interpreting the provisions of WTO Agreements. These instruments include those created within (e.g. Ministerial Declarations) and outside the WTO (e.g. international standards developed in Codex Alimentarius Commission). See Joost Pauwelyn, ‘Sources of International Trade Law: Mantras and Controversies at the World Trade Organization’ in Jean d’Aspremont and Samantha Besson (eds), *The Oxford Handbook of the Sources of International Law* (Oxford University Press 2017) 1027, at 1038.

conduct and decisions of states.⁵⁶² To the extent that they exist, such instruments offer legal basis (albeit a soft one) for renewable energy support policies. It is against this background that this section attempts to explore (chronologically) non-binding international instruments relevant to renewable energy.⁵⁶³ While non-state actors can also adopt such instruments, the non-binding international instruments discussed below are those adopted by States.

3.3.2.1.2.1 Rio Declaration on Environment and Development

The 1972 Stockholm Conference is rightly regarded as ‘moment of birth of international environmental law’,⁵⁶⁴ but the major international instruments that formed the basis for global initiatives for the protection of the environment were adopted 20 years later at the 1992 United Nations Conference on Environment and Development (UNCED), known as the Rio Earth Summit.⁵⁶⁵ Two of the three non-binding international instruments adopted at UNCED are of particular relevance to renewable energy: the Rio Declaration and Agenda 21.⁵⁶⁶

The Rio Declaration on Environment and Development (‘Rio Declaration’) is the only international instrument adopted by consensus that brings together most foundational principles

⁵⁶² See Dupuy (n 560), at 428 (noting that the extreme care with which delegations approach soft law provisions indicates that negotiators do not view such soft law recommendations devoid of at least some political commitment, if not, in the long term, any legal significance); Helen Keller, ‘Codes of Conduct and Their Implementation: The Question of Legitimacy’ in Rudiger Wolfrum and Volker Roeben (eds), *Legitimacy in International Law* (Springer 2008), at 248; Brunnée (n 542) (noting that soft law instruments are ‘often treated by states in ways not dissimilar to their responses to binding international law’ and they ‘are negotiated with the same care as binding law and implemented domestically as carefully as binding international law’).

⁵⁶³ While both binding and non-binding international instruments may contain soft law, much of soft law is incorporated in non-binding international instruments such as recommendations, resolutions of international organizations, declarations and final acts published at the conclusion of international conferences. This section focuses only on those contained in non-binding international instruments. Renewable energy-related international soft laws contained in binding international instruments are discussed in *section 3.3.2* of this chapter.

⁵⁶⁴ Sands and others (n 547), at 888.

⁵⁶⁵ The mandate of the UNCED stems from Resolution adopted by the General Assembly – United Nations Conference on Environment and Development (22 December 1989) A/RES/44/228 (UNGA Resolution 44/228).

⁵⁶⁶ The other legal instruments adopted at UNCED are the UNFCCC, the Convention on Biological Diversity (CBD) and the Statement of Principles for the Sustainable Management of Forests. It is noteworthy that the Rio Declaration and Agenda 21 were referred to in the Decision on Trade and Environment. The Appellate Body has also referred to Agenda 21 in *US-Shrimp* (n 43), para 130 to determine whether sea turtles are exhaustible natural resources within the meaning of GATT Article XX(g).

of international environmental law.⁵⁶⁷ None of these principles is energy-specific, but they have (indirect) relevance to the promotion of renewable energy. These principles include the principle of sustainable development (Principles 4 and 8) and the precautionary principle (Principle 15) discussed in *section 3.3.1* of this chapter.⁵⁶⁸ Another principle of vital importance to renewable energy is Principle 9 (science and technology):

States should co-operate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.⁵⁶⁹

This Principle (which echoes Principle 20 of the 1972 Stockholm Declaration) has two main components: scientific cooperation and the development and transfer of technologies.⁵⁷⁰ The second component recognizes the need for technology development and transfer to promote sustainable development. Principle 9 does not specify the type of technologies needed to meet the goal of strengthening ‘endogenous capacity-building’ for sustainable development, but renewable energy technologies certainly fall under the category of ‘new and innovative’ technologies. Viewed in this light, Principle 9 of the Rio Declaration calls upon countries to enhance the development, diffusion and transfer of renewable energy technologies. It is up to each country to choose the specific policy instruments with which to respond to this call.

3.3.2.1.2.2 Agenda 21

Agenda 21 is a comprehensive action plan for sustainable development adopted alongside the Rio Declaration. It represents a ‘global consensus and political commitment at the highest level of development and environment cooperation’.⁵⁷¹ The text comprises 40 chapters and 115 program areas ranging from poverty alleviation to protection of the atmosphere. Although the negotiating

⁵⁶⁷ Jorge E Viñuales, ‘The Rio Declaration on Environment and Development: Preliminary Study’ in Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (Oxford University Press 2015) 1, at 60.

⁵⁶⁸ For a detailed commentary on the principles of the Rio Declaration, see Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (Oxford University Press 2015).

⁵⁶⁹ Principle 9 of the Rio Declaration.

⁵⁷⁰ See Sandrine Maljean-Dubois, ‘Principle 9: Science and Technology’ in Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (Oxford University Press 2015) 269.

⁵⁷¹ Preamble to Agenda 21, para. 1.3.

draft contained an energy-specific chapter, this chapter was later deleted from the final text owing to opposition mainly from oil-producing countries.⁵⁷² Energy issues were instead addressed across the different chapters and program areas. Three chapters of Agenda 21 are of particular importance: Chapter 4 (Changing Consumption Patterns); Chapter 7 (Promoting Sustainable Human Settlement Development); and Chapter 9 (Protection of the Atmosphere). A closer look at the program areas, objectives and activities of these chapters reveals that Agenda 21 provides perhaps the most explicit legal basis for renewable energy support policies.

Chapter 4 is the first chapter that has some relevance to renewable energy support policies. This chapter urges governments to ‘develop a domestic policy framework that will encourage a shift to more sustainable patterns of production and consumption’.⁵⁷³ One of the program areas included in this chapter to encourage the shift towards sustainable production and consumption is ‘efficiency in the use of energy and resources’.⁵⁷⁴ To achieve greater efficiency in the use of energy and resources countries are required, among others: (a) to promote the environmentally sound use of new and renewable sources of energy; and (c) to assist individuals and households to make environmentally sound purchasing decisions’.⁵⁷⁵ The latter calls upon governments to specifically ‘encourage expansion of environmental labelling and other environmentally related product information programs designed to assist consumers to make informed choices’. Regulatory support measures such as green energy purchasing and labelling requirements discussed in chapter two of this thesis could be considered as responses to this call.

Chapter 4 also has a program area that calls upon governments to promote sustainability through their public procurement policies. This program area urges governments to review the purchasing policies of their agencies and departments to improve the environmental content of their public

⁵⁷² See Adrian J Bradbrook and Judith Gail Gardam, ‘Placing Access to Energy Services within a Human Rights Framework’ (2006) 28 Human Rights Quarterly 389, at 399; Stephanie Meakin, ‘The Rio Earth Summit: Summary of the United Nations Conference on Environment and Development’ (Government of Canada 1992) <<http://publications.gc.ca/Collection-R/LoPBdP/BP/bp317-e.htm>> accessed 8 June 2017 (noting that ‘there was strong opposition to the reduction of fossil fuel use from Saudi Arabia and other oil-producing nations’).

⁵⁷³ Chapter 4, Program Area B of Agenda 21.

⁵⁷⁴ Chapter 4, Program Area B, Activity A of *ibid.*

⁵⁷⁵ Chapter 4, Program Area B, Activity C of *ibid.*

procurement policies.⁵⁷⁶ It should be noted here that even though neither of them invoked Agenda 21, both Canada in *Canada-Renewable Energy/FIT* and India in *India-Solar Cells* (unsuccessfully) argued that the purchase of electricity under their FIT schemes constitutes ‘procurement’ within the meaning of GATT Article III:8(a) to exclude the application of GATT Article III(4) to their domestic/local content requirements.⁵⁷⁷ Notwithstanding the question what constitutes public ‘procurement’ within the meaning of Article III: 8(a), renewable energy support measures that take the form of public procurement find some legal basis in Agenda 21.

Chapter 7 is another chapter relevant to renewable energy support policies. The chapter aims to ‘improve the social, economic and environmental quality of human settlements and the living and working environments of all people’.⁵⁷⁸ One of the key program areas under this chapter is ‘promoting sustainable energy and transport systems in human settlements’.⁵⁷⁹ Cognizant of the fact that most of the commercial and non-commercial energy produced is used in and for human settlements, Chapter 7 urges developing countries, in particular, to:

(ii) Formulate national action programs to promote integrated development of energy-saving and *renewable energy technologies, particularly for the use of solar, hydro, wind and biomass sources*;

(iii) Promote wide *dissemination and commercialization of renewable energy technologies* through suitable measures, inter alia, fiscal and technology transfer mechanisms.⁵⁸⁰

Developing countries are not under any legal obligation to respond to these calls, but this chapter makes it clear that they have at least undertaken political commitment to promote the development and development of renewable energy technologies.

⁵⁷⁶ Para 4.23 of *ibid.*

⁵⁷⁷ See *India - Solar Cells* (n 336); *Canada – Renewable Energy/FIT* (n 40).

⁵⁷⁸ Para 7.4 of Agenda 21.

⁵⁷⁹ Para 7.5(e) of *ibid.*

⁵⁸⁰ Para 7.51(a) of *ibid.* The chapter also calls upon international organizations and bilateral donors to ‘Support developing countries in implementing national energy programs in order to achieve widespread use of energy-saving and renewable energy technologies, particularly the use of solar, wind, biomass and hydro sources’.

Chapter 9 is perhaps the most important chapter of Agenda 21 in terms of providing legal basis for national renewable energy support policies. The ‘energy development, efficiency and consumption’ program area of the chapter recognizes that:

Much of the world's energy [...] is currently produced and consumed in ways that could not be sustained if technology were to remain constant and if overall quantities were to increase substantially. The need to control atmospheric emissions of greenhouse and other gases and substances will increasingly need to be based on efficiency in energy production, distribution and consumption, and on growing reliance on environmentally sound energy systems, particularly new and renewable sources of energy.⁵⁸¹

On the basis of this recognition, the chapter sets out the objective of:

[Reducing] adverse effects on the atmosphere from the energy sector by promoting policies or programs, as appropriate, to increase the contribution of environmentally sound and cost-effective energy systems, particularly new and renewable ones, through less polluting and more efficient energy production, transmission, distribution and use.⁵⁸²

The chapter calls upon countries to undertake several measures to achieve this objective including (a) Cooperate in identifying and developing economically viable, environmentally sound energy sources; (d) Promote the research, development, transfer and use of technologies and practices for environmentally sound energy systems, including new and renewable energy systems; and (f) Review current energy supply mixes to determine how the contribution of environmentally sound energy systems as a whole, particularly new and renewable energy systems, could be increased in an economically efficient manner, taking into account respective countries' unique social, physical, economic and political characteristics, and examining and implementing, where appropriate, measures to overcome any barriers to their development and use.⁵⁸³ These provisions make Agenda 21 the first major international (soft) law instrument for the promotion of renewable energy sources.

⁵⁸¹ Para 9.9 of *ibid.*

⁵⁸² Para 9.11 of *ibid.*

⁵⁸³ Para 9.12 *ibid.*

3.3.2.1.2.3 Decision 9/1 of the UN Commission on Sustainable Development

The Commission on Sustainable Development (CSD) was established in 1993 to oversee the implementation of the outcomes of the UNCED (e.g. Agenda 21).⁵⁸⁴ The CSD discussed energy issues as separate agenda item for the first time in 2001 at its 9th Meeting (CSD-9). In its Decision 9/1 on ‘Energy for Sustainable Development, the CSD-9 recognized the crucial role of renewable energy for sustainable development and made concrete recommendations for the promotion of renewable energy technologies. The renewable energy section of Decision 9/1 calls upon countries to develop and implement policies and measures to create an enabling environment for the development and deployment of renewable energy sources. Furthermore, it urges countries to ‘encourage the role of the private sector in the development and utilization of renewable energy technologies, *through the provision of appropriate incentives and regulation*’.⁵⁸⁵ This decision is the closest environmental law has come to expressly mandating countries to subsidize renewable energy sources.

3.3.2.1.2.4 The Johannesburg Plan of Implementation

The Johannesburg Plan of Implementation is one of the two outcome documents of the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa to review progress in the implementation of the outcome of the UNCED.⁵⁸⁶ The Summit paid special attention to the role of energy for sustainable development due in part to the fact that it was held at a time when energy ‘took a slightly more prominent role on the UN agenda’.⁵⁸⁷ The 19th special session of the UNGA held in September 1997 identified energy as one of the

⁵⁸⁴ The CSD was established (in accordance with Chapter 38 of Agenda 21) by Resolution adopted by the General Assembly – Institutional Arrangements to Follow up the United Nations Conference on Environment and Development (29 January 1993) A/RES/47/191 (UNGA Resolution 47/191).

⁵⁸⁵ United Nations, Decision 9/1: Energy for Sustainable Development, Commission on Sustainable Development Report on the ninth session (5 May 2000 and 16-27 April 2001) E/2001/29, para 17(a)(c).

⁵⁸⁶ See Resolution adopted by the General Assembly - Ten-year review of progress achieved in the implementation of the outcome of the United Nations Conference on Environment and Development (5 February 2001) A/RES/55/199, 55th Session (UNGA Resolution 55/199), para 1. The other is the Johannesburg Declaration on Sustainable Development, Annex to the Report of the World Summit on Sustainable Development, (Johannesburg, 26 August - 4 September 2002) A/CONF.199/20 (Johannesburg Declaration).

⁵⁸⁷ See Sylvia I Karlsson-Vinkhuyzen, ‘The United Nations and Global Energy Governance: Past Challenges, Future Choices’ (2010) 22 Global Change, Peace & Security 175.

sectors/areas of ‘widespread concern’ considering that ‘failure to reverse current trends in these areas will have potentially disastrous effects on social and economic development, on human health and environmental protection for all countries’.⁵⁸⁸ This consideration was reflected in the treatment of energy as a separate agenda item at CSD-9 in 2001.

These developments led the UN Secretary-General to include energy among the five key areas to be discussed at the WSSD: water; energy; health; agriculture; biodiversity (WEHAB). However, energy was the most contentious issue at the Summit. Concerning renewable energy, the major issue was that of setting quantifiable targets or timetables for increasing the share of renewable energy in the global energy mix. The proposal to set time-bound targets for renewable energy made by the EU and other countries including New Zealand, Switzerland and Iceland met stiff resistance not only from developing countries but also from developed countries such as the United States, Japan, Australia and Canada.⁵⁸⁹ This resistance led to the inclusion of only qualitative goals into the final text. Paragraph 20(e) of the Johannesburg Plan of Implementation calls upon governments and other relevant stakeholders to:

Diversify energy supply and substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply and regularly evaluate available data to review progress to this end.

The Plan of Implementation also urges governments to take ‘further action to mobilize the provision of financial resources, technology transfer, capacity-building and the diffusion of environmentally sound technologies’ and ‘promote increased research and development in the field of various energy technologies, including renewable energy’.⁵⁹⁰

These provisions are neither binding nor expressly require countries to subsidize renewable energy, but they are well capable of influencing national energy policies. Such influence is

⁵⁸⁸ See paras 33 and 42-47 of Resolution adopted by the General Assembly – Program for the Further Implementation of Agenda 21(19 September 1997) A/RES/S-19/2 (UNGA Resolution S-19/2).

⁵⁸⁹ See Sylvia I Karlsson-Vinkhuyzen, ‘The UN, Energy and the Sustainable Development Goals’ in Thijs Van de Graaf and others (eds), *The Palgrave Handbook of the International Political Economy of Energy* (Palgrave Macmillan UK 2016) 115, at 121.

⁵⁹⁰ Para 20(a)&(k) of Plan of Implementation of the World Summit on Sustainable Development, Annex to the Report of the World Summit on Sustainable Development, (Johannesburg, 26 August - 4 September 2002) A/CONF.199/20 (Johannesburg Plan of Implementation).

evident, for example, in the initiatives taken by the United States and the European Union in the aftermath of the Summit to allocate US\$42 million and US\$700 million, respectively, to promote the development and deployment of clean energy technologies.⁵⁹¹

3.3.2.1.2.5 UNGA Resolution 66/288

UNGA Resolution 66/288 endorses the outcome document of the 2012 UN Conference on Sustainable Development held in Rio De Janeiro, Brazil, - the 'Future We Want'. Recognizing the importance of increasing the share of renewable energy and energy efficiency technologies for sustainable development, the Resolution urges governments to 'create enabling environments that facilitate public and private sector investment in relevant and needed cleaner energy technologies'.⁵⁹² This provision offers some (soft) legal basis for renewable energy support policies to the extent that they are used to create such an enabling environment for public and private investment in renewable energy technologies.

3.3.2.1.2.6 UNGA Resolution 69/313

The Addis Ababa Action Agenda is yet another soft law instrument relevant to the promotion of renewable energy. The Agenda is the outcome document of the third International Conference on Financing for Development held in Addis Ababa, Ethiopia, in 2015. The UN General Assembly endorsed the final text of the Agenda in its Resolution 69/313 of 27 July 2015. Within the broader context of addressing financing challenges and creating an enabling environment for sustainable development, the Agenda commits the UN Member States to:

Promote both public and private investment in energy infrastructure and clean energy technologies [and] substantially increase the share of renewable energy and double the

⁵⁹¹ See Fred Sissine, 'Renewable Energy Policy: Tax Credit, Budget, and Regulatory Issues' (US Congress 2006) CRS Report for Congress, at 3.

⁵⁹² Paras 127 & 128 of Resolution adopted by the General Assembly on 27 July 2012 – the Future We Want, (11 September 2012) A/RES/66/288, 66th Session (UNGA Resolution 66/288).

global rate of energy efficiency and conservation, with the aim of ensuring universal access to affordable, reliable modern and sustainable energy services for all by 2030.⁵⁹³

The Resolutions reinforces the growing commitment to promote public and private investment as well as to increase the share of renewable energy by 2030. The choice of policy instruments to achieve this goal is once again left open to the individual Member States to determine. This flexibility allows the UN Member States to rely upon Resolution 69/313 as a legal basis for their renewable energy support policies to the extent that they can adequately establish that their support policies are designed to increase the share of renewable energy.

3.3.2.1.2.7 UNGA Resolution 70/1

The UNGA adopted resolution 70/1 on ‘Transforming our world: the 2030 Agenda for Sustainable Development’ in 2015. The resolution sets out 17 Sustainable Development Goals (SDGs) and 169 specific targets aimed at tackling global economic, social and environmental challenges over the next 15 years. The SDGs build upon the success of the Millennium Development Goals (MDGs). However, while the MDGs applied only to developing countries, the SDGs are universal goals accepted by and applicable to all countries. The SDGs are also more comprehensive than the MDGs. They cover many areas of sustainable development that were not explicitly or adequately addressed in the MDGs. Energy is one such area.⁵⁹⁴

The SDGs recognize the role of energy efficiency and renewable energy technologies in achieving sustainable development. This recognition is reflected in SDG 7, which calls for ‘access to affordable, reliable, sustainable and modern energy for all’. One of the three key targets underpinning SDG 7 is ‘increase substantially the share of renewable energy in the global energy mix’ by 2030.⁵⁹⁵ SDG 7 (Target 7.2) does not provide the specific percentage of global

⁵⁹³ Para 49 of Resolution adopted by the General Assembly on 27 July 2015 - Addis Ababa Action Agenda of the Third International Conference on Financing for Development (17 August 2015) A/RES/69/313, 69th Session (UNGA Resolution 69/313).

⁵⁹⁴ On the absence of energy-related goal or target in the MDGs, see Kaushik Ranjan Bandyopadhyay and Kasturi Das, ‘Where Are We on the Missing MDG – Energy?’ in United Nations and RIS (eds), *India and Sustainable Development Goals: The Way Forward* (Research and Information System for Developing Countries 2016) 77.

⁵⁹⁵ See United Nations Resolution adopted by the General Assembly on 25 September 2015 - Transforming our world: the 2030 Agenda for Sustainable Development (21 October 2015) A/RES/70/1, 70th Session (UNGA Resolution 70/1) 2015, SDG Target 7.2.

energy supply that should come from renewable energy sources by 2030 to meet the SDG 7. Nor does it outline what is expected from each country. It is also left to individual countries to decide for themselves how to increase their share of renewable energy. This implies that countries are free to implement any policy instrument - including subsidies - to meet this qualitative target. In short, while SDG Target 7.2 does not require countries to subsidize renewable energy as such, it legitimizes the use of such policy instruments to the extent that the subsidies are used to increase the share of renewable energy in member countries and thereby meet SDG 7 Target 7.2.

3.3.2.1.3 Binding International Instruments

There is currently no legally binding international agreement that expressly mandates the increased use of renewable energy. Bruce describes the failure of the climate change regime to set clear and binding renewable energy obligations as a ‘missed opportunity for real and effective climate action’.⁵⁹⁶ This failure is usually attributed to the strong resistance of fossil fuel producing countries who seek to maintain the continuing use of fossil fuels.⁵⁹⁷ These countries often pursue an obstructionist strategy in international climate change negotiations and frustrate efforts to regulate sources of emissions. Within the UNFCCC, for example, Saudi Arabia and Kuwait blocked efforts to include a general commitment on the increased use of renewable energy under the Convention.⁵⁹⁸ Their stance has softened since then,⁵⁹⁹ but these countries still view the transition to renewables as a threat than as an opportunity. This is because, in the absence of economic diversification, fossil fuels remain key to securing their economic future.

⁵⁹⁶ Bruce (n 538), at 17-18; see also Steven Ferrey Ferrey, ‘The Failure of International Global Warming Regulation to Promote Needed Renewable Energy’ (2010) 37 Boston College Environmental Affairs Law Review 67.

⁵⁹⁷ For a detailed discussion on Saudi Arabia’s obstructionist role in the climate change regime, see Joanna Depledge, ‘Striving for No: Saudi Arabia in the Climate Change Regime’ (2008) 8 Global Environmental Politics 9.

⁵⁹⁸ See Daniel Bodansky, ‘The United Nations Framework Convention on Climate Change: A Commentary’ (1993) 18 Yale Journal of International Law 451, at 509. Fossil fuel producing countries have also successfully fought to ensure that the Convention recognizes the adverse effects of climate change mitigation measures on countries ‘highly dependent on income generated from ... fossil fuels ...’ as such countries ‘have serious difficulties in switching to alternatives’. See Art 4(8)(h) & 4(10) of United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC).

⁵⁹⁹ Saudi Arabia, for example, has recently launched a plan to increase its share of renewables to 10 percent by 2023. See Rania El Gamal, Reem Shamseddine and Katie Paul, ‘Saudi Arabia Pushes Ahead with Renewable Drive to Diversify Energy Mix’ *Reuters* (17 April 2017) <<https://www.reuters.com/article/saudi-renewable/saudi-arabia-pushes-ahead-with-renewable-drive-to-diversify-energy-mix-idUSL8N1HP10B>> accessed 1 August 2017.

The main binding international legal instrument exclusively devoted to renewable energy is the Statute of the International Renewable Energy. More than 170 countries have ratified the Statute as of January 2018, making IRENA a truly global organization. Article II of the Statute mandates IRENA to promote ‘the widespread and increased adoption and the sustainable use of all forms of renewable energy’.⁶⁰⁰ Notwithstanding this broad mandate, the Statute imposes no renewable energy obligations upon Member States. Nor does it authorize the Agency or its supreme organ (i.e. the Assembly) to create such obligations. The only legal obligation Member States have under the Statute is to contribute to the budget of the Agency. Members States have no other obligation that could serve as a legal basis for their renewable energy support policies.

The binding international instruments that are likely to provide some sort of legal basis for renewable energy support policies primarily belong to the climate change regime. These are the three instruments jointly forming the foundations of the international climate change regime - the UNFCCC, the Kyoto Protocol and the Paris Agreement. Do these instruments impose any renewable energy obligations upon their state parties? This section attempts to answer this question, but not without some caveats. The first is that although these instruments are legally binding, they also contain soft law. Some of the obligations relevant to renewable energy are not legally binding. For example, the Kyoto Protocol mandates the increased use of renewable energy, but this obligation is not legally binding (see *section 3.3.2.1.3.2*). The second caveat is that some of these instruments do not expressly address renewable energy. The implication is that if these instruments impose any obligations upon their state parties to use or promote the use of renewable energy, such obligations are indirect and implicit at best. Besides these three instruments, the section also explores whether the EU Renewable Energy Directive provides legal basis for the renewable energy support policies of the Member States.

3.3.2.1.3.1 The United Nations Framework Convention on Climate Change

The UNFCCC is one of the two legally binding instruments adopted at the UNCED in 1992. The Convention enjoys almost a universal membership with 197 state parties as of January 2018. The ultimate objective of the Convention is to bring about the ‘stabilization of greenhouse gas

⁶⁰⁰ IRENA Statute.

concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'.⁶⁰¹ The Convention does not specify the greenhouse gas concentration level needed to avert the risk of dangerous climate change. Nor does it define the specific policies and measures necessary to achieve this. Nevertheless, it commits all parties to adopt climate change mitigation and adaptation policies and 'promote and cooperate in the development, application and diffusion of technologies that control, reduce or prevent anthropogenic greenhouse gas emissions'.⁶⁰² Article 3(4) further adds that 'policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party'. Parties are, therefore, obliged to formulate and implement climate change mitigation and adaptation policies and measures but at the same time are free to choose the policies and measures they deem appropriate to their circumstances. India invoked this provision in *India-Solar Cells* to argue that its domestic content requirements are measures designed to secure compliance with its commitments under the UNFCCC.⁶⁰³ However, the adjudicatory bodies did not address this argument because of other threshold issues.

Stabilizing atmospheric greenhouse gas concentrations requires a massive reduction in greenhouse gas emissions. Since it is the primary source of greenhouse gas emissions, the energy sector is a prime target for action. Policies and measures that enhance energy efficiency and the uptake of renewable energy are particularly relevant in this regard. This suggests that although the Convention does not expressly mention renewables, its ultimate objective of stabilizing atmospheric greenhouse gas concentrations inspire parties to implement policies and measures that support renewable energy. However, the role of the Convention in promoting renewable energy is not limited to the text of the Convention itself. The Convention has established the Conference of the Parties (COP) as the supreme decision-making body with a broad mandate to oversee the implementation of the Convention and adopt legal instruments necessary for the effective implementation of the Convention.⁶⁰⁴ Over the past three decades, the COP has adopted

⁶⁰¹ Art 2 of the UNFCCC.

⁶⁰² Art 4.1(b) (c) *ibid.* Art 4.2(a) also commits developed countries to 'adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases'.

⁶⁰³ See *Panel Report, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)*, WT/DS456/R, adopted 14 October 2016, para 7.272.

⁶⁰⁴ Art 7 of UNFCCC.

two binding instruments (namely, the Kyoto Protocol and the Paris Agreement) to advance the global effort to tackle the threats of climate change. The discussion below examines whether these binding instruments provide a legal basis for renewable energy support policies.

3.3.2.1.3.2 The Kyoto Protocol

The Kyoto Protocol was adopted in 1997 and entered into force in 2005. To help implement the Convention and its ultimate objective of stabilizing greenhouse gas concentrations, the Protocol introduced specific greenhouse gas emission reduction commitments. It requires Annex I parties to jointly reduce average greenhouse gas emissions by five percent below 1990 levels during the first commitment period (2008 – 2012).⁶⁰⁵ The Protocol provides a list of policies and measures that parties to the Protocol should ‘implement and/or further elaborate’ to meet their binding emission reduction commitments.⁶⁰⁶ The legal nature of this list was one of the key issues in the negotiations leading up to the Kyoto Protocol.⁶⁰⁷ The EU proposed a mandatory list of policies and measures that should be implemented by Annex I parties. This proposal, however, received strong opposition from many developing and developed countries, including the United States, Canada and Japan, which sought to retain flexibility in selecting their climate change mitigation policies and measures. The compromise was the present non-exhaustive and indicative list of policies and measures that provides considerable flexibility to Annex I parties in choosing their emission reduction policies and measures. One of the policy measures included in the list is directly relevant to renewable energy. Article 2(1) (a) (iv) calls upon Annex I parties to:

Research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies.⁶⁰⁸

This provision is not legally binding per se but requires Annex I parties to implement policies and measures that promote the development and use of renewable energy sources. The original

⁶⁰⁵ Art 3(1) of the Kyoto Protocol.

⁶⁰⁶ The negotiating history of the Protocol indicates that the question of whether the Protocol outline specific mandatory policies and measures was one of the substantive areas of debate over the policies and measures needed to reduce greenhouse gas emissions. See Depledge (n 62), at paras 68-79.

⁶⁰⁷ *ibid.*

⁶⁰⁸ Article 2.1(a)(iv) Kyoto Protocol.

provision contains only what is now the first part of this provision. The corresponding provision in the consolidated negotiating text prepared by the Chairman only mentions the ‘Promotion, development and increased use of renewable forms of energy’.⁶⁰⁹ Alternative B of the same provision in the subsequent negotiating texts urged Annex I parties to ‘Promote, develop and increase the use of renewable forms of energy to ensure that a significant increase of the share of its energy supply is realized’.⁶¹⁰ These early drafts of the negotiating texts suggest that the purpose of the policies and measures under this provision is to increase the uptake of renewable energy sources. Insofar as they contribute to this goal, one may consider renewable energy support policies as policies adopted in response to Article 2 of the Kyoto Protocol.

Another essential feature of the Kyoto Protocol is that it allows parties to achieve their emission reduction targets through flexible and market-based mechanisms. These include the joint implementation mechanism (JIM) and the clean development mechanism (CDM).⁶¹¹ The former allows Annex I parties to acquire or transfer emission reduction units among themselves, while the latter allows Annex I parties to invest in emissions-reducing or emissions-avoiding projects in non-Annex I countries and use the ‘Certified Emission Reductions’ resulting from such projects to meet their emissions reduction commitments under the Protocol.⁶¹² Neither of these mechanisms directly focuses on renewable energy, yet they contribute to the development of renewable energy in many countries. For example, renewable energy-related projects accounted for more than 70 percent of the projects initiated under the CDM by 2012.⁶¹³ This implies that international instruments that commit parties to reducing their greenhouse gas emissions promote renewables even when they do not specifically refer to or address them directly.

⁶⁰⁹ See Annex A, para 5 UNFCCC, ‘Completion of a Protocol or Another Legal Instrument: Consolidated Negotiating Text by the Chairman’ (1997) FCCC/AGBM/1997/7.

⁶¹⁰ UNFCCC, ‘Adoption of a Protocol or Another Legal Instrument: Fulfillment of the Berlin Mandate: Revised Text under Negotiation’ (1997) Note by the secretariat FCCC/CP/1997/2/Add.1.

⁶¹¹ See Articles 6 & 12 of the Kyoto Protocol.

⁶¹² Art. 12(3)(b) Kyoto Protocol.

⁶¹³ For detailed statistics, see UNEP and DTU, ‘UNEP DTU CDM/JI Pipeline Analysis and Database’ <<http://cdmpipeline.org/cdm-projects-type.htm#3>> accessed 21 October 2017.

3.3.2.1.3.3 The Paris Agreement

The Paris Agreement is the latest international agreement on climate change. This legally binding global agreement was adopted by 196 parties on 12 December 2015 and entered into force on 4 November 2016. As of January 2018, 174 of the 194 signatories have ratified the Agreement.⁶¹⁴ Parties to the Paris Agreement recognize that holding the global average temperature to well below two degrees will significantly reduce the risk of climate change.

The Paris Agreement differs from its predecessor, the Kyoto Protocol, in at least two major ways. First, it applies to developed and developing countries alike. Even though developing countries were parties to the Kyoto Protocol, they did not have any binding obligations to reduce their greenhouse gas emissions. This approach was inspired by the principle of common but differentiated responsibility embodied in Article 3(1) of the UNFCCC. However, the lack of participation from developing countries (especially emerging economies such as China) coupled with the withdrawal of developed countries like the United States, Australia and Canada severely undermined the impact of the Protocol. It has also intensified the need for a genuinely multilateral environmental agreement. Negotiations for such an agreement was launched at the COP13 in Bali, Indonesia in 2007 and culminated in the adoption of the Paris Agreement. Second, unlike the Kyoto Protocol, the Paris Agreement does not impose country-specific greenhouse gas emission reduction targets. Nor it prescribes specific policies and measures that should be implemented by parties to meet their commitment under the Agreement. Instead, it established a bottom-up approach for climate action whereby all parties are required to prepare and communicate nationally determined contributions (NDCs) which will have to be reviewed and updated every five years.⁶¹⁵ As the cornerstone of the Paris Agreement, the NDCs set out actions that countries plan to undertake to meet their commitments under the Agreement.

⁶¹⁴ On 1 June 2017, the United States – under the Trump administration - announced its decision to withdraw from the Paris Agreement. Despite this announcement, Article 28 of the Agreement suggests that the United States will remain bound by the agreement through at least 2020. This is notwithstanding the fact that the United States may decide to stop implementing the agreement any time before 2020 (in clear violation of Article 28).

⁶¹⁵ Art 4(3) Paris Agreement requires each new NDC to be more ambitious than the previous one.

The Paris Agreement itself makes no explicit mention of renewable energy. The absence of explicit reference to renewable energy in the Paris Agreement is yet another missed opportunity to establish a definite and firm legal basis for the sustainable energy transition. This, however, does not mean that the Agreement has no relevance for the promotion of renewable energy. Even though it falls far short of openly endorsing renewable energy, the Agreement has a potential to play a significant role in promoting renewable energy. The most relevant commitment under the Paris Agreement is ‘holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels’.⁶¹⁶ Given that carbon dioxide emission from fossil fuels is the leading cause of the rise in global average temperature, renewables have a critical role to play in fulfilling this commitment. The other significant commitment under the Paris Agreement is that of ‘making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development’.⁶¹⁷ This provision is of paramount importance to both types of energy transition-subsidy policies (see *section 3.3.2.2.2*). It requires parties to the Agreement to ensure that public and private investment flows to projects that reduce greenhouse gas emissions. There is little doubt that renewable energy projects are the most important of such projects. The question is how parties could ensure that investment flows towards renewable energy?

It has been discussed in this chapter that renewable energy subsidies are important means of promoting renewable energy investment. To this extent, one may argue that the Paris Agreement encourages, if not requires, parties to support renewable energy development and deployment. There is ample support for this argument in NDCs submitted pursuant to Article 4 of the Paris Agreement. While the content of NDCs is up to each party, one common feature of most NDCs is their focus on renewable energy. Renewable energy features prominently in most of the 167 NDCs (representing 194 parties) that have been submitted as of January 2018.⁶¹⁸ The NDCs of 145 parties refer to renewable energy as climate change mitigation policy, while that of the 109

⁶¹⁶ See Art 2(1)(a) *ibid*. This commitment fills the gap in the UNFCCC regarding the appropriate level of atmospheric greenhouse gas concentration needed to avoid dangerous climate change.

⁶¹⁷ Art. 2(1)(c) of the *ibid*.

⁶¹⁸ All but one (Libya) of the 195 parties to the Paris Agreement have submitted their NDCs as of January 2018.

parties set out quantified renewable energy targets.⁶¹⁹ The full implementation of the renewable energy components of the NDCs would increase the world's total installed capacity by 76 percent compared to 2014.⁶²⁰ This figure shows the considerable potential of the NDCs to accelerate the much-sought transition towards renewable energy sources.

Estimates suggest that over US\$1.7 trillion would be needed between 2015 and 2030 for the full implementation of the renewable energy components of NDCs.⁶²¹ Since US\$1.2 trillion of which is for the fulfilment of the unconditional renewable energy targets, the majority of the necessary finance need to be mobilized domestically from the private sector. As explained in the first part of this chapter, mobilizing such huge private investment requires putting in place enabling legal and policy frameworks. Public finance will be required to effectively leverage this investment. Initial calculation by IRENA indicates that public finance ranging from US\$ 65 billion to US\$ 580 billion would be needed over the period 2015-2030 to mobilize the necessary private investment.⁶²² Perhaps it was in recognition of this that several parties included renewable energy support measures in their respective NDCs (see *Annex 3.1*). At least 29 of the 167 NDCs submitted so far refer to some sort of renewable energy support policies. China, for example, plans to increase financial and policy support for climate mitigation and adaptation projects and in particular 'implement preferential taxation policies for promoting the development of new energy and to improve mechanisms of pricing, grid access and procurement mechanisms for solar, wind and hydropower'.⁶²³ The inclusion of renewable energy support policies in NDCs once again emphasizes the importance, or at least prominence, of such policies and measures in achieving emission reduction commitments under the Paris Agreement and the UNFCCC.

⁶¹⁹ Studies however suggest that the renewable energy targets in NDCs are not ambitious enough. A recent IRENA study, for example, found that: 'While the global installed capacity of renewable power grew by an average 8.5% per year between 2010 and 2016, implementation of the renewable energy targets in NDCs would only lead to an average annual increase in renewable energy deployment of 3.6% over 2015-2030'. See IRENA, 'Untapped Potential for Climate Action: Renewable Energy in Nationally Determined Contributions' (2017), at 8.

⁶²⁰ See *ibid.*, at 20.

⁶²¹ See *ibid.* Other estimates put the total investment required to more than US\$2 trillion, see ECOFYS, 'Pathways from Paris: Assessing the INDC Opportunity' (Energy Transitions Commission 2016).

⁶²² IRENA, 'Untapped Potential for Climate Action' (n 620).

⁶²³ China, 'Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions' (submitted on 3 September 2016 (unofficial translation)), at 13 -14.

3.3.2.1.3.4 EU Renewable Energy Directive 2009/28/EC

EU law does not easily fit within the traditional dichotomy of national versus international law. It has multifarious features that resemble to both. These features led the European Court of Justice (ECJ) to opine early in the 1960s that EU law is of a *sui generis* nature that forms a ‘new legal order of international law’.⁶²⁴ While most EU law experts tend to agree with this view, others insist that EU law is no different from other international law citing its treaty law origins.⁶²⁵ It is neither necessary nor desirable to venture into this debate here, but note that the relevant literature often frames the debate in terms of the relationship between EU law and international law or between EU law and national law. When it is seen from any perspective other than these interactions, EU law is a supranational law that floats somewhere above the national laws of the 28 EU Member States. It is with this consideration that this section looks into EU law to find some legal basis for the renewable energy support policies of the Member States.

EU law is by far the only intergovernmental legal regime that imposes enforceable renewable energy obligations. These obligations have their roots in the Treaty on the Functioning of the European Union (TFEU). TFEU Article 194 (1) (c) provides that EU energy policy shall aim inter alia to ‘promote the development of new and renewable forms of energy’.⁶²⁶ To this effect, TFEU Article 194 (2) mandates the EU to establish the measures necessary to achieve this objective. TFEU Article 192(2) (c) reinforces this mandate by authorizing the European Council to adopt environmental measures, including ‘measures significantly affecting a Member State's choice between different energy sources and the general structure of its energy supply’.

In 2009, the European Council enacted secondary legislation setting out EU-wide binding renewable energy obligations pursuant to these provisions. These renewable energy obligations

⁶²⁴ *Case 26/62 Van Gend en Loos v Nederlandse Administratie der Belastingen [1963] ECR I*, at 12. The ECJ jurisprudence is hardly conclusive on the subject, see Horst G Krenzler and Oliver Landwehr, “A New Legal Order of International Law”: On the Relationship between Public International Law and European Union Law after Kadi’ in Bruno Simma (ed), *From Bilateralism to Community Interest: Essays in Honour of Judge Bruno Simma* (Oxford University Press 2011) 1004.

⁶²⁵ See, for example, Jean Allain, ‘The European Court of Justice Is an International Court’ (1999) 68 *Nordic Journal of International Law* 249, 261 et seq; Krenzler and Landwehr (n 624).

⁶²⁶ Art 194(1) (c) The Treaty on the Functioning of the European Union, Official Journal of the European Union C 326/47, 26 October 2012.

are contained in the EU Renewable Energy Directive 2009/28/EC. The Directive sets a binding target of raising the share of renewable energy in the overall EU energy mix to 20 percent by 2020.⁶²⁷ Each EU Member State is obliged to enact renewable energy action plan with national renewable energy target. The resultant national renewable energy targets vary considerably, ranging from 10 percent in Malta to 49 percent in Sweden.⁶²⁹ This reflects various factors including the different level of renewable energy development in the Member States.

To help achieve the 2020 target, Article 3(2) of the Directive mandates the Member States to ‘introduce measures effectively designed to ensure that the share of energy from renewable sources equals or exceeds’ the 20 percent target. Article 3(3) suggests that such measures include ‘support schemes’.⁶³⁰ EU Member States have accordingly introduced various types of renewable energy support schemes.⁶³¹ The EU State Aid rules (TFEU Articles 107-109) generally prohibit such support schemes. However, besides the general exemptions under the TFEU, the EU has adopted additional state aid rules that exempt renewable energy and other environmental support schemes.⁶³² Since Chapter 6 digs into these rules, it suffices to note here that these rules provide broad policy space for the EU Member States to support renewable energy.

⁶²⁷ Art 3(1) European Parliament and of the Council Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC [2009] OJ L140/16 (Renewable Energy Directive).

⁶²⁸ EU Member States recently agreed to increase the share of renewable energy in the EU to at least 27 percent by 2030. The new targets aim to ensure the continuity of EU policy for the promotion of renewable energy beyond 2020. See para 3, *European Council Conclusions - 23/24 October 2014*, EUCO 169/14.

⁶²⁹ See Annex I Renewable Energy Directive.

⁶³⁰ Art 2(k) *ibid* defines ‘support scheme’ as ‘any instrument, scheme or mechanism applied by a Member State or a group of Member States, that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased. This includes, but is not restricted to, investment aid, tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and premium payments’.

⁶³¹ Progress reports suggest that most EU Member States are on the right track to meet their targets. The latest data from the Eurostat indicate that the EU as a whole achieved 16.7 percent of renewable energy in its final energy consumption by 2015. See Eurostat, ‘Energy from Renewable Sources’ <http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_from_renewable_sources> accessed 19 January 2018.

⁶³² See Community guidelines on State aid for environmental protection, Official Journal of the European Union 2008/C 82/01; Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, Official Journal of the European Union L 187/1 (also referred to as the General Block Exemption Regulation).

The binding renewable energy obligation coupled with the explicit mandate to introduce support schemes and the exemption of such schemes from the general State Aid rules provide a solid legal basis for the renewable energy support policies of the 28 EU Member States.

3.3.2.2 Legal Basis for Phasing Out Fossil Fuel Subsidies

Fossil fuel subsidy reform received international recognition as a climate change mitigation policy only in the 1990s. There was no international agreement that addresses the issue of fossil fuel subsidies and their adverse effects on the environment before the Kyoto Protocol. Recent years, however, have witnessed growing international efforts to tackle the issue of fossil fuel subsidies both within and outside the climate change regime. Fossil fuel subsidies are now the subject of multiple intergovernmental agreements. This section seeks to examine the extent to which the relevant binding and non-binding international instruments, as well as principles of international environmental law, oblige countries to phase out their fossil fuel subsidies.

3.3.2.2.1 Principles of International Environmental Law

The customary and general principles of international environmental law discussed in connection with renewable energy subsidies are equally relevant to fossil fuel subsidies. For example, the principle of sustainable development and the precautionary principle require countries to refrain from taking action that increases greenhouse gas emissions (e.g. subsidizing fossil fuels) for the same reason that they require countries to take positive action to reduce greenhouse gas emissions (e.g. subsidizing renewable energy). Besides these principles, there are two other principles of international environmental law particularly relevant to establishing the legal foundations of phasing out fossil fuel subsidies. These principles are the responsibility or duty not to cause transboundary environmental harm, and the polluter pays principle.

The sovereignty of states over their natural resources is an uncontested principle of customary international law. This principle is now embodied in Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration. However, the sovereign right of states over their natural

resources is not absolute.⁶³³ One limit to this right is the general obligation not to cause transboundary environmental harm. Countries can utilize their natural resources in any way they deem fit but not in a way that causes environmental harm to other countries. As the ICJ noted in the *Nuclear Weapons* case, the obligation not to cause transboundary environmental harm has now become ‘part of the corpus of international law relating to the environment’.⁶³⁴ The question what constitutes transboundary environmental harm is beyond the scope of this thesis, but it suffices to note here that the adverse environmental effects of greenhouse gas emissions caused by fossil fuel combustion are of transboundary nature. Fossil fuel subsidizing countries are therefore responsible for the environmental harm caused by the extra greenhouse gas emissions associated with the subsidy-induced increase in fossil fuel production or consumption. This argument is admittedly weak, but again the intent here is not to suggest the invocation of this principle against a fossil fuel subsidizing country before an international tribunal.

The polluter pays principle is a general principle of international environmental law that holds that the ‘costs of pollution should be borne by the person responsible for the causing the pollution’.⁶³⁵ This principle is embodied in Principle 16 of the Rio Declaration, which calls upon national authorities to ensure that ‘the polluter should, in principle, bear the cost of pollution’. According to this principle, those who cause pollution by producing/consuming fossil fuels should bear the costs of the pollution they cause. Full compliance with this principle requires countries to impose an appropriate carbon tax on fossil fuel production and consumption to internalize their environmental costs. Providing subsidies to fossil fuel producers/consumers is paying polluters contrary the polluter pays principle. In this light, removing fossil fuel subsidies is the very least countries can do to comply with this general principle.

3.3.2.2.2 Non-Binding International Law Instruments

Most of the international legal instruments relevant to fossil fuel subsidy reform are not legally binding (see *Annex 3.2*). This partly reflects the political sensitivity of the issue and the fact that

⁶³³ For more details on the sovereignty of States over their natural resources and the obligation not to cause transboundary environmental harm, see Sands and others (n 547), at 190 - 200.

⁶³⁴ *ICJ, Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 8 July 1996, ICJ Rep 226*, para 29.

⁶³⁵ See Sands and others (n 547), at 228.

fossil fuel subsidies appeared on the international climate change agenda only recently. Despite their legal form, however, most of these instruments expressly call upon their state parties to phase out fossil fuel subsidies. As will be seen below, there is no much difference between the various soft law instruments regarding the nature and scope of the commitments they entail.

3.3.2.2.1 G20 Declarations

The 2009 G20 Declaration is the first international legal instrument to expressly recognize the adverse effects of fossil fuel subsidies on the environment.⁶³⁶ The Declaration acknowledges that ‘Inefficient fossil fuel subsidies encourage wasteful consumption, distort markets, impede investment in clean energy sources and undermine efforts to deal with climate change’.⁶³⁷ It then went onto commit G20 Members to ‘Rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption’. G20 declarations issued ever since the 2009 Pittsburgh Summit reiterated this commitment (see *Annex 3.3*). These declarations provide G20 Members with a ‘soft’ legal basis for phasing out their fossil fuel subsidies.

However, the implementation of the commitment has been beset by many challenges. The 2009 Declaration mandated G20 countries to submit their national implementation strategies by 2010. However, only 13 G20 Members submitted their national implementation strategies at the 2010 G20 Summit held in Toronto, Canada.⁶³⁸ The remaining seven G20 Members reported not to have any fossil fuel subsidy that falls under the scope of the commitment.⁶³⁹ This raised many questions about the scope of the G20 commitment. Does the commitment cover all fossil fuel subsidies? What is a ‘subsidy? What constitutes an ‘inefficient fossil fuel subsidy’?

⁶³⁶ For a comprehensive analysis of the G20’s commitment to phase out fossil fuel subsidies, see Henok Birhanu Asmelash, ‘Phasing out Fossil Fuel Subsidies in the G20: Progress, Challenges and Ways Forward’ (International Centre for Trade and Sustainable Development 2017) Think Piece. This section partly draws on this work.

⁶³⁷ Para 29 of Pittsburgh Declaration.

⁶³⁸ See G20, ‘Annex 2: Implementation Strategies and Timetables of G20 Members’ (2010) <https://www.eenews.net/assets/2010/06/28/document_cw_03.pdf>. As Koplw pointed out, even these 13 G20 Members substantially underreported their fossil fuel subsidies. See Doug Koplw, ‘Phasing Out Fossil-Fuel Subsidies in the G20: A Progress Update’ (Earth Track Inc & Oil Change International 2012).

⁶³⁹ These are Australia, Brazil, France, Japan, Saudi Arabia, South Africa, and the United Kingdom.

Defining a ‘subsidy’ was one of the most contentious issues in the negotiations leading up to the 2009 G20 Summit. Having failed to reach a consensus on a precise ‘subsidy’ definition, G20 Members agreed for each G20 Member to use its own subsidy definition.⁶⁴⁰ This broad discretion coupled with the fluid nature of the notion of a ‘subsidy’ allowed G20 Members to define subsidies narrowly enough to conceal or underreport their fossil fuel subsidies.

The use of vague adjectives further complicated the definitional problem. For example, the declarations refer to ‘inefficient’ fossil fuel subsidies without setting any criteria for differentiating ‘efficient’ from ‘inefficient’ fossil fuel subsidies. The economic concept of ‘efficiency’ implies the ability of a policy instrument to achieve the policy objective pursued through it.⁶⁴¹ Absent any limitations on the objectives to be pursued through subsidization, the reference to ‘inefficient’ fossil fuel subsidies serves no purpose other than narrowing the scope of the commitment.⁶⁴² It allows G20 Members to maintain fossil fuel subsidies that they deem efficient regardless of their impact on the environment.

Another challenge facing the effective implementation of the G20 commitment is the lack of definite implementation timelines. The 2009 Declaration uses the vague ‘medium term’, while the 2010 Declaration refers to ‘timing based on national circumstances’.⁶⁴³ The complex political economy of subsidies suggests that the instant removal of fossil fuel consumption subsidies, in particular, is difficult. This difficulty explains why intergovernmental agreements use terms such as ‘reform’ ‘rationalize’ and ‘phase out’ instead of terms such as ‘remove’ ‘withdraw’ or ‘eliminate’. However, the absence of a clear and definite timeline undermines the implementation of the commitment by taking away any urgency and credibility from the process.

⁶⁴⁰ See Asmelash, ‘Phasing out Fossil Fuel Subsidies in the G20: Progress, Challenges and Ways Forward’ (n 636) (and the citations therein).

⁶⁴¹ See Vito Tanzi, ‘Government Role and the Efficiency of Policy Instruments’, *Public Finance in a Changing World* (Palgrave Macmillan, London 1998) 51, at 3-4.

⁶⁴² See Asmelash, ‘Phasing out Fossil Fuel Subsidies in the G20: Progress, Challenges and Ways Forward’ (n 636). See also Joseph E Aldy, ‘Policy Surveillance in the G-20 Fossil Fuel Subsidies Agreement: Lessons for Climate Policy’ (2017) 144 *Climatic Change* 97 (arguing that the reference to ‘inefficient’ fossil fuel subsidies is meant to permit some exceptions), at 145.

⁶⁴³ Para 58 of G20 Leaders’ Declaration: Seoul Summit, 11-12 November 2010 (Seoul Declaration).

The 2009 Declaration also failed to introduce any compliance mechanism. In recognition of this, the 2010 G20 Summit held in Seoul, South Korea, introduced a self-reporting mechanism whereby G20 Members voluntarily report their progress in implementing their commitment.⁶⁴⁴ However, the self-reporting mechanism quickly proven to be ineffective for many reasons including the absence of reporting guidelines and any legal or political pressure to report. In an attempt to address these limitations and enhance compliance, the 2012 G20 Summit held in Los Cabos, Mexico, introduced a voluntary peer-review process whereby two G20 Members voluntarily submit themselves for review.⁶⁴⁵ China and the United States,⁶⁴⁶ Germany and Mexico,⁶⁴⁷ and now Italy and Indonesia are the three pairs of G20 Members that volunteered to participate in the peer-review process as of January 2018.⁶⁴⁸ While these peer-reviews can help improve transparency and accountability, they are not formal compliance mechanisms. This is not only because the reviewed countries are not under any obligation to comply with the peer-review reports, but also because they determine the terms of the review.

However, despite the implementation challenges discussed above, the G20 declarations have played a significant role in the global effort to phase out fossil fuel subsidies. They provide crucial legal basis especially for G20 Members who wish to phase out their fossil fuel subsidies but face domestic resistance. The declarations have also brought international attention to the issue and inspired other intergovernmental forums. The influence of the G20 declarations on other intergovernmental forums can be seen partly from the similar language used in subsequent international legal instruments discussed in the remaining part of this section.

⁶⁴⁴ *ibid.*

⁶⁴⁵ Para 74 of G20 Leaders' Declaration: Los Cabos Summit, 18-19 June 2012 (Los Cabos Declaration).

⁶⁴⁶ See United States and others (n 408); China and others, 'The United States' Efforts to Phase out and Rationalize Its Inefficient Fossil-Fuel Subsidies: A Report on the G20 Peer-Review of Inefficient Fossil-Fuel Subsidies That Encourage Wasteful Consumption in the United States' (2016) <<http://www.oecd.org/site/tadffss/publication/>> accessed 26 July 2017.

⁶⁴⁷ See Germany and others, 'Mexico's Efforts to Phase out and Rationalize Its Fossil-Fuel Subsidies: A Report on the G20 Peer-Review of Inefficient Fossil-Fuel Subsidies That Encourage Wasteful Consumption in Mexico' (G20 2017) <<http://www.oecd.org/site/tadffss/Mexico-Peer-Review.pdf>> accessed 8 February 2018; Mexico and others, 'Germany's Effort to Phase out and Rationalize Its Fossil-Fuel Subsidies: A Report on the G20 Peer-Review of Inefficient Fossil-Fuel Subsidies That Encourage Wasteful Consumption in Germany' (G20 2017) <<http://www.oecd.org/site/tadffss/Germany-Peer-Review.pdf>> accessed 8 February 2018.

⁶⁴⁸ The Italy-Indonesia peer-review process was at the early stage at the time of writing. For a detailed discussion on the peer-review process and assessment of the published peer-reviews, see Asmelash, 'Phasing out Fossil Fuel Subsidies in the G20: Progress, Challenges and Ways Forward' (n 636).

3.3.2.2.2 APEC Declarations

APEC Member States have also made a similar commitment in less than three months after the 2009 G20 Declaration. At their 2009 Summit held in Singapore, they agreed to ‘rationalise and phase out over the medium term fossil fuel subsidies that encourage wasteful consumption’.⁶⁴⁹ This provision is almost a verbatim copy of the 2009 G20 Declaration. The fact that nine of the 21 APEC Members are also G20 Members may explain this. Despite facing the same implementation challenges as that of the G20, the APEC declarations offer significant legal basis for APEC Members to embark upon fossil fuel subsidy reform.⁶⁵⁰ They are also part of the growing body of international (soft) law on phasing out fossil fuel subsidies.

3.3.2.2.3 UNGA Resolution 66/288

UNGA Resolution 66/288 is the first UN legal document that expressly refers to the need to phase out fossil fuel subsidies. Paragraph 255 of the Resolution states that ‘countries reaffirm the commitments they have made to phase out harmful and inefficient fossil fuel subsidies that encourage wasteful consumption and undermine sustainable development’.⁶⁵¹ Although the Resolution does not specify the countries in question, the G20 and APEC Members are the only set of countries that have made such commitments before 2012. However, the Resolution’s call for fossil fuel subsidy reform is not limited to these countries. The Resolution also calls upon other countries to ‘consider rationalizing inefficient fossil fuel subsidies by removing market distortions, including restructuring taxation and phasing out harmful subsidies’.⁶⁵² This Resolution strengthens the G20 and APEC commitments. It also recognizes that fossil fuel subsidies can undermine sustainable development. Given how broad sustainable development is as a concept, this significantly broadens the scope of the G20 and APEC commitments.

⁶⁴⁹ APEC 2009 Leaders’ Declaration, Singapore 14 November 2009 (Singapore Declaration).

⁶⁵⁰ For an in-depth discussion on the challenges facing fossil fuel subsidy reform efforts in APEC, see IEA, ‘Fossil Fuel Subsidies in APEC Economies and the Benefit of Reform’ (n 447).

⁶⁵¹ Para 255 of UNGA Resolution 66/288.

⁶⁵² *ibid.*

3.3.2.2.4 UNGA Resolution 70/1

UNGA Resolution 70/1 illustrates the growing international recognition of the need to phase out fossil fuel subsidies as a climate change mitigation and sustainable development policy.⁶⁵³ This recognition is embodied in SDG 12 (sustainable consumption and production). Target 12.C of SDG 12 provides that countries should ‘rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption’ to ensure sustainable consumption and production patterns.⁶⁵⁴ The substantive scope of the commitment is similar to that of the legal documents discussed in the preceding subsections, but since the SDGs apply to the entire UN membership, the Resolution has elevated the commitment to an international level. Not just G20 and APEC countries but all countries have now committed to phasing out fossil fuel subsidies by 2030.

3.3.2.2.5 The Fossil Fuel Subsidy Reform Communiqué

The FFFSR Communiqué was issued ahead of the COP21 in 2015 calling for fossil fuel subsidy reforms within the UNFCCC.⁶⁵⁵ Acknowledging the significant contribution that the elimination of fossil fuel subsidies can make to climate change mitigation, the Communiqué calls upon countries that have already committed to phasing out their fossil fuel subsidies to convert their political commitments into practical action.⁶⁵⁶ In particular, the Communiqué urges these countries to (i) enhance communication and transparency about their fossil fuel subsidy reforms; (ii) be more ambitious in the scope and timeframe of their reforms; and (iii) provide technical and financial support for fossil fuel subsidy reforms in developing countries.⁶⁵⁷ The Communiqué imposes no obligation upon any country, but as a legal document issued by a group of countries, it adds voice to the growing intergovernmental calls for fossil fuel subsidy reform. As will be seen in *section 3.3.3.3.2* below, fossil fuel subsidies were extensively discussed during the Paris Agreement negotiations partly in response to this and similar other calls.

⁶⁵³ See *section 3.3.2.1.2.7* of this Chapter for a general background of the Resolution and the SDGs therein.

⁶⁵⁴ See UNGA Resolution 66/288. The same commitment was also made in the Addis Ababa Action Agenda discussed in *Section 3.3.2.1.2.6* of this Chapter. See para 31 of UNGA Resolution 69/313.

⁶⁵⁵ See *section 1.2.1* for further details about the FFFSR and its membership.

⁶⁵⁶ FFFSR, *Fossil-Fuel Subsidy Reform Communiqué* (2015) <<http://www.iisd.org/library/fossil-fuel-subsidy-reform-communication>> accessed 20 November 2016.

⁶⁵⁷ *ibid.*

3.3.2.2.2.6 The 2016 G7 Declaration

All the G7 Members are also Members of the G20. This implies that they have already committed to phasing out their inefficient fossil fuel subsidies under the 2009 G20 Declaration. However, this does not mean that G7 declarations are irrelevant. First, the G7 is a different intergovernmental forum that represents the seven most powerful economies in the world. Second, G7 declarations can strengthen or broaden the scope of the commitment and put additional pressure on G7 Members to implement their commitments. In this regard, perhaps the most important contribution of the 2016 G7 Declaration is setting out implementation timeline. While the G20 has failed to agree upon a precise implementation timeline, the 2016 G7 Summit held in Ise-Shima, Japan, committed G7 Members to eliminate their inefficient fossil fuel subsidies by 2025.⁶⁵⁸ Despite setting a timeline, however, the Declaration resolves none of the other challenges facing the implementation of fossil fuel subsidy reform commitments.⁶⁵⁹ The G7 commitment faces the same implementation challenges as that of the G20 and APEC.

3.3.2.2.3 Binding International Law Instruments

The preceding section has noted that non-binding legal instruments form the main part of the legal basis for fossil fuel subsidy reform. Two legally binding international instruments, however, can provide an additional legal basis for such reforms. These are the Kyoto Protocol and the Paris Agreement. Neither of them imposes direct obligations on State Parties to reform fossil fuel subsidies. Yet, they contain some provisions that can be interpreted to require the phasing out of fossil fuel subsidies. This section seeks to examine these provisions and see whether they provide adequate legal basis for fossil fuel subsidy reforms.

3.3.2.2.3.1 The Kyoto Protocol

As explained in *section 3.3.1.2.2*, Article 2 of the Kyoto Protocol contains a non-exhaustive list of policies and measures that the 41 Annex I parties should take to comply with their quantified

⁶⁵⁸ See G7 Leaders' Declaration: Ise-Shima Summit, 26-27 May 2016 (Ise-Shima Declaration) 2016, at 28.

⁶⁵⁹ For more on this, see Henok Birhanu Asmelash, 'The G7's Pledge to End Fossil Fuel Subsidies by 2025: Mere Rhetoric or a Sign of Post-Paris Momentum?' (2016) 5 European Society of International Law (ESIL) Reflections 1.

emission reduction commitments. Included in this list is the ‘progressive reduction or phasing out of [...] subsidies in all greenhouse gas emitting sectors’.⁶⁶⁰ Indeed, this provision does not specifically refer to fossil fuels. However, as the primary source of greenhouse gas emissions the fossil fuel sector is the central focus of the provision. The negotiating history of the provision strongly supports this interpretation. The Consolidated Negotiating Text (CNT) prepared by the Chairman two months before the adoption of the Protocol explicitly refers to fossil fuels. The corresponding provision in the CNT reads: ‘Progressive phasing out of market imperfections and fiscal incentives that run counter to the objective of the Convention, including, inter alia, subsidies on all fossil fuels’.⁶⁶¹ It was only in the modified version of the CNT submitted by G-77 and China that the reference to ‘fossil fuels’ was replaced by ‘all greenhouse gas emitting sectors’.⁶⁶² However, this change only broadens the scope of the provision. The final version of the provision requires the phasing out of subsidies not only to fossil fuels but also to others greenhouse gas emitting sectors such as transportation and heavy industries. It should be recalled however that Annex I parties are not obliged but encouraged to implement the policies and measures contained in Article 2. This means that although the Kyoto Protocol is legally binding, the obligation to phase out fossil fuel subsidies is not binding as such.

3.3.2.2.3.2 The Paris Agreement

Fossil fuel subsidy reform was discussed during the Paris Agreement negotiations. The issue was first proposed by New Zealand in 2013. Referring to the socio-economic and environmental benefits of reforming fossil fuel subsidies, New Zealand called for discussions on the issue within the framework of the Paris Agreement.⁶⁶³ These discussions resulted in the inclusion of two provisions in the draft negotiating text of the Agreement. Paragraphs 81 and 128 of the

⁶⁶⁰ Art 2.1(a)(v) of the Kyoto Protocol.

⁶⁶¹ See UNFCCC, ‘Consolidated Negotiating Text by the Chairman’ (n 609). The original proposal made by New Zealand and Norway calls for a mandatory removal of fossil fuel subsidies. See Depledge (n 62), at 20.

⁶⁶² Depledge (n 62), at 24.

⁶⁶³ ‘New Zealand Submission to the Ad Hoc Working Group on the Durban Platform for Enhanced Action’ (2013) <https://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp_new_zealand_workstream_2_20131011.pdf> accessed 17 March 2017.

negotiating text listed fossil fuel subsidy reforms as climate finance options.⁶⁶⁴ The logic was simple: removing fossil fuel subsidies will free up finance for climate change mitigation and adaptation. However, neither of these two provisions appear in the final text of the Paris Agreement. Disagreement over climate finance issues in general and objection from oil-producing countries, in particular, led to the removal of the provisions from the final text.

The question is what is left in the final text that can serve as a legal basis for fossil fuel subsidy reform. Answering this question requires looking into the key objectives underlying the Agreement. The primary objective of the Paris Agreement is to reduce greenhouse gas emission and thereby keep global warming well below two degrees.⁶⁶⁵ The Agreement also stated that making finance flows consistent with low greenhouse emissions pathway is essential to meeting this objective.⁶⁶⁶ This has implications for virtually every sector of the economy. In the energy sector, making finance flow towards low greenhouse gas emission energy system entails making investment flow towards energy efficiency and renewable energy technologies. The vast majority of both public and private investment is currently directed to fossil fuels. Changing this investment trajectory calls for two types of policies. First, policies that enhance the investment attractiveness of energy efficiency and renewable energy technologies. These include, but not limited to, renewable energy subsidies. Second, policies that lessen the investment attractiveness of fossil fuels. It is widely accepted that the investment appeal of fossil fuels partly stems from the fact that fossil fuel prices or production costs do not incorporate the social and environmental costs of fossil fuels. This understanding has brought widespread attention to carbon pricing instruments such as carbon taxes. However, another important factor keeping fossil fuels competitive vis-à-vis renewables is the various forms of subsidies that go to the fossil fuel industry. Removing these subsidies increases fossil fuel production and consumption costs and thereby make fossil fuel less attractive for investment in contrast to renewables. Seen from this perspective, the removal of fossil fuel subsidies is critical to meeting one of the key obligations

⁶⁶⁴ Para 81 urges parties to ‘reduce international support for high-carbon investments, including international fossil fuel subsidies’, while para 128.1(d) calls for the ‘phasing down of high-carbon investments and fossil fuel subsidies’. See Ad Hoc Working Group on the Durban Platform for Enhanced Action Second session, part eight Geneva, 8–13 February 2015, Negotiating Text, FCCC/ADP/2015/1, 25 February 2015.

⁶⁶⁵ See Art 2(1)(a) of the Paris Agreement.

⁶⁶⁶ Art 2(1)(c) *ibid*.

under the Paris Agreement – making finance flows consistent with a low greenhouse gas emissions energy system.⁶⁶⁷ The NDCs submitted to meet the objectives of the Agreement partly reflects this. As can be seen from *Annex 3.1*, a number of parties included fossil fuel subsidy reform as part of their climate change mitigation and adaptation policy measures.

⁶⁶⁷ This view is also shared by Maeve McLynn, Laurie van der Burg and Shelagh Whitley, ‘Briefing: Pathways in the Paris Agreement for Ending Fossil Fuel Subsidies’ (Climate Action Network and Overseas Development Institute 2016) <<http://greenfiscalpolicy.org/wp-content/uploads/2016/11/CAN-and-ODI-2016-Briefing-Subsidies-and-Paris-Agreement.pdf>> accessed 30 January 2017.

Part II

Energy Transition Subsidy Policies and WTO Law

Chapter Four

Analysis of the WTO Rules Applicable to Energy Subsidies

4.1 Introduction

Energy, agriculture and fisheries are amongst the most heavily subsidized sectors across the world. The WTO regulates or intends to regulate agricultural and fisheries subsidies differently from subsidies to other economic sectors. While agriculture-specific subsidy rules already exist (*section 4.4.3.2*), negotiations are ongoing to establish fisheries-specific subsidy rules under the Doha Round (*section 4.4.4*).⁶⁶⁸ There are, however, no energy-specific subsidy rules or negotiations to this effect so far. Energy subsidies (both fossil fuel and renewable energy subsidies) are subject to the general subsidy rules contained in the SCM Agreement.⁶⁶⁹ This chapter provides the legal framework against which to assess the legality of energy subsidies by examining in some detail the salient features and constraints of this agreement.

The chapter starts by debunking the myth about the applicability of WTO law to the energy sector (*section 4.2*). Although the energy sector has never been (*de jure*) excluded from GATT/WTO law, there had been a widespread misconception about the applicability of GATT/WTO law to the energy sector. This section will clarify this misconception and explain why energy issues were off the radar screen of the trading system until recently. Having established that the multilateral trade rules indeed apply to the energy sector, the chapter turns its focus onto the rationales behind the regulation of subsidies in the multilateral trading system (*section 4.3*). Why do we need multilateral rules on subsidies? While most economists dismiss the need for the multilateral regulation of subsidies, others see the need for doing so. This second section explores the key arguments for and against the multilateral regulation of subsidies.

⁶⁶⁸ The clear implication of adopting or considering to adopt distinct legal regimes tailor-made for agricultural and fisheries subsidies is the acknowledgement that the general rules on subsidies under the SCM Agreement are simply do not suit the particular conditions of agriculture and fisheries. See Didier Chambovey, 'How the Expiry of the Peace Clause (Article 13 of the WTO Agreement on Agriculture) Might Alter Disciplines on Agricultural Subsidies in the WTO Framework' (2002) 36 *Journal of World Trade* 305, at 310.

⁶⁶⁹ However, the subsidy rules of the Agreement on Agriculture are relevant to biofuel subsidies (see *section 4.4.4*).

The chapter then considers the evolution of subsidy regulation in the multilateral trading system (*section 4.4*). The SCM Agreement is neither the first nor the only agreement that contains rules on the use of subsidies in the multilateral trading system. Rules on subsidies and countervailing duties have been an integral part of the multilateral trading system from its inception. The present rules are the product of decades of successive amendments and expansions. This section briefly reviews the historical development of these rules vis-à-vis their implications for the regulation of energy subsidies in the multilateral trading system.

The chapter then puts the spotlight on the SCM Agreement and the specific rules contained therein (*section 4.5*). This Section starts with a brief discussion on the object and purpose of the SCM Agreement. In particular, it explores whether addressing non-trade concerns is part of the object and purpose of the SCM Agreement (*section 4.5.1*). Then follows a discussion on the scope of the SCM Agreement (*section 4.5.2*). This part will answer questions such as what constitutes a subsidy for the SCM Agreement and which types of subsidies are subject to the subsidy disciplines of the SCM Agreement. The section then briefly discusses the different categories of subsidies under the SCM Agreement and the rationales behind their categorization (*section 4.5.3*). This part already highlights what types of energy subsidies might fall under each of the different categories. *Section 4.5.4* briefly discusses the different types of remedies available under the SCM Agreement for different categories of subsidies. The chapter concludes with a brief discussion on the SCM rules on transparency. Article 25 and 26 of the SCM Agreement provide detailed rules for notification and surveillance of subsidies, and this final part examines the extent to which these rules are relevant to energy subsidies.

4.2 The Applicability of WTO Law to Energy Subsidies

The multilateral trading system does not have a sectoral agreement on energy. Nor does its trade rules contained in the various covered agreements were designed having energy issues in mind. None of the Covered Agreements specified that they apply to ‘energy’.⁶⁷⁰ However, all tradable

⁶⁷⁰ The only reference to the term ‘energy’ in the SCM Agreement is under footnote 61 to Annex II, which refers to energy, fuels and oil as examples of what constitutes ‘input in the production process’. See SCM Agreement.

products are subject to the Covered Agreements unless they are expressly excluded.⁶⁷¹ Since there is no such exclusion, the WTO Agreements fully apply to trade in energy.⁶⁷² Nevertheless, there has been a widespread misconception about the applicability of GATT/WTO law to the energy sector. At the heart of this misconception is the alleged existence of a ‘gentlemen’s agreement’ to keep energy issues outside the trading system. The source of this claim is a 2000 report by the United Nations Conference on Trade and Development (UNCTAD). The report attributes the absence of energy-related actions in the early years of the trading system to the existence of a “gentlemen's agreement" not to bring up petroleum issues in the GATT context’.⁶⁷³ This widely cited report raises many questions than it answers. When did the agreement take place? Who were the ‘gentlemen’? What is the substance of the agreement?

There is no written evidence whatsoever of such an agreement in the negotiating history of the GATT/WTO. This has led some curious observers to question the very existence of the agreement.⁶⁷⁴ The *Encyclopedia of Public International Law (EPIL)* defines gentlemen’s agreements as, ‘agreements that are concluded between statesmen or diplomats without being legally binding’.⁶⁷⁵ International law scholars often emphasize that gentlemen’s agreements entail

⁶⁷¹ The case of textile and agricultural products is relevant here. Before eventually returning to GATT rules in 2005, textile products were regulated first under the Multi-Fiber Arrangement (MFA) (1974-94) and then under the Agreement on Textiles and Clothing (ATC) (1995-2005). While it was largely exempt from GATT 1947 disciplines, agriculture is currently regulated under the Agreement on Agriculture. For more details on the regulation of trade in textile products, see Kitty G Dickerson, ‘Textile Trade: The GATT Exception’ (1996) 11 *St. John’s Journal of Legal Commentary* 393. For recent literature on the treatment of agricultural products in the GATT/WTO, see in general Joseph McMahon and Melaku Geboye Desta (eds), *Research Handbook on the WTO Agriculture Agreement: New and Emerging Issues in International Agricultural Trade Law* (Edward Elgar Publishing 2012).

⁶⁷² This view is now widely held among international trade law scholars, see Gabrielle Marceau, ‘The WTO in the Emerging Energy Governance Debate’ (2010) 5 *Global Trade and Customs Journal* 83; Yulia Selivanova, ‘The WTO Agreements and Energy’ in Kim Talus (ed), *Research Handbook on International Energy Law* (Edward Elgar Publishing 2014); Cottier and others (n 405); Melaku Geboye Desta, ‘The GATT/WTO System and International Trade in Petroleum: An Overview’ (2003) 21 *Journal of Energy & Natural Resources Law* 385; Timothy Meyer, ‘The World Trade Organization’s Role in Global Energy Governance’ in Thijs Van de Graaf and others (eds), *The Palgrave Handbook of the International Political Economy of Energy* (Palgrave Macmillan UK 2016); Alan Yanovich, ‘WTO Rules and the Energy Sector’ in Julia Selivanova (ed), *Regulation of energy in international trade law: WTO, NAFTA, and Energy Charter* (Kluwer Law International 2012).

⁶⁷³ See UNCTAD, ‘Trade Agreements, Petroleum, and Energy Policies’ (n 407), at 15. The report provides any evidence whatsoever to support its bold claim.

⁶⁷⁴ See Jenya Grigorova, ‘WTO Law and Energy Resources: The Absurdity of a Systemic Exclusion of the Energy Sector by a Gentlemen’s Agreement’ (Centre for International and Transnational Law 2015), at 3.

⁶⁷⁵ See Wilfried Fiedler, ‘Gentlemen’s Agreement’ in Rudolf Bernhardt (ed), *Encyclopedia of Public International Law*, vol II (Elsevier 1995) 546.

political or moral - but not legal - obligations.⁶⁷⁶ The issue with the alleged gentlemen's agreement on energy is, however, not its legal effect *per se* but its very existence.

It is now common knowledge in international law that an international agreement may take different forms. The ICJ jurisprudence suggests that exchange of letters (*Libya v. Chad*), a joint communique (*Greece v. Turkey*), minutes of consultations (*Qatar v. Bahrain*) and declarations (*Cameroon v. Nigeria*) may constitute an international agreement.⁶⁷⁷ However, none of such instruments exists to prove the existence of the alleged agreement on energy. Of course, international agreements do not necessarily have to be in written form. The Vienna Convention on the Law of Treaties (VCLT) does not apply to international agreements not in written form, yet it explicitly recognizes that this shall not affect the legal force of such agreements.⁶⁷⁸ This is widely taken to mean that 'written form is not a *conditio sine qua non* for the existence of an international obligation'.⁶⁷⁹ International agreements may take unwritten form – though this is rare in practice. The alleged 'gentlemen's agreement' on energy can be an oral or tacit agreement. Proving the existence of such an agreement is, however, more difficult than proving the existence of a written agreement. The difficulty stems from the need to consider circumstantial evidence (i.e. the conduct of the parties to the agreement). Several factors make proving the existence of the alleged 'gentlemen's agreement' on energy even more difficult, if not impossible.⁶⁸⁰ First among these is the passive nature of the obligation under the alleged agreement. The substantive commitment allegedly agreed upon is to refrain from taking action against energy in the multilateral trading system. It is relatively difficult to prove whether the inaction is the result of the agreement or some other factors. Second, the lack of information about the parties to the agreement adds to the difficulty of evaluating the conduct of the parties. One cannot evaluate the

⁶⁷⁶ See Elihu Lauterpacht, 'Gentleman's Agreements' in Werner Flume (ed), *International law and economic order: Internationales Recht und Wirtschaftsordnung: essays in honour of F.A. Mann* (Beck 1977), at 381.

⁶⁷⁷ The only case in which the ICJ directly adjudicated claims of a 'gentlemen's agreement' is the case concerning *Kasikili/Sedudu Island (Botswana/Namibia)*. In this particular case, both parties relied upon an alleged 'gentlemen's agreement', but after examining the extended correspondence, the ICJ concluded that the alleged gentlemen's agreement does not constitute a subsequent practice let alone a subsequent agreement.

⁶⁷⁸ See Arts 2 & 3, Vienna Convention on the Law of Treaties (adopted 23 May 1969, entered into force 27 January 1980) 1155 UNTS 331 (VCLT).

⁶⁷⁹ See Grigorova (n 674) (and the citation therein).

⁶⁸⁰ Some commentators who attempted to prove the existence of a tacit agreement not to take a certain action concluded that such task is almost a case of *probatio diabolica*. See Jenya, at 11.

conduct of the parties without knowing the parties. It is not clear whether all or only certain GATT Contracting Parties were parties to the alleged agreement.

As shown below, neither the negotiating history nor the jurisprudence points to the existence of any agreement to exclude energy from the purview of the multilateral trading system.

Evidence to the contrary

There is no doubt that energy issues did not feature prominently until recently, but there is strong evidence that suggests that GATT/WTO law has always applied to the energy sector. First, energy products were the subject of multilateral trade negotiations from the outset. The best evidence for this is that GATT Contracting Parties listed energy products such as coal and crude oil in their schedules of concessions.⁶⁸¹ To be sure, tariff concessions on petroleum products are mostly ‘unbound’, but this does not preclude the applicability of the general GATT rules on energy trade.⁶⁸² Second, the energy sector was also the subject of legal disputes even in the GATT era. In *US-Superfund*, Canada, Mexico and the EEC successfully challenged US tax on petroleum under GATT Article III.⁶⁸³ Energy was also at the heart of the very first dispute that went to the panel stage after the establishment of the WTO in 1995 (i.e. *US-Gasoline*). At no

⁶⁸¹ The negotiating history of the GATT indicates that GATT Contracting Parties have always recognized the applicability of GATT rules on energy trade. The first instance of such recognition dates back to 1958 when Germany invoked Article XIX of the GATT to suspend the general license for imports of hard coal and hard coal products from Contracting Parties that were not Members of the European Coal and Steel Community (ECSC). See GATT, ‘Article XIX: Action by the Federal Republic of Germany: Suspension of General License for Imports of Hard Coal and Hard Coal Products’ (1958) W.13/41; GATT, ‘Article XIX: Action by the Federal Republic of Germany: Suspension of General License for Imports of Hard Coal and Hard Coal Products’ (1958) L/855.

⁶⁸² The unbound nature of tariff rates on petroleum products allows GATT/WTO Members to impose high tariffs on petroleum products, but they remain bound by the general GATT rules such as the MFN and National Treatment obligation of GATT Articles I and III. For more details on this, see UNCTAD, ‘Trade Agreements, Petroleum, and Energy Policies’ (n 407). It is also worth noting that schedules of concessions are integral parts of the GATT (GATT Article II). The Appellate Body reinforced this in EC –Computer Equipment, noting that each schedule of concessions represents a common agreement among all Members. See *Appellate Body Report, European Communities — Customs Classification of Certain Computer Equipment (EC – Computer Equipment)*, WT/DS62/AB/R, adopted 22 June 1998, para 109.

⁶⁸³ See *GATT Panel Report, United States - Taxes on Petroleum And Certain Imported Substances (US-Superfund)*, L/6175 - 34S/136 adopted on 17 June 1987, para 5.1.12. It is noteworthy that almost all petroleum exporting GATT Contracting Parties of the time participated in this dispute as third parties (i.e. Nigeria, Indonesia and Kuwait). For an energy-focused brief analysis of the case, see Desta, ‘The GATT/WTO System and International Trade in Petroleum’ (n 672), at 389-390.

stage in these disputes that the US (or any other country for that matter) questioned the applicability of GATT/WTO law on trade in energy.

What kept energy issues off the GATT/WTO radar screen?

Although the energy sector has never been excluded, *de jure*, from the ambit of the multilateral trading system, a combination of factors has *de facto* kept energy issues in the periphery of the multilateral trading system until recently. Sovereignty concerns that held back the development of international energy law are the primary factors that kept energy issues off the radar screen of the multilateral trading system for so long (see *section 3.3.1.1*). The US put this point explicitly in its proposal on natural resource and energy dual pricing in the Doha Round negotiations (see *section 4.4.4.2*): ‘Government measures and practices affecting natural resources and energy touch on issues of state sovereignty and normally involve difficult questions of fair market value prices, and thus, have been sensitive and controversial topics’.⁶⁸⁴ Although energy has always been subject to the multilateral trade rules like any other product, countries have been reluctant to invoke these rules perhaps due to the glasshouse syndrome. Taking action against any policy measure in the multilateral trading system runs the risk of provoking a counteraction or setting a precedent. Most countries that regard energy policy as a matter of national sovereignty are less likely to take this risk and subject their energy policy to multilateral regulation.

Second, another reason that is even more specific to the trading system is that key energy exporting countries were absent from the early rounds of multilateral trade negotiations. It is useful to recall that multinational oil companies dominated the energy industry until the end of colonization in the 1960s. None of the founding OPEC Member States was, for example, Parties to the GATT when the latter entered into force in 1948.⁶⁸⁵ Important players in the energy market such as Saudi Arabia and Russia also joined the trading system only over the last decade or so. The absence of these countries from the early rounds of multilateral trade negotiations relegated energy issues to the side-lines by leaving them without their key stakeholders. Second,

⁶⁸⁴ WTO, ‘Subsidies Disciplines Requiring Clarification and Improvement: Communication from the United States’ (2003) TN/RL/W/78.

⁶⁸⁵ The founding OPEC Member States are Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Moreover, none of the current OPEC Member States was Original Contracting Parties to the GATT 1947.

liberalizing trade in energy was not a political priority during the early rounds of multilateral trade negotiations.⁶⁸⁶ Petroleum products were relatively cheap, and world energy demand was a fraction of what it has become. Since the then GATT Contracting Parties were net petroleum importers, they were not keen on the liberalization of trade in petroleum products.⁶⁸⁷ This explains why tariff concessions on petroleum products were mostly unbound.

Finally, another, but closely related, factor is what some commentators refer to as the inherent ‘market access bias’ of the multilateral trading system.⁶⁸⁸ On the one hand, the primary focus of the trading system was to tackle import barriers. Export restrictions were not major threats to international trade as compared to import restrictions, and they received relatively much less attention. This is evident in the absence of explicit provisions on export restrictions.⁶⁸⁹ On the other hand, trade in energy hardly faces import restrictions. The fact that only a few countries have energy resources and virtually every country needs energy means that import restrictions to protect domestic industries are not as much a problem as they are for trade in other goods. The most relevant energy-related trade issues were and remain energy subsidies and export restrictions. However, those issues were hardly the focus of the multilateral trading system.

The growing prominence of energy issues

The last few decades have witnessed the growing prominence of energy issues in the multilateral trading system. Three factors are crucial to this. First, most energy exporting countries have now joined the trading system.⁶⁹⁰ The few energy-exporting countries that remain outside the system

⁶⁸⁶ See Lamy, *The Geneva Consensus* (n 92), at 111. See also Cottier and others (n 405) 211.

⁶⁸⁷ Desta, ‘The GATT/WTO System and International Trade in Petroleum’ (n 672).

⁶⁸⁸ *ibid*, at 394 et seq.

⁶⁸⁹ To be sure, the prohibition of quantitative restrictions of GATT Article XI applies equally to imports and exports. Besides this, however, there are no rules specific to export restrictions. Export restrictions have recently become the subject of trade negotiations and disputes. The Accession Protocols of China and Russia include some commitments on export restrictions. The Appellate Body has also released two reports on export restrictions - China Raw Materials and China – Rare Earths. For a historical account of GATT rules on export restrictions, see Frieder Roessler, ‘GATT and Access to Supplies’ (1975) 9 *Journal of World Trade Law* 25. For recent literature on the regulation of export restrictions, see Espa (n 445); Baris Karapinar, ‘Defining the Legal Boundaries of Export Restrictions: A Case Law Analysis’ (2012) 15 *Journal of International Economic Law* 443.

⁶⁹⁰ For example, one of the first cases that Russia filed following its accession was against the EU energy package. In EU-Energy Package, Russia challenged the EU third energy package under the GATT, GATS, TRIMS and the SCM

are also negotiating their accession (e.g. Iran, Iraq). Most of these countries originally thought they have little to gain from joining the trading system since their exports hardly face import barriers, but their stance seems to have changed in recent years, as they look to diversify their exports. Second, as energy security becomes of increasing importance, energy policies in exporting countries began to create concerns among the energy importing countries. For instance, the United States raised the issues of dual pricing during the Tokyo Round. These issues were also on the agenda at the 1982 GATT Ministerial Conference and the Uruguay Round. Third, growing environmental concerns have raised the profile of energy issues in the multilateral trading system. Perhaps the best illustration of this is the reactions to the recent wave of legal challenges against renewable energy subsidy schemes and growing interests in the regulation of environmentally harmful fossil fuel subsidies within the trading system.

4.3 The Rationales for Multilateral Subsidy Regulation

The regulation of subsidies in the multilateral trading system has always been controversial. At the heart of the controversy is the very rationale for subsidy regulation.⁶⁹¹ The case for international subsidy regulation arises to the extent that subsidies harm the economic interests of other countries.⁶⁹² However, opinions vary widely over the economic impact of subsidies on other countries. Some commentators are sceptical of multilateral subsidy regulation.⁶⁹³ Underlying their

Agreement. See WTO, 'Request for Consultations by the Russian Federation, European Union and Its Member States – Certain Measures Relating to the Energy Sector (EU – Energy Package)' (2014) WT/DS476/1.

⁶⁹¹ Trebilcock et al. describe this issue as the 'legitimacy of legal disciplines on subsidies'. See Trebilcock, Howse and Eliason (n 78), at 389.

⁶⁹² As Grossman and Mavroidis pointed out 'the presumption in international relations is that governments can do as they choose with regard to policies whose effects are confined within their borders'. See Gene M Grossman and Petros C Mavroidis, 'US – Lead and Bismuth II United States – Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the United Kingdom: Here Today, Gone Tomorrow? Privatization and the Injury Caused by Non-Recurring Subsidies' in Henrik Horn and Petros C Mavroidis (eds), *The WTO Case Law of 2001* (Cambridge University Press 2004) 170, at 180-181. Professor John Jackson also expressed this view when he argued that it is when subsidies significantly distort the economies of other societies that the international system has a legitimate concern. See John H Jackson, *The World Trading System: Law and Policy of International Economic Relations* (2nd edn, MIT Press 2000), at 298. This view is what Hufbauer and Erb described as the 'Injury-Only School'. This School takes the view that subsidies should be of international concern only when they cause harm to other countries. See Hufbauer and Shelton Erb (n 270), at 19-20.

⁶⁹³ See Alan O Sykes, 'Subsidies and Countervailing Measures' in Patrick FJ Macrory, Arthur E Appleton and Michael G Plummer (eds), *The World Trade Organization: Legal, Economic and Political Analysis* (Springer 2005) 83 (arguing that the case for general subsidy disciplines is weak); Merit E Janow and Robert W Staiger, 'US – Export Restraints: United States – Measures Treating Export Restraints as Subsidies' (2003) 2 *World Trade Review*

scepticism is the assumption that the country that subsidizes exports hurts itself to the benefit of countries that import the subsidized product. For example, subsidized imports from *Country X* benefits consumers in *Country Y* because of their reduced prices. Taxpayers in *Country X* are the ones who bear the real cost of the subsidy. To be sure, import-competing domestic industries in *Country Y* also suffer from the subsidized imports. However, economic theory suggests that the benefits to consumers often outweigh the economic losses to the domestic industries.⁶⁹⁴ This means that the subsidized imports enhance the terms of trade and the overall economic welfare of *Country Y*. This observation has led the sceptics of multilateral subsidy regulation to argue that *Country Y's* most appropriate response to the subsidized imports from *Country X* is to send a 'thank you note to the embassy' of *Country X*.⁶⁹⁵ The proponents of this view see no particular reason for the trading system to concern itself with subsidies.

Others vehemently oppose this view. Foremost among them is the late John Jackson. For Jackson, those who argue against subsidy regulation 'focus on too narrow a perspective'.⁶⁹⁶ Their focus is too narrow in that it concerns only with export subsidies and the importing country (*Country Y*). For instance, in the example above, the subsidized imports from *Country X* affect not only import-competing industries in *Country Y* but also industries that export like products to *Country Y* from a third *Country Z*. Nothing compensates for the loss (in market share) that *Country Z* industries sustain because of the subsidy. Without international subsidy rules, *Country Z* has no other recourse than to enter into competitive subsidization (emulation) to maintain or regain its market share in *Country Y*. The problem with emulation is that it brings a spiral of wasteful distortion or overinvestment in seemingly promising technologies.⁶⁹⁷

201 (arguing that prohibiting export subsidies runs counter to the fundamental purpose of the trading system, i.e. promoting international trade), at 205; Kyle Bagwell and Robert W Staiger, 'Will International Rules on Subsidies Disrupt the World Trading System?' (2006) 96 *American Economic Review* 877 (arguing that multilateral subsidy rules could have a 'chilling' effect on the desire of governments to make further market access commitments), at 34.

⁶⁹⁴ This is mainly because the affected import-competing domestic producers can 'economize on their losses by shifting productive resources to activities with higher returns'. See Alan O Sykes, 'The Limited Economic Case for Subsidies Regulation' (International Centre for Trade and Sustainable Development 2015) Think Piece for the E15 Task Force on Rethinking International Subsidies Disciplines, at 10.

⁶⁹⁵ See Alan O Sykes, 'International Trade: Trade Remedies' in Andrew T Guzman and Alan O Sykes (eds), *Research Handbook in International Economic Law* (Edward Elgar 2007) (quoting Paul Krugman), at 107.

⁶⁹⁶ Jackson (n 692), at 282.

⁶⁹⁷ See Hufbauer and Shelton Erb (n 270), at 21.

The case for subsidy regulation primarily rests on two economic rationales. The first is what some commentators describe as the ‘unfairness’ rationale.⁶⁹⁸ Not all countries are able or willing to subsidize.⁶⁹⁹ The disparities in the level of economic development among countries mean that developed countries could easily out subsidize their developing country counterparts. Some countries may also prefer not to interfere in the market. In either case, subsidies tilt the level playing field in favour of the subsidized producers and allow them to outcompete and drive their unsubsidized counterparts out of the market. It is thus unfair for the unsubsidized (or less subsidized) producers. The unfairness argument holds that the regulation of subsidies creates a ‘fair international trading environment’ whereby producers compete on a level playing field based on their comparative advantage.⁷⁰⁰ Some commentators are, however, sceptical about this rationale. Hudec, for example, argues that ‘eliminating a subsidy will produce a level playing field only when the playing field is otherwise level’.⁷⁰¹ He bases his argument on the presence of many other government policies (from taxes to regulatory standards) that distort the level playing field. Bhagwati also shares this sentiment: ‘few policies are neutral in their impact on resource allocation’.⁷⁰² According to him, ‘comparative advantage is inevitably ‘distorted’, ‘created’, in fact, ‘shaped’ by myriad government policies, wittingly or unwittingly.’⁷⁰³ Hudec’s concern is that absent changes or harmonization in other policy areas, disciplining subsidies alone will not level the playing field. This is a legitimate concern, but it is not a reason not to regulate subsidies. Well-designed legal disciplines on subsidies keep the playing field from tilting further towards the subsidized. The bigger question is instead which subsidies are worth disciplining? Without clear theoretical underpinnings, this decision is inherently subjective and political.

⁶⁹⁸ On the unfairness rationale, see Trebilcock, Howse and Eliason (n 78), at 390-392; Rambod Behboodi, *Industrial Subsidies and Friction in World Trade: Trade Policy or Trade Politics?* (Routledge 1994), at 12-15.

⁶⁹⁹ See Gustavo Luengo, *Regulation of Subsidies and State Aids in WTO and EC Law: Conflicts in International Trade Law* (Kluwer Law International 2007), at 5.

⁷⁰⁰ See Behboodi (n 698), at 12.

⁷⁰¹ See Robert E Hudec, ‘Mirror, Mirror, on the Wall’ The Concept of Fairness in the United States Trade Policy’ (paper presented at the 1990 annual meeting of the Canadian Council of International Law, Ottawa, 19 October 1990); as cited in Behboodi (n 698), at 15.

⁷⁰² Jagdish Bhagwati, ‘Fair Trade, Reciprocity and Harmonization: The Novel Challenge to the Theory and Policy of Free Trade’ in Dominick Salvatore (ed), *Protectionism and World Welfare* (Cambridge University Press 1993) (he also equates the idea of letting market-determined comparative advantage work with free trade)14, at 41.

⁷⁰³ *ibid*, at 41.

Economic efficiency is the second rationale for multilateral subsidy regulation. The essence of this argument (also known as the distortion argument) is that subsidies distort comparative advantage, which results in the inefficient allocation of economic resources.⁷⁰⁴ While subsidies cause the misallocation of resources both at the national and international levels, the case for multilateral subsidy regulation mostly rests on the latter.⁷⁰⁵ Subsidies increase exports (e.g. export subsidies) and reducing imports (e.g. import-substituting subsidies). They do so by artificially reducing the cost of production and thereby rendering the subsidized producers more competitive than their unsubsidized foreign competitors (which would have natural comparative advantage). The welfare costs of such subsidies stem from the fact that neither the importing nor the exporting country specializes according to its comparative advantage.

The rationale for multilateral subsidy regulation also stems from practical considerations. No country sends a note of thank you for receiving subsidized imports. Instead, countries impose countervailing duties against subsidized imports. The key explanation for this is a political economy one. Domestic industries often lobby for action to fend off the competition from the subsidized imports. Policymakers tend to respond to pressure from domestic industries more than from consumer groups. The political economy literature attributes this to the fact that producers are much more politically organized than consumers who are too dispersed to counter-lobby.⁷⁰⁶ Producers also have more resources and incentive to pressure their governments to take action against foreign subsidies. Policymakers often succumb to such political pressure and respond to subsidized imports. Such responses normally take the form of countervailing duties. Such duties were first introduced in the United States in the 19th century, but they have since spread across the world. Some commentators claim that such duties (although unintended) ultimately discourage the use of subsidies.⁷⁰⁷ The problem is that countervailing duties are protectionist

⁷⁰⁴ Trebilcock, Howse and Eliason (n 78), at 389-390.

⁷⁰⁵ See Warren F Schwartz and Eugene W Harper, 'The Regulation of Subsidies Affecting International Trade' (1972) 70 Michigan Law Review 831, at 840; Behboodi (n 698), at 11-12.

⁷⁰⁶ For empirical evidence on the significant role of interest groups in shaping national trade policies, see Gene M Grossman and Elhanan Helpman, 'Protection for Sale' (1994) 84 The American Economic Review 833.

⁷⁰⁷ John H Jackson, 'Perspectives on Countervailing Duties' (1990) 21 Law & Policy in International Business 739, for example, observed that 'the use of countervailing duties by the United States has had some effects in discouraging the use of subsidies', at 743. He is, however, of the view that countervailing duties are substitutes for tariffs and play into the hands of domestic interests.

measures. As Sykes puts it, they are ‘one more arrow in the quiver of import-competing industries that seek protection’.⁷⁰⁸ Many economists convincingly demonstrated that countervailing duties are trade barriers with a ‘welfare limiting effects of any tariff’.⁷⁰⁹ The unregulated use of subsidies serves as an excuse for the misuse of countervailing duties for protectionist purposes. The use of countervailing duties, in turn, runs the risk of undermining the tariff reductions brought about by decades of multilateral trade negotiations. This risk reinforces the need for international rules not only to regulate the use of subsidies but also the use of countervailing duties. This is precisely why the current multilateral rules on subsidies consist of two sets of rules. The first set of rules imposes substantive obligations against the use of subsidies, while the second set disciplines for the use of countervailing duties.

There are also non-economic considerations such as environmental protection that justify the regulation of subsidies at the international level.⁷¹⁰ Subsidizing fisheries or fossil fuels, for example, has adverse transboundary environmental effects. The unregulated use of countervailing duties also pose a barrier to international trade in environmentally-friendly technologies and undermine efforts to tackle climate change. These social and environmental effects are equally important reasons for the subsidy regulation, but they have not featured prominently as rationales to regulate subsidies in the multilateral trading system.

4.4 The Evolution of the WTO Law on Subsidies

The international regulation of subsidies long predates the advent of the multilateral trading system. Jacob Viner found 22 19th century treaties between European countries that contain a

⁷⁰⁸ Sykes, ‘Subsidies and Countervailing Measures’ (n 693), at 106. See also, Jackson (n 707); Jackson (n 692), at 300.

⁷⁰⁹ The economic argument against countervailing duties is similar to that of import tariffs. Countervailing duties increase the cost of the (subsidized) imports and hence normally raise prices in the importing country. The higher prices obviously benefit import-competing domestic producers, while the duties increase government revenue. However, these gains come at the expense of consumers who face the higher prices. Economists argue that the losses to consumers outweigh all the gains. See Alan O Sykes, ‘Second-Best Countervailing Duty Policy: A Critique of the Entitlement Approach’ (1989) 21 *Law & Policy in International Business* 699; Alan O Sykes, ‘Countervailing Duty Law: An Economic Perspective’ (1989) 89 *Columbia Law Review* 199.

⁷¹⁰ Trebilcock, Howse and Eliason (n 78), for example, make a distributive justice argument for the international regulation of subsidies. We will consider this argument in the context of fossil fuel subsidies.

pledge against subsidies.⁷¹¹ The first of such treaties was the treaty of 1862 between France and the German Zollverein in which France made a unilateral commitment not to subsidized exports.⁷¹² Then came the first fully-fledged international agreement on subsidies - the 1902 Brussels Sugar Convention regulating the use of subsidies for sugar production and exports.⁷¹³ However, the seeds of the current multilateral rules on subsidies lay in the 1948 Havana Charter of the ill-fated International Trade Organization (ITO).⁷¹⁴ Although the Charter never went into force, its subsidy rules have influenced the provisions of GATT Articles VI and XVI on subsidies and countervailing measures. These two articles set out the first set of rules for the regulation of subsidies and countervailing duties in the multilateral trading system. The rules contained therein underwent a number of changes since their introduction in 1947. This section attempts to chart this evolution and examine forces that influenced its direction. The reason for doing so is twofold. First, the historical roots of the SCM Agreement help us better understand the logic of the agreement.⁷¹⁵ Second, the history of the multilateral subsidy rules offers some lessons and insights for their future evolution. It is with this in mind that this section explores the development of the multilateral subsidy rules through four stages: the GATT era; the Tokyo Round Subsidies Code; the Uruguay Round Agreements (the SCM Agreement and the Agreement on Agriculture); and the Doha Round negotiations on subsidies.

⁷¹¹ Most of these treaties were between European countries such as France, Austria, Italy, Switzerland and Germany. See Jacob Viner, *Dumping: A Problem in International Trade* (University of Chicago Press 1923), at 166 et seq.

⁷¹² In this treaty, France agreed not to grant refunds of excise taxes upon exports. See *ibid.*, at 167.

⁷¹³ State Parties to the 1902 Brussels Sugar Convention were the United Kingdom, France, the Netherlands, Belgium, Italy, Sweden, Spain, Germany, Austria-Hungary, Luxemburg (1903), Peru (1903) and Switzerland (1906) and Russia (1907). For more details about the Convention, see *ibid.*, at 178-186; Michael Fakhri, *Sugar and the Making of International Trade Law* (Cambridge University Press 2014) (Part II); Douglas Irwin, 'Historical Notes on Subsidies and the Trading System' in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016); Heitor Pinto de Moura Filho, 'Pioneering Multilateralism: The Sugar Agreements 1864 - 1914' (paper presented at the XVI International Economic History Congress, Helsinki, 2006).

⁷¹⁴ See Arts 25&26, Final Act of the United Nations Conference on Trade and Employment (U.N. Doc. ICITO/1/4, April 1948) Held at Havana, Cuba from 21 November 1947 to 24 March 1948 ('Havana Charter').

⁷¹⁵ It is also worth noting that preparatory work and circumstances of conclusion serve as supplementary means of interpretation. See Art 32, VCLT.

4.4.1 GATT Articles VI and XVI

Articles VI and XVI set out basic rules on the use of subsidies and countervailing duties, respectively.⁷¹⁶ Two competing considerations shaped the nature and scope of these rules. On the one hand, there is the recognition that some subsidies may have adverse effects on international trade. This recognition is expressly stated in GATT Article XVI:2:

The contracting parties recognize that the granting by a contracting party of a subsidy on the export of any product may have harmful effects for other contracting parties, both importing and exporting, may cause undue disturbance to their normal commercial interests, and may hinder the achievement of the objectives of this Agreement.⁷¹⁷

This consideration is the main justification for the authorization under Article VI to impose countervailing duties against subsidized imports. It also remains the driving force behind the underlying desire to discipline the use of subsidies in the multilateral trading system.

On the other hand, there is the recognition that some subsidies serve legitimate public policy objectives or have a negligible impact on international trade.⁷¹⁸ This recognition is nowhere expressly stated in the GATT, but it is apparent from the nature of the rules thereof. It is particularly evident from the fact that none of the original rules on subsidies prohibits the use of subsidies *per se* but attempts to limit their adverse effects.⁷¹⁹ This reflects the drafters' recognition of the role that subsidies play in advancing important public policy objectives such as economic development. It also reflects the reluctance of countries to accept many limits on their authority to use subsidies for desirable social objectives.

⁷¹⁶ The relationship between these two articles was the subject of much debate during the Uruguay Round. See GATT, 'Statement Made by the Delegation of Korea at the Meeting Held on 1-2 June 1988' (1988) MTN.GNG/NG10/W/21 (noting that there is no relationship); GATT, 'Meeting of 1-2 June 1987' (1987) Note by the Secretariat MTN.GNG/NG10/2 (noting that they are closely related).

⁷¹⁷ The objectives of the GATT 1947 were to 'raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of good'. See General Agreement on Tariffs and Trade (adopted 30 October 1947) 55 UNTS 194 (GATT). Trade distorting subsidies may hinder the achievement of these objectives by interfering with the optimal allocation of resources, see John W Evans, 'Subsidies and Countervailing Duties in the GATT: Present Law and Future Prospects' (1977) 3 International Trade Law Journal 211, at 213.

⁷¹⁸ See Evans (n 717), at 213.

⁷¹⁹ This recognition was latter expressly stated in the Agreement on Interpretation and Application of Articles VI, XVI and XXIII of the General Agreement on Tariffs and Trade (signed 12 April 1979, entered into force 1 January 1980) 1186 UNTS 204 (Subsidies Code) (see section 4.2.2 below).

The attempt to balance these two competing considerations resulted in ‘weak’ ‘equivocal’ and ‘inadequate’ set of rules on subsidies and countervailing duties.⁷²⁰ As Evans wrote back in 1977, ‘the GATT rules [were] not able to defend adequately against an acceleration of trade-distorting subsidies or against the arbitrary and excessive use of countervailing duties’.⁷²¹ The remainder of this subsection briefly outlines their most notable inadequacies.

Perhaps the most glaring inadequacy of the GAT rules on subsidies and countervailing duties was their failure to define what constitutes a subsidy. Neither Article VI nor Article XVI provides a precise definition of a subsidy.⁷²² The absence of an express definition created much confusion and uncertainty.⁷²³ The GATT Panel on Subsidies considered this definitional problem but concluded that ‘it was neither necessary nor feasible to seek an agreed interpretation of what constituted a subsidy’.⁷²⁴ The reluctance of countries to agree upon on a common subsidy definition meant that the definitional problem persisted until the SCM Agreement.

The GATT rules were also so weak as to impose any meaningful constraint on the use of subsidies. Originally, the only obligations under GATT Article XVI were the obligation to notify subsidies that operate to increase exports or to reduce imports and the obligation to discuss (upon request) the possibility of limiting subsidies that cause or threatens to cause adverse effects to the interest of another contracting party.⁷²⁵ The contracting parties realized very soon that these obligations fall far short of addressing any of their subsidy-related concerns.⁷²⁶ This realization led to the amendment of Article XVI in 1955 (as part of the 1955 GATT amendment). However,

⁷²⁰ Gérard Depayre, ‘Negotiating Subsidies in the GATT/WTO: The Tokyo Round and the Uruguay Round’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016) 51; Evans (n 717).

⁷²¹ See Evans (n 717).

⁷²² For a detailed discussion on the coverage of GATT Articles VI and XVI, see Rubini, *The Definition of Subsidy and State Aid* (n 208).

⁷²³ For example, although only ‘subsidies which increase exports or reduce imports’ were subject to Article XVI, Article VI authorizes the imposition of countervailing duties against ‘subsidies which are granted on the manufacture, production or export’. See GATT, ‘Statement Made by the Delegation of Korea’ (n 716).

⁷²⁴ See GATT, ‘Panel on Subsidies: Report on the Operation of the Provisions of Article XVI’ (1961) L/1442, para 23. See also Terry Collins-Williams and Gerry Salembier, ‘International Disciplines of Subsidies: The GATT, the WTO and the Future Agenda’ (1996) 30 *Journal of World Trade* 5 (describing the GATT’s approach to defining subsidies as ‘I know one when I see one’), at 6.

⁷²⁵ See Art XVI:1, GATT 1947.

⁷²⁶ Melaku Geboye Desta, ‘Agricultural Export Subsidies under the WTO Agriculture Package: A Legal Analysis’ (1997) 30 *Revue Belge De Droit* 635, at 639.

the amendment brought about nothing more than the prohibition of industrial export subsidies.⁷²⁷ To be sure, it also prohibited agricultural export subsidies to the extent that the subsidization results in the subsidizing country ‘having more than an equitable share of world export trade in that product’.⁷²⁸ However, the use of vague and controversial phrases such as ‘equitable share’ created uncertainty that undermined the effectiveness of the prohibition.⁷²⁹ The amendment also left domestic subsidies (to both primary and non-primary products) without any serious obligation.⁷³⁰ Domestic subsidies remained subject to the general notification and consultation obligations of GATT Article XVI:1 before the adoption of the SCM Agreement.

The rules on countervailing duties were equally weak. Article VI authorizes the imposition of countervailing duties on subsidized imports that cause or threatened to cause material injury to the domestic industry. The idea is that these duties offset the adverse effects of subsidized imports on the domestic industry. However, countervailing duties are vulnerable to abuse. Countries may impose such duties for protectionist purposes. In recognition of this, Article VI sets out some preconditions for imposing countervailing duties.⁷³¹ However, in the absence of a precise subsidy definition and clear criteria for determining ‘material injury’, the preconditions were unable to prevent their abuse. To make matters worse, the United States, the main user of countervailing duties, was exempted from applying the injury test under GATT Article VI. The exception allowed the US to impose countervailing duties without establishing the existence of material injury. Moreover, countervailing duties offer no recourse for third countries adversely affected by the subsidy. For example, *Country X* can use countervailing duties to offset the adverse effects of subsidized imports from *Country Y* on its domestic industry. However, countervailing duties cannot offset the market losses sustained by a third country (*Country Z*)

⁷²⁷ It is noteworthy that it was only in 1960 that the contracting parties came to an agreement on a declaration (the 1960 Declaration) giving effect the prohibition on industrial export subsidies (GATT Article XVI:4). Perhaps another noteworthy outcome of the amendment was the bifurcation of subsidies into export and domestic subsidies on the one hand, and into primary (agricultural) and non-primary (industrial) subsidies, on the other. The Havana Charter already introduced this bifurcation. See Art 26, Havana Charter.

⁷²⁸ See Art XVI: 3, GATT 1947.

⁷²⁹ See Desta, ‘Agricultural Export Subsidies under the WTO Agriculture Package’ (n 726), at 639.

⁷³⁰ GATT Article XVI:1 is famously known as a ‘rule without an obligation’. See GATT, ‘Communication from the United States’ (1988) MTN.GNG/NG10/W/20, at 2.

⁷³¹ The preconditions are that (i) the countervailing duty shall not exceed the amount of the subsidy, and (ii) the existence of a material injury to the domestic industry. See Art VI:3 and Art VI:6(a), GATT 1947.

industries because of the subsidized imports from *Country Y*. GATT offers no recourse for *Country Z* to challenge the subsidized imports from *Country Y*.

These inadequacies provided the necessary impetus for negotiating new rules on subsidies and countervailing duties during the Tokyo Round of multilateral trade negotiations (see below).

4.4.2 The Tokyo Round Subsidies Code

The second stage in the evolution of the multilateral rules on subsidies was the ‘Agreement on the Interpretation and Application of Articles VI, XVI and XXIII of the General Agreement on Tariffs and Trade’ (otherwise known as the ‘Subsidies Code’). Although it was a plurilateral agreement adopted by 24 GATT Contracting Parties only, the Code represents the first ever subsidy-specific agreement in the history of the multilateral trading system.

As stated in the preamble, the overarching aim of the Code was to discipline the use of countervailing measures as much as it was to discipline the use of subsidies:

Desiring to ensure that the use of subsidies does not adversely affect or prejudice the interests of any signatory to this Agreement and that countervailing measures do not unjustifiably impede international trade [...].⁷³²

This twofold objective partly reflects the two conflicting concerns that motivated the negotiation. The first concern relates to the surge in the number of countervailing duty cases.⁷³³ The desire to limit the unfettered use of countervailing duties (in the US) led the EU and other countries to push for improved rules on countervailing measures. The second concern stems from the increased use of subsidies. The US felt that foreign subsidies were detrimental to its domestic industries and insisted on the need to tightening the rules on subsidies. These two conflicting interests made the negotiations on subsidies ‘one of the more difficult negotiating exercises in the Tokyo Round’.⁷³⁴ Reflecting on the negotiations at the end of the Round in 1979, the GATT

⁷³² See preamble, Subsidies Code.

⁷³³ See Collins-Williams and Salembier (n 724), at 7.

⁷³⁴ See Terry Collins-Williams, ‘A Negotiator’s Perspective on Enhancing Subsidies’ Disciplines’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016) 37, at 37.

Director-General stated that: ‘The issue of government subsidies, and the countervailing duties that are applied to offset them, has been one of the most difficult, sensitive and important of the Tokyo Round negotiations’.⁷³⁵ The negotiations resulted in a compromise, which is a relatively broad set of rules and disciplines on both subsidies and countervailing duties.

Right from its preamble, the Subsidies Code recognizes the paradox of subsidies: ‘subsidies are used by governments to promote important objectives of national policy’⁷³⁶ but they ‘may have harmful effects on trade and production’.⁷³⁷ The Code attempted to resolve this paradox through what has come to be known as the ‘two-track’ approach.⁷³⁸ The first track (Track I) sets out substantive and procedural requirements for imposing unilateral countervailing duties, while the second track (Track II) stipulates multilateral disciplines on the use of subsidies.

However, despite considerably expanding the previous rules, the Code fell far short of adequately addressing both sets of concerns.⁷³⁹ It was unable to prevent the continued rise in global subsidies and countervailing duties. Several factors undermined its effectiveness ranging from the vagueness and weakness of its provisions to the ineffectiveness of its dispute settlement system. The Negotiating Group on Subsidies and Countervailing Measures of the Uruguay Round nicely summarized the limitations of the Subsidies Code:

Some rules were so vague as to invite differences of interpretation; some others were so weak as to provide few constraints over subsidy practices that adversely affected the interests of other countries. Furthermore, the dispute settlement provisions had not been able to provide effective recourse against these practices [⁷⁴⁰]. [...] the GATT and the

⁷³⁵ See GATT, ‘Statement by GATT Director-General and Publication of Agreements’ (1979) Press Release GATT/1234, at 20.

⁷³⁶ Art 11 enumerates some of these objectives: regional development; structural adjustment; employment policy; promotion of R&D; and protection of the environment (Art 11[1] [a-f]). It also provides an illustrative list of the forms of subsidies countries may use to achieve these objectives (Art 11[3]). The list includes subsidies come in the form of grants, loans or loan guarantees, government provision or government financed provision of goods and services and government financing of R&D programs. See Subsidies Code.

⁷³⁷ Para 4 of the preamble, *ibid*.

⁷³⁸ For overviews of the ‘two-track’ approach, see John J Barcelo III, ‘A History of GATT Unfair Trade Remedy Law—Confusion of Purposes’ (1991) 14 *The World Economy* 311, at 327-328.

⁷³⁹ See John Croome, *Reshaping the World Trading System: A History of the Uruguay Round* (World Trade Organization 1998), at 60.

⁷⁴⁰ This was apparent from the number of unresolved dispute settlement proceedings. According to the US, the Subsidies Code became ‘a source of conflict, rather than an instrument for conciliation and the objective arbitration of differences between contracting parties’. See GATT, ‘Communication from the United States’ (n 730).

Code drew distinctions between permitted and prohibited subsidy practices that appeared to have little basis in sound economic policy. [...] Several delegations pointed out that a number of problems existed also in the area of countervailing measures where loopholes in the existing rules permitted unilateral practices and interpretations, resulting in considerable arbitrariness, uncertainty and harassment of exporters.⁷⁴¹

The recognition of these inadequacies paved the way for new negotiations on subsidies and countervailing duties during the Uruguay Round of trade negotiations (see below).

4.4.3 The Uruguay Round Agreements

The Uruguay Round is by far the most successful round of multilateral trade negotiations. Among the success stories of the round were two agreements with an advanced set of rules on subsidies and countervailing duties: the SCM Agreement and the Agreement on Agriculture. The path to these agreements was extremely arduous because of the longstanding opposing negotiating positions that drove and plagued previous multilateral subsidy negotiations. Once again, while the US advocated for stringent rules on the use of subsidies, the EC and others sought to tighten the rules on the use of countervailing duties to prevent their misuse.

The failure of the Subsidies Code to allay either of these concerns adequately coupled with the rise in subsidies after the economic recession of the early 1980s forced subsidies and countervailing duties at the top of the negotiating agenda of the Uruguay Round.⁷⁴² In launching the round, the 1986 Punta del Este Declaration set ‘improving GATT disciplines relating to all subsidies and countervailing measures that affect international trade’ as the primary objective of

⁷⁴¹ See GATT, ‘Meeting of 16-17 March’ (1987) Note by the Secretariat MTN.GNG/NG10/1, para 5.

⁷⁴² The inclusion of subsidies in the Uruguay Round negotiating agenda was also informed by an independent study commissioned by the GATT Secretariat before the launching of the Round. In 1983, the GATT Director-General appointed an independent group of seven eminent persons to study and report the problems facing the multilateral trading system. See GATT, ‘Independent Group to Study Trading System’ (1983) GATT/1349. In its report, the group identified the rise in the use of subsidies and the abuse of countervailing duties as one of the major challenges facing the trading system. Having noted the inadequacy of the Subsidies Code to address these challenges, the group included strengthening the multilateral rules on subsidies and countervailing duties as one of its 15 recommendations for making trade work for a better future. Recommendation five of the resultant program of action stated that ‘Rules on subsidies need to be revised, clarified and made more effective. When subsidies are permitted they should be granted only after full and detailed scrutiny’. See GATT, ‘Trade Policy for a Better Future: Program for Action’ (General Agreement on Tariffs and Trade 1985) 33, at 9 and 39-40.

the negotiations on subsidies and countervailing duties.⁷⁴³ Even a quick glimpse at the negotiating documents reveals the inherent complexity and difficulty of achieving this objective. However, despite several setbacks, the negotiations resulted in two agreements with expanded and strengthened rules on subsidies and countervailing duties.

A combination of several factors made these agreements possible. Perhaps the most prominent of these was the convergence of views among countries on the heavy burden subsidies place on their budget and the risk of competitive subsidization.⁷⁴⁴ The understanding that the lack of effective multilateral regulation could result in a ‘self-defeating spiral’ of subsidization was key to the successful conclusion of the negotiations.⁷⁴⁵ Second, an equally important factor was the change in the US position in the final stage of the negotiations. The Clinton administration took office in January 1993 replacing the Bush administration. While the latter pursued the traditional US position that all subsidies are harmful, the Clinton administration recognized the importance of selective government intervention.⁷⁴⁶ Such recognition softened the US position in the subsidy negotiations from complete opposition to non-actionable subsidies to making proposal to expand the scope of the exemption for R&D subsidies.⁷⁴⁷ Third, the decision to negotiate agricultural and non-agricultural subsidies separately was equally instrumental. Agricultural subsidies were (and continue to be) one of the most sensitive and contentious issues in international trade.⁷⁴⁸ The dual-track approach of addressing these subsidies separately within the framework of the Agreement on Agriculture played a key role in propelling the negotiations.

⁷⁴³ See Ministerial Declaration on the Uruguay Round, at 7. The negotiating group on subsidies and countervailing measures added the objective of ‘[restoring] the equilibrium of rights and obligations in terms of equivalent disciplines regarding subsidies on the one hand and countervailing measures on the other’. GATT, ‘Checklist of Issues for Negotiations’ (1987) Note by the Secretariat MTN.GNG/NG10/W/9.

⁷⁴⁴ See Croome (n 739). Coppens also echoed this sentiment: ‘The so-called traffic light approach proved pivotal to finding a compromise between the harsh stance of the United States and the looser stance of other countries on disciplining subsidies’. See Dominic Coppens, *WTO Disciplines on Subsidies and Countervailing Measures: Balancing Policy Space and Legal Constraints* (Cambridge University Press 2014), at 115.

⁷⁴⁵ This understanding created an expectation that an agreement on subsidies would serve the interest of all negotiating countries as ‘a mutual disarmament treaty for subsidies’. See Croome (n 739), at 60.

⁷⁴⁶ See Patrick J McDonough, ‘Subsidies and Countervailing Measures’ in Terence P Stewart (ed), *The GATT Uruguay Round: A Negotiating History (1986-1994)* (Kluwer Law International 1999) 221, 229-232.

⁷⁴⁷ See *ibid*, at 229-232; Robert O’Brien, *Subsidy Regulation and State Transformation in North America, the GATT and the EU* (Palgrave Macmillan 1997), at 119-121.

⁷⁴⁸ The sensitivity stems from the great importance of the sector to certain domestic interest groups. See Simon Lester, Bryan Mercurio and Andrew Davies, *World Trade Law: Text, Materials and Commentary* (2nd edn, Hart Publishing 2012), 457.

Third, the framework within which the subsidy negotiations took place was another important factor. Unlike previous rounds, the Uruguay Round negotiations on subsidies adopted the ‘traffic-light’ approach to subsidy classification. What has come to be known as the ‘traffic-light’ approach is the classification of subsidies into red (prohibited), amber (actionable) and green (non-actionable) light subsidies based on their effects on international trade (see *section 4.4.4* below). The classification was not a new idea as such (see below). Nor did it solve any substantive issue on its own. However, as Croome puts it, it was ‘critical to developing a balanced approach’ to the subsidy negotiations.⁷⁴⁹ The classification facilitated the negotiations by offering a logical and flexible framework that allows for compromise.

In what follows, we will discuss the glaring features of these two agreements.

4.4.1.1 The SCM Agreement

The SCM Agreement represents the latest stage in the development of subsidy rules in the multilateral trading system. Despite taking the core structure of the Subsidies Code, the agreement contains far more ambitious provisions than its predecessors do.⁷⁵⁰ These provisions have significantly improved both the substantive and procedural aspects of international subsidy regulation. Before turning to the substance of the SCM Agreement in *section 4.5*, this section attempts to highlight the fundamental changes it has brought about.

The SCM Agreement is the first agreement with a detailed and comprehensive subsidy definition in the history of the trading system. In the words of the *US – FSC* Panel, the inclusion of such a definition represents ‘one of the most important achievements of the Uruguay Round in the area of subsidy disciplines’.⁷⁵¹ This definition is the result of a laborious compromise between two opposing approaches to defining a subsidy.⁷⁵² Consistent with its anti-subsidy position, the United States proposed to define ‘actionable’ subsidies as ‘any government actions which confers a

⁷⁴⁹ Croome (n 739), at 62.

⁷⁵⁰ Collins-Williams (n 734), at 38.

⁷⁵¹ *Panel Report, United States - Tax Treatment for ‘Foreign Sales Corporations’ (US — FSC), WT/DS108/R, adopted 20 March 2000*, para 7.80.

⁷⁵² See Janow and Staiger (n 693) (noting that ‘Agreement on the definition of a subsidy was one of a number of highly contentious features of the negotiations’), at 202.

benefit on the recipient firm(s)'.⁷⁵³ This so-called 'benefit to the recipient' approach focuses on the benefits that arise from government action regardless of the nature of the government action in question. Many countries rejected this definition on the basis that since 'virtually any government action could be construed as having possible effects on production and trade' focusing on the effects rather than the nature of the subsidy runs the risk of labelling almost every government action as a subsidy.⁷⁵⁴ On its part, the EC consider subsidies to exist only when 'a financial charge has been incurred by a government or administrative authority on behalf of a beneficiary'.⁷⁵⁵ The proponents of this so-called 'cost-to-the-government' approach aimed to narrow the 'universe of government actions that could be considered a subsidy'⁷⁵⁶. The two sides eventually agreed to employ a combination of these two criteria (i.e. the nature of subsidies ('financial contributions') and the effect of subsidies ('benefits')) in the definition eventually included in the text of the SCM Agreement. As we will see in *section 4.5.2*, the existence of both elements is now necessary for a subsidy to exist under the SCM Agreement.

Second, the SCM Agreement is also the first truly multilateral agreement on subsidies and countervailing measures. The Subsidies Code was a plurilateral agreement applied only to a limited number of countries. Countries were free to cherry pick the agreements that best suits their interest during the Tokyo Round.⁷⁵⁷ The Uruguay Round adopted the single undertaking principle to prevent such cherry picking. WTO Members accepted all the Uruguay Round Agreements (including the SCM Agreement) as a single undertaking. The SCM Agreement is thus an 'integral part' of the WTO Agreement applicable to all WTO Members.

Third, and related, the SCM Agreement tightened the subsidy rules on developing countries in a marked departure from past multilateral subsidy regulation. Developing countries have never

⁷⁵³ GATT, 'Elements of the Framework for Negotiations: Submission by the United States' (1989) MTN.GNG/NG10/W/29, at 6.

⁷⁵⁴ GATT, 'Statement Made by the Delegation of Canada at the Meeting Held on 28-19 June 1988' (1988) TN.GNG/NG10/W/22, at 2.

⁷⁵⁵ GATT, 'Communication from the EEC' (1987) MTN.GNG/NG10/W/7, at 2.

⁷⁵⁶ *Panel Report, United States - Measures Treating Export Restraints as Subsidies (US - Export Restraints)*, WT/DS194/R, adopted 23 August 2001, para 8.68.

⁷⁵⁷ The GATT-era agreements including the Subsidies Code were independent agreements with their own membership, dispute settlement and institutional structure. For such distinction between the GATT and the WTO, see *Appellate Body Report, Brazil - Measures Affecting Desiccated Coconut (Brazil - Desiccated Coconut)*, WT/DS22/AB/R, adopted 20 March 1997, at 11-13.

accepted the prohibition on industrial export subsidies under GATT Article XVI:4. Nor did they were subject to the corresponding prohibition under the Subsidies Code.⁷⁵⁸ In fact, the Subsidies Code exempted developing countries from virtually all the obligations therein.⁷⁵⁹ Underlying the exemption was the recognition that subsidies are an integral part of developing countries' economic development programs.⁷⁶⁰ The SCM Agreement shares the same recognition.⁷⁶¹ It also provides Special and Deferential treatment (S&D) provisions for developing countries (see *section 4.5.3*). However, these provisions are different from their predecessors. For example, it accords no exemption for advanced developing countries from the prohibition on export subsidies beyond the first eight years from the entry into force of the agreement.

The SCM Agreement has also substantially tightened the multilateral rules on domestic subsidies and the substantive and procedural rules governing countervailing duty investigations. We will discuss the essential features of these rules in some details in *section 4.5* below.

4.4.3.2 The Agreement on Agriculture

Countries have always been reluctant to leave the agricultural sector entirely for market forces. Their reluctance for full liberalization of the sector led to international trade rules that were either too vague or too general to have any practical effect on international agricultural trade.⁷⁶² The first successful effort to change this came from the Uruguay Round. During the Uruguay Round, countries agreed to establish 'a fair and market-oriented agricultural trading system'. They also agreed on the 'urgent need to bring more discipline and predictability to world agricultural trade'.⁷⁶³ One of the key areas in need of more disciplines were agricultural subsidies. The pre-1995 rules applicable to agricultural subsidies were weak at best. The only obligation under these rules was not to subsidized agricultural exports to the extent that the subsidy results in the subsidizing country having more than an equitable share of world export trade in the subsidized

⁷⁵⁸ See Art 14 (2), Subsidies Code.

⁷⁵⁹ Robert E Hudec, *Developing Countries in the GATT Legal System* (Cambridge University Press 2010), at 87.

⁷⁶⁰ Art 14(1), Subsidies Code.

⁷⁶¹ Art 27(1), SCM Agreement.

⁷⁶² Luengo (n 699). See also Desta, 'Agricultural Export Subsidies under the WTO Agriculture Package' (n 726) (noting that agriculture was famous for defying the rules and principles of the multilateral trading system).

⁷⁶³ Ministerial Declaration on the Uruguay Round.

product.⁷⁶⁴ However, none of these rules defines what constitutes an ‘equitable share’, rendering the obligation inoperative. Cognizant of this, countries decided in 1986 to ‘[increase] discipline on the use of all direct and indirect subsidies and other measures affecting directly or indirectly agricultural trade’.⁷⁶⁵ The historic negotiations resulted in the Agreement on Agriculture and the first ever set of sector-specific multilateral rules on agricultural subsidies.

The leading proponents and opponents of stringent rules on subsidies remained the same (the US and EC, respectively). However, several developed and developing countries joined the US in advocating for agriculture trade liberalization. The most ardent of these countries formed the Cairns Group in 1986. Originally, the US called for a ‘complete phase out over ten years of all agricultural subsidies’.⁷⁶⁶ This proposal was ‘too ambitious’ even for the Cairns Group. The Group and most other countries proposed a gradual phasing out of agricultural export subsidies. In line with its pro-subsidy stance, the EC advocated for a far less ambitious reform of agricultural subsidies without any timetable.⁷⁶⁷ The high degree of divergence of views on the subject made a uniform subsidy reform commitment extremely difficult. For example, unlike under the SCM Agreement countries were not able to agree upon a complete prohibition of export subsidies. The Agriculture Agreement took a different approach to subsidy regulation than the SCM Agreement.⁷⁶⁸ It established a country-specific subsidy commitment schedules for both domestic and export subsidies.⁷⁶⁹ The agreement enjoins WTO Members not to provide subsidies in excess of the commitment levels specified in their schedules. The commitments levels are set on a product-specific basis, and no commitment for a particular agricultural product means no subsidization of the product in question. Eminent authorities on the subject consider this

⁷⁶⁴ See Art XVI:3, GATT 1947; Art 10 (1), Subsidies Code.

⁷⁶⁵ Ministerial Declaration on the Uruguay Round, at 6.

⁷⁶⁶ GATT, ‘Review of Developments in the Trading System: April - September 1987’ (1987) Note by the Secretariat L/6289, at 13.

⁷⁶⁷ Underlying the reluctance of the EC to undertake specific commitments were the massive agricultural subsidies under its Common Agricultural Policy (CAP). See Croome (n 739), at 93 et seq. See also Desta, ‘Agricultural Export Subsidies under the WTO Agriculture Package’ (n 726), at 641.

⁷⁶⁸ Lester et al. argue that this difference stems from their respective focus. Unlike the SCM Agreement, the Agriculture Agreement does not focus on the effects of subsidies. See Lester, Mercurio and Davies (n 748), at 457.

⁷⁶⁹ The schedules are an integral part of the agreement. See Arts 3(1) & 21(2), Agreement on Agriculture.

approach as an important innovation to subsidy regulation in the multilateral trading system.⁷⁷⁰ It introduced an alternative approach of disciplining subsidies whereby subsidies are made the subject of specific commitments (bindings) much like tariffs. We will consider the suitability of this approach for the regulation of energy subsidies in *chapter 6*.

The agreement received high praise also for setting stringent and potentially effective rules on agricultural subsidies.⁷⁷¹ However, it did not take long for many to realize the problems in these rules. The problems range from ambiguity to the inadequacy of the commitments they entail. Perhaps the most relevant for our discussion on future energy subsidy regulation in the multilateral trading system is the one brought about by the expiry of the so-called ‘peace clause’. Article 13 of the Agreement provisionally insulated agricultural subsidies that are consistent with the agreement from scrutiny under the SCM Agreement. It also enjoined WTO Members to exercise due restraints in initiating countervailing duty investigations against agricultural subsidies. The expiry of the peace clause at the end of 2003 has created confusion over the extent to which agricultural subsidies are subject to the SCM Agreement.⁷⁷² Several legal questions about the relationship between the two agreements are still open.

4.4.4 Doha Round Negotiations

The Uruguay Round agreements substantially improved the multilateral rules on both industrial and agricultural subsidies. However, these rules are far from complete or exhaustive. The drafters had foreseen some of the shortfalls, while other inadequacies became apparent at the

⁷⁷⁰ Alan O Sykes, ‘The Questionable Case for Subsidies Regulation: A Comparative Perspective’ (2010) 2 *Journal of Legal Analysis* 473, at 486.

⁷⁷¹ See T Josling, S Tangermann and K Warley, *Agriculture in the GATT* (1996) (noting that ‘the agreement reached on export subsidies in agriculture is both reasonably stringent and likely to be the most practically effective element in the Agreement’), at 194.

⁷⁷² The prevailing view is that agricultural export subsidies that are consistent with the Agreement on Agriculture remain exempted from the prohibition of export subsidies under Article 3.1(a) of the SCM Agreement, whereas import substitution agricultural subsidies are prohibited under Article 3.1(b) of the SCM Agreement regardless of their consistency with the Agreement on Agriculture. Moreover, all agricultural subsidies (irrespective of their consistency with the Agreement on Agriculture) have become actionable under the SCM Agreement ever since the expiry of the peace clause. See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), 323-334; Lorand Bartels, ‘The Relationship Between the WTO Agreement on Agriculture and the SCM Agreement: An Analysis of Hierarchy Rules in the WTO Legal System’ (Commonwealth Secretariat 2016) International Trade Working Paper 2016/15.

implementation stage.⁷⁷³ Both the Agreement on Agriculture and the SCM Agreement envisage future negotiations that further strengthen the rules contained therein to better address the dual concerns over the adverse effect of subsidies and the abuse of countervailing duties. It was, therefore, no surprise that subsidies remained high on the negotiating agenda of the multilateral trading system. The Ministerial Declaration that launched the Doha Round committed WTO Members to negotiations aimed at clarifying and strengthening the existing rules on subsidies and countervailing duties under both the Agreement on agriculture and the SCM Agreement.⁷⁷⁴ The resultant negotiations have been ongoing over the past nearly two decades.

On agricultural subsidies, perhaps the only meaningful outcome so far has been the 2015 decision to eliminate agricultural export subsidies.⁷⁷⁵ The Nairobi Ministerial Decision on Export Competition enjoined developed countries to ‘immediately eliminate their remaining scheduled export subsidy entitlements as of the date of adoption of this Decision’.⁷⁷⁶ On industrial subsidies, not much has changed since the circulation of the draft consolidated texts of the Antidumping and SCM Agreements in 2008 to help facilitate the negotiations.⁷⁷⁷ Members have made various proposals ranging from expanding the list of prohibited subsidies in Article 3 and resurrecting the now defunct Article 8 on non-actionable subsidies to improving the disciplines on transparency and strengthening the S&D treatment provisions of Article 27.⁷⁷⁸ However, agreement on any of the issues on the table remains elusive. This is partly because of the opposing positions of the

⁷⁷³ Art 20, Agreement on Agriculture; Art 31, SCM Agreement.

⁷⁷⁴ The relevant part of the Doha Ministerial Declaration reads: (on agricultural subsidies) ‘we commit ourselves to comprehensive negotiations aimed at: substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade-distorting domestic support’; and (on industrial subsidies) ‘we agree to negotiations aimed at clarifying and improving disciplines under the Agreements on Implementation of Article VI of the GATT 1994 and on Subsidies and Countervailing Measures, while preserving the basic concepts, principles and effectiveness of these Agreements and their instruments and objectives, and taking into account the needs of developing and least-developed participants’. See Doha Declaration, paras 13 and 28 (respectively).

⁷⁷⁵ See Export Competition: Ministerial Decision of 19 December 2015 2015 (WT/MIN(15)/45 & WT/L/980).

⁷⁷⁶ See *ibid.*

⁷⁷⁷ See WTO, ‘New Draft Consolidated Chair Texts of the AD and SCM Agreement’ (2008) TN/RL/W/236.

⁷⁷⁸ See WTO, ‘Subsidies Disciplines Requiring Clarification and Improvement’ (n 684) (on expanding the list of prohibited subsidies); WTO, ‘WTO Negotiations Concerning the WTO Agreement on Subsidies and Countervailing Measures: Proposal by the European Communities’ (2002) TN/RL/W/30 (on resurrecting Article 8 and improving notification). See also WTO, ‘Note by the Chairman: Compilation of Issues and Proposals Identified by Participants in the Negotiating Group on Rules’ (2003) TN/RL/W/143 (for the initially identified issues and proposals); WTO, ‘New Draft Consolidated Chair Texts of the AD and SCM Agreement’ (n 777) (for issues and proposals that remain on the negotiating agenda).

traditional actors. It is also because of the change in the membership. The negotiations on subsidies and countervailing measures are no longer ‘transatlantic ping-pong’ between the US and the EU. The accession of China (2001) and Russia (2013) and the emergence of developing countries such as Brazil and India have fundamentally changed the balance of power in the organization.⁷⁷⁹ The change in the power dynamics has added another layer of complexity to the negotiations. The following two subsections delve deeper into two specific items on the agenda of the Doha Round negotiations on subsidies.

4.4.4.1 Negotiations on Fisheries Subsidies

The negotiating mandate of the Doha Round on subsidies goes beyond strengthening existing subsidy disciplines. As briefly mentioned in the first chapter of this thesis, the negotiating mandate includes the establishment of new sector-specific rules on fisheries subsidies.⁷⁸⁰ The rationale behind the negotiating mandate is preventing the depletion of fish stocks than anything else. Indeed, the original mandate was merely to ‘clarify and improve’ the existing rules applicable to fisheries subsidies.⁷⁸¹ Nothing in the declaration indicates the environmental rationale of the negotiations.⁷⁸² However, the 2005 Hong Kong Ministerial Declaration clarified this by adding the ‘prohibition of certain forms of fisheries subsidies that contribute to overcapacity and overfishing’ to the negotiating mandate.⁷⁸³ This is a significant departure from the Uruguay Round Agreements, the overarching purpose of which is to discipline trade-distorting but not environmentally harmful subsidies (see *section 4.5.1* below).

⁷⁷⁹ For the political economy of multilateral subsidy negotiations, see Philippe De Baere, ‘Reform through Accommodation: How External Factors Push for Greater Flexibility in Interpreting the SCM Agreement’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016) 87.

⁷⁸⁰ Estimates indicate that global fisheries subsidies amount to US\$15-27 billion per year. See Ussif Rashid Sumaila, ‘Is an All-or-Nothing WTO Fisheries Subsidies Agreement Achievable?’ (2014) 3 Bridges Africa 4.

⁷⁸¹ The relevant part of the Doha Declaration reads ‘In the context of these negotiations, participants shall also aim to clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries’. See para 28, Doha Declaration.

⁷⁸² Perhaps except the fact that trade and environment Section of the Doha Declaration reiterated the commitment to strengthen the rules on fisheries subsidies. See para 31, *ibid*.

⁷⁸³ See Annex D, para 9, Hong Kong Declaration. See also WTO, ‘Negotiations on Fisheries Subsidies’ (2011) Report by the Chairman TN/RL/W/254 (further explaining that ‘most [WTO Members] agree that subsidies play a major role in contributing to these problems [i.e. depletion of global fish stocks], and that this is what is behind the negotiating mandate to strengthen disciplines on fisheries subsidies’), at 48.

Overcapacity and overfishing are the two most prominent environmental adverse effects of fisheries subsidies. By reducing the cost of fishing, subsidies incentivize overfishing and thereby undermine the sustainability of fish stocks. On the one hand, the launching of the negotiations on fisheries subsidies with such a clear mandate reflects the broad consensus among WTO Members concerning the harmful environmental effects of fisheries subsidies. On the other hand, their failure to reach an agreement that prohibits environmentally harmful fisheries subsidies implies the lack of political commitment to turn this consensus into action. Much of the blockage in the negotiations is due to disagreements over the nature and scope of the prohibition.⁷⁸⁴ While some countries advocate for ‘broad and strict’ prohibition, others insist on conditional prohibition.⁷⁸⁵ Disagreement also prevails over exemptions. For example, most countries agree on the importance of exemption for subsidies to artisanal fisheries. However, they remain divided over whether this exemption should apply only to artisanal fisheries in developing countries or both in developed and developing countries.⁷⁸⁶ S&D treatment for developing countries is another area of wide divergence. While there is broad consensus on the importance of the fisheries sector for the economic growth and development of developing countries, the fundamental difference remains over the nature and extent of the S&D treatment.⁷⁸⁷ There is also a wide divergence of views on the treatment of developing countries with a small share of global fish capture.

Despite these outstanding issues, there was a widespread expectation for the conclusion of the negotiations at the 2017 WTO Ministerial Conference held in Buenos Aires.⁷⁸⁸ The Ministerial failed to deliver an agreement but reiterated the commitment to continue the negotiations with a view of adopting a comprehensive and effective multilateral agreement in 2019.⁷⁸⁹

⁷⁸⁴ WTO, ‘Negotiations on Fisheries Subsidies’ (n 783), at 49.

⁷⁸⁵ The WTO Members that favour the conditional prohibition of fisheries subsidies deny the existence of apriori connection between fisheries subsidies and overcapacity and overfishing. They associate the problems of overcapacity and overfishing rather with Illegal, Unreported and Unregulated (IUU) fishing. See *ibid.*

⁷⁸⁶ *ibid.*, at 50.

⁷⁸⁷ *ibid.*

⁷⁸⁸ For an overall assessment of the Buenos Aires Ministerial, see James Bacchus, ‘Was Buenos Aires the Beginning of the End or the End of the Beginning?’ (CATO Institute 2018) Policy Analysis 841.

⁷⁸⁹ WTO, ‘Fisheries Subsidies: Ministerial Decision of 13 December 2017’ (2017) WT/MIN(17)/64 & WT/L/1031.

4.4.4.2 Negotiations on Natural Resource and Energy Pricing

The Doha Declaration urged WTO Members to indicate the ‘disciplines on trade-distorting practices’ that they seek to clarify and improve.⁷⁹⁰ The US, accordingly, identified the disciplines on natural resources and energy pricing in its first proposal for the negotiations.⁷⁹¹ This is not the first time the US raised the issue of natural resource pricing in the multilateral trading system. It also attempted (albeit unsuccessfully) to address this issue during the Uruguay Round. In its 2003 proposal, the US maintained that natural resource and energy dual pricing is as trade distortive as any other government support measure subject to the SCM Agreement:

While the principle that trade flows should be determined by comparative advantage is broadly accepted, it must also be accepted that preferential natural resource pricing has been and, if not addressed, will continue to be a source of considerable trade distortion and friction. Simply put, there is no difference between the government provision of a natural resource at less than fair market value and the government provision of a cash grant allowing the purchase of a natural resource at less than fair market value.⁷⁹²

Noting further that natural resource and energy dual pricing unfairly benefit domestic producers that use the resources intensively in their own manufacturing processes, the US called for ‘further clarification and improvement of the rules and remedies in this area’.⁷⁹³ However, the proposal does not explain the ambiguity in or insufficiency of the existing disciplines. Nor does it contain any indication as to the specific provisions of the SCM Agreement that require clarification and improvement to better address the issue of natural resource and energy pricing. Unsurprisingly, the initial reaction of other Members to the proposal was to request for an explanation. South Korea, Egypt and Venezuela all asked the US to specify the provisions or features of the SCM Agreement that it seeks to clarify or improve.⁷⁹⁴ The US offered no such explanation – at least there is no written evidence of it in the WTO documents.

⁷⁹⁰ Para 28, Doha Declaration.

⁷⁹¹ See WTO, ‘Subsidies Disciplines Requiring Clarification and Improvement’ (n 684), at 3.

⁷⁹² *ibid.*

⁷⁹³ *ibid.*

⁷⁹⁴ See WTO, ‘Questions from South Korea on the United States’ Paper on Subsidies Disciplines: Submission from Korea’ (2003) TN/RL/W/96; WTO, ‘Egypt’s Preliminary Comments on the Contributions Submitted in the Framework of the Doha Negotiations on the Agreements on Anti-Dumping and Subsidies and Countervailing Measures (TN/RL/W/78)’ (2003) TN/RL/W/102; WTO, ‘Observations and Comments by Venezuela on Document

Although the proposal was included in the 2003 Compilation of Issues and Proposals Identified by Participants in the Negotiating Group on Rules, it did not find its way into the 2008 draft text by the Chairman— the latest draft text of the negotiations on subsidies and countervailing measures.⁷⁹⁵ It is not clear why this has been the case. Neither the US nor any other Member raised the issue in the Negotiating Group on Rules or in the SCM Committee since 2003. However, both the US and the EU brought the issue of energy dual pricing in the accession negotiations of energy-producing countries such as Saudi Arabia and Russia.

4.5 Current WTO Rules Applicable to Energy Subsidies

The current WTO rules on subsidies are contained in the SCM Agreement and the Agreement on Agriculture. Of these two agreements, the SCM Agreement is the most pertinent one for the regulation of energy subsidies. It contains no explicit provision that defines its sectoral coverage. It is instead the Agreement on Agriculture that (indirectly) specifies the sectoral coverage of the SCM Agreement. The Agreement on Agriculture applies to products that fall under HS Chapters 1 to 24 (except for fish and fish products) and certain additional products in other HS Chapters of the Harmonized Commodity Description and Coding System (HS).⁷⁹⁶ Most energy products including oil, natural gas, coal and electricity fall under HS Chapter 38 and hence are not subject to the Agreement on Agriculture. Perhaps the only exception here is biofuels. Of the different types of biofuels, bioethanol falls under HS Chapter 22 and hence is subject to the Agreement on Agriculture, while biodiesel falls under HS Chapter 38 and lies outside the Agreement on Agriculture.⁷⁹⁷ It is, therefore, safe to conclude that subsidies to the energy sector (except bioethanol subsidies) are subject to the SCM Agreement. This section explores the silent feature of this agreement. In doing so, it attempts to address the following set of questions: What is the object and purpose of the agreement? What is the scope of its application? What constitutes a

TN/RL/W/78 Submitted by the United States Concerning Prohibited Subsidies and Other Subjects Under the WTO Agreement on Subsidies and Countervailing Measures' (2003) TN/RL/W/107.

⁷⁹⁵ See para 98, WTO, 'Compilation of Issues and Proposals Identified by Participants in the Negotiating Groups on Rules' (2003) Note by the Chairman TN/RL/W/143; WTO, 'Working Document from the Chairman: Annex B - Subsidies and Countervailing Measures' (2008) TN/RL/W/232.

⁷⁹⁶ See Annex 1, Agreement on Agriculture; The International Convention on the Harmonized Commodity Description and Coding System) (adopted 14 June 1983, entered into force 1 January 1988), 1503 UNTS 167.

⁷⁹⁷ It is important to note that only biodiesel and bioethanol have their own distinctive HS Headings.

‘subsidy’ under the agreement? Does the agreement prohibit all forms of subsidies? If not, which subsidies are prohibited? What is the fate of non-prohibited subsidies? What remedies are available? Does the agreement accord S&D treatment for developing countries?

4.5.1 The Object and Purpose of the SCM Agreement

The SCM Agreement contains no preamble or any other provision that gives clear indication of its object and purpose. The agreement’s silence on this issue seems more of a deliberate decision than an oversight.⁷⁹⁸ Two related considerations reinforce this observation. First, along with the AD Agreement, the SCM Agreement is the only Uruguay Round Agreement without a preamble. Second, the Tokyo Round Subsidies Code, which served as a model for the SCM Agreement, has an elaborate preamble. The negotiators could have simply reproduced this preamble as they did for many other provisions of the Code. However, the issue was so controversial that they were not able to agree upon the purpose of the rules they drafted.⁷⁹⁹ The wide divergence of views left the agreement without a preamble and set of objectives it seeks to achieve.

In the absence of an express statement in the text of the agreement, the Appellate Body attempted to identify the object and purpose of the agreement on several occasions. However, its attempt at clarification is at best too general.⁸⁰⁰ In *US – Antidumping and Countervailing Duties (China)*, the Appellate Body summarized its main findings on the subject as follows:

[...] the Appellate Body has stated that the object and purpose of the SCM Agreement is ‘to increase and improve GATT disciplines relating to the use of both subsidies and countervailing measures’. Furthermore, in *US Softwood Lumber IV*, the Appellate Body noted that the object and purpose of the SCM Agreement is to ‘strengthen and improve GATT disciplines relating to the use of both subsidies and countervailing measures, while, recognizing at the same time, the right of Members to impose such measures under

⁷⁹⁸ The absence of a preamble suggests that there was some form of ‘constructive ambiguity’ at play. Professor Lang expressed this view when he argued that ‘the regime of global subsidies regulation is organized so as to remove space for the collective definition or redefinition of its underlying purposes’. See Lang (n 208), at 166-167.

⁷⁹⁹ See Rubini, *The Definition of Subsidy and State Aid* (n 208), at 57.

⁸⁰⁰ Given the sketchiness of its attempt, it is interesting to note that some commentators use this attempt to demonstrate the ‘troublesome activism’ of the Appellate Body. Referring to the quoted passage from *US – Antidumping and Countervailing Duties (China)*, Cartland et al. accuse the Appellate body of self-inventing a preamble for the SCM Agreement. See Michel Cartland, Gérard Depayre and Jan Woznowski, ‘Is Something Going Wrong in the WTO Dispute Settlement?’ (2012) 46 *Journal of World Trade* 979, at 992.

certain conditions'. Finally, [...] the Appellate Body stated in *US-Countervailing Duty Investigation on DRAMS* that the SCM Agreement 'reflects a delicate balance between the members that sought to impose more disciplines on the use of subsidies and those that sought to impose more disciplines on the application of countervailing measures'.⁸⁰¹

Emerging from these findings is the view that the object and purpose of the SCM Agreement is to improve and strengthen the GATT rules on the use of both subsidies and countervailing measures. This conclusion finds strong support in the wordings of the Punta del Este Declaration that launched the negotiations (see *section 4.4.3* above).⁸⁰² However, neither the Declaration nor the Appellate Body adequately addresses the specific objectives behind having improved rules on subsidies and countervailing duties. The Appellate Body has so far managed not to get into the specifics by defining the object and purpose of the agreement in very general (if not vague) terms.⁸⁰³ The findings of Panels since the first ever dispute involving the SCM Agreement are more relevant in this regard. In *Brazil – Aircraft*, the Panel concluded that 'the object and purpose of the SCM Agreement is to impose multilateral disciplines on *subsidies which distort international trade*'.⁸⁰⁴ This interpretation corresponds to the history of subsidy regulation in the

⁸⁰¹ *Appellate Body Report, United States – Definitive Anti-Dumping and Countervailing Duties on Certain Products from China (US – Anti-Dumping and Countervailing Duties (China)), WT/DS379/AB/R, adopted 25 March 2011*, para 301 (citations omitted). In this dispute, the appellate body argued that 'considerations of object and purpose are of limited use in delimiting the scope of the term public body under Article 1.1(a)(1)1'.

⁸⁰² It is worth noting that, in *US- Carbon Steel*, the Appellate Body recalled the relevant paragraph of the Punta del Este Ministerial Declaration to substantiate its understanding of the object and purpose of the SCM Agreement. See footnote 65, *WTO Appellate Body Report, United States - Countervailing Duties on Certain Corrosion-Resistant Carbon Steel Flat Products from Germany (US-Carbon Steel), WT/DS213/AB/R, adopted 19 December 2002*.

⁸⁰³ The Appellate Body even attempts to downplay the importance of the object and purpose of the SCM Agreement in interpreting its provisions. See, for example, *Appellate Body Report, United States – Countervailing and Anti-Dumping Measures on Certain Products from China (US – Countervailing and Anti-Dumping Measures (China)), WT/DS449/AB/R, adopted 22 July 2014* (arguing 'as we see it, consideration of object and purpose are of limited use [...]') and "[w]e do not see that the object and purpose of the SCM Agreement provides clear indications as to the intentions of the drafters of the SCM Agreement [...]"), paras 302 and 574'. These attempts appear to contradict with Article 31 of the VCLT, which provides that 'A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose'. On this observation, see James Flett, 'Preserving the Balance between Trade and Non-Trade Interests through a Systematic Interpretation of WTO Subsidies Law' in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016) 88.

⁸⁰⁴ *Panel Report, Brazil– Export Financing Program for Aircraft (Brazil-Aircraft), WT/DS46/R, adopted 20 August 1999*, para 7.26 (emphasis added). Since none of the parties to the dispute contested this interpretation on appeal, the Appellate Body had no opportunity to reflect on this interpretation. See also *Panel Report, Canada – Measures Affecting the Export of Civilian Aircraft (Canada-Aircraft) WT/DS70/R, adopted 20 August 1999* (stating that 'the object and purpose of the SCM Agreement could more appropriately be summarized as the establishment of multilateral disciplines on the premise that some forms of government intervention distort international trade, or have

multilateral trading system. The multilateral rules on subsidies largely represent attempts to identify and discipline trade-distorting subsidies. Notwithstanding the debate over whether the interest in disciplining trade-distorting subsidies is merely the protection of domestic industries or the advancement of global welfare (see below), trade-distorting subsidies have always been the target of international subsidy regulation. This has been the case not only under the GATT and the Subsidies Code but also under the SCM Agreement. This is most evident in the forms of prohibited and actionable subsidies under the SCM Agreement. It is no coincidence that the only forms of subsidies prohibited *per se* under the agreement are the most trade distorting ones (see *section 4.5.3* below). It is also telling that other forms of subsidies become actionable under the agreement only insofar as they have adverse effects on international trade.

The objective of disciplining trade-distorting subsidies is also clear from the drafting history of the agreement. In fact, the focus on trade-distorting subsidies is unsurprising for an agreement negotiated with ‘the fundamental objective of eliminating trade distortion’.⁸⁰⁵ However, discouraging trade distortion is not the sole purpose of the SCM Agreement. Such an understanding fails to acknowledge the stringency of the rules on countervailing duties. The SCM Agreement offers recourse to multilateral and unilateral remedies against subsidies that distort international trade. What is worth noting here is that unilateral remedies (i.e. countervailing duties) are subject to extensive substantive and procedural restrictions.⁸⁰⁶ These restrictions point to another key objective of the SCM Agreement. As the Appellate Body noted in *US-Countervailing Duty Investigation on DRAMS*, the agreement represents not only the interest of those that sought to discipline subsidies but also of those that wanted to limit the unfettered use

the potential to distort international trade’), para 9.119; *US - Export Restraints* (n 756) (similarly stating that ‘the object and purpose of the Agreement clearly is to discipline subsidies that distort trade’), para 8.63.

⁸⁰⁵ GATT, ‘Checklist of Issues for Negotiations’ (n 743), at 3.

⁸⁰⁶ Countervailing measures can only be imposed when the competent national authorities determine, pursuant to an investigation conducted in conformity with the provisions of the SCM Agreement, that there are subsidized imports, material injury to the domestic industry and causal link between the two (see Section 4.5.6). If the protection of competing industries from injurious foreign subsidies were the sole objective of the SCM Agreement, the rules on countervailing duties would have been much lenient. Several scholars have written that countervailing duties serve as the means to protect import-competing domestic industries from the harmful effects of foreign subsidies. See, e.g., Richard Diamond, ‘Search for Economic and Financial Principles in the Administration of United States Countervailing Duty Law, A’ (1989) 21 *Law and Policy in International Business* 507.

of countervailing measures.⁸⁰⁷ The history of multilateral subsidy regulation recounted in the preceding section also confirms that the purpose of the agreement is to prevent the abuse of countervailing measures as much as it is to address trade distortion.

This interpretation resonates with the conclusions of much of the academic literature on the subject.⁸⁰⁸ The only point of contention in the academic literature concerns the underlying rationale for disciplining trade-distorting subsidies. Some commentators are of the view that the SCM Agreement does more to protect the interests of import competing producers than it does to advance global economic efficiency.⁸⁰⁹ Grossman and Mavroidis, for example, argue that the ‘main objective’ of the SCM Agreement is to ‘to discourage subsidies that might harm producers in importing countries’.⁸¹⁰ The main evidence they advance to this effect is that the key criteria for imposing countervailing duties under the SCM Agreement (i.e. the injury test) is the impact of subsidies on domestic industries but not on economic efficiency and welfare. The other procedural requirements for imposing countervailing duties also confirms that the concern of the agreement in disciplining trade-distorting subsidies is the protection of import-competing industries than anything else.⁸¹¹ Another evidence to this effect comes from the specificity requirement (see *section 4.5.2.2*).⁸¹² The SCM Agreement does not apply to ‘non-specific’ or ‘general’ subsidies despite their potential to undermine global economic efficiency. The blanket exemption for non-specific subsidies would not have existed if advancing global economic efficiency were the main driving force behind the agreement.

⁸⁰⁷ See *Appellate Body Report, United States – Countervailing Duty Investigation on Dynamic Random Access Memory Semiconductors (DRAMs) from Korea (US – Countervailing Duty Investigation on DRAMs), WT/DS296/AB/R, adopted 20 July 2005*, para 115.

⁸⁰⁸ See, e.g., Rubini, *The Definition of Subsidy and State Aid* (n 208) (arguing that the twofold objectives of the SCM Agreement are discouraging trade-distorting subsidies and controlling the unilateral reaction to injurious subsidies), at 57. See also Simon Lester, ‘The Problem of Subsidies as a Means of Protectionism: Lessons from the WTO EC - Aircraft Case’ (2011) 12 *Melbourne Journal of International Law* 1; Grossman and Mavroidis (n 692).

⁸⁰⁹ See Patrick Low, ‘The Treatment of Subsidies in the WTO Framework’ in Claus-Dieter Ehlermann, Michelle Everson and Robert Schuman Centre (eds), *Selected issues in the field of state aid* (Hart 2001); Grossman and Mavroidis (n 692), at 180-186.

⁸¹⁰ See Grossman and Mavroidis (n 692), at 186.

⁸¹¹ One notable example is the requirement that countervailing duty investigation shall be initiated only upon the application of domestic industries (Article 11). For other examples, see *ibid*, at 186.

⁸¹² See Low (n 809), at 120.

Other commentators contend that the motivation for disciplining trade-distorting subsidies under the SCM Agreement (at least initially) goes beyond protecting such industries. For Rubini, for example, ‘the system seemed to be modelled on a broad welfare perspective, going beyond domestic boundaries’.⁸¹³ The crux of his argument is that the SCM Agreement disciplines subsidies for not only the protection of import-competing domestic industries but also for other reasons such as the ‘avoidance of subsidy war’ and the ‘protection of global efficiency’.⁸¹⁴ He also views the initial authorization of certain subsidies under the SCM Agreement as a recognition of other interests (economic or otherwise) pursued by subsidies. The insinuation here is that if the SCM Agreement were only about the protection of domestic industries, there would have been no such exemptions (even temporarily). However, even Rubini admits that with the expiry of the exemptions, the SCM Agreement has become ‘unbalanced’ and ‘tipped too far towards subsidy aversion’.⁸¹⁵ Subsidies are now either prohibited or actionable (irrespective of their impact on economic welfare) insofar as they cause or threatens to cause an injury to the interest of the domestic industry (see *section 4.5.3* below).

The main takeaway from the preceding discussion is that the SCM Agreement is oblivious to policy objectives other than reducing trade distortions. It makes no difference for the SCM Agreement whether the subsidy is environmentally harmful or helpful as long as it distorts international trade. Insofar as it distorts trade within the meaning of the agreement, the policy objective of a subsidy or its adverse effect on the environment is of no relevance to the agreement. This narrow focus on trade-distortion has two implications for the regulation of energy subsidies in the multilateral trading system. First, the SCM Agreement could help discipline fossil fuel subsidies only insofar as they are also trade distorting. Second, it poses a threat to renewable energy subsidies insofar as they distort international trade.

⁸¹³ Rubini, *The Definition of Subsidy and State Aid* (n 208), at 58.

⁸¹⁴ *ibid.*

⁸¹⁵ *ibid.*, at 58-59.

4.5.2 The Scope of the SCM Agreement

The SCM Agreement applies to any (i) government measure in the ‘goods sector’ (ii) that constitute a ‘subsidy’ within the meaning of the agreement and (iii) passes the ‘specificity’ test thereof. The first threshold issue in determining the applicability of the agreement is whether the support measure at issue is in the goods or services sector. While there is no explicit provision to this effect, its inclusion in Annex 1A (entitled ‘Multilateral Agreements on Trade in Goods’) to the Marrakesh Agreement implies that the SCM Agreement applies only to subsidies in the goods sector.⁸¹⁶ Subsidies in the services sector are instead subject to the subsidy rules contained in the GATS Article XV. However, the rules therein lack any substantive discipline and thus are of limited relevance to the regulation of subsidies to energy services.⁸¹⁷ It is also noteworthy that only a handful of countries undertook (limited) commitments in energy-related services under the GATS.⁸¹⁸ The wide range of subsidies countries currently provide for energy services such as energy transportation and distribution remain unregulated in the WTO.

There is no question that energy products such as petroleum, natural gas and coal fall in the ‘goods’ category, but there has been a longstanding ambiguity over the characterization of electricity.⁸¹⁹ The ambiguity primarily stems from the fact that electricity shares the characteristics of both goods and services. On the one hand, its intangibility and simultaneous

⁸¹⁶ The Panel in *US - Upland Cotton* underscored this point when it stated that ‘The SCM Agreement is an agreement on trade in goods, in Annex 1A of the WTO Agreement’. See *Panel Report, United States-Subsidies on Upland Cotton (US — Upland Cotton), WT/DS267/R, adopted 21 March 2005*, para 7.1144.

⁸¹⁷ GATS Article XV explicitly recognize that subsidies may have distortive effects on trade in services. However, it merely enjoins WTO Members (i) to give ‘sympathetic consideration’ to the consultations requests of other adversely affected WTO Members; and (ii) to enter into negotiations to develop multilateral rules to discipline trade distortive subsidies. The resultant negotiations are yet to bear any fruit. For a detailed analysis of the GATS rules on subsidies, see R Adlung, ‘Negotiations on Safeguards and Subsidies in Services: A Never-Ending Story?’ (2007) 10 *Journal of International Economic Law* 235; B De Meester, ‘The Global Financial Crisis and Government Support for Banks: What Role for the Gats?’ (2010) 13 *Journal of International Economic Law* 27.

⁸¹⁸ Energy services were not subjects of separate negotiations during the Uruguay Round. Nevertheless, the WTO Services Classification List (W/120) contains three (sub) sectors specific to energy services: pipeline transportation of fuels; services incidental to energy distribution (eight Members undertook specific commitments in this subsector); and services incidental to mining (33 Members undertook some commitments in this subsector). See WTO, ‘Energy Services’ (1998) Background Note by the Secretariat S/C/W/52, paras 72-76.

⁸¹⁹ This controversy dates back to the drafting process of the GATT 1947. The Drafting Committee report of February 1947 concluded that; ‘As it seemed to be generally agreed that electric power should be classified as a service and not as a good’. See UN, ‘Drafting Committee of the Preparatory Committee of the United Nations Conference on Trade and Employment’ (1947) Minutes of the twenty-third meeting E/PC/T/C.6/89, at 4.

production and consumption make it akin to services.⁸²⁰ On the other hand, electricity generation involves a material transformation of energy sources such as oil and coal into electrical energy like any other manufacturing process. The ambiguity also stems from the fact that the energy industry traditionally made no distinction between energy goods and energy services.⁸²¹ This is because state-owned and vertically integrated energy companies that perform all energy related activities from energy production to distribution traditionally dominated the energy sector.

The lack of a precise definition of what constitutes a ‘good’ and a ‘service’ under the WTO Agreements has increased the ambiguity in the multilateral trading system. Other intergovernmental agreements such as the North American Free Trade Area (NAFTA) and the Energy Charter Treaty (ECT) avoided such ambiguity by explicitly recognizing electrical energy as a ‘good’ from the outset.⁸²² There has been no concerted effort to clear up the ambiguity in the WTO, but a growing body of evidence suggests that countries nowadays consider electricity as a ‘good’. The first of these is the fact that the HS classifies electricity as a commodity, albeit under an optional heading.⁸²³ Second, more than two-thirds of WTO Members included electricity in their schedules of commitment to the GATT 1994. Finally, the Appellate Body in *Canada - Renewable Energy/FIT* confirmed that the purchase of electricity by the Canadian governments under its FIT scheme constitutes a ‘government purchase of goods’ within the meaning of the SCM Agreement.⁸²⁴ Moreover, both in *Canada-Renewable Energy/FIT* and *India-Solar Cells*, the

⁸²⁰ In *US - Large Civil Aircraft*, the Appellate Body explained these two characteristics of services as follows: ‘As opposed to goods, typical features of services include their immaterial, invisible, intangible, non-storable, and transitory nature. Services are usually produced and consumed simultaneously, while goods are not’. See *Appellate Body Report, United States - Measures Affecting Trade in Large Civil Aircraft (Second Complaint) (US - Large Civil Aircraft (2nd complaint))*, WT/DS353/AB/R, adopted 23 March 2012, footnote 1295.

⁸²¹ See WTO, ‘Energy Services’ (n 818); Gary Horlick and Howard Mann, ‘NAFTA Provisions and the Electricity Sector’ (Commission for Environmental Cooperation of North America 2002) Background Paper.

⁸²² See Chapter 6, North American Free Trade Agreement (adopted 17 December 1992, entered into force 1 January 1994) 32 ILM 289 (NAFTA) and; Art 1(4) cum Annex EM, Energy Charter Treaty.

⁸²³ See Heading 2716 of Chapter 27 (‘Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes’), The International Convention on the Harmonized Commodity Description and Coding System) (adopted 14 June 1983, entered into force 1 January 1988), 1503 UNTS 167. The HS system is a nomenclature for classifying internationally traded goods. Although the Convention is not a WO Agreement, the vast majority of WTO Members are parties to the Convention and hence bound by its classification.

⁸²⁴ See *Canada – Renewable Energy/FIT* (n 40), para 5.128. This finding is in line with the broad interpretation given to the term ‘goods’ in the WTO jurisprudence. In *US – Softwood Lumber IV*, for example, the Appellate Body agreed with the Panel and rejected Canada’s argument to limit the meaning of the term ‘goods’ under Article 1.1(a)(1)(iii) of the SCM Agreement to ‘tradable items with an actual or potential tariff classification’. See *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect to Certain Softwood Lumber*

Panels and the Appellate Body treated electricity as a ‘good’ subject to the GATT.⁸²⁵ These interrelated developments point to the emergence of some consensus within the multilateral trading system over the characterization of electricity as a ‘good’.⁸²⁶ It is, thus, safe to conclude that energy products, including electricity, are goods for the purpose of the SCM Agreement.

As noted at the outset, the SCM Agreement applies to subsidies even in the goods sector only if they also meet the definitional requirements of Article 1.1 and pass the specificity test of Article 2. The remainder of this section attempts to address these two threshold issues in detail.

4.5.2.1 Definition of Subsidy

The definition of subsidy is another threshold issue.⁸²⁷ It sets outer limits on the scope of government measures that may qualify as a ‘subsidy’ and thus subject to the disciplines of the SCM Agreement. Article 1.1 provides that a subsidy exists when there is a ‘financial contribution by a government or any public body’ ‘or there is any form of income or price support’ and ‘a benefit is thereby conferred’. This definition comprises two elements. The first element has to alternatives - either a financial contribution or income or price support. The second element is a benefit.⁸²⁸ These two elements together determine whether a government measure constitutes a ‘subsidy’ within the meaning of the SCM Agreement. Since they are ‘two separate legal elements’, each of them merits separate consideration.

It is important to bear in mind that so far we used a relatively broad subsidy definition to capture the wide range of government support measures that the literature on energy subsidies considers

from Canada (US – Softwood Lumber IV (Article 21.5)), Recourse by Canada to Article 21.5 of the DSU WT/DS257/AB/R, Adopted 20 December 2005, para 67.

⁸²⁵ Neither Canada nor India contested the treatment of electricity as a ‘good’ in these disputes.

⁸²⁶ There is also a growing consensus in the academic literature that electricity qualifies as a ‘good’. See Cottier and others (n 405) 211, at 215; Bigdeli, ‘Incentives Schemes to Promote Renewables and the WTO Law of Subsidies’ (n 131)155, at 177; Horlick and Mann (n 821). For the contrary view, see Andre Plourde, ‘Canada’s International Obligations in Energy and the Free-Trade Agreement with the United States’ (1990) 24 *Journal of World Trade* 35.

⁸²⁷ See *Appellate Body Report, United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US — FSC (Article 21.5)), WT/DS108/AB/RW, Adopted on 29 January 2002* (stating that ‘The issue we examine under Article 1.1 [...] is, therefore, a threshold issue’), para 87.

⁸²⁸ The Appellate Body found that these two elements ‘together determine whether a subsidy exists’ under the SCM Agreement. See *Appellate Body Report, Brazil - Export Financing Program for Aircraft (Brazil-Aircraft), WT/DS46/AB/R, adopted 20 August 1999*, para 157; *Appellate Body Report, Canada — Measures Affecting the Export of Civilian Aircraft (Canada-Aircraft) WT/DS70/AB/R, adopted 20 August 1999*, para 156.

as subsidies (see *section 2.2*). The discussion in this section reveals what actually constitutes a ‘subsidy’ for the purpose of the SCM Agreement and what does not.

4.5.2.1.1 The First Definitional Element

4.5.2.1.1.1 Financial Contribution

Financial contribution is the first alternative to the first element in establishing whether a government support measure constitutes a subsidy within the meaning of the SCM Agreement. Article 1.1(a)(1) provides an *exhaustive* list of three broad categories of financial contributions (see below).⁸²⁹ The financial contribution element implies that not all government support measures constitute a subsidy, while the existence of the list suggests that not all forms of financial contributions constitute a subsidy under the SCM Agreement.⁸³⁰ This should come as no surprise, given the very rationale for the inclusion of the financial contribution element in the subsidy definition was to ensure that not all forms of government support measures capable of conferring benefits face scrutiny under the SCM Agreement (see *section 4.4.3.1*).

Before turning to the three categories of financial contributions, however, it is important to bear in mind that a measure constitutes a ‘financial contribution’ of any kind only insofar as it is taken by the (i) government or (ii) public body or (iii) a private body entrusted or directed by the government.⁸³¹ The core idea here is that only measures taken *directly* (i-ii) or *indirectly* (iii) by the government constitute a financial contribution.⁸³² The use of the term ‘public body’ besides ‘government’ implies the broad attribution rule in place. However, absent any definition, questions arise as to what constitutes a ‘public body’. In *US – Antidumping and Countervailing*

⁸²⁹ See *US - Export Restraints* (n 756), para 8.69.

⁸³⁰ Recalling its early findings in *US – Softwood Lumber IV*, the Appellate Body clarified this limiting role of the financial contribution element in *US - Countervailing Duty Investigation on DRAMs* as follows: “‘not all government measures capable of conferring benefits would necessarily fall within Article 1.1(a)’; otherwise paragraphs (i) through (iv) of Article 1.1(a) would not be necessary ‘because all government measures conferring benefits, per se, would be subsidies’.” See *WTO Appellate Body Report, United States - Countervailing Duty Investigation on Dynamic Random Access Memory Semiconductors (DRAMs) from Korea (US - Countervailing Duty Investigation on DRAMs)*, WT/DS296/AB/R, adopted on 20 July 2005, para 114.

⁸³¹ See Art 1.1(a)(1), SCM Agreement.

⁸³² This is not to say that there has to be a cost to the government. It is clear from both the negotiating history and the jurisprudence that the government can make financial contribution without necessarily incurring the cost for the purpose of the SCM Agreement. See *Canada-Aircraft* (n 828), para 160.

Duties (China), the Appellate Body explained that government ownership or control is insufficient, on its own, to consider an entity (an SOE in this case) as a ‘public body’ within the meaning of the SCM Agreement.⁸³³ What constitutes a ‘public body’ is, rather, ‘an entity that possesses, exercises or is vested with governmental authority’.⁸³⁴ This narrow interpretation make establishing whether an entity is a public body arguably difficult.

The SCM Agreement also envisages that a government or public body could also provide financial contribution not only directly but also indirectly through a private body (either by making payments to a funding mechanism or by entrusting or directing the private body to carry out one of the three kinds of financial contributions).⁸³⁵ The significance of this is that it prevents governments from using private bodies as proxies to circumvent the disciplines of the SCM Agreement or shield their measure from scrutiny under the SCM Agreement.⁸³⁶ Although the Appellate Body interpreted ‘entrustment and direction’ broadly, establishing whether the private body was acting under government entrustment or direction is an extremely complex exercise. The Appellate Body opined that ‘entrustment or direction’ of a private body, in most cases, must involve ‘some form of threat or inducement’.⁸³⁷ It is to point out the obvious that the entrustment or direction must be to make one of the three categories of financial contributions.

The remainder of this section provides an overview of the three categories of financial contributions contained in Article 1.1(a)(1). These three categories are not ‘mutually exclusive’ and a measure may fall under more than one category of financial contribution.⁸³⁸

4.5.2.1.1.1.1 Direct transfer of funds

Direct and potential direct transfer of funds is the most straightforward kind of financial contribution. The Appellate Body has confirmed that the term ‘funds’ under Article 1.1(a)(1)(i)

⁸³³ See *US – Anti-Dumping and Countervailing Duties (China)* (n 801), paras 290-322.

⁸³⁴ The Appellate Body itself recognizes the difficulty of establishing whether an entity is a ‘public body’ under this definition as ‘the precise contours and characteristics of a public body are bound to differ from entity to entity, State to State, and case to case’. See *ibid*, paras 290-322.

⁸³⁵ Art 1.1(a)(1)(iv), SCM Agreement.

⁸³⁶ See *US – Countervailing Duty Investigation on DRAMs* (n 807), para 108.

⁸³⁷ See *ibid*, para 116.

⁸³⁸ *Canada – Renewable Energy/FIT* (n 40), para 5.121.

refers not only to ‘money’ but also to ‘financial resources and other financial claims more generally’.⁸³⁹ The inclusion of both direct and potential direct transfer of funds shows the broad scope of this category. Direct transfer of funds encompasses all ‘conduct on the part of the government by which money, financial resources and/or financial claims are made available to a recipient’.⁸⁴⁰ This category of financial contributions falls under even the narrowest definition of a subsidy. Potential direct transfer of funds refers to a situation where the transfer is only a *possibility* ‘due to uncertainty about whether the triggering event will occur’.⁸⁴¹ Besides the explicitly listed examples, direct and potential direct transfer of funds include debt forgiveness, loan maturity extension, export credit guarantees and insurance.⁸⁴² Direct and potential direct transfer of funds such as cash grants, preferential loans and loan guarantees are one of the most common forms of support policies for fossil fuels and renewables (see *section 2.4*).

4.5.2.1.1.2 Revenue Foregone

The second form of financial contribution is ‘government revenue that is otherwise due is foregone or not collected’.⁸⁴³ The interpretation of ‘forgone’ and ‘otherwise due’ are critical here. The Appellate Body clarified in the landmark *US – FSC* dispute that ‘the word "forgone" suggests that the government has given up an entitlement to raise revenue that it could "otherwise" have raised’.⁸⁴⁴ The jurisprudence is now clear that foregoing a revenue that is ‘otherwise due’ results in ‘financial contribution’ when a government raises less revenue than it would have raised otherwise. The key phrase ‘otherwise due’ under Article 1.1(a)(1)(ii) ‘implies some kind of comparison between the revenue due under the contested measure and revenues that would be due in some other situation’.⁸⁴⁵ This comparison is not always a straightforward

⁸³⁹ *Appellate Body Report, Japan - Countervailing Duties on Dynamic Random Access Memories from Korea (Japan — DRAMs (Korea)), WT/DS336/AB/R, adopted on 17 December 2007*, para 250.

⁸⁴⁰ See *US — Large Civil Aircraft (2nd complaint)* (n 820), para 614.

⁸⁴¹ It is worth noting that the uncertainty here is as to the occurrence of the predefined triggering event not as to whether the government will transfer funds upon the occurrence of the predefined triggering event. See *Panel Report, United States - Measures Affecting Trade in Large Civil Aircraft (Second Complaint) (US - Large Civil Aircraft (2nd complaint)), WT/DS353/R, adopted 23 March 2012*, para 7.164.

⁸⁴² See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), at 41.

⁸⁴³ Art 1.1(a)(1)(ii), SCM Agreement.

⁸⁴⁴ *Appellate Body Report, United States - Tax Treatment for 'Foreign Sales Corporations' (US — FSC), WT/DS108/AB/R, adopted 20 March 2000*, para 90.

⁸⁴⁵ *ibid*, para 90.

exercise. Take the example of a government that could have otherwise raised a revenue of say US\$10000 from sales tax but raised only US\$5000 because of its renewable energy tax incentive scheme. The difficulty in determining whether this scheme constitutes a ‘financial contribution’ is not establishing the revenue actually raised (i.e. the US\$5000), but the revenue that could have otherwise been raised had it not been for the tax incentive (i.e. the US\$10000).

The Appellate Body noted in *US-FSC* that establishing the counterfactual (i.e. what the government could have otherwise raised) requires identifying some ‘defined normative benchmark’.⁸⁴⁶ It also indicated that this normative benchmark must come from the ‘rules of taxation that each Member, by its own choice, establishes for itself’.⁸⁴⁷ Underlying this interpretation is the recognition that ‘WTO Members are sovereign in determining the structure and rates of their domestic tax regimes’.⁸⁴⁸ Normally, the ‘general’ rule of taxation of the Member in question constitutes the normative benchmark, while the contested measure constitutes the ‘exceptions’ to that general rule. In such circumstances, the ‘but for’ test can help establish the ‘revenue foregone’. The problem is that it is often difficult to establish the general rule of taxation (the normative benchmark) due to the variety and complexity of national tax systems.⁸⁴⁹ This problem has led the Appellate Body to be cautious about the ‘but for’ test and rather rely on ‘a comparison between the tax treatment that applies to the alleged subsidy recipients and the tax

⁸⁴⁶ See *ibid*, para 90.

⁸⁴⁷ See *US — Large Civil Aircraft (2nd complaint)* (n 820), para 813; see also *US - FSC* (n 844) (noting that the normative benchmark ‘must be the tax rules applied by the Member in question’), para 90.

⁸⁴⁸ See *US — Large Civil Aircraft (2nd complaint)* (n 820), para 811. This recognition is not new. In *US - FSC*, the Appellate Body underlined that ‘[WTO] Members, in principle, have the sovereign authority to determine their own rules of taxation’. See *Appellate Body Report, United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US — FSC)*, WT/DS108/AB/RW2, adopted on 29 January 2002, para 89.

⁸⁴⁹ Professor Rubini described the identification of the normative benchmark under Article 1.1(a)(1)(ii) as ‘the real crux of the problem’. See Luca Rubini, ‘The Subsidization of Renewable Energy in the WTO: Issues and Perspectives’ (NCCR Trade Regulation 2011) Working Paper No 2011/32, at 11. The Appellate Body also recognizes the difficulty in identifying the normative benchmark. See *Appellate Body Report, United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US — FSC (Article 21.5))*, WT/DS108/AB/RW, Adopted on 29 January 2002 (n 827), paras 90-91; *US — Large Civil Aircraft (2nd complaint)* (n 820) (acknowledging the fact that identifying the benchmark ‘is not always a straightforward exercise, and may in some circumstances be exceedingly difficult’), para 813.

treatment of comparable income comparably situated taxpayers' to establish whether the government forgone a revenue that is otherwise.⁸⁵⁰

In *US-Civil Aircraft*, the Appellate Body broke down the analysis under Article 1.1(a)(1)(iii) into a three-step test: (i) identifying the tax treatment that applies to the income of the alleged recipients; (ii) identifying a benchmark for comparison; (iii) comparing the reason for the challenged tax treatment with the benchmark tax treatment.⁸⁵¹ What is interesting here is the consideration of the rationales for the challenged tax treatment in the first and third steps. The literal reading of the Appellate Body's analysis implies that a legitimate rationale prevents the finding of revenue forgone even when there is a difference in tax treatment.⁸⁵² However, there is no textual or contextual basis for such an interpretation under the SCM Agreement.

Tax incentives are one of the most common forms of support measures for both renewables and fossil fuels (see *sections 2.4.1.2.2 and 2.4.2.2.2*, respectively). Fossil fuel producing countries in particular provide various forms of tax incentives to promote fossil fuel exploration, development and extraction. They also use royalty policies to support fossil fuel production (i.e. no or lower royalty). The US Federal Government, for example, charges a royalty of 12.5 percent on onshore oil and gas. This rate has been the same since 1920 despite technological advancements and market conditions.⁸⁵³ At the same time, the royalty rate for offshore oil and gas has increased several times before reaching its current rate of 18.75 percent in 2008.⁸⁵⁴ Most US States also charge much higher royalties on onshore oil and natural gas than the Federal Government. A very conservative estimate shows that the US Federal Government forgoes royalty payment of US\$109 million per year for onshore oil and natural gas production alone.⁸⁵⁵ Although not straightforward, this and most other tax and royalty incentives constitute a 'financial contribution' under Article 1.1(a)(1)(ii).

⁸⁵⁰ *US — Large Civil Aircraft (2nd complaint)* (n 820), para 812.

⁸⁵¹ See *ibid*, paras 812-815.

⁸⁵² See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), at 47.

⁸⁵³ See *China and others* (n 646).

⁸⁵⁴ See *ibid*, at 12.

⁸⁵⁵ See *ibid*, at 15.

4.5.2.1.1.1.3 Provision of Goods or Services or Purchases Goods

The third and final form of financial contribution is the provision of goods and services or purchase of goods other than general infrastructure.⁸⁵⁶ This category reflects the recognition that governments could make a financial contribution not only in money and in other financial resources but also in kind. This category has two components. The first component is the provision of goods and services. The interpretation of this provision in the jurisprudence has been relatively broad. In the famous *US – Softwood Lumber IV* dispute, for example, the Appellate Body found that the granting of ‘the right to harvest’ ‘standing timber’ constitutes the ‘provision of goods’ within the meaning of Article 1.1(a)(1)(iii).⁸⁵⁷ This provision makes no exception for natural resources. This raises the question whether the granting of the right to extract fossil fuels (coal, oil and natural gas) constitute the provision of goods. What about the right to generate electricity from renewable sources (sun, wind, water and geothermal)? Of course, these are royalty exemptions (and hence, revenue forgone). However, it is worth recalling that a measure may fit into more than one form of financial contribution.

The only explicit exemption here is the provision of general infrastructure.⁸⁵⁸ The SCM Agreement contains no definition of ‘general infrastructure’ or illustrative examples.⁸⁵⁹ The *EC and Certain Member States – Large Civil Aircraft* Panel defined the term ‘general infrastructure’ as ‘infrastructure that is not provided to or for the advantage of only a single entity or limited group of entities, but rather is available to all or nearly all entities’.⁸⁶⁰ The Panel noted that

⁸⁵⁶ Art 1.1(a)(1)(iii), SCM Agreement.

⁸⁵⁷ See *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect to Certain Softwood Lumber from Canada (US – Softwood Lumber IV (Article 21.5)), Recourse by Canada to Article 21.5 of the DSU WT/DS257/AB/R, Adopted 20 December 2005* (n 824), para 76.

⁸⁵⁸ Some commentators find this exemption redundant in light of the specificity requirement in Article 2. See, e.g. Edmond McGovern, *International Trade Regulation* (Globefield Press 1995). Some others argue that the plausible explanation for the exclusion of general infrastructure from the ‘provision of goods and services’ is the recognition that such infrastructures confer no advantage. See Rubini, *The Definition of Subsidy and State Aid* (n 208), at 244 et seq.

⁸⁵⁹ Although the SCM Agreement offers no illustrative examples, the drafting history suggests that the drafters meant the term ‘general infrastructure’ to include national railways, ports, telecommunication lines, etc. See Konstantinos Adamantopoulos, ‘Article I: Definition of a Subsidy’ in Rüdiger Wolfrum, Peter-Tobias Stoll and Michael Koebele (eds), *WTO - Trade Remedies* (Martinus Nijhoff Pub 2008), at 439.

⁸⁶⁰ See *Panel Report, European Communities and Certain Member States - Measures Affecting Trade in Large Civil Aircraft (EC and Certain Member States - Large Civil Aircraft), WT/DS316/R, adopted 1 June 2011*, para 7.1036.

although the existence of *de jure* or *de facto* limitations on access or use is highly relevant, it is not the only legal consideration in determining whether an infrastructure is a ‘general infrastructure’ or not. The generality of an infrastructure, it argued, depends also on ‘any other factors that tend to demonstrate whether the infrastructure was or was not provided to or for the use of only a single entity or a limited group of entities’.⁸⁶¹ This interpretation questions the generality of any infrastructure and suggests that there is no infrastructure that is *per se* general.

The second component is the purchase of goods, which has been at the heart of the debate over the legality of feed-in tariffs schemes under the SCM Agreement. Under such schemes, governments commit themselves to purchase electricity at feed-in tariffs. As already noted, in *Canada-Renewable Energy/FIT*, the Appellate Body upheld the finding of the Panel that the purchase of electricity constitutes a ‘purchase of goods’ within the meaning of Article 1.1(a)(1)(iii) (see also *section 5.2.1.1*). Perhaps another noteworthy point about this second component is the exclusion of government purchase of services.⁸⁶² The plausible explanation for this exclusion is the understanding that the purchase of services falls under the services sector and hence subject to the subsidy disciplines contained in the GATS, not in the SCM Agreement.

4.5.2.1.1.2 Income or Price Support

Article 1.1(a) (2) sets out an alternative to financial contribution for the first definitional element of a subsidy under the SCM Agreement. It provides that a government measure that failed to meet the financial contribution element may still qualify as a subsidy if it takes ‘any form of income or price support’. The Appellate Body noted in *US – Softwood Lumber IV* that the concept of ‘income or price support’ broadens the range of government measures that may qualify as a ‘subsidy’ beyond the three categories of financial contributions contained in Article 1.1(a)(1).⁸⁶³ However, it did not explain to what extent. No definition whatsoever of ‘income or price support’ exists in the GATT or the SCM Agreement either.

⁸⁶¹ This reaffirms its view that ‘there is no infrastructure that is inherently “general” per se’. See *ibid*, para 7.1039.

⁸⁶² For confirmation of this point, see *US – Large Civil Aircraft (2nd complaint)* (n 820), para 619.

⁸⁶³ See *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect To Certain Softwood Lumber from Canada (US - Softwood Lumber IV)*, WT/DS257/AB/R, adopted 17 February 2004, para 52.

Article 1.1(a)(2) is susceptible to both broad and narrow interpretation.⁸⁶⁴ A literal reading of the provision leaves the impression that any government measure having an effect on income or prices qualifies as an ‘income or price support’. This interpretation suggests that even measures such as tariffs and quantitative restrictions may constitute a subsidy under the SCM Agreement to the extent that they have an effect on income or prices and thereby confer a ‘benefit’ within the meaning of Article 1.1(b).⁸⁶⁵ However, despite the plain language of Article 1.1(a)(2), such an expansive interpretation finds no contextual support in Article 1.1(a).

The only Panel to interpret the meaning of Article 1.1(a)(2) to date, which is *China – GOES*, concluded that the context of Article 1.1(a) and two other factors support a more narrow interpretation of the provision.⁸⁶⁶ The narrow interpretation holds that the concept of income or price support includes only ‘direct government intervention in the market with the design to fix the price of a good at a particular level, for example, through purchase of surplus production when price is set above equilibrium’.⁸⁶⁷ However, it does not include all government intervention that may affect prices as suggested by the expansive interpretation.

The Panel justified the narrow interpretation on three grounds. The first of these is the context of Article 1.1(a). This provision comprises two alternative definitional requirements: financial contribution (Article 1.1(a)(1)) and income or price support (Article 1.1(a)(2)). Both requirements serve as a gateway to the SCM Agreement. Article 1.1(a)(1) defines each of the three categories of financial contributions by reference to the nature of the government action, rather than by their effect on the market. Applying an effects-based approach to Article 1.1(a)(2) would render the financial contribution requirement of Article 1.1(a)(1) futile. This is because all the three categories of financial contributions directly or indirectly affect income or prices. The Panel was of the view that the same approach should apply to both Article 1.1(a)(1) and Article 1.1(a)(2), which is the nature of the government action than their effect.

⁸⁶⁴ See *Panel Report, China - Countervailing and Anti-Dumping Duties on Grain Oriented Flat-Rolled Electrical Steel from the United States (China — GOES)*, WT/DS414/R, adopted 16 November 2012, para 7.84.

⁸⁶⁵ For this line of interpretation, see Luengo (n 699), at 119-122.

⁸⁶⁶ See *China - GOES* (n 864), para 7.85.

⁸⁶⁷ *ibid*, para 7.85.

The Panel also found support for the narrow interpretation in the reasoning of the GATT Panel on Subsidies and State Trading. Despite its conclusion that no subsidy exists because the measure at issue does not result in a loss to the government, the GATT Panel initially found that ‘a system which fixes domestic prices to producers at above the world price level might be considered a subsidy in the meaning of Article XVI’. The *China – GOES* Panel took the initial finding of the GATT Panel as indication that the concept of ‘price support’ in Article 1.1(A)(2) involves the ‘government setting and maintaining a fixed price, rather than a random change in price merely being a side-effect of any form of government measure’.⁸⁶⁸

The final ground for the narrow interpretation is the meaning given to the parallel concept of ‘market price support’ in Annex 3 to the Agreement on Agriculture.⁸⁶⁹ Paragraph 8 of Annex 3 defines market price support as the ‘difference between an external reference price and the "applied administered price"’. Implicit in this definition, according to the Panel, is the requirement of ‘a direct government control over domestic prices in the form of a fixed, administered price’ [...], rather than a movement in prices being an indirect effect of another form of government intervention’.⁸⁷⁰ This definition rules out measures that have an ‘incidental side effect’ on income or prices from the scope of ‘income or price support’.

The Appellate body has not yet considered the meaning of the term ‘income of price support’. Although it had the opportunity to do so in *Canada – Renewable Energy/FIT*, it avoided the question by exercising judicial economy.⁸⁷¹ Although discussions on the definition of subsidies under the SCM Agreement often overlook the concept of ‘income or price support’, it plays an important role in determining the overall scope of the SCM Agreement.

⁸⁶⁸ See *ibid*, para 7.86.

⁸⁶⁹ See paras 1 and 3, annex 3, Agreement on Agriculture.

⁸⁷⁰ *China - GOES* (n 864), para 7.87.

⁸⁷¹ See *Canada – Renewable Energy/FIT* (n 40), para 7.249.

4.5.2.1.2 The Second Definitional Element

4.5.2.1.2.1 Benefit

Financial contributions constitute a subsidy within the meaning of the SCM Agreement only if they ‘confer a benefit’.⁸⁷² The SCM Agreement contains no definition of what constitutes a ‘benefit’.⁸⁷³ Nor does it offers specific guidance as to how to determine the existence or otherwise of a ‘benefit’. The WTO adjudicatory bodies have attempted to fill in this gap by developing a benefit analysis through innovative interpretation of the agreement. The two essential components of the benefit analysis are the identification of the benefit recipient and the determination of whether the recipient has received a benefit.

It is worth noting from the outset that the important perspective for the benefit element is that of the recipient, not that of the provider of the financial contribution.⁸⁷⁴ Whether the financial contribution bears a cost to the government is therefore irrelevant to the benefit analysis.⁸⁷⁵ The Appellate Body clarified that the term benefit implies the existence of a beneficiary or recipient.⁸⁷⁶ The benefit recipient could be a ‘person, natural or legal, or a group of persons’.⁸⁷⁷ Identifying recipients is uncontroversial, except when the recipient at issue is an ‘indirect recipient’. Privatization and input subsidization often raise the issue of indirect recipients. Take,

⁸⁷² The *Kore – Commercial Vessels* Panel explained that the rationale for the benefit element is that it ‘acts as a screen to filter out commercial conduct’. This interpretation is consistent with the overall purpose of the definition of subsidy under the SCM Agreement – limit the scope of government support measures subject to the disciplines of the SCM Agreement. See *Panel Report, Korea – Measures Affecting Trade in Commercial Vessels (Korea-Commercial Vessels)*, WT/DS273/R, adopted 11 April 2005, para 7.28.

⁸⁷³ It is not even clear whether the term ‘benefit’ refers to economic benefits or benefits in general. Luengo argued that Article 1.1(b) refers to benefits in general, not just to an economic benefit because the SCM Agreement sought to have ‘the broadest definition of subsidy possible’. See Luengo (n 699), at 123.

⁸⁷⁴ See *Panel Report, European Communities – Countervailing Measures on Dynamic Random Access Memory Chips from Korea (EC – Countervailing Measures on DRAM Chips)* WT/DS299/R, adopted 3 August 2005, para 7.212.

⁸⁷⁵ The Appellate Body concluded in *Canada – Aircraft* that the concept of the ‘cost-to-government’ is irrelevant to the benefit analysis as its inclusion excludes situations whereby the government directs private bodies to provide a financial contribution within the meaning of Article 1.1(a)(1)(iv) from the definition of ‘benefit’. See *Appellate Body Report, Canada – Measures Affecting the Export of Civilian Aircraft (Canada-Aircraft)* WT/DS70/AB/R, adopted 20 August 1999, para 160.

⁸⁷⁶ The Appellate Body is of the view that ‘a benefit does not exist in the abstract’. See *ibid*, para 154.

⁸⁷⁷ *ibid*; see also *Appellate Body Report, United States – Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the United Kingdom (US – Lead and Bismuth II)*, WT/DS138/AB/R, adopted on 07 June 2000.

for instance, the case of input subsidies in the famous *Softwood Lumber* disputes. The initial recipient of the benefit (the ‘direct recipient’) under the Canadian stumpage programs were timber harvesters, but the benefit also accrues (albeit indirectly) to those further down the value chain (i.e. lumber producers) that use (the subsidized) timber as an input. The key question here was whether the benefit has passed through to the lumber producers. In other words, whether the government provision of timber at a less than market price to timber harvesters benefited the lumber producers. The Appellate Body held that when the timber harvesters (the input producers) and the lumber producers (the final product producers) operate at arm’s length, the pass-through of the benefits from the direct recipient to the indirect recipient cannot be presumed.⁸⁷⁸ Such circumstances require a pass-through analysis to determine whether and to which extent the benefit flowing from the input subsidy passed through to the producers of the final product.⁸⁷⁹ This interpretation appears to imply that we can presume a pass-through of the benefits when the transaction between the direct and the indirect recipients is not at arm’s length.

The privatization of subsidized SOEs represents another situation that require a pass-through analysis. In *US – Countervailing Measures on Certain EC Products*, the Appellate Body faced the task of determining whether a benefit flowing from a financial contribution to an SOE continues to exist even after the privatization of the SOE. The Panel initially assumed that the benefit ceases to exist whenever the private owner pays fair market value. The Appellate Body agreed with the Panel but noted that this presumption is not irrefutable.⁸⁸⁰ It envisaged the possibility that the benefit can pass-through to the private owner even when the two entities are unrelated and the transaction was conducted at arm’s length. Whether the benefit indeed passed through to the private owner requires a case-by-case determination.

⁸⁷⁸ *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect to Certain Softwood Lumber from Canada (US – Softwood Lumber IV (Article 21.5)), Recourse by Canada to Article 21.5 of the DSU WT/DS257/AB/R, Adopted 20 December 2005* (n 824), para 144.

⁸⁷⁹ *ibid.*

⁸⁸⁰ *Appellate Body Report, United States - Countervailing Measures Concerning Certain Products from the European Communities (US — Countervailing Measures on Certain EC Products), WT/DS212/AB/R, adopted on 8 January 2003*, para 120-127. For a sharp criticism of the Appellate Body’s rulings in *US – Countervailing Measures on Certain EC Products* and *US - Lead and Bismuth II*, see Richard Diamond, ‘Privatization and The Definition of Subsidy: A Critical Study of Appellate Body Textualism’ (2008) 11 *Journal of International Economic Law* 649.

The second component of the benefit analysis is the determination of whether the recipient has received a benefit. In *Canada-Aircraft*, the Appellate Body established that the existence of a benefit has to be determined by comparison with market conditions:

[T]he word "benefit", as used in Article 1.1(b), implies some kind of comparison. This must be so, for there can be no "benefit" to the recipient unless the "financial contribution" makes the recipient "better off" than it would otherwise have been, absent that contribution. In our view, the marketplace provides an appropriate basis for comparison in determining whether a "benefit" has been "conferred", because the trade-distorting potential of a "financial contribution" can be identified by determining whether the recipient has received a "financial contribution" on terms more favourable than those available to the recipient in the market.⁸⁸¹

It is now well established that a 'benefit' exists insofar as the financial contribution has made the recipient better off than it would have been in normal market conditions (i.e. absent the financial contribution).⁸⁸² Such comparison with private market conditions is not necessary for all the three categories of financial contributions in Article 1.1(a)(1). Neither government revenue forgone (Article 1.1(a)(1)(ii)) nor direct transfer of funds such as grants (Article 1.1(a)(1)(i)) require a benefit analysis. The benefit is automatically conferred upon the recipient in such cases. Substantive benefit analysis is required only in the case of potential direct transfer of funds such as loans and loan guarantees (Article 1.1(a)(1)(i)) and the provision of goods and services or the purchase of goods (Article 1.1(a)(1)(iii)). In these cases, determining the existence or otherwise of a benefit requires comparison with private market conditions. The first challenge here is determining the relevant market for comparison purposes.⁸⁸³ The identification of the relevant market for renewable electricity in the *Canada-renewable Energy/FIT* disputes reveals that this is not always a straightforward exercise (see *section 5.3.1.1.1.2*).

⁸⁸¹ The Appellate Body sought guidance from Article 14 of the SCM Agreement in developing this so-called 'private market test'. See *Canada-Aircraft* (n 828), para 157.

⁸⁸² The Appellate Body defined the term 'market' as 'the area of economic activity in which buyers and sellers come together and the forces of supply and demand affect prices'. See Appellate Body Report, *European Communities and Certain Member States - Measures Affecting Trade in Large Civil Aircraft (EC and Certain Member States - Large Civil Aircraft)*, WT/DS316/AB/R, adopted 1 June 2011, para 1122. The Second Article 21.5 Panel in *Brazil - Aircraft* already explained that the market in question is a 'commercial market', which is 'a market undistorted by government intervention'. See Appellate Body Report, *European Communities and Certain Member States - Measures Affecting Trade in Large Civil Aircraft (EC and Certain Member States - Large Civil Aircraft)*, WT/DS316/AB/R, adopted 1 June 2011, para 1122.

⁸⁸³ In *Canada-Renewable Energy/FIT* disputes, the Appellate Body noted that the first step in the 'private market test' is to determine the relevant market for comparison purposes (see *section 5.3.1.1.1.2*).

The second challenge is when the private market is ‘distorted’ or ‘created’ by the very same financial contribution. The Appellate Body has long established that the comparison with the marketplace is meaningful only insofar as the market is not distorted.⁸⁸⁴ A comparison with a substantially distorted private market ‘amounts to a circular comparison of a government price with, in effect, itself’.⁸⁸⁵ Such a comparison is likely to result in a false negative finding (i.e. no benefit). This is because the predominant role of the government in the market tends to surpass private prices. In *US – Softwood Lumber IV*, the Appellate Body concluded that such circumstances justify resorting to alternative benchmarks other than the marketplace.⁸⁸⁶ What are these alternative benchmarks? Alternative benchmarks include constructed prices based on production costs or taking into account third country or world prices of similar goods. The key principle in constructing an alternative benchmark is to strive to ‘identify a benchmark that approximates the market conditions that would prevail in the absence of the distortion’.⁸⁸⁷

A distorted market was the only ground for using alternative benchmarks until 2013. It was in *Canada - Renewable Energy/FIT* that the Appellate Body found that alternative benchmarks might also be used when the government intervention creates the market. It argued that ‘where a government creates a market, it cannot be said that the government intervention distorts the market, as there would not be a market if the government had not created it’.⁸⁸⁸ The thrust of the argument is that using a market created by the very same financial contribution as a benchmark would lead to false positive findings. What alternative benchmarks are available when the financial contribution creates the market? The Appellate Body underlined in *Canada - Renewable*

⁸⁸⁴ *EC and Certain Member States - Large Civil Aircraft* (n 860), para 900.

⁸⁸⁵ See *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect to Certain Softwood Lumber from Canada (US – Softwood Lumber IV (Article 21.5)), Recourse by Canada to Article 21.5 of the DSU WT/DS257/AB/R, Adopted 20 December 2005* (n 824), para 93.

⁸⁸⁶ However, the opportunity of using alternative benchmarks is ‘very limited’. See *ibid*, para 102.

⁸⁸⁷ See *Panel Report, United States — Definitive Anti-Dumping and Countervailing Duties on Certain Products from China (US — Anti-Dumping and Countervailing Duties (China)) WT/DS379/R, Adopted 25 March 2011*, para 10.187. In *US-Softwood Lumber IV*, the Appellate Body underlined that the alternative benchmark has to ‘relate or refer to, or be connected with, the prevailing market conditions in that country, and must reflect price, quality, availability, marketability, transportation and other conditions of purchase or sale’. See *Appellate Body Report, United States - Final Countervailing Duty Determination With Respect To Certain Softwood Lumber from Canada Recourse to Article 215 of the DSU by Canada (US — Softwood Lumber IV), WT/DS257/AB/RW, adopted 20 December 2005*, para 103.

⁸⁸⁸ *Panel Reports, Canada - Certain Measures Affecting the Renewable Energy Generation Sector (Canada-Renewable Energy)/Canada - Measures Relating to the Feed-in Tariff Program (Canada- Feed-In Tariff Program), WT/DS412/R, WT/DS426/R, adopted 24 May 2013*, para 5.174.

Energy/FIT that the alternative benchmark must be found within the boundaries of the created market.⁸⁸⁹ However, its heavily criticized attempt to construct an alternative benchmark within the contours of the created market illustrates the complexity of identifying an alternative benchmark when the government intervention in question creates the market.

Two points are worth emphasizing here in relation to energy subsidies. First, most energy subsidies raise the issue of pass-through subsidies. For example, energy-intensive industries, which use energy as their main inputs, benefit from the subsidization of energy production. However, the jurisprudence suggests that determining whether the benefit from such subsidization passed through to energy-intensive industries is extremely difficult. Second, it is also relatively more difficult to determine whether energy support measures that take the form of preferential loans and loan guarantees, the provision of goods and services and the purchase of goods confer a benefit upon their recipients. The difficulty stems from the distorted nature of private energy markets and the need for alternative benchmarks. The new distinction between market distorting and market creating financial contributions adds another problem to the benefit analysis of renewable energy support measures of the aforementioned type (see *chapter 5*).

4.5.2.2 The Specificity Requirement

The specificity requirement is the final hurdle in establishing whether a government support measure is subject to the disciplines of the SCM Agreement.⁸⁹⁰ As explained in the preceding section, any government support measure that meets the definitional requirements of Article 1.1 (i.e. financial contribution and benefit) qualifies as a ‘subsidy’ under the SCM Agreement. However, qualifying as a ‘subsidy’ is necessary but not sufficient for such a measure to be subject to the disciplines of the SCM Agreement. Article 1.2 provides that government measures that qualify as subsidies within the meaning of Article 1.1 are ‘subject to’ the provisions of the SCM Agreement only if they are ‘specific’ in accordance with the provisions of Article 2. This section will first explain what determines the specificity of a subsidy (the ‘specificity test’) and then discuss the policy rationales behind the specificity requirement.

⁸⁸⁹ *Canada – Renewable Energy/FIT* (n 40), para 5.197.

⁸⁹⁰ It is noteworthy that the literature sometimes incorrectly presents the specificity requirement as a definitional element but neither the text of Article 1 nor the jurisprudence supports this interpretation.

4.5.2.2.1 The Specificity Test

The principles that determine specificity are contained in Article 2. The prevailing interpretation of these principles links the specificity of a subsidy to the extent of its availability throughout an economy. The Panel in *US - Upland Cotton* held that ‘a subsidy would cease to be specific because it is sufficiently broadly available throughout an economy as not to benefit a particular limited group of producers of certain products’.⁸⁹¹ The key step in the ‘specificity test’ is determining whether the ‘the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises’.⁸⁹² The existence of an express limitation that restricts the availability of a subsidy to a certain enterprises makes the subsidy *de jure* specific.⁸⁹³ This express limitation must be discernible either from the ‘legislation by which the granting authority operates’ or from ‘other statements or means by which the granting authority express its will’.⁸⁹⁴ However, the SCM Agreement recognizes that even the most generally available subsidies contain some sort of eligibility criteria or conditions. This recognition is most evident in Article 2.1(b), which provides that specificity does not arise when the granting authority or the legislation under which it operates establish ‘objective criteria or conditions governing the eligibility for, and the amount of, a subsidy’.⁸⁹⁵ The objectiveness of the eligibility criteria or conditions renders the subsidy ‘non-specific’. The SCM Agreement defines ‘objective criteria or conditions’ as ‘criteria or conditions which are neutral, which do not favour certain enterprises over others, and which are economic in nature and horizontal in application’.⁸⁹⁶ The basic idea here is to prevent governments from circumventing the specificity requirement by introducing eligibility criteria that favour certain enterprises.

Article 2.1(c) is another provision put in place to guard against the circumvention of the specificity requirement. This provision recognizes that subsidies that are not *de jure* specific and

⁸⁹¹ *US — Upland Cotton* (n 816), para 7.1142. See also *US — Anti-Dumping and Countervailing Duties (China)* (n 887), para 9.37.

⁸⁹² Art 2.1(a), SCM Agreement.

⁸⁹³ The Appellate Body noted that ‘explicit limitation on access to the financial contribution, on access to the benefit or on access to both’ constitute an express limitation on access to the subsidy. See *US – Anti-Dumping and Countervailing Duties (China)* (n 801), para 378.

⁸⁹⁴ *US — Large Civil Aircraft (2nd complaint)* (n 841), para 7.190.

⁸⁹⁵ Art 2.1(b), SCM Agreement.

⁸⁹⁶ Footnote 2, *ibid*.

contain objective eligibility criteria or conditions may, *in fact*, be specific. The following factors or indicators determine the *de facto* specificity of subsidies:

- (i) use of a subsidy programme by a limited number of certain enterprises, (ii) predominant use by certain enterprises, (iii) the granting of disproportionately large amounts of subsidy to certain enterprises, and (iv) the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy.⁸⁹⁷

The Panel in *US – Softwood Lumber IV* clarified that it is not necessary to examine all these four factors or indicators of *de facto* specificity.⁸⁹⁸ The presence of any of the four factors is sufficient to establish the *de facto* specificity of the subsidy in question. The *de facto* specificity requirement extends the application of the SCM Agreement to subsidies that appear to be non-specific but in practice benefit only certain enterprises.⁸⁹⁹ What determines the *de facto* specificity of a subsidy is not the intent of the government, but the actual use of the subsidy.⁹⁰⁰ The *US – Softwood Lumber IV* Panel rejected the argument that *de facto* specificity exists only insofar as the granting authority deliberately limits access to the subsidy.⁹⁰¹ The Panel was of the view that while it could form the basis for a finding of *de facto* specificity, showing deliberate action by the government is not as such necessary to establish *de facto* specificity.

The SCM Agreement contains additional rules on specificity for prohibited subsidies and regional subsidies. Article 2.3 provides that subsidies that fall within the category of prohibited subsidies (Article 3) are deemed specific *per se*. It means that there is no need to conduct a specificity test when the subsidy falls under the provisions of Article 3. The logical explanation for this presumption of specificity is the recognition that such subsidies are more trade distorting than other kinds of subsidies (see *section 4.5.3.1*).

⁸⁹⁷ Art 2.1(c), *ibid*.

⁸⁹⁸ *Panel Report, United States - Final Countervailing Duty Determination With respect to Certain Softwood Lumber from Canada (US - Softwood Lumber IV)*, WT/DS257/R, adopted 17 February 2004, para 7.123.

⁸⁹⁹ Some commentators correctly associate the broad definition of specificity under Article 2.1 to the intent of the negotiators to include a wide range of subsidies within the ambit of the SCM Agreement. See Michael Trebilcock and Michael Fishbein, 'International Trade: Barriers to Trade' in Andrew T Guzman and Alan O Sykes (eds), *Research Handbook in International Economic Law* (Edward Elgar 2007), at 21-22.

⁹⁰⁰ Some commentators argue that the focus of the specificity requirement on the use rather than intent is problematic. See Petros Mavroidis, *Trade in Goods: The GATT and the Other Agreements Regulating Trade in Goods* (Oxford University Press 2012) (calling for 'a genuine-intent test' of specificity), at 550.

⁹⁰¹ *US - Softwood Lumber IV* (n 898), para 7.116.

The additional rule on regional specificity provides that ‘a subsidy which is limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority shall be specific’.⁹⁰² This rule suggests that subsidies from a sub-national or regional government to all enterprises located within the designated geographical region are not specific.⁹⁰³ Such subsidies were ‘specific’ under the draft text of the SCM Agreement in the Draft Final Act Embodying the Result of the Uruguay Round of Multilateral Trade Negotiations (the Dunkel Draft named after Arthur Dunkel the then Director General of the GATT).⁹⁰⁴ However, Canada was concerned that by considering generally available subsidies from regional governments as ‘specific’ and hence actionable, the specificity test of the *Dunkel Draft*, affects ‘the constitutional balance between the federal and provisional governments in Canada’.⁹⁰⁵ The non-specificity of generally available regional subsidies was a response to these concerns. The irony is that Article 2 deems an identical generally available subsidy specific if it is of the national government. For example, a subsidy from the US Federal Government to all enterprises or industries located in California is specific under Article 2, but an identical generally available subsidy becomes non-specific if it comes from the State of California.

To conclude, government support measures that fall within the definition of a ‘subsidy’ in Article 1.1 must be either *de jure* or *de facto* specific to be objectionable under the SCM Agreement. Except for prohibited subsidies, which are deemed specific *per se*, subsidies that fail the specificity test fall outside the ambit of the SCM Agreement. However, drawing the line between specific and non-specific subsidies is controversial due to the imprecision in the definition of specificity.⁹⁰⁶ As Sykes puts it, Article 2 leaves open the ‘fundamental question’ of how narrowly targeted must a subsidy be to pass the specificity test.⁹⁰⁷ The adjudicatory bodies are also yet to

⁹⁰² Art 2.2, SCM Agreement.

⁹⁰³ See O’Brien (n 747), at 121.

⁹⁰⁴ See Art 2.2 of the Agreement on Subsidies and Countervailing Measures, GATT, ‘Draft Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations (‘Dunkel Draft’)’ (1991) MTN.TNC/W/FA.

⁹⁰⁵ See McDonough (n 746), at 222.

⁹⁰⁶ On the imprecision of the specificity definition, see *US — Upland Cotton* (n 816), paras 7.1139-7.1142.

⁹⁰⁷ Sykes, ‘International Trade: Trade Remedies’ (n 695), at 103.

draw a clear and firm line between specific and non-specific or general subsidies.⁹⁰⁸ Part of the problem lies in the obscurity of the policy rationale underlying the specificity test (see below).

Notwithstanding its deficiencies, the specificity requirement is of particular importance to the regulation of energy subsidies under the SCM Agreement. The first issue that arises here is whether the fossil fuel and renewable energy sectors qualify – either on their own or together - as an industry or group of industries within the meaning of Article 2.1.⁹⁰⁹ Another issue is that of fossil fuel consumption subsidies. Most fossil fuel subsidies come in the form of consumption subsidies that are generally available throughout an economy (see Chapter 2). Their general availability implies that such subsidies are not *de jure* specific. We will consider whether such subsidies pass the *de facto* specificity test in the next chapter, but it is sufficient to note here that establishing *de facto* specificity is relatively more complex because of its ‘very fact-intensive’ nature.⁹¹⁰ It also depends not only on the specific aspects of the government measure but also on the actions of the granting authority in implementing the measure.

4.5.2.2.2 The Rationale behind the Specificity Test

It is clear that the specificity test serves to limit the scope of application of the disciplines of the SCM Agreement.⁹¹¹ It acts as a filter to narrow the scope of subsidies that are objectionable under the SCM Agreement. What is not clear is the underlying rationale behind it. Why does the SCM Agreement discipline specific subsidies but not general subsidies?

⁹⁰⁸ The prevailing view on the specificity test seems to be that of the US - Upland Cotton Panel. Having examined the Chapeau and specific provisions of Article 2, the Panel concluded that ‘Whether a subsidy is specific can only be assessed on a case-by-case basis’. See *US — Upland Cotton* (n 816), para 7.1142.

⁹⁰⁹ Article 2 of the SCM Agreement does not define the key terms therein such as ‘industry’ and ‘group of industries’. Nor did the Appellate Body have the opportunity to clarify these terms. Only the US – Upland Cotton Panel attempted to directly address the meaning of these terms so far. Having recognized that Article 2.1 ‘does not offer any technical definition or additional, detailed indication of how broadly or narrowly we are to classify an “industry”’, the Panel held that an ‘industry’ or group of ‘industries’ ‘may be generally referred to by the type of products they produce’. It, however, went on to concede that ‘the breadth of this concept of “industry” may depend on several factors in a given case’. See *ibid*, paras 7.1141 - 7.1142.

⁹¹⁰ Lester, Mercurio and Davies (n 748), at 429.

⁹¹¹ See Rubini, *The Definition of Subsidy and State Aid* (n 208) (also noting that the ‘[specificity] requirement is clearly intended to operate as a tool to limit the measures that are regulated by the subsidy rules’), at 359.

The essential argument for the specificity test is that narrowly targeted subsidies are more trade distortive than those that are more generally available throughout the economy.⁹¹² Underlying this ‘distortion’ rationale is the classical economic argument that subsidies distort the efficient allocation of resources by diverting funds from more efficient but unsubsidized industries to less efficient but subsidized ones. Those who see an economic justification for the specificity test argue that such distortion does not arise when the subsidy is broadly available throughout the economy – as all industries get to benefit from (and pay for) the subsidy.⁹¹³ Many commentators, however, question the validity of this argument as a justification for the specificity requirement of the SCM Agreement.⁹¹⁴ The concern at the international level is not as such the internal distortions of the subsidizing country. It is of less interest to *Country X* whether *Country Y* subsidizes its car industry at the expense of its more efficient electronics industry. Such a subsidy reduces the welfare of *Country Y*, but the subsidy concerns *Country X* only insofar as it adversely affects its car industry. It matters little for the car industry of *Country X* whether the subsidy is specific or generally available throughout the economy. The fact remains that the car industry of *Country Y* is subsidized while that of *Country X* gets no subsidy. As such, even generally available subsidies may distort competition and trade.⁹¹⁵ This and other considerations have led some to conclude that the specificity requirement has no economic justification.⁹¹⁶ Perhaps the most interesting of these is that of the US. The specificity test has its origin in US countervailing duty law.⁹¹⁷ The US has long used specificity to identify subsidies it deemed troublesome and impose countervailing duties. However, during the Uruguay Round, it argued against the concept

⁹¹² See Sykes, ‘International Trade: Trade Remedies’ (n 695), at 103; Mavroidis, *Trade in Goods: The GATT and the Other Agreements Regulating Trade in Goods* (n 900), at 549; Marc Benitah, *The Law of Subsidies Under the GATT/WTO System* (Kluwer Law International 2001), at 256-262; Lester, Mercurio and Davies (n 748), at 429; Luengo (n 699), at 129-130.

⁹¹³ Benitah, for example, argues that ‘[t]his type of “distortion” would not have taken place had the subsidy been generally available to all industries’. See Benitah (n 912), at 258.

⁹¹⁴ See Rubini, *The Definition of Subsidy and State Aid* (n 208), 360-364; Jackson (n 692), at 296-297; Trebilcock and Fishbein (n 899), at 22; Low (n 809); Behboodi (n 698), at 11.

⁹¹⁵ On this line of argument, see Rubini, *The Definition of Subsidy and State Aid* (n 208) (and the citations therein), at 361.

⁹¹⁶ This is one of the reasons that led Mavroidis et al. to conclude that the SCM Agreement is ‘one of the least economics-informed agreements in the WTO’. See Petros C Mavroidis, Patrick A Messerlin and Jasper M Wauters, *The Law and Economics of Contingent Protection in the WTO* (Edward Elgar Publishing 2008), at 462.

⁹¹⁷ Note that neither the GATT Articles XVI and VI nor the Tokyo Round Subsidies Code require specificity. On the origin of the specificity test, see Trebilcock and Fishbein (n 899), at 103; Rubini, *The Definition of Subsidy and State Aid* (n 208) (describing the US as the ‘cradle of the specificity test’), at 361; Jackson (n 692) (noting that the specificity test was introduced explicitly in the US Countervailing Duty Statute of 1979), at 297.

it had ‘created and promoted’ noting that, ‘it had no economic justification’ and ‘did not have the degree of attractiveness once attributed to it’.⁹¹⁸ It is puzzling that the SCM Agreement adopted a concept rejected even by its creator to limit its scope of application.

Another common argument for the specificity requirement is that it reflects the view that general subsidies are necessary to promote legitimate policy goals.⁹¹⁹ The question here is whether generally available subsidies are more effective than specific subsidies to achieve legitimate policy goals. In our discussion on the economics of subsidies, we noted that the economic case for subsidies stems essentially from market failures (see *section 3.2*). Subsidies are effective in correcting market failures when they specifically target the failure in question. However, are generally available subsidies more targeted (and hence effective) than specific subsidies? Take, for example, the case of generally available fossil fuel consumption subsidies. The justification for such subsidies is support for poor households. However, their regressive nature means that such subsidies often end up benefitting rich-households more than poor households (see *section 1.2.2*). Their ineffectiveness has led the economic literature to call in unison for governments to replace their general subsidies with subsidies specifically targeted at the poor.

Having failed to find a convincing economic justification, some commentators resort to practical considerations to explain the rationale behind the specificity requirement. Behboodi, for example, argued that the specificity test ‘seems, for the moment at least, to be the most workable test for distinguishing a government’s general infrastructure spending from targeted subsidisation of its industries’.⁹²⁰ In a similar vein, Professor Jackson argued that:

[P]art of the rationale for the specificity test is that it is useful as a tool of administration (albeit something blunt) to get rid of a number of cases which really ought not to be brought into a countervailing duty or international rule process.⁹²¹

⁹¹⁸ See GATT, ‘Minutes of the Meeting Held on 25 October 1990’ (1990) SCM/M/48, at 15-16.

⁹¹⁹ See Lester, Mercurio and Davies (n 748), at 429. See also Mitsuo Matsushita and others, *The World Trade Organization: Law, Practice, and Policy* (3rd edn, Oxford University Press 2015) (arguing that the purpose of the specificity test is ‘to separate the provision of good government and support for the economy in general’), at 325; Andrew Guzman and Joost HB Pauwelyn, *International Trade Law* (2nd edn, Wolters Kluwer Law & Business 2012), at 440.

⁹²⁰ Behboodi (n 698), at 137.

⁹²¹ Jackson (n 692), at 297.

This is by far the most logical explanation for the specificity test. The history of the multilateral subsidy disciplines reveals the reluctance of countries to subject the whole universe of subsidies to multilateral subsidy disciplines. Given the difficulty of drawing a fine line between bad and good subsidies, the specificity test is simply a ‘rule of thumb’ for focusing on subsidies that are more troublesome.⁹²² The automatic specificity of subsidies contingent upon either export performance or the use of domestic goods over imported goods confirms this view. The SCM Agreement exempted such subsidies from the specificity requirement not because they cannot be generally available but because their adverse effect on trade is self-evident.

4.5.3 The SCM Disciplines

Measures that fit the definition of ‘subsidy’ in Article 1.1 and pass the specificity test of Article 2 are subject to the disciplines of the SCM Agreement. These are, however, only threshold issues. The Appellate Body in *US – FSC (Article 21.5)* confirmed the obvious point that neither Article 1 nor Article 2 sets out rights or obligations.⁹²³ The disciplines applicable to subsidies that meet the requirements of Articles 1 and 2 are set out in the subsequent articles of the SCM Agreement. There are two sets of disciplines. The first sets of disciplines are those specific to each category of subsidies. As mentioned in *section 4.4.3*, the SCM Agreement originally classified subsidies into three categories based on the ‘traffic-light’ approach: prohibited subsidies (red light subsidies); actionable subsidies (yellow light subsidies); and non-actionable subsidies (green light subsidies). The expiry of the third category at the end of 1999 has left the agreement with only two categories. Subsidies now fall either under the prohibited or actionable category. The second sets of disciplines include those related to remedies, transparency, and S&D treatment.⁹²⁴ This section will first examine the first sets of disciplines. The section will then explore the disciplines on remedies, transparency and S&D treatment.

⁹²² See Low (n 809), at 120. See also William K Wilcox, ‘GATT-Based Protectionism and the Definition of a Subsidy’ (1998) 16 Boston University International Law Journal 129 (stating that ‘specificity is a crude, but useful and manageable tool that can be used to separate acceptable subsidies from unacceptable ones’), at 153.

⁹²³ See *Appellate Body Report, United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US — FSC (Article 21.5)), WT/DS108/AB/RW, Adopted on 29 January 2002* (n 827), paras 85-87.

⁹²⁴ The remedies against prohibited and actionable subsidies are integral parts of the disciplines on subsidies because they serve as a mechanism to restrain subsidization. See Low (n 809), at 115.

4.5.3.1 Disciplines Specific to the Three Categories of Subsidies

4.5.3.1.1 Prohibited Subsidies

The SCM Agreement prohibits the granting or maintaining of two forms of subsidies: export subsidies and local content subsidies.⁹²⁵ Their *per se* prohibition reflects the recognition that these subsidies are inherently trade distorting.⁹²⁶ Their distortive effects are so evident that the SCM Agreement presumes both their specificity and adverse effects. Much of the discussion on prohibited subsidies concerns the determination of what constitutes export subsidies and local content subsidies within the meaning of Article 3. Each of these two types of subsidies are discussed in turn. Before proceeding with the discussion, it may be useful to recall here that extending the list of prohibited subsidies to include other forms of trade-distorting and socially undesirable subsidies (e.g. fisheries subsidies) is the subject of ongoing negotiations.

4.5.3.1.1.1 Export Subsidies

The SCM Agreement is not the first to prohibit export subsidies. Such subsidies have always been the main target of international efforts to discipline subsidies.⁹²⁷ The multilateral trading system has also prohibited export subsidies since 1955.⁹²⁸ What has changed over the years is the scope of what constitutes an ‘export subsidy’. GATT Article XVI (4) defines an export subsidy narrowly as a subsidy on the export of a product, which ‘results in the sale of such product for export at a price lower than the comparable price charged for the like product to buyers in the

⁹²⁵ Art 3, SCM Agreement.

⁹²⁶ In proposing the list of prohibited subsidies, the US argued that such subsidies distort trade flows by their very nature. See GATT, ‘Elements of the Framework for Negotiations’ (n 753), at 2.

⁹²⁷ International efforts to limit export subsidies date back to the 1962 treaty between France and the German Zollverein. Such efforts were ‘originally inspired not by the high-minded notions of comparative advantage but by the mercantile notion that subsidies might undercut ‘legitimate’ tariffs’. See Hufbauer and Shelton Erb (n 270), at 45.

⁹²⁸ See GATT Article XVI(4). However, it is worth noting that the automatic prohibition of export subsidies under GATT Article XVI(4) applied only to non-primary products and it came into force only in 1960

domestic market'.⁹²⁹ Article 9 of the Subsidies Code defines export subsidies through an Illustrative List, which is now incorporated into the SCM Agreement as Annex to Article 3.1(a).

Article 3.1(a) defined export subsidies as 'subsidies contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I'.⁹³⁰ Subsidies constitute an export subsidy within the meaning of Article 3.1(a) if they are listed in the Illustrative List or are contingent (*de jure* or *de facto*) upon export performance. The Illustrative List in Annex I contains eleven 'examples' or 'illustrations' of export subsidies.⁹³¹ It is relatively easy to establish whether a measure is an export subsidy if it falls within the Illustrative List. Such exercise does not require establishing whether the subsidy is contingent upon export performance.⁹³² Nor does it necessitate establishing whether it meets the definitional elements of Article 1.1.⁹³³ The case law has confirmed that measures that fall within the Illustrative List are *per se* export subsidies. The logical starting point in determining whether a subsidy constitutes an export subsidy is, therefore, to assess whether it is listed in the Illustrative List. Subsidies that fall outside the scope of the Illustrative List may still constitute an export subsidy under Article 3.1(a).⁹³⁴ Proving the existence of an export subsidy within the meaning of Article 3.1(a) requires (i) establishing the existence of a subsidy within the meaning of Article 1.1 and (ii) contingency of that subsidy upon export performance.⁹³⁵ The export contingency requirement under this provision implies that the subsidy must be 'conditional' or

⁹²⁹ Like the classical definition of dumping, this definition focuses on comparison between domestic and export prices. The problem is that subsidies can appear in forms other than price competition and data on domestic and export prices is not always readily available. See Hufbauer and Shelton Erb (n 270), at 46.

⁹³⁰ Art 3.1(a) SCM Agreement (footnotes omitted).

⁹³¹ For a detailed discussion on the type of subsidies in the Illustrative List, see Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), at 124-140.

⁹³² See *Panel Report, Brazil – Export Financing Program for Aircraft (Brazil – Aircraft (Article 215)), WT/DS46/RW, adopted 4 August 2000*, para 6.31.

⁹³³ See *Korea-Commercial Vessels* (n 483), para 7.204.

⁹³³ Like the classical definition of dumping, this definition focuses on comparison between domestic and export prices. The problem is that subsidies can appear in forms other than price competition and data on domestic and export prices is not always readily available. See Hufbauer and Shelton Erb (n 270), at 46.

⁹³⁴ See *Brazil-Aircraft* (n 828) (noting that there are measures other than those listed in the Illustrative List that could be covered by Article 3), para 34.

⁹³⁵ See *Panel Report, Canada - Export Credits and Loan Guarantees for Regional Aircraft (Canada – Aircraft Credits and Guarantees), WT/DS222/R, adopted 19 February 2002*, para 7.16.

‘dependent upon’ export performance.⁹³⁶ Such contingency can be either *de jure* or *de facto*. The Appellate Body explained in *Canada – Aircraft* that ‘*de jure* export contingency is demonstrated on the basis of the words of the relevant legislation, regulation or other legal instruments’.⁹³⁷ *De facto* export contingency covers instances whereby ‘the facts demonstrate that the granting of a subsidy [...] is *in fact* tied to actual or anticipated exportation or export earnings’.⁹³⁸ The legal standard of contingency is the same for both *de jure* and *de facto* export contingency, but establishing the latter is much more difficult.⁹³⁹ The difficulty arises from the type of evidence required to prove the existence of a tie between the granting of the subsidy and export performance. Since no single document proves the existence of such a tie (like in the case of *de jure* contingency), the contingency relationship ‘must be inferred from the total configuration of the facts constituting and surrounding the granting of the subsidy’.⁹⁴⁰ A *de facto* export contingency exists if such facts indicate that the granting of the subsidy is geared to induce the promotion of future export performance.⁹⁴¹ The Appellate Body has clarified that the government’s policy objectives for granting the subsidy are relevant but insufficient to prove that the subsidy is geared to induce export performance.⁹⁴² The point is that establishing the *de facto* export contingency of a subsidy requires the existence of objective evidence (rather than subjective intent). Such evidence results from the assessment of all the relevant facts concerning the granting of the subsidy in question on a case-by-case basis.

⁹³⁶ See Appellate Body Report, *United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US — FSC (Article 21.5))*, WT/DS108/AB/RW, Adopted on 29 January 2002 (n 827), para 8.55.

⁹³⁷ See *Canada-Aircraft* (n 828), at 167.

⁹³⁸ Footnote 4, SCM Agreement (emphasis added).

⁹³⁹ See *Canada-Aircraft* (n 828), at 167.

⁹⁴⁰ Such facts may include: ‘(i) the design and structure of the measure granting the subsidy; (ii) the modalities of operation set out in such a measures; and (iii) the relevant factual circumstances surrounding the granting of the subsidy that provide the context for understanding the measure’s design, structure, and modalities of operation’. See *EC and certain member States - Large Civil Aircraft* (n 391), para 1046.

⁹⁴¹ See *ibid*, para 1051.

⁹⁴² *ibid*, paras 1050-1051.

4.5.3.1.1.2 Local-Content Subsidies

The SCM Agreement is the first multilateral agreement to prohibit local content subsidies (also known as import substitution subsidies).⁹⁴³ The underlying reason for their prohibition is preventing countries from circumventing their tariff reduction commitments.⁹⁴⁴ The substantial reduction in import tariffs and the fact that tariffs are locked-in binding commitments have led protectionist governments to resort to non-tariff barriers to protect their domestic industries from foreign competition. Import-substitution subsidies are one such non-tariff barriers. They encourage the displacement of imported goods by domestic goods and thereby serve as trade barriers in disguise. Such subsidies take the form of domestic content requirements.

Article 3.1(b) defines local content subsidies as ‘subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods’. The essential requirements here are that (i) the measure must be a subsidy within the meaning of Article 1.1 and (ii) that subsidy must be contingent upon the use of domestic over imported goods. Although it is not clear from the text, the Appellate Body has clarified that Article 3.1(b) covers both *de jure* and *de facto* contingency.⁹⁴⁵ It also explained that the legal standard of contingency under Article 3.1(b) is similar to that of Article 3.1(a) (see *section 4.5.3.1.1*).⁹⁴⁶

4.5.3.1.2 Actionable Subsidies

The SCM Agreement contains no definition of actionable subsidies. The original idea was for the actionable category to serve as a residual category that comprises all subsidies that fall neither under the prohibited nor under the non-actionable category. Since the expiration of non-

⁹⁴³ Local content subsidies also remain the only form of domestic subsidies prohibited under WTO law.

⁹⁴⁴ The negotiating history of Article 3.1(b) confirms this interpretation. The US argued that import substitution subsidies are ‘as effective as any tariff in protecting domestic input-supplying industries and distorting the flow of resources internationally’. See GATT, ‘Elements of the Framework for Negotiations’ (n 753), at 2.

⁹⁴⁵ The Panel initially found that Article 3.1(b) covers only *de jure* contingency because unlike Article 3.1(a) the former does not contain an explicit reference to *de jure* and *de facto* contingency. See *Appellate Body Report, Canada - Certain Measures Affecting the Automotive Industry (Canada - Autos), WT/DS139/AB/R WT/DS142/AB/R, adopted 19 June 2000*, para 143. In *US – Tax Incentives*, the Appellate Body reiterated its earlier finding in the context of Article 3.1(a) that proving *de facto* contingency is a ‘much more difficult task’ than proving *de jure* contingency. See *Appellate Body Report, United States — Conditional Tax Incentives for Large Civil Aircraft (US - Tax Incentives) WT/DS487/AB/R, adopted 22 September 2017*, para 5.12.

⁹⁴⁶ See *Canada - Autos (AB)* (n 945), para 123.

actionability, the actionable category has come to encompass all subsidies that are not prohibited under Article 3 of the SCM Agreement and cause adverse effect. The Appellate Body explained in *US – Upland Cotton (Article 21.5)* that ‘actionable subsidies are not prohibited per se; rather, they are actionable to the extent they cause adverse effects’.⁹⁴⁷ As such, actionable subsidies are not too distortive to be ‘prohibited’ but distortive enough to trigger counteraction.

Proving the existence of an actionable subsidy requires establishing that the subsidy in question is ‘specific’ and has caused ‘adverse effect’.⁹⁴⁸ Adverse effects may take the form of: (i) injury to the domestic industry of other members; (ii) nullification or impairment of benefits; and (iii) serious prejudice to the interest of other members.⁹⁴⁹ Unlike in the case of prohibited subsidies, where ‘specificity’ and ‘adverse effects’ are assumed, the complainant must prove that the subsidy at issue is ‘specific’ and had caused one of these adverse effects.

Determining whether a subsidy has caused an ‘injury to the domestic industry’ within the meaning of Article 5(a) requires establishing the presence of an ‘injury’ and a causal link between the injury and the subsidized imports.⁹⁵⁰ The condition of the domestic industry is the focal point of the injury analysis. The term ‘domestic industry’ in Article 5(a) refers to the domestic producers of the ‘like product’.⁹⁵¹ The SCM Agreement defines the term ‘like product’ as ‘a product which is identical’.⁹⁵² Such a narrow definition of likeness adds to the difficulty of establishing ‘adverse effects’ in the form of injury to the domestic industry.

The second type of adverse effects covers situations where the use of a subsidy causes nullification or impairment of benefits accruing directly or indirectly to other members.⁹⁵³ Footnote 12 to Article 5(b) provides that the term ‘nullification and impairment’ has the same

⁹⁴⁷ See *Appellate Body Report, United States - Subsidies on Upland Cotton, Recourse to Article 21.5 of the DSU by Brazil (US – Upland Cotton (Article 21.5)), WT/DS267/AB/RW, Adopted 20 June 2008*, para 238.

⁹⁴⁸ See *Panel Report, United States - Continued Dumping and Subsidy Offset Act of 2000 (US - Offset Act (Byrd Amendment)) WT/DS217/R and WT/DS234/R, adopted 27 January 2003*, para 7.106.

⁹⁴⁹ Art 5(a-c), SCM Agreement.

⁹⁵⁰ The term ‘injury’ covers not only material injury, but also the threat thereof and material retardation of the establishment of a domestic industry. See footnotes 11 and 45, *ibid.*

⁹⁵¹ See Art 16.1, *ibid.*

⁹⁵² Footnote 46, *ibid.*

⁹⁵³ Art 5(b), *ibid.*

meaning both in Article 5(b) of the SCM Agreement and GATT Article XXIII:1(b).⁹⁵⁴ It also states that the existence of ‘nullification or impairment’ in Article 5(b) shall be established in accordance with the jurisprudence of Article XXIII:1(b).⁹⁵⁵ The relevant jurisprudence suggests that three elements are essential to establishing nullification or impairment of benefits within the meaning of Article XXIII:1(b): (i) application of a measure; (ii) a benefit accruing from the GATT; and (iii) a causal relationship between the nullification or impairment of that benefit and the application of the measure.⁹⁵⁶ In applying this legal test to Article 5(b), the Panel in *US – Offset Act (Byrd Amendment)* concluded that ‘nullification or impairment would arise when the effect of a tariff concession is systematically offset or counteracted by a subsidy program’.⁹⁵⁷ The main challenge here is establishing the causation between the subsidy in question and the ‘nullification or impairment’ of benefits (accruing from tariff concessions).

The broadest form of adverse effects is serious prejudice to the interest of other members. The concept of ‘serious prejudice’ is an entirely different that of ‘injury’ in Article 5(a).⁹⁵⁸ While the subject matter of the injury analysis in Article 5(a) is the condition of a particular domestic industry, serious prejudice concerns the negative effects of subsidies on the trade interests of other members in respect of the subsidized product. Article 6.3 provides that ‘serious prejudice’ within the meaning of Article 5(c) may arise when the subsidy at issue results in one or several of the adverse effects listed therein. The list includes displacement or impedance of imports or exports (Article 6.3(a) and (b)); significant price undercutting, price depression or lost sales (Article 6.3(c)); and increase in the world market share of the subsidizing member (Article 6.3(d)). Establishing the existence of an actionable subsidy within the meaning of Article 5(c) requires establishing not only the existence of a specific subsidy and serious prejudice but also

⁹⁵⁴ The underlying purpose of Article XXIII:1(b) is to prevent the circumvention of tariff concessions under GATT Article II by non-tariff measures that are (otherwise) consistent with the GATT. The jurisprudence on Article XXIII:1(b) confirms that subsidies are one of the non-tariff measures countries commonly used to circumvent their obligations under GATT Article II. The inclusion of nullification or impairment of benefits accruing from GATT Article II as one of the three forms of adverse effects in Article 5 reflects this reality.

⁹⁵⁵ SCM Agreement. Note that much of the jurisprudence on GATT Article XXIII:1(b) is subsidy-related.

⁹⁵⁶ The Panel in *US - Offset Act (Byrd Amendment)* (n 948) explained that the ‘application of a measure’ element refers to the ‘use of a subsidy’ in the context of Article 5(b), paras 7.120-7.122.

⁹⁵⁷ See *ibid*, para 7.127.

⁹⁵⁸ See *Korea-Commercial Vessels* (n 483), para 7.578.

the presence of a causal link between the two.⁹⁵⁹ The threshold to establish causation in Article 5(c) is higher than that of Article 5(a) and (b). The Article 5(c) jurisprudence indicates that a causal link between the subsidy at issue and its alleged adverse effects exists only if there is 'a genuine and substantial relationship of cause and effect'.⁹⁶⁰ Although this does not mean that the subsidy at issue must be the sole cause or the only substantial cause of the alleged adverse effects, demonstrating causation requires the proper consideration of all other relevant contributing factors and their effects.⁹⁶¹ Such consideration is particularly important not to 'attribute the effects of those other causal factors to the subsidies at issue'.⁹⁶² The implication is that establishing an actionable subsidy within the meaning of Article 5(c) is a 'fact-intensive' exercise that must be determined on a case-by-case basis.

Two general points are worth underlining here. First, it is much more difficult to challenge actionable subsidies than prohibited subsidies. The difficulty lies in establishing specificity and adverse effects. Second, what makes subsidies actionable under the SCM Agreement is their adverse effects on international trade. Insofar as they have no adverse trade effects, subsidies are not actionable even though they have adverse social and environmental effects.

4.5.3.1.3 Non-Actionable Subsidies

The SCM Agreement originally contained a third category of subsidies called non-actionable subsidies. Subsidies that qualify as 'non-actionable' within the meaning of Article 8 were immune to both unilateral and multilateral actions. However, this provision was of temporary nature and expired at the end of 1999. In this section, we will discuss the scope and main features of this category, the eligibility conditions and criteria set out in Article 8, as well as the rationales behind the birth and premature death of the category. These issues are significant in light of current calls for the reintroduction of non-actionability to provide the necessary safe harbour for subsidies with legitimate public policy objectives.

⁹⁵⁹ See *US — Large Civil Aircraft (2nd complaint)* (n 820), para 913.

⁹⁶⁰ See *ibid*, para 913. The Appellate Body emphasized in *EC and certain member States - Large Civil Aircraft* (n 391) that the requisite standard of a 'genuine and substantial' causal relationship applies to all forms of serious prejudice listed in Article 6.3, para 1232.

⁹⁶¹ See *US — Large Civil Aircraft (2nd complaint)* (n 820), para 914.

⁹⁶² *ibid*.

4.5.3.1.3.1 The Nature and Scope of the Non-Actionable Subsidies

The ‘non-actionable’ category contains two sets of subsidies. Article 8.1(a) defines the first set of non-actionable subsidies as ‘subsidies which are not specific within the meaning of Article 2’. The negotiating history suggests that the reason for the inclusion of ‘non-specific’ subsidies in the list of ‘non-actionable’ subsidies was the concern of some countries that general availability might not be sufficient to make a subsidy non-actionable.⁹⁶³ However, it is hard to imagine any circumstance in which a generally available subsidy becomes actionable under the SCM Agreement. Including non-specific subsidies in the positive list of ‘non-actionable’ subsidies seems to be redundant. The specificity of a subsidy is determined ahead of its actionability under the SCM Agreement. Article 1.2 established that non-specific subsidies fall outside the scope of the SCM Agreement. Since such subsidies are non-actionable in any case, their inclusion in Article 8 seems to serve no other purpose than emphasizing the importance of the specificity requirement. It follows that the expiry of Article 8 has not changed the status of non-specific subsidies under the SCM Agreement.

The second and more important set of non-actionable subsidies comprises three specific subsidies: assistance to R&D activities; assistance to disadvantaged regions; and environmental subsidies. To be considered non-actionable, these subsidies must meet the substantive and procedural requirements set out in Article 8.2 and 8.3.

4.5.3.1.3.1.1 Substantive Requirements

Article 8.2 sets out detailed and stringent substantive requirements of non-actionability. These requirements are ‘sufficiently narrow to prevent any undermining of the gains in subsidies disciplines contained in other provisions of the SCM Agreement’.⁹⁶⁴ Since the substantive non-actionability requirements are specific to each of the three forms of subsidies, we will consider them separately in turn.

⁹⁶³ GATT, ‘Meeting of 30 November-1 December 1989: Note by the Secretariat’ (1990) MTN.GNG/NG10/15, at 4.

⁹⁶⁴ See U.S. Department of Commerce, ‘Review and Operation of the WTO Subsidies Agreement’ (1999) Report to the Congress.

4.5.3.1.3.1.1.1 R&D Subsidies

R&D subsidies were one of the most contentious issues in the subsidies negotiations. The controversy was not over the importance of making them non-actionable, but over the extent to which they should be non-actionable. The original proposal from the EC sought to make subsidies that cover up to 20 percent of the cost of basic research and not more than 25 percent of applied research non-actionable.⁹⁶⁵ The US initially opposed these rates and sought to lower the percentage. However, the US and the EC exchanged positions in the final moments of the negotiations because of the sudden and complete change in the US position. The US pushed for expanded coverage following the coming into office of the Clinton administration in January 1993, while the EC fought to limit the scope of the exemption.⁹⁶⁶ As such, the final text of Article 8.2(a) was the result of the compromise reached between these two principal actors.

Not all R&D subsidies were treated as non-actionable. Article 8.2(a) provided that R&D subsidies qualify as non-actionable only if they are granted to ‘firms, higher education facilities, or research establishments acting under contract to firms’ and cover ‘not more than 75 percent of the cost of industrial research’ or ‘50 percent of the costs of pre-competitive development activity’. Moreover, such subsidies must be exclusively limited to (i) personnel costs, (ii) costs of instruments, equipment, land and buildings, (iii) costs of consultancy and equivalent services, (iv) overhead, and (v) other running costs directly incurred because of the research activity.⁹⁶⁷ The definition of the terms ‘industrial research’ and ‘pre-competitive development’ reveals the narrow scope of Article 8.2(a). This provision was the subject of much criticism. One criticism was that it did not take into account the interests of developing countries. Only subsidies to new technologies and innovation fall under this provision. Subsidies for the acquisition and adaptation of existing technologies, which are essential for developing countries, hardly fall within the scope of this provision.⁹⁶⁸ The same issues arise in the area of renewable energy R&D subsidies. Such

⁹⁶⁵ See GATT, ‘Elements of the Negotiating Framework: Submission by the European Community’ (1989) MTN.GNG/NG10/W/31.

⁹⁶⁶ See O’Brien (n 747), at 120.

⁹⁶⁷ Art 8.2(a)(i-v), SCM Agreement.

⁹⁶⁸ For India’s criticism of Article 8.2(a), see WTO, ‘Intervention by India on the Submission by the United States on Special and Differential Treatment and the Subsidies Agreement’ (2003) TN/RL/W/68, at 2.

subsidies are one of the common forms of renewable energy support measures. However, besides innovation, most renewable energy support schemes promote adaptation and commercial scale up of existing technologies. This consideration raises questions as to the policy space reactivating Article 8.2(a) creates for R&D subsidies to renewable energy.

4.5.3.1.3.1.1.2 Regional Subsidies

The second forms of non-actionable subsidies were assistance to disadvantaged regions. Canada and the EC were the leading proponents of the non-actionability of such subsidies. They consider regional subsidies essential to promote regional development and social cohesion. Although such subsidies were countervailable under its countervailing duty law, the US was not hostile to the non-actionability of regional subsidies. Perhaps this helped such subsidies to find their way into the list of non-actionable subsidies under Article 8 of the SCM Agreement.

Subsidies to disadvantaged regions qualify as non-actionable subsidies only if they meet the substantive requirements set out in Article 8.2(b). The first of such requirement was that such subsidies should form part of a general framework of regional development.⁹⁶⁹ This requirement rules out subsidies that are not part of internally consistent and generally applicable regional development policy.⁹⁷⁰ Second, whether a particular region is disadvantaged or not was to be determined based on neutral and objective criteria (such as income per capita and unemployment rate) clearly spelt out in law, regulation or other official documents capable of verification.⁹⁷¹ This requirement explicitly rules out subsidies to regions facing difficulties merely because of temporary circumstances. The rationale behind these limitations was to prevent governments from abusing the non-actionability status.

4.5.3.1.3.1.1.3 Environmental Subsidies

South Korea was the first to make a case for the non-actionability of ‘environmental’ subsidies during the Uruguay Round negotiations. It presented ‘assistance for preventing environmental

⁹⁶⁹ Art 8.2(b), SCM Agreement.

⁹⁷⁰ See footnote 31, *ibid.*

⁹⁷¹ Art 8.2(b)(ii-iii), *ibid.*

pollution’ as one example of ‘justified’ subsidies that serve as ‘practical and effective policy measures to increase social utility and ensure an efficient resource allocation’.⁹⁷² Canada subsequently mentioned subsidies to ‘environmental management and conservation’ as an example of generally available subsidies that do not distort international trade.⁹⁷³ However, Switzerland made the first formal proposal for the inclusion of ‘environmental aid schemes’ in the non-actionable category.⁹⁷⁴ The EC subsequently added environmental subsidies into its proposal for non-actionable subsidies.⁹⁷⁵ However, the resistance from the US was so strong that none of the final draft texts of the SCM Agreement contained environmental subsidies in their list of non-actionable subsidies. The proposal to bring them back into the list came from Mexico in the final days of the negotiations.⁹⁷⁶ It is useful to note that the agreement to include environmental subsidies into the exhaustive list of non-actionable subsidies in the final text of Article 8.2(c) was reached on the day the subsidy negotiations were concluded.

Although we commonly refer to them as ‘environmental subsidies’, only a small subset of environmental subsidies meet the rigorous criteria of non-actionability set out in Article 8.2(c). First, the provision applies only to subsidies that ‘promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which result in greater constraints and financial burden on firms’. These are subsidies governments provide to help private firms upgrade their existing facilities to meet new mandatory environmental standards. One such example is subsidies to help existing facilities meet new mandatory renewable energy requirements. Absent such mandatory requirements, however, subsidies that promote the uptake of renewable energy would not qualify for non-actionability under Article 8.2(c). Even when

⁹⁷² See GATT, ‘Statement Made by the Delegation of Korea’ (n 716).

⁹⁷³ GATT, ‘Framework for Negotiations: Communication from Canada’ (1989) MTN.GNG/NG10/W/25.

⁹⁷⁴ See GATT, ‘Elements of the Negotiating Framework: Communication from Switzerland’ (1989) MTN.GNG/NG10/W/26. The Swiss proposal suggested limiting the exemption to a certain percentage of the total costs. This proposal was subsequently incorporated into the Nordic proposal. See GATT, ‘Elements of the Framework for Negotiations: Submission by the Nordic Countries’ (1989) MTN.GNG/NG10/W/30.

⁹⁷⁵ The EC proposal had relatively broad scope than the Swiss and Nordic proposals. It includes ‘environmental aid: such as compensation of higher cost of developing and/or adopting “clean” technologies, or inducement to consumers/users to prefer environment-friendly, albeit more expensive, products’. See GATT, ‘Elements of the Negotiating Framework: Submission by the European Community’ (n 965). The 1987 EC proposal for non-actionable subsidies did not mention environmental subsidies. See GATT, ‘Communication from the EEC’ (n 755).

⁹⁷⁶ The Mexican proposal drew on the 1989 EC proposal. See McDonough (n 746), at 224; O’Brien (n 747), at 122.

such mandatory requirements exist, only subsidies to existing facilities are non-actionable.⁹⁷⁷ Subsidies to newly established facilities do not qualify for non-actionability irrespective of whether they help the facilities meet their environmental requirements.⁹⁷⁸ Besides these definitional requirements, subsidies to existing facilities must also meet the following conditions to qualify as non-actionable subsidies within the meaning of Article 8.2(c):

- (i) one-time non-recurring measure;
- (ii) limited to 20 percent of the cost of adaptation;
- (iii) does not cover the cost of replaying and operating the assisted investment;
- (iv) directly linked to and proportionate to a firm's planned reduction of nuisances and pollution and does not cover any manufacturing cost saving which may be achieved; and
- (v) available to all firms, which can adopt the new equipment and/or production processes.⁹⁷⁹

These conditions reveal the narrow scope of the exemption for environmental subsidies under Article 8.2(c). Some of the conditions are even stricter than the ones for the other forms of non-actionable subsidies. For example, the amount of environmental subsidies was limited only to 20 percent of the adaptation cost. This limit was much lower than that of R&D subsidies, which was set at up to 75 of R&D of the cost. These considerations prompts the question as to whether it is worth reactivating Article 8.2(c) as it was (see *section 5.3.1.3.1*). More importantly, the question is whether this provision is well suited to accommodate renewable energy subsidies.

4.5.3.1.3.1.2 Procedural Requirements

The above three specific forms of subsidies were not *per se* non-actionable. Their non-actionability was subject to special notification and review procedures. Article 8.3 confers *ex-ante* non-actionable subsidy status only upon subsidies that have been notified before their implementation to the Committee on Subsidies and Countervailing Measures (the 'SCM

⁹⁷⁷ Footnote 31 to the SCM Agreement defines the term 'existing facilities as facilities which have been in operation for at least two years at the time when the new environmental requirements entered into force.

⁹⁷⁸ It is interesting to note that such subsidies were included in the draft texts of Article 8. See Art 8.2(c)(2), GATT, 'Draft Text on Subsidies and Countervailing Measures' (1990) NG/NG10/23. See also Art 8.2(c)(2), GATT, 'Draft Text by the Chairman' (1990) MTN/GNG/NG10/W/38/Rev.2.

⁹⁷⁹ Art 8.2.(c)(i-v), SCM Agreement.

Committee’).⁹⁸⁰ Unnotified non-actionable subsidies can be challenged as actionable subsidies, but the subsidizing government has the right to establish the non-actionability of the challenged subsidy (*ex-post* non-actionability).⁹⁸¹ Any Member may request for a review of *ex-ante* non-actionable subsidies.⁹⁸² The Committee then determines whether the subsidy in question has met the non-actionability conditions and criteria laid out in Article 8.2.⁹⁸³ If the Committee fails to make such a determination or if any Member is dissatisfied with the determination, the Member may refer the matter to binding arbitration.⁹⁸⁴ These procedural requirements were put in place to prevent governments from abusing the limited right to use the non-actionable subsidy status.⁹⁸⁵ However, no subsidy was notified under Article 8.3 during the period Article 8 was in force.⁹⁸⁶ The lack of notification is not unique to Article 8 (see *section 4.5.3.6*) but it raised question as to the relevance of the non-actionable category and contributed to the reluctance of some countries to support the extension of its application beyond the five years period (see below).

Any Member may also challenge non-actionable subsidies if it has ‘reasons to believe’ that the non-actionable subsidy in question has resulted in ‘serious adverse effects’ to its domestic industry thereby causing ‘damage which would be difficult to repair’.⁹⁸⁷ The adverse effects threshold here is higher than the one for actionable subsidies. However, Article 9 leaves the task of determining the existence of such adverse effects (without any guidance) to the SCM Committee, which must present its conclusion within 120 days.⁹⁸⁸ All these limitations highlight the narrow scope of the non-actionable category. Any discussion on reintroducing Article 8 (as it was or otherwise) to provide a safe harbour for socially desirable subsidies needs to consider these limitations. Such a discussion should also take into account the circumstances under which

⁹⁸⁰ Article 8.3 also requires Members to provide annual updates of non-actionable subsidies. The notification must be ‘sufficiently precise’ to enable other Members to evaluate the consistency of the notified subsidy program with the relevant non-actionability conditions and criteria set out in Article 8.2. See Art 8.3 *ibid*.

⁹⁸¹ See footnote 35, *ibid*.

⁹⁸² Art 8.4, *ibid*.

⁹⁸³ Art 8.4, *ibid*.

⁹⁸⁴ Art 8.5, *ibid*.

⁹⁸⁵ U.S. Department of Commerce (n 964).

⁹⁸⁶ See WTO, ‘Notification Provisions under the Agreement on Subsidies and Countervailing Duties: Background Note by the Secretariat’ (2017) G/SCM/W/546/Rev.8, para 18.

⁹⁸⁷ Art 9.1, SCM Agreement.

⁹⁸⁸ Art 9.3, *ibid*.

Article 8 came into being and expired. Having this in mind, we now turn our attention to the reasons behind the birth and premature death of the non-actionable category

4.5.3.1.3.2 The Birth and Premature Death of Non-Actionability

The SCM Agreement was the first multilateral trade agreement to introduce the category of non-actionable subsidies. The Subsidies Code contained a list of legitimate public policy objectives but did not go as far as defining subsidies pursuing such objectives as non-actionable.⁹⁸⁹ The EC and then Colombia and Switzerland made the initial proposals for a positive list of non-actionable subsidies as part of their proposal for the traffic-light approach to disciplining subsidies.⁹⁹⁰ Underlying their proposal was the recognition that not all subsidies distort trade, and some subsidies are desirable despite their adverse trade effects.⁹⁹¹ Making such subsidies non-actionable was turning this recognition into action. The proposal received widespread support - except from the US, which remained hostile to the concept of non-actionability until the final days of the negotiations. The US was of the view that ‘given the fungible nature of money, it is not at all clear that any subsidies should be non-actionable’.⁹⁹² Insisting that the non-actionable category may undermine the effectiveness of the disciplines on prohibited subsidies, the US attempted to use non-actionability as a bargaining chip for a ‘meaningful prohibited category’.⁹⁹³ This led to a standstill in the negotiations. The breakthrough came only when the US changed its hostile position towards non-actionability following the coming into office of the Clinton administration in January 1993.⁹⁹⁴ The sudden shift in the US position was essential to the introduction of the non-actionable category under the SCM Agreement.

⁹⁸⁹ Art 11, Subsidies Code.

⁹⁹⁰ The Swiss proposal was the first to use the term ‘non-actionable’. The others used the term ‘permitted’. See GATT, ‘Communication from the EEC’ (n 755); GATT, ‘Communication from Colombia’ (1987) MTN.GNG/NG10/W/13; GATT, ‘Communication from Switzerland’ (1988) MTN.GNG/NG10/W/17.

⁹⁹¹ See GATT, ‘Elements of the Negotiating Framework: Submission by the European Community’ (n 965) (arguing that since the trading system is concerned only with trade-distorting subsidies, those subsidies with insignificant or no effects on international trade should be prima facie non-actionable).

⁹⁹² See GATT, ‘Elements of the Framework for Negotiations’ (n 753), at 8.

⁹⁹³ See GATT, ‘Meeting of 27 September 1990’ (1990) Note by the Secretariat MTN.GNG/NG10/22 (‘without a meaningful prohibited category there could hardly be any non-actionable category’), para 2.

⁹⁹⁴ See Gary N Horlick and Peggy A Clarke, ‘The 1994 WTO Subsidies Agreement’ (1993) 17 World Competition 41 (stating that ‘in November/December 1993, we observe an oscillation from the Bush Administration’s attempt to remove green light categories to the Clinton Administration’s attempt to expand them’), at 40.

The original proposals for non-actionable subsidies contained only a short illustrative list of subsidies.⁹⁹⁵ The EC and others subsequently expanded the list by adding a broad range of subsidies. It is perhaps worth noting, from the perspective of energy subsidies, that the EC and the US proposals contained the following energy-related subsidies:

- aid for energy-savings (such as compensation of higher costs of developing and/or adopting technologies which induce consumers and users to make a more rational use of energy)';
- aid aimed at improving security and diversification of energy supply';
- governmental provision of extraction/exploitation rights for natural resources;
- governmental provision of processed natural resource products.⁹⁹⁶

However, these and many other proposed subsidies did not even make it to the draft texts of the SCM Agreement. The draft text by the Chairman of the Negotiating Group on Subsidies and Countervailing Measures Michael D. Cartland (the *Cartland Draft*) contained only five types of subsidies: non-specific subsidies and specific subsidies for research and development, regional development, environmental protection and employment adjustment assistance (replaced by 'structural adjustment assistance to reduce capacity').⁹⁹⁷ The *Cartland Draft* was later incorporated into the *Dunkel Draft* with some important amendments. The most notable of these amendments was the further shortening of the list of specific non-actionable subsidies. Only regional development and research and development subsidies found their way into the *Dunkel Draft*.⁹⁹⁸ As noted above, environmental subsidies were brought back into the list of non-actionable subsidies only in the final days of the negotiations.

Despite the significance they attached to the category of non-actionable subsidies, the negotiators were reluctant to adopt a broad non-actionable category. Their reluctance was evident from the

⁹⁹⁵ The original EC proposal contained only four forms of subsidies: generally available subsidies; regional subsidies; structural adjustment subsidies; indirect subsidies. See GATT, 'Communication from the EEC' (n 755). Similarly, the original Swiss proposal contained only an illustrative list of two non-actionable subsidies: 'subsidies which from the very outset are unlikely to cause any harm to third countries' and 'measures taken for structural adjustment'. See GATT, 'Communication from Switzerland' (n 990).

⁹⁹⁶ See GATT, 'Elements of the Negotiating Framework: Submission by the European Community' (n 965) (for the first two items); GATT, 'Elements of the Framework for Negotiations' (n 753) (for the last two items), at 8-9.

⁹⁹⁷ See GATT, 'Draft Text by the Chairman' (1990) MTN/GNG/NG10/W/38/Rev.3; GATT, 'Draft Text by the Chairman' (n 978); GATT, 'Draft Text by the Chairman' (1990) MTN/GNG/NG10/W/38/Rev.1.

⁹⁹⁸ See Art 8.2 of the Agreement on Subsidies and Countervailing Measures, GATT, 'Dunkel Draft' (n 904).

substantive and procedural requirements of non-actionability (discussed above) and the provisional nature of the category. Article 31 states that:

The provisions of paragraph 1 of Article 6 and the provisions of Article 8 and Article 9 *shall apply for a period of five years*, beginning with the date of entry into force of the WTO Agreement. Not later than 180 days before the end of this period, *the Committee shall review the operation of those provisions, with a view to determining whether to extend their application, either as presently drafted or in a modified form, for a further period* (italic emphasis added).

Since the SCM Agreement entered into force on 1 January 1995, the Committee had to make its determination before 31 December 1999. However, the failure to reach consensus within the Committee led to the automatic expiration of Article 8 as of 31 December 1999.

Before turning to the reasons for the lack of consensus, it is useful to clarify the mandate of the Committee under Article 31. During the Committee discussion on the extension of Article 8, Poland raised an interpretive question about Article 31. According to Poland, ‘there were two equally justifiable interpretations of Article 31, the first being that the question before the Committee was whether or not to extend Article 6.1, 8 and 9 and the second that the issue was not whether or not to extend, but the form of the extension’.⁹⁹⁹ This confusion stems from the language of the second sentence of Article 31, which enjoins the SCM Committee to review the operation of the three provisions ‘with a view to determining whether to extend their application, either as presently drafted or in modified form, for a further period’.¹⁰⁰⁰ However, the use of the comma before and after the two forms of extension implies that the question was whether to extend their application rather than whether to extend as they were or in modified form. The second sentence should be read together with the first, which unambiguously states that the provisions shall apply only for five years.¹⁰⁰¹ The two alternative forms of extension were relevant only if the Committee were to determine to extend the application of the provisions. The lack of consensus on the extension renders the provisions null and void as of 31 December 1999.

⁹⁹⁹ See WTO, ‘Minutes of the Regular Meeting Held on 1-2 November 1999’ (2000) G/SCM/M/24, para 43. Panama and Pakistan also questioned the mandate of the SCM Committee under Article 31 to extend the application of Articles 6.1 8, and 9. However, they offered no explanation to substantiate their argument. See WTO, ‘Minutes of the Special Meeting Held on 20 December 1999’ (2000) G/SCM/M/22, paras 5 and 7.

¹⁰⁰⁰ See Art 31, SCM Agreement.

¹⁰⁰¹ See WTO, ‘Minutes of the Regular Meeting Held on 1-2 November 1999’ (n 999), para 45.

To be sure, the Committee did not determined not to extend the application of Article 8 as envisaged in the second sentence of Article 31, but the first sentence imply that the provisions expire automatically.¹⁰⁰² The question is why did the Committee fail to reach consensus?

The minutes of the Committee meeting held on 1-2 November 1999 show that the extension of Article 8 was the subject of intense debate within the Committee. Of the Members that spoke during the meeting, 11 Members (Canada, Chile, Czech Republic, EC, Hong Kong, Israel, Korea, Poland, United States and Switzerland) were in favour of extension, while 10 Members (Australia, Brazil, Dominican Republic, Honduras, India, Malaysia, New Zealand Pakistan, Philippines, and Thailand) were against extension.¹⁰⁰³ Those in favour of extension emphasized the importance of the non-actionable category in maintaining the general structure and balance of the SCM Agreement.¹⁰⁰⁴ They also cautioned that the expiry of non-actionability would ‘reduce the ability of the Agreement to address environmental concerns’.¹⁰⁰⁵ Canada and Switzerland further underscored that abandoning non-actionability was a ‘regressive step’ that would ‘give a rather negative and wrong signal to the public’.¹⁰⁰⁶ In recognition of the need for future negotiations to modify Article 8, almost all those in favour of the extension called for the extension of the provisions until the conclusion of the next round of negotiations.

Except for Australia and New Zealand, those who openly opposed the extension of the non-actionable category were developing countries.¹⁰⁰⁷ They were of the view that Article 8 did not accommodate their concerns.¹⁰⁰⁸ First, the list of non-actionable subsidies in Article 8 was not suited to their needs. They lamented that ‘Article 8 only included subsidies of interest to developed countries’ and ‘subsidies which could be essential to achieve legitimate developmental

¹⁰⁰² The Chairman of the Subsidies Committee agreed with this interpretation. See *ibid*, para 49.

¹⁰⁰³ See *ibid*, paras 20-53.

¹⁰⁰⁴ See *ibid*, paras 24 (Switzerland), 25 (Canada), 32 (Mexico), 38 (Turkey), 39 (EC), 42 (Israel).

¹⁰⁰⁵ See *ibid*, paras 24-25.

¹⁰⁰⁶ *ibid*.

¹⁰⁰⁷ In their arguments against the extension, Australia focused on the problems of Article 6.1 than that of Article 8 and 9 while New Zealand questioned the utility of the non-actionable category. See *ibid*, paras 26 and 35. Subsequent statements from Australia suggest that Australia favours the extension of Article 8. See WTO, ‘Comments from Australia on Venezuela’s Submission on Non-Actionable Subsidies under the Agreement on Subsidies and Countervailing Measures (Document TN/RL/W/41)’ (2003) TN/RL/W61.

¹⁰⁰⁸ See WTO, ‘Minutes of the Regular Meeting Held on 1-2 November 1999’ (n 999), paras 21&45 (Brazil), 22 (Dominican Republic), 29 (Malaysia), 31 (Pakistan), 36 (India), 44 (Thailand), 30 & 46 (Philippines).

goals of the developing countries were regarded actionable'.¹⁰⁰⁹ Second, the stringent criteria of non-actionability in Article 8.2 made it almost impossible for developing countries to make use of the exemptions. Brazil, for example, pointed out that resource constraints prevent developing countries from providing generally available regional subsidies that meet the requirements of Article 8.2(b).¹⁰¹⁰ The Philippines bluntly summed up the concerns of the developing countries by saying 'Article 8 catered specifically to developed countries'.¹⁰¹¹ However, despite opposing the extension, they did not want to abandon Article 8. Instead, they called for negotiations to modify the provisions to reflect their interests better.

They envisioned such negotiations to take place in the context of a new negotiating round rather than within the SCM Committee as envisaged in Article 31. Those in favour of the extension were also open to addressing the issue outside the Committee. Switzerland stated that:

It appeared rather difficult to reach a consensus in the Committee. Since there was a clear lack of experience with the instruments in question, it seemed to be a matter of political decision, rather than of technical consideration by the Committee. It might therefore be more appropriate to search for a solution in other fora of the WTO.¹⁰¹²

The discussion on the extension of non-actionability took place in the run-up to the infamous Seattle Ministerial Conference of 1999. The Seattle Ministerial was to launch a new negotiating round (the 'Millennium Round') that, *inter alia*, responds to developing country concerns. The rules on subsidies and countervailing measures were one area of such concern. This led to the inclusion of reviewing/amending the SCM Agreement in the *Draft Ministerial Text*:

the rules [on subsidies and countervailing measures] shall be reviewed, and where necessary amended, on the basis of proposals by participants, taking into account, *inter alia*, the important role that subsidies may play in the economic development of developing countries, and the effect of subsidization on trade.¹⁰¹³

The non-actionability rules of the SCM Agreement were of specific concern to developing countries. They viewed the provisions of Article 8 as 'among the most flagrant examples of

¹⁰⁰⁹ *ibid*, para 31.

¹⁰¹⁰ *ibid*, para 45.

¹⁰¹¹ See *ibid*, para 30.

¹⁰¹² *ibid*, para 24.

¹⁰¹³ See 'Draft Ministerial Text' (1999) Green Room Draft (unofficial version), para 34.

imbalance in the WTO Agreements'.¹⁰¹⁴ To correct this imbalance, they suggested for the inclusion of subsidies of particular interest to them in the list of non-actionable subsidies. However, in view of the time it takes to modify Article 8 and the time left to extend its application, they seem to have agreed to the extension of Article 8 under the condition of subsequent modification to include subsidies that promote the economic development of developing countries in the list. The *Draft Ministerial Text* of the Seattle Ministerial listed this compromise as one of the 'possible decisions at Seattle on Implementation':

Ministers agree to instruct the Committee on Subsidies and Countervailing Measures to extend the application of Articles 6.1, 8 and 9 of the Agreement on Subsidies and Countervailing Measures until the end of the Fourth Session of the Ministerial Conference, on the understanding that, during the extended period of application, Article 8 will be reviewed with a view to considering the possibility of including as non-actionable subsidy measures implemented by developing country Members in the furtherance of legitimate development objective.¹⁰¹⁵

The compromise seemed to be reasonable for both groups of Members. Those in favour of extension would get the extension while developing countries obtain the commitment to modify Article 8 in a way it suits their interest. However, it remained a draft because of the failure of the Seattle Ministerial.¹⁰¹⁶ Developing countries were adamant that they would agree on extending the application of Article 8 only if there were agreement to modify it.¹⁰¹⁷ The SCM Committee held a special meeting after the Seattle Ministerial to find a solution to the issue.¹⁰¹⁸ However, Members were unable to reach a consensus even on a provisional extension.

The issue of non-actionability resurfaced in the context of the Doha Round negotiations. In fact, Article 8 played a crucial role in the launching of the Doha Round in 2001. Developing countries refused to sign the Doha Declaration unless it contains a commitment to reconsider the issue of non-actionability. Their refusal resulted in the inclusion of this issue in both the declaration and

¹⁰¹⁴ WTO, 'Minutes of the Regular Meeting Held on 1-2 November 1999' (n 999), para 22.

¹⁰¹⁵ See Annex: Possible Decisions at Seattle on Implementation to the 'Draft Ministerial Text' (n 1013).

¹⁰¹⁶ On the failure of the Seattle Ministerial and its implications, see the commentaries in Jeffrey J Schott (ed), *The WTO After Seattle* (Peterson Institute for International Economics 2000).

¹⁰¹⁷ See the statement of the Dominican Republic during the Committee meeting WTO, 'Minutes of the Regular Meeting Held on 1-2 November 1999' (n 999), para 22.

¹⁰¹⁸ See WTO, 'Minutes of the Special Meeting Held on 20 December 1999' (n 999).

the decision on implementation-related issues and concerns. The latter introduced very important yet often overlooked non-binding commitments concerning non-actionability:

Takes note of the proposal to treat measures implemented by developing countries with a view to achieving legitimate development goals, such as regional growth, technology research and development funding, production diversification and development and implementation of environmentally sound methods of production as non-actionable subsidies... During the course of the negotiations, Members are urged to exercise due restraint with respect to challenging such measures.¹⁰¹⁹

There are two aspects of to this decision. First, it recognized the issue of non-actionability as one of the ‘outstanding implementation issues’.¹⁰²⁰ The Doha Declaration committed WTO Members to give ‘the utmost importance’ and to find ‘appropriate solutions’ to such issues.¹⁰²¹ Second, it introduced two set of non-actionability-related commitments. The first one is the commitment to reintroduce the non-actionable category (specifying the commitment in the declaration). The EU and then Venezuela proposed to reintroduce the category of non-actionable subsidies in response to this call.¹⁰²² However, the deadlock in the negotiations means that the provisions of Article 8 remain null and void. The second and perhaps often overlooked commitment is the commitment to exercise due restraint in challenging the former non-actionable subsidies. Since the negotiations are underway (at least not officially suspended), the call for restraint still applies. The absence of challenges to non-actionable subsidies in the aftermath of the expiry of Article 8 gave the impression that WTO Members respect the call for restraint.¹⁰²³ However, developing countries have never invoked this decision in WTO dispute settlement proceedings.

To conclude, the expiry of Article 8 imply that even the most justified subsidies are now objectionable provided that they pass the thresholds of Articles 1-2 and fall within either Article 3 or 5. The SCM Agreement no longer contains explicit exemption for subsidies that pursue

¹⁰¹⁹ Para 10.2, Implementation-Related Issues and Concerns: Decision of 14 November 2001, WT/MIN(01)/17.

¹⁰²⁰ See para 10.2 cum para 13, *ibid.*

¹⁰²¹ Para 12, Doha Declaration.

¹⁰²² Both proposals imply modifying Article 8 from environment (EC) and development (Venezuela) perspectives. See WTO, ‘WTO Negotiations Concerning the WTO Agreement on Subsidies and Countervailing Measures: Proposal by the European Communities’ (2002) TN/RL/W/30; WTO, ‘Improved Rules under Agreement on Subsidies and Countervailing Measures - Non-Actionable Subsidies: Proposal by Venezuela’ (2002) TN/RL/W/41.

¹⁰²³ See Francisco Aguayo Ayala and Kevin P Gallagher, ‘Preserving Policy Space for Sustainable Development: The Subsidies Agreement at the WTO’ (International Institute for Sustainable Development 2005), at 8-9.

legitimate public policy goals. However, it is useful to recall that non-specific subsidies remain non-actionable under the SCM Agreement despite the expiry of Article 8.

4.5.3.2 Remedies under the SCM Agreement

Two possibilities exist under the SCM Agreement to challenge prohibited and actionable subsidies. Members may challenge such subsidies multilaterally through the dispute settlement system and/or unilaterally through countervailing actions. An importing Member may challenge the subsidization of the imports either unilaterally or multilaterally or both. However, when it challenges a subsidy both multilaterally and unilaterally at the same time, it has to choose only one form of relief (multilateral or unilateral) with regard to the effects of the subsidy at issue in its domestic market.¹⁰²⁴ The unilateral option is unavailable when the Member does not import the subsidized products, or the subsidies are import-substitution subsidies. In such situations, the multilateral option is the only avenue to counteract subsidies. Since the two tracks have different procedures, causes of action and remedies, we will consider them separately below.

4.5.3.2.1 The Multilateral Option

Any Member (in the case of prohibited subsidies) or an adversely affected Member (in the case of actionable subsidies) may use the dispute settlement system to challenge such subsidies.¹⁰²⁵ Besides the general dispute settlement rules contained in the DSU, the SCM Agreement contains specific procedural rules for challenging prohibited subsidies (Article 4) and actionable subsidies (Article 7). The most notable difference regarding procedure is that proceedings under Article 4 take only 50 percent of the time proceedings take under the DSU.

What are the multilateral remedies against prohibited and actionable subsidies under the SCM Agreement? The multilateral remedies are different for prohibited and actionable subsidies.

¹⁰²⁴ See Footnote 35, SCM Agreement.

¹⁰²⁵ As the Appellate Body confirmed in *EC – Banana III* WTO Members do not need to have a legal interest to initiate a dispute under the DSU. See *Appellate Body Report, European Communities – Regime for the Importation, Sale and Distribution of Bananas (EC – Bananas III) WT/DS27/AB/R, adopted 25 September 1997*, para 132. However, although any Member may file a dispute against a prohibited subsidy, the adverse effects requirement entails that only adversely affected Members may initiate a dispute against actionable subsidies.

Article 4.7 provides that prohibited subsidies shall be withdrawn without delay. The Appellate Body in *Brazil – Aircraft* noted that withdrawing a prohibited subsidy within the meaning of Article 4.7 implies removing the subsidy.¹⁰²⁶ Failure to comply with a recommendation to withdraw a prohibited subsidy within the time period set by Panels and the Appellate Body leads to authorization, upon the request of the original complainant, to impose ‘appropriate countermeasures’.¹⁰²⁷ The jurisprudence suggests that countermeasures under Article 4.8 are stronger than countermeasures against any other violation of WTO law.

On actionable subsidies, Article 7.8 enjoins the subsidizing Member to take ‘appropriate steps to remove the adverse effects’ or ‘withdraw the subsidy’. Such Member has to remove the adverse effects or withdraw the subsidy within six months from the adoption of the Panel or Appellate Body report. It is to state the obvious that if the Member removes the adverse effects, it does not have to withdraw the subsidy. However, there are limited practical options to remove the adverse effects of actionable subsidies other than withdrawing the subsidy. Such options include imposing export restrictions, requiring repayment of the subsidy (in case of non-recurring subsidies), subsidizing the injured domestic industry of the importing Member (highly unlikely) and modifying the subsidy scheme to remove its adverse effects (e.g. reducing the amount or changing the eligibility conditions).¹⁰²⁸ Failure to withdraw or remove the adverse effects of the subsidy within six months and not agreeing on compensation leads to authorization of the complaining Member to take countermeasures, which are commensurate with the degree and nature of the adverse effects determined to exist.¹⁰²⁹ It is worth noting here that the countermeasures must correspond to the adverse effects not the amount of the subsidy.

4.5.3.2.2 The Unilateral Option

The unilateral remedies against prohibited and actionable subsidies are the same. The SCM Agreement authorizes Members to impose countervailing duties to offset the effects of both types

¹⁰²⁶ See *Appellate Body Report, Brazil - Export Financing Program for Aircraft, Recourse by Canada to Article 21.5 of the DSU (Brazil-Aircraft (Article 21.5))*, WT/DS46/AB/RW, Adopted 4 August 2000, para 45.

¹⁰²⁷ See Art 4.10, SCM Agreement.

¹⁰²⁸ On the interpretation of Article 7.8, see Abhimanyu George Jain, ‘Interpreting the “Removal” Obligation in Article 7.8 of the WTO SCM Agreement’ (2013) 10 *Manchester Journal of International Economic Law* 402.

¹⁰²⁹ Art 7.9, SCM Agreement.

of subsidies.¹⁰³⁰ However, such authorization is subject to rigorous substantive and procedural rules. Members may impose countervailing duties only pursuant to investigations initiated and conducted in accordance with the procedural rules contained in Part V.

Countervailing duty investigations essentially involve determining the existence of three substantive elements: subsidy (and its amount), injury, and causal link between the two.¹⁰³¹ Members decide which of their authorities conduct such investigations, but they have to notify their decision to the SCM Committee.¹⁰³² The SCM Agreement mandates such authorities to conduct their investigation in an objective manner respecting due process.¹⁰³³ They may initiate an investigation only upon the receipt of written application ‘by or on behalf’ of the domestic industry.¹⁰³⁴ An application qualifies as ‘by or on behalf of’ the domestic industry when domestic producers that account at least 25 percent of total production of the like product expressly support it.¹⁰³⁵ Such application must include ‘sufficient evidence’ of the existence of the above three substantive elements.¹⁰³⁶ Although it states that ‘simple assertion, unsubstantiated by relevant evidence’ is not sufficient, the SCM Agreement contains no positive definition of what constitutes ‘sufficient evidence’.¹⁰³⁷ The indication from the antidumping case law is that sufficient evidence exists when the investigating authority satisfies itself that the evidence presented before it is such that an unbiased and objective investigating authority could determine that there was sufficient evidence to justify initiation of an investigation.¹⁰³⁸ Investigating

¹⁰³⁰ Countervailing duties are tariffs that are above the binding tariff levels (contrary to GATT Article II) and discriminatory (contrary to the Most Favour Nation (MFN) principle of GATT Article I).

¹⁰³¹ See Art 11.2, SCM Agreement.

¹⁰³² See Art 25.12, *ibid*.

¹⁰³³ See Arts 12 (due process) and 15.1 (objectivity), *ibid*. Both under the Antidumping and SCM Agreements, the objectivity requirement applies only to injury determination, but it is likely that it permeates all of the investigating authorities’ obligations. See Mavroidis, Messerlin and Wauters (n 916) at 132.

¹⁰³⁴ See Art 11.1, SCM Agreement. Although it is quite uncommon, the investigation authorities may initiate an investigation without receiving a petition under special circumstances set of in Article 11.6.

¹⁰³⁵ See Art 11.4, *ibid*. The standing requirement is not as restrictive as it may appear at first glance. Even an application from an individual firm may satisfy the requirement if the investigating authority defines the product in question narrowly and such firm is the major or sole producers of that product.

¹⁰³⁶ See Art 11.2, *ibid*.

¹⁰³⁷ See Art 11.2-3, *ibid*.

¹⁰³⁸ It is highly likely that the same standard of ‘sufficient evidence’ applies to Article 11.2 of the SCM Agreement and its corresponding provision in the Antidumping Agreement (Article 5.3). For a critical analysis of the antidumping jurisprudence, see Mavroidis, Messerlin and Wauters (n 916) at 142-150.

authorities may launch a formal investigation only when they find the evidence presented to be sufficient, and the application was by or on behalf of the domestic industry.

Investigating authorities make preliminary determinations once they gather sufficient evidence on the existence of subsidized imports and injury. If the preliminary determinations are affirmative on both the existence of a prohibited or actionable subsidy and injury, they may impose provisional countervailing duties on the subsidized imports.¹⁰³⁹ The rationale for imposing provisional countervailing duties is to prevent the injury during the investigation.¹⁰⁴⁰ The investigation may be suspended or terminated without the imposition of provisional duties at this stage if the subsidizing Member agrees to limit or eliminate the subsidy or take other measures concerning its effects or the exporter of the subsidized product enters into a voluntary undertaking to revise prices.¹⁰⁴¹ The investigation moves to final determination in the absence of any such agreement. A final affirmative determination leads to the imposition of countervailing duties on the subsidized imports, whereas a negative final determination leads to the termination of the investigation. Positive countervailing duty determinations are subject to domestic and multilateral judicial review.¹⁰⁴² They can be challenged domestically through tribunals designated for this purpose and/or multilaterally through the dispute settlement system. The significance of this is that although WTO Members can impose countervailing duties without prior WTO authorization, the WTO determines their consistency with the SCM Agreement.

It is useful to recall that the unilateral option is available only to counteracting subsidized imports. Pursuing the unilateral avenue is normally faster than the multilateral one. It also allows for the direct participation of the injured domestic industry. In contrast, only WTO Members may initiate and participate in dispute settlement proceeding under the DSU.¹⁰⁴³ The standing

¹⁰³⁹ See Art 17.1, SCM Agreement.

¹⁰⁴⁰ However, investigating authorities may impose provisional countervailing duties only 60 days after the initiated the investigation and for a short period not exceeding four months. See Art 17.3-4, *ibid*.

¹⁰⁴¹ Art 18, *ibid*.

¹⁰⁴² Arts 23 and 30, *ibid*. For a procedural comparison of multilateral and domestic judicial reviews of trade remedy determinations, see Henok Birhanu Asmelash, 'Judicial Review of U.S. Trade Remedy Determinations: A Procedural Comparison' in H el ene Ruiz Fabri (ed), *International Law and Litigation* (Nomos 2019).

¹⁰⁴³ This is not to say that private parties play no role in the WTO dispute settlement process. The literature is replete with studies showing the significant (albeit indirect) role of private parties from feeding the government with the necessary information and lobbying for action to financing the legal costs of the government. We will get back to

requirements under the unilateral and multilateral options have significant implications for challenging energy subsidies under the SCM Agreement. We will consider these implications while assessing the potential role of the SCM Agreement in tackling environmentally harmful subsidies in the next chapter. The difference between the unilateral and multilateral remedies also merits consideration in this context. The multilateral remedies (i.e. withdrawal of the subsidy or the removal of its adverse effects) directly tackle the cause of the problem – the subsidy. The unilateral remedies, on the other hand, target the effects but not the cause. The only unilateral remedy against actionable and prohibited subsidies is the imposition of a countervailing duty. Such duties do not result in the removal of the subsidy or its adverse effects; they simply protect the domestic industry from the adverse effects. As Mavroidis et al. pointed out, even the protection of the domestic industry at home may come at the expense of the export performance of the domestic industry: ‘because of this likely trade diverting effect of a countervailing duty, the problem may not be solved but simply moved to another market in which the domestic industry was also present and will also feel the effects of the subsidies’.¹⁰⁴⁴ We will come back to this point in the next chapter, but for now it is enough to note that the unilateral option does not result in the removal of the subsidy at issue.

4.5.3.3 Special and Differential Treatment

Unlike its predecessors, the SCM Agreement applies to both developed and developing countries.¹⁰⁴⁵ Nevertheless, not all the disciplines contained therein equally apply to developed and developing countries. Cognizant of their developmental needs, the SCM Agreement offers

this point in the next chapter when we discuss the disparities between the legal challenges against fossil fuel and renewable energy subsidies. For the longstanding scholarly debate on the pros and cons of allowing private parties to participate in the WTO dispute settlement process, see Petros C Mavroidis and others, ‘Is the WTO Dispute Settlement Mechanism Responsive to the Needs of the Traders? Would a System of Direct Action by Private Parties Yield Better Results?’ (1998) 32 *Journal of World Trade* 147; Gregory C Shaffer, *Defending Interests: Public-Private Partnerships in WTO Litigation* (Brookings Institution Press 2003); Joel P Trachtman and Philip Moremen, ‘Costs and Benefits of Private Participation in WTO Dispute Settlement: Whose Right Is It Anyway’ 44 *Harvard International Law Journal* 221; Aaron Catbagan, ‘Rights of Action for Private Non-State Actors in the WTO Disputes Settlement System’ (2008) 37 *Denver Journal of International Law and Policy* 279.

¹⁰⁴⁴ See Mavroidis, Messerlin and Wauters (n 916), at 399-400.

¹⁰⁴⁵ Except for Zimbabwe, developing countries did not sign the 1960 Declaration (i.e. amendment to GATT Article XVI) that introduced the first set of substantive obligations in the area of subsidies under the GATT. Nor did they sign the plurilateral Subsidies Code. For more on this, see Dominic Coppens, ‘How Special Is the Special and Differential Treatment under the SCM Agreement? A Legal and Normative Analysis of WTO Subsidy Disciplines on Developing Countries’ (2013) 12 *World Trade Review* 79, at 81.

some flexibility to developing countries. The adequacy of these flexibilities has been the subject of considerable debate within the SCM Committee and outside. Leaving the inadequacy debate aside, this section will focus on the scope of the S&D treatment provisions.

The rationale for the S&D treatment of developing countries is the recognition that subsidies may play an important role in their economic development programs.¹⁰⁴⁶ This recognition serves as the guiding principle for the S&D treatment provisions of the SCM Agreement. These provisions offer some flexibility to developing countries in the area of both prohibited and actionable subsidies as well as countervailing duty actions. The nature of the preferential treatment varies across these three sets of disciplines. It also varies across the different categories of developing countries. The SCM Agreement classifies developing countries into three groups for the purpose of S&D treatment: countries designated as Least Developed Countries (LDCs) by the UN (Annex VII(a)); developing countries listed in Annex VII(b); and all other countries that consider themselves as such ('other developing countries').¹⁰⁴⁷ The first two groups of developing countries are collectively referred to as Annex VII developing countries.

4.5.3.3.1 Exemption from the Disciplines on Prohibited Subsidies

Article 27 of the SCM Agreement provides limited exemption for all the three groups of developing countries from the disciplines on both export subsidies and local content subsidies. The exemption from the prohibition of granting local content subsidies was of a temporary nature. It allowed LDCs and developing countries to use local content subsidies for five and eight years, respectively, from the entry into force of the SCM Agreement. This transitional period expired in 2003 for LDCs and in 1999 for other developing countries.¹⁰⁴⁸ It is useful to recall here that the SCM Agreement is not the only WTO agreement applicable to local content subsidies. Noting the fact that GATT Article III:4 and the TRIMs Agreement equally apply to such subsidies, Coppens questions the relevance of the exemption from the disciplines of Article

¹⁰⁴⁶ See the preambular-type provision of Art 27.1, SCM Agreement.

¹⁰⁴⁷ Members could challenge claims of developing country status. The only case of such challenge is against China during the accession process. China agreed to renounce its developing country status for the purpose of prohibited and actionable subsidies, but retains the status for countervailing duty investigations.

¹⁰⁴⁸ See Art 27.3, SCM Agreement.

3.1(b) in the first place.¹⁰⁴⁹ However, unlike Article 3.1(b), violations of GATT Article III:4 and the TRIMs Agreement are subject to the general exceptions contained in GATT Article XX (see *section 5.3.1.3.3*). It is from this perspective that the exemption from the prohibition of granting local content subsidies under Article 3.1(b) of the SCM Agreement was meaningful.

The exemption from the prohibition of using export subsidies originally applied to all the three groups of developing countries. However, the duration of the exemption varies across the three groups. LDCs may enjoy the exemption until they graduate from the LDC status, while the other Annex VII developing countries benefit from the exemption until eight years after their per capita income exceeds US\$1000. The exemption originally applied to the other developing countries only for an eight-year period, starting from January 1995.¹⁰⁵⁰ The General Council extended this exemption in 2007 to the end of 2015. While developing countries had the right to request for an extension, only Jordan requested an extension of this exemption.

Furthermore, in all the three cases, the exemption from the prohibition granting export subsidies is subject to two conditions. First, such exemption does not apply if the developing country reached export competitiveness in the product at issue within the meaning of Article 27.6. Second, the exemption from the prohibition in Article 3.1(a) does not mean that the subsidy at issue is free from action under the SCM Agreement. Article 27.7 turns such subsidies into actionable subsidies subject to the disciplines set out in Article 7. These limitations and the lack of clarity of some of the provisions have been the source of frustration for developing countries. One of the critical issues in the Doha Round negotiations on subsidies and countervailing duties has been the clarification and improvement of S&D treatment provisions.

4.5.3.3.2 Exemption from the Disciplines on Actionable Subsidies

Article 27.8-9 offers a partial exemption for all developing countries from the disciplines on actionable subsidies. These two provisions entail that developing country subsidies are not actionable unless they result in nullification or impairment of benefits (Article 5(b)) or cause

¹⁰⁴⁹ Coppens, 'How Special Is the Special and Differential Treatment under the SCM Agreement?' (n 1045), at 89.

¹⁰⁵⁰ See Art 27.2, SCM Agreement.

injury to the domestic industry of other Members (Article 5(a)). The S&D treatment here is that developing country subsidies that cause serious prejudice (Article 5(c)) are not actionable.¹⁰⁵¹ Such subsidies are thus immune from legal challenges under the SCM Agreement.

4.5.3.3.3 Exemption from the Disciplines on Countervailing Duty Investigations

Finally, the provisions of Article 27.10-11 offer some protection for developing countries in countervailing duty investigations. It is useful to recall here that countervailing duties are the only remedies under the unilateral option to countering actionable and prohibited subsidies. Although developing countries were not subject to the subsidy disciplines of the GATT and the Subsidies Code, nothing prevented the imposition of countervailing duties against developing countries. The applicability of the SCM Agreement on developing countries means that developing countries are now subject to multilaterally agreed disciplines on countervailing duty investigations. The existence of these disciplines (on its own) benefits developing countries because of their purpose to limit the abuse of countervailing duties. What the S&D treatment provisions of Article 27.10-11 offer is an additional layer of protection to developing countries from countervailing duty investigations. It does so by raising the *de minimis* outlined in Article 11.9. Article 27.10 prohibits countervailing duty investigations against developing countries subsidies insofar as (i) the overall level of subsidies is less than two percent ad valorem¹⁰⁵² or (ii) the volume of the subsidized imports is less than four percent of the total imports. However, the *de minimis* threshold does not apply if imports from developing countries collectively account for more than nine percent of the total imports of the like product in the importing Member.

4.5.3.4 Notification and Surveillance

Transparency is the linchpin of multilateral subsidy regulation. The most striking proof of this is that the obligation to notify subsidies was the only meaningful obligation under GATT Article

¹⁰⁵¹ According to the Panel in Brazil - Taxation, , this exemption ‘provides developing Members with a considerably expanded scope of possibilities for providing subsidies, due to the considerably reduced possible repercussions’. See *Panel Report, Brazil – Certain Measures Concerning Taxation and Charges (Brazil – Taxation) WT/DS472/R, WT/DS497/R, circulated 30 August 2017*, para 7.504.

¹⁰⁵² The *de minimis* standard of Article 11.9 is one percent ad valorem. See Art 11.9, SCM Agreement.

XVI before its amendment in 1955.¹⁰⁵³ The SCM Agreement reinforced this obligation by further expanding the notification requirements and introducing a surveillance mechanism. Articles 25 and 26 set out a multilateral framework for the notification and surveillance of subsidies. This section explores the scope and limitations of this framework in view of later discussion on its potential to bring much-needed transparency to both fossil fuel and renewable energy subsidies.

Article 25.2 obliges Members to notify any specific subsidy within the meaning of Articles 1-2 granted or maintained within their territories. As the Appellate Body noted in *Brazil – Aircraft*, this provision aims to promote transparency by requiring Members to notify their subsidies.¹⁰⁵⁴ The notification requirement applies to all WTO Members. Even those Members that claim to have no subsidy have to notify this to the Secretariat in writing ('nil' notification).¹⁰⁵⁵ Article 25.3 stipulates the content of subsidy notifications.¹⁰⁵⁶ It requires notifications to contain information on the form, amount, policy objectives and/or purpose and duration of the subsidy and statistical data permitting an assessment of the trade effects of the subsidy.

To alleviate concerns of self-incrimination and encourage the notification of subsidies, Article 25.7 provides that notification of a measure under Article 25 does not prejudge either its legal status, its effects, or the nature of the measure itself.¹⁰⁵⁷ This provision allows Members to notify a measure and yet argue before the dispute settlement system that the measure does not qualify as a specific subsidy within the meaning of Articles 1-2. The Panel in *Canada – Aircraft* invoked this provision to reject Brazil's claim that the measures at issue qualify as subsidies merely because Canada notified them pursuant to Article 25.¹⁰⁵⁸ The Panel affirmed that the mere notification of a measure is an insufficient basis for a finding of a *prima facie* case.

¹⁰⁵³ The Subsidies Code further authorized countries to make a written request for information on the nature and extent of any subsidy granted or maintained by another country. See Art 7, Subsidies Code.

¹⁰⁵⁴ See *Brazil-Aircraft* (n 828), para 149. The SCM Committee reiterated this point in 2001 by stressing that 'improving transparency' is the objective of the notification obligations under the SCM Agreement. See WTO, 'Minutes of Special Meeting Held on 31 May 2001' (2001) G/SCM/M/30.

¹⁰⁵⁵ Art 25.6, SCM Agreement.

¹⁰⁵⁶ Art 25.3-4, *ibid*.

¹⁰⁵⁷ Notification under the now expired Article 8.3, *ibid*, had a different consequence. There the notification serves as a basis for other WTO Members to challenge the non-actionability of the subsidy in question.

¹⁰⁵⁸ See *Canada - Aircraft* (n 804), para 9.256.

The SCM Agreement recognizes that self-notification is insufficient to ensure transparency on its own. The incentive for not reporting or underreporting subsidies is too high to rely solely on the subsidizing Member (see below). The SCM Agreement attempted to address this problem in two ways. First, it authorizes Members to make a written request for information on the nature and extent of any subsidy granted or maintained by another Member or for an explanation of the reasons for non-notification of a particular measure.¹⁰⁵⁹ The right to request for information and clarification keeps Members in check concerning not only not reporting and underreporting, but also reporting without sufficient details as required by Article 25.3. Second, it also allows Members to bring the issue of unreported subsidies to the attention of such other Member.¹⁰⁶⁰ If the subsidy is not notified subsequently, the Member may itself bring the subsidy at issue to the attention of the SCM Committee (otherwise known as cross/counter-notification). To date, there have been only 16 requests for information and explanation under Article 25.8 and 16 cross-notifications under Article 25.10 that explicitly refer to these provisions.¹⁰⁶¹ Members often raise questions concerning notified or non-notified subsidies without explicitly referring to either of these provisions. We will consider these questions in the next chapter while discussing the transparency and surveillance of renewable energy and fossil fuel subsidies

The SCM Agreement also contains a surveillance procedure to strengthen the notification requirements. Article 26 authorizes the SCM Committee to examine new and full notifications at special sessions held every third year (1995 being the first year) and updating notifications at its each regular meeting. The surveillance mechanism serves as a ‘mutual monitoring’ system whereby Members review each other’s actions and ensure the implementation of the agreement. However, the system relies entirely on Members complying with their notification obligations. The mandate of the Committee under Article 26 is limited to examining only those notifications submitted to it under Article 25. Its findings also have no legal consequences.

Despite the absolute obligation to notify subsidies under Article 25.2, compliance with the notification requirements has been poor. The latest report from the WTO Secretariat indicates

¹⁰⁵⁹ Art 25.9, SCM Agreement.

¹⁰⁶⁰ Art 25.10, *ibid.*

¹⁰⁶¹ See Annex C and Annex D, WTO, ‘Notification Provisions under the Agreement on Subsidies and Countervailing Duties’ (n 986).

that the share of Members that notified subsidies decreased from 50 percent in 1995 to 38 percent in 2015.¹⁰⁶² Of the 162 WTO Members, 83 of them did not make any notification under the SCM Agreement in 2015. Seventeen of the 79 Members that submitted their notifications made ‘nil’ notification claiming to have no subsidy. The notification of some of the remaining Members contains either only a subset of their subsidies or incomplete information. For example, although the obligation is to notify both national and sub-national subsidies, some Members notify only national subsidies. Others notify ‘subsidy programs that clearly fall outside the scope of the SCM Agreement to create the appearance of transparency without subjecting actual industrial subsidies to global scrutiny’.¹⁰⁶³ The record shows that the level of compliance has deteriorated steadily since 1995 both in quantitative and qualitative terms.

There are many reasons for this. According to the former Chairman of the SCM Committee, Remo Moretta, the non-compliance problem primarily stems from resource constraints.¹⁰⁶⁴ Members consistently emphasize the resource-intensive nature of subsidy notification as a significant obstacle to comply with their notification obligations. By their nature, subsidies are not readily identifiable. They also come from different government organs both at the national and subnational levels. Developing countries, in particular, lack the necessary institutional framework to coordinate and collect subsidy information at the national level.¹⁰⁶⁵ The SCM Agreement obliges Members to notify the competent authorities (thereby forcing them to have one) that conduct countervailing investigations, but it is silent as to which national authorities are responsible for subsidy notification.

Second, despite the best effort of the SCM Agreement to allay them, self-incrimination concerns always loom large.¹⁰⁶⁶ Members know too well that by notifying subsidies, they are subjecting

¹⁰⁶² See *ibid*, para 9.

¹⁰⁶³ WTO, ‘Improving Disciplines on Subsidies Notification’ (2017) Communication from the European Union TN/RL/GEN/188.

¹⁰⁶⁴ See WTO, ‘Minutes of Special Meeting Held on 31 May 2001’ (n 1054), para 6.

¹⁰⁶⁵ For a proposal to allow subsidy notifications by non-governmental actors, albeit in the specific case of fossil fuel subsidies, see Liesbeth Casier and others, ‘Shining a Light on Fossil Fuel Subsidies at the WTO: How NGOs Can Contribute to WTO Notification and Surveillance’ (2014) 13 *World Trade Review* 603.

¹⁰⁶⁶ See Ronald Steenblik and Juan Simón, ‘A New Template for Notifying Subsidies to the WTO’ (Global Subsidies Initiative (GSI) 2011); John R Magnus, ‘World Trade Organization Subsidy Discipline: Is This the “Retrenchment Round”?’ (2004) 38 *Journal of World Trade* 985, at 988.

them to scrutiny under the SCM Agreement. The incentive for non-compliance is that other Members might not be aware of such subsidies absent notification. Third, an even more important reason is the lack of meaningful sanction for poor or non-compliance. No penalty exists under the SCM Agreement for non-compliance with the notification obligation. The fact that non-compliance remain unpunished ‘encourages convergence towards the lowest minimum standard of reporting and discourages countries that might otherwise welcome a higher standard of reporting from putting more resources into their own data collection and reporting efforts’.¹⁰⁶⁷ We will see shortly that the EU has tabled a proposal to introduce some incentives for compliance and disincentives for non-compliance. Finally, and more generally, the political economy costs of subsidy notifications also contribute to the low level of compliance with the notification obligation. As much as they use subsidies to achieve strategic policy goals, governments also use subsidies for political purposes.¹⁰⁶⁸ They grant subsidies to specific industries as payback for past political support or as a down payment for the future. The risk of backlash from the public gives them an incentive to disguise such subsidies.

The notification of subsidies has been a recurrent topic of discussion in the WTO since its inception. As early as 1996, Members recognized the problem and the need to find a solution. The Singapore Ministerial urged the relevant bodies to ‘take appropriate steps to promote full compliance while considering practical proposals for simplifying the notification process’.¹⁰⁶⁹ The SCM Committee has made several attempts to improve the situations from establishing a *Working Group on Subsidy Notification* to developing a questionnaire format for notification.¹⁰⁷⁰ Despite these efforts, however, the level of compliance remained poor. The dismal state of affairs forced the issue of subsidy notification at the top of the Doha Round negotiations on the SCM Agreement. The EU has placed numerous proposals on the table.¹⁰⁷¹ The most notable of these is

¹⁰⁶⁷ See Steenblik and Simón (n 1066), at 8.

¹⁰⁶⁸ See Joseph E Stiglitz, ‘The Role of the State in Financial Markets’ (1993) 7 *The World Bank Economic Review* 19 (noting that ‘the temptation to use subsidies for political purposes is one that many governments have found difficult to resist’), at 29.

¹⁰⁶⁹ Para 11, Singapore Ministerial Declaration, WT/MIN(96)/DEC, adopted 13 December 1996.

¹⁰⁷⁰ The SCM Committee established the Working Party in April 1995 with a mandate to review the content and form of subsidy notifications. See WTO, ‘Working Party on Subsidy Notifications’ (1995) G/SCM/1.

¹⁰⁷¹ For the latest proposals, see WTO, ‘EU Technical Paper in Follow-Up of Its Transparency Submission (TN/RL/W/260)’ (2015) TN/RL/W/263; WTO, ‘Rules Negotiations - Transparency: Communication from the European Union’ (2015) TN/RL/W/260; WTO, ‘Improving Disciplines on Subsidies Notification’ (n 1063).

creating a system of incentive for notification and disincentive for non-notification.¹⁰⁷² As an incentive, the EU proposed granting a rebuttable presumption of non-actionability or increasing the standard for action against notified subsidies.¹⁰⁷³ As a disincentive, it suggested labelling all non-notified subsidies actionable.¹⁰⁷⁴ These proposals require amending the SCM Agreement. The negotiations on these and many other proposals have made no progress.

¹⁰⁷² WTO, 'Rules Negotiations - Transparency' (n 1071).

¹⁰⁷³ See *ibid*; WTO, 'Improving Disciplines on Subsidies Notification' (n 1063), para 9.

¹⁰⁷⁴ See WTO, 'Improving Disciplines on Subsidies Notification' (n 1063), para 8.

Chapter Five

The Treatment of Energy Subsidies under the SCM Agreement

5.1 Introduction

The previous chapter has analyzed the multilateral subsidy rules applicable to energy subsidies. This chapter extends the analysis by examining the implications of these rules for the sustainable energy transition. The degree of policy space under the SCM Agreement determines their impact on the transition. The SCM disciplines enable the transition to the extent that they provide sufficient policy space for the subsidization of renewables and constrain the policy space for subsidizing fossil fuels. Conversely, they inhibit the transition insofar as they constrain the policy space for the subsidization of renewable energy and leave the room wide open for the subsidization of fossil fuels. This chapter examines whether the SCM disciplines are flexible enough to provide adequate ‘green policy space’ for the subsidization of renewables and tight enough to impose effective constraints on the policy space for the subsidization of fossil fuels.

The issue of ‘policy space’ is one of striking a balance between competing interests. The multilateral trading system has embraced the need for balancing from its inception. The challenge has always been striking the appropriate balance between trade and non-trade policy objectives.¹⁰⁷⁵ The typical approach to achieving such a balance has been permitting exceptions to the general trade rules. Because of this approach, the notion of policy space under multilateral trade rules is often associated with exemptions. However, the notion of ‘policy space’ goes beyond the existence or otherwise of exemptions. *Section 5.2* will establish that the notion of policy space under the SCM Agreement comprises both *de jure* and *de facto* policy space for subsidization. The typical form of *de jure* policy space is that of exemptions. However, *de jure* policy space also stems from the scope of the Agreement. The SCM Agreement constrains the policy space of Members only to the extent that it applies to the policy measure in question. For

¹⁰⁷⁵ The inherent problem in striking the ‘right balance’ is that ‘there is no single quantifiable balance between multilateral disciplines and national policy autonomy that would suit all countries or apply across all spheres of economic activity’. See UNCTAD, *Trade and Development Report 2006: Global Partnership and National Policies for Development* (United Nations 2006), at xix.

example, Members have policy space to use non-specific subsidies because such subsidies fall outside the scope of application of the Agreement. This chapter will first consider the policy space created by the scope of the SCM Agreement for the subsidization of renewable energy and fossil fuels. At this first step of the analysis, the chapter examines whether renewable energy and fossil fuel support measures fall within the scope of the SCM Agreement (*sections 5.3.1*). This is the question of whether fossil and renewable energy support measures meet the definition and specificity requirements of Articles 1 and 2. Only measures that pass both these thresholds are subject to the disciplines of the SCM Agreement. However, not all measures that meet the thresholds are illegal. The SCM Agreement prohibits only export and local content subsidies and treats all non-prohibited specific subsidies as actionable. *Section 5.3.1.2* will examine whether renewable energy and fossil fuel subsidies qualify as prohibited subsidies under Article 3 (*section 5.3.1.2.1*) or as actionable subsidies under Article 5 (*section 5.3.1.2.2*).

The second step is to determine the existence or otherwise of exemptions for renewable energy and fossil fuels subsidies under the SCM Agreement. Although the category of non-actionable subsidies expired almost two decades ago, there is an ongoing debate as to whether the general exceptions of GATT Article XX apply to the SCM Agreement. *Section 5.3.1.3* will reflect on this debate and examine whether there is any *de jure* exemption for renewable energy and fossil fuel subsidies under the current legal framework applicable to energy subsidies. The third and final step is to examine the existence and extent of the *de facto* policy space for the subsidization of renewable energy and fossil fuels. One indication as to the existence or otherwise of *de facto* policy space is the presence and nature of legal challenges against such subsidies. *Section 5.3.2.1* will examine both unilateral and multilateral legal actions against renewable energy and fossil fuel subsidies. However, adjudication is only one means of ensuring compliance. Non-adjudicatory mechanisms such as notification and surveillance under the SCM Agreement and the Trade Policy Review Mechanism (TPRM) play an equally important role in ensuring the enforcement of the SCM disciplines. *Section 5.3.2.2* will consider whether and to what extent these mechanisms serve to challenge the subsidization of renewables and fossil fuels.

5.2 Policy Space under the SCM Agreement

Although the expression is of relatively recent coinage, the concept of ‘policy space’ is neither new nor specific to the SCM Agreement.¹⁰⁷⁶ From its inception in the 1940s, the multilateral trading system has recognized the importance of persevering space for legitimate public policy goals such as development, public health and environmental protection.¹⁰⁷⁷ The earliest example of such recognition is GATT Article XX, but almost all WTO agreements preserve policy space, albeit in different ways and to varying degrees. This section explores the ways in which the SCM Agreement preserves policy space, while the rest of the chapter examines the degree of policy space available under the Agreement for the subsidization of renewables and fossil fuels.

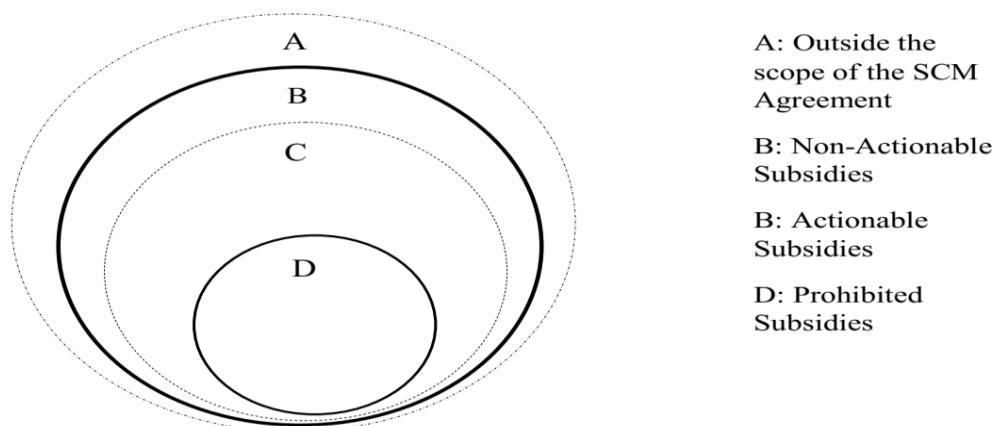


Figure 5.1: Policy Space under the SCM Agreement

The expression policy space owes its genesis to the trade and development debate. One consequence of this is that its definitions mainly come from the trade and development literature. From a development perspective, UNCTAD defines ‘policy space’ as:

¹⁰⁷⁶ The trade and development literature often ascribe its origin to UNCTAD and its 2004 Sao Paulo Consensus, but WTO documents show an earlier use of the expression ‘policy space’. In its proposal to the 1999 Seattle Ministerial, Venezuela used the expression ‘policy spaces’ to refer to ‘a range of policy instruments that could be used by developing countries to modify their trade patterns in order to gain and sustain competitiveness’. See WTO, ‘Special and Differential Treatment and the Spaces for Policies in WTO: Two Elements of the Development Dimension in the Multilateral Trading System Proposal under Paragraphs 9 and 10 of the Geneva Ministerial Declaration: Communication from Venezuela’ (1999) 12 July 1999, WT/GC/W/279, para 2 et seq.

¹⁰⁷⁷ As Jackson pointed out, the list of general exceptions in GATT Article XX ‘recognizes the importance of a sovereign nation being able to act to promote the purposes on this list, even when such action otherwise conflicts with various obligations relating to international trade’. See Jackson (n 692), at 233.

...the *freedom and ability* of a government to identify and pursue the most appropriate mix of economic and social policies to achieve equitable and sustainable development that is best suited to its particular national context [italics added].¹⁰⁷⁸

This definition equates policy space with the freedom and ability of governments to use policy measures they deem appropriate to achieve their stated goals. Such goals include promoting economic development and protecting the environment. The literature refers to the space for these goals as ‘developmental policy space’ and ‘green policy space’, respectively. Several factors influence the autonomy and ability of governments to use a particular policy measure to achieve such goals. The most prominent of these are international rules and commitments such as those contained in the SCM Agreement.¹⁰⁷⁹ Multilateral subsidy rules by definition encroach upon the sovereignty and autonomy of Members to use subsidies as policy tools. This is not specific to subsidy rules or even international trade rules. As Koskenniemi puts it aptly, ‘modern international law was not born to celebrate sovereignty but to attack it’.¹⁰⁸⁰ However, constraining policy space is not necessarily a problem.¹⁰⁸¹ The SCM Agreement disciplines subsidies primarily out of the recognition that their unfettered use distorts international trade. The same argument applies to the regulation of fossil fuel subsidies. Narrowing the policy space for the subsidization of fossil fuels enables the sustainable energy transition by enhancing the competitiveness of renewables. The narrower the policy space is, the better for such cases. The problem is that subsidies also serve legitimate public policy goals such as the protection of the environment. The subsidization of renewable energy, for example, plays a critical role in enhancing their competitiveness and thereby accelerating the sustainable energy transition. The right question in such cases is how wide the policy space for the subsidization of renewables is.

¹⁰⁷⁸ See UNCTAD (ed), *Trade and Development 2014: Global Governance and Policy Space for Development* (United Nations 2014), at 45. Similarly, the Sao Paulo Consensus defines policy space as ‘the scope for domestic policies, especially in the areas of trade, investment and industrial development’. It further stated that ‘international disciplines, commitments and global market considerations’ often frame policy space. See para 8, UNCTAD, ‘Sao Paulo Consensus’ (2004) (adopted at the 269th plenary meeting on 18 June 2004) TD/410.

¹⁰⁷⁹ See Yılmaz Akyüz, *Global Rules and Markets: Constraints over Policy Autonomy in Developing Countries* (Third World Network 2007) (also noting that ‘binding and enforceable rules and obligations contained in several agreements in the WTO constitute the principal constraints on development policy’), at 9.

¹⁰⁸⁰ See Martti Koskenniemi, ‘International Law as Therapy: Reading The Health of Nations’ (2005) 16 *European Journal of International Law* 329, at 339.

¹⁰⁸¹ In fact, restricting policy space is the very rationale for the existence of international regulations. See Sheila Page, ‘Policy Space: Are WTO Rules Preventing Development?’ (Overseas Development Institute 2007) Briefing Paper (noting the fact that restricting policy space is the objective for some countries, not a problem).

The trade and development literature rightly distinguishes between *de jure* and *de facto* policy space.¹⁰⁸² *De jure* policy space refers to the formal authority of Members under multilateral trade rules to utilize certain policy measures. The common technique of preserving *de jure* policy space is the inclusion of general exceptions. The traditional example of such exceptions are those contained in GATT Article XX. While such exceptions are usually general in their application, more specific and targeted exceptions take the form of the now-defunct Article 8 of the SCM Agreement. Besides Article 8, the SCM Agreement contains S&D provisions for developing countries (see *section 4.5.3.3*). How much policy space these provisions create for the subsidization of fossil fuels and renewable energy? However, exemption is not the only way of preserving *de jure* policy space. The SCM Agreement itself recognizes this point. This recognition is expressly stated in the often overlooked footnote 23 to Article 8:

It is recognized that government assistance for various purposes is widely provided by Members and that *the mere fact that such assistance may not qualify for non-actionable treatment under the provisions of this Article does not in itself restrict the ability of Members to provide such assistance* [italics added].¹⁰⁸³

The SCM Agreement maintains policy space also through its coverage. WTO Members enjoy full autonomy to use subsidies that fall outside the scope of the SCM Agreement (Area A in *figure 5.1* above). The question here is whether and to what extent renewable energy and fossil fuel support measures fall outside the scope of the SCM Agreement. The exemptions (if there is any) apply only to those subsidies that fall within the scope of the Agreement.

There are two understandings of *de facto* policy space. The first and perhaps the most common understanding relates *de facto* policy space with the capacity of governments to use certain policy measures even when they have *de jure* autonomy.¹⁰⁸⁴ For example, WTO Members had *de jure* policy space to use R&D subsidies under Article 8 of the SCM Agreement. However, not all

¹⁰⁸² See Jörg Mayer, 'Policy Space: What, for What, and Where?' (2009) 27 *Development Policy Review* 373; UNCTAD, *Global Governance and Policy Space for Development* (n 1078).

¹⁰⁸³ SCM Agreement.

¹⁰⁸⁴ Such constraints on the policy space of governments (in developing and least developed countries) include limited financial and institutional capacity. See Chris Milner, 'Constraining and Enhancing Policy Space: The WTO and Adjusting to Globalization' (2009) 3 *The Journal of International Trade and Diplomacy* 127, at 147.

WTO Members had the financial resources to provide such subsidies.¹⁰⁸⁵ This understanding implies that the *de facto* policy space is narrower than the *de jure* one. If we use the original SCM Agreement, *de facto* policy space covers less than Area A+B in *figure 5.1*.

The second understanding sees *de facto* policy space as the space created by the lack of enforcement of international rules and commitments.¹⁰⁸⁶ Article XVI:4 of the Marrakesh Agreement enjoins each Member to ‘ensure the conformity of its laws, regulations and administrative procedures with its obligations as provided in the annexed Agreements’.¹⁰⁸⁷ However, the WTO Secretariat does not have a mandate to ensure that Members comply with their commitments under the WTO Agreements. As Bown pointed out, ‘trading partners must find it in their own interest to remain a part of the agreement and to hold one another accountable to bargains made if one country steps away from it’.¹⁰⁸⁸ The threat of legal challenges plays a significant role in this respect. Members tend to refrain from adopting new policy measures or withdraw existing ones to avoid being embroiled in legal disputes.¹⁰⁸⁹ The risk of legal challenges leads governments to abandon policy measures susceptible to legal challenges. However, such regulatory/policy chilling effect exists to the extent that such measures are likely to face legal

¹⁰⁸⁵ See the complaint from Brazil regarding the difficult developing countries faced in taking advantage of the non-actionability of regional subsidies under the expired Article 8.2(b) in WTO, ‘Minutes of the Regular Meeting Held on 1-2 November 1999’ (n 999) (we discussed this point in section 4.5.3.1.3.2). Amsden and Hikino also argued along the same line stating that although the SCM Agreement formally allowed the use of subsidies for R&D purposes, developing countries were not able to take advantage of the exemptions due to political economy factors. See Alice H Amsden and Takashi Hikino, ‘The Bark Is Worse than the Bite: New WTO Law and Late Industrialization’ (2000) 570 *The Annals of the American Academy of Political and Social Science* 104.

¹⁰⁸⁶ See Chad P Bown and Bernard M Hoekman, ‘Developing Countries and Enforcement of Trade Agreements: Why Dispute Settlement Is Not Enough’ (2008) 42 *Journal of World Trade* 177, at 179-180. See also Rubini, ‘Ain’t Wastin’ Time No More’ (n 51) (noting ‘If there are no challenges, then although the rules do not formally provide enough policy space, such space is *de facto* ensured by the tolerance that governments show’), at 557; Vinod K Aggarwal and Simon J Evenett, ‘Do WTO Rules Preclude Industrial Policy? Evidence from the Global Economic Crisis’ (2014) 16 *Business and Politics* 481 (arguing that WTO rules, including those under the SCM Agreement, constrain policy space only to the extent that they are adhered to), at 491; Joost Pauwelyn, ‘The Dog That Barked But Didn’t Bite: 15 Years of Intellectual Property Disputes at the WTO’ (2010) 1 *Journal of International Dispute Settlement* 389 (implicitly adopting this understanding).

¹⁰⁸⁷ Members are also subject to the principle of *pacta sunt servanda* contained in Article 26 of the VCLT.

¹⁰⁸⁸ See Chad P Bown, *Self-Enforcing Trade: Developing Countries and WTO Dispute Settlement* (Brookings Institution Press 2009), at 45. Aggarwal and Evenett similarly argue that ‘even when binding WTO rules exist, their enforcement is not undertaken by an independent referee, but rather by self-interested and adversely affected WTO members’. See Aggarwal and Evenett (n 1086), at 494. See also *section 5.3.2* of this chapter.

¹⁰⁸⁹ On the regulatory chill effects of WTO law, see Robyn Eckersley, ‘The Big Chill: The WTO and Multilateral Environmental Agreements’ (2004) 4 *Global Environmental Politics* 27; Emily Barrett Lydgate, ‘Biofuels, Sustainability, and Trade-Related Regulatory Chill’ (2012) 15 *Journal of International Economic Law* 157.

challenges or condemnation in other ways. In a study that examined the impact of the Uruguay Round Agreements on developing countries' policy space for economic development, DiCaprio and Callagher found that WTO Members often waited until legal challenges before withdrawing their policy measures that have become inconsistent with the new multilateral trade rules.¹⁰⁹⁰ The point of this observation is that the absence of legal challenges and other enforcement mechanisms creates a *de facto* policy space, which does not exist *de jure*.

Such understanding of *de facto* policy space implies that *de facto* policy space is wider than the *de jure* one. In figure 5.1 above, *de jure* policy space covers only Area A+B, whereas the *de facto* one could cover Area A+B+C+D. This notion of *de facto* policy space is of particular importance to the SCM Agreement. We have seen in the preceding chapter that the SCM Agreement prohibits only two forms of subsidies (i.e. export subsidies and local content subsidies). WTO Members can use other forms of subsidies until other adversely affected Members complain about them. A *de facto* policy space exists under the SCM Agreement to the extent that a measure violates the Agreement but faces no legal challenges.

The WTO adjudicatory bodies play an additional role in expanding/shrinking the *de jure* policy space available under WTO Agreements.¹⁰⁹¹ Their interpretation of the rules therein defines the degree of policy space available under the SCM Agreement for the subsidization of renewable energy and fossil fuels. The most relevant example for this is the findings of the Panel majority and the Appellate Body in *Canada – Renewable Energy/FIT*. As we will see in detail, later on, both the Panel majority and the Appellate Body slightly expanded the policy space for the subsidization of renewable energy by interpreting the benefit requirement of Article 1.1(b) narrowly. The creation of policy space through interpretation is the subject of extensive debate. We will consider whether the issue of determining the policy space under the SCM Agreement better left for the judiciary or the legislative in this and next chapter.

¹⁰⁹⁰ See Alisa DiCaprio and Kevin P Gallagher, 'The WTO and the Shrinking of Development Space: How Big Is the Bite?' (2006) 7 *Journal of World Investment and Trade* 781, at 794-797; Aggarwal and Evenett (n 1086), at 488.

¹⁰⁹¹ See Harsha Singh and Rashmi Jose, 'Industrial Policy and the WTO Rules-Based System' (International Center for Trade and Sustainable Development 2016) Overview Paper (arguing that 'the interpretation of the legal provisions may lead to expanding the conventional understanding of the scope of the disciplines'), at 24. See also, Alan O Sykes, 'The Safeguards Mess: A Critique of WTO Jurisprudence' (2003) 2 *World Trade Review* 261.

5.3 Policy Space for Energy Subsidies

The SCM Agreement draws no explicit distinction between renewable energy and fossil fuel subsidies. Nor does it distinguish between environmentally friendly and harmful subsidies. The SCM disciplines are indifferent to policy rationales. Article 8 was the only place where the Agreement expressly showed some sensitivity to the policy objectives of subsidies, but that article has long since expired. Our discussion in the preceding chapter has shown that the primary concern of the Agreement is tackling trade-distorting subsidies – irrespective of their policy objectives. It makes no difference in the eyes of the SCM Agreement whether the subsidy pursues a legitimate public policy objective. Subsidies become an issue of concern under the Agreement only to the extent that they distort international trade. The financial contribution, benefit, specificity and adverse effect elements of the Agreement have one purpose, and that is identifying and disciplining trade-distorting subsidies. The lack of any express distinction between fossil and renewable energy subsidies implies that determining the policy space for the subsidization of renewable energy and fossil fuels under the SCM Agreement requires similar four-step analysis. First, determining whether renewable energy and fossil fuel support measures qualify as subsidies within the meaning of the SCM Agreement. Second, determining whether such subsidies fall under the prohibited or actionable category. Third, determining whether there is an exception applicable to such subsidies. Fourth, determining whether such subsidies face legal challenges through the dispute settlement system or countervailing duty investigations and the transparency and surveillance mechanisms. The first three steps deal with *de jure* policy space, while the last one concerns *de facto* policy space. In what follows, we apply this four-step analysis to both fossil fuel and renewable energy subsidies in parallel to determine the *de jure* and *de facto* policy space available under the SCM Agreement for such subsidies.

5.3.1 De Jure Policy Space

We assess the *de jure* policy space for the subsidization of renewable energy and fossil fuels at three levels. *Section 5.3.1.1* considers whether the common forms of renewable energy and fossil fuel support measures meet the definition and specificity requirements (‘threshold issues’) and fall under the scope of the SCM Agreement. *Section 5.3.1.2* examines whether those renewable

energy and fossil fuel support measures that qualify as specific subsidies are prohibited or actionable subsidies. Finally, *section 5.3.1.3* addresses the issue of exemptions.

5.3.1.1 The Threshold Issues: Definition and Specificity

The preceding chapter has established that the scope of the SCM Agreement is limited to those government support measures that meet the definition and specificity requirements of Articles 1 and 2. The question in this section is whether renewable energy and fossil fuel support measures meet these requirements. Before turning to these requirements, however, it is worth recalling that subsidies to fossil fuel and renewable energy services are immune from scrutiny under the SCM Agreement. The automatic exclusion of subsidies to services and service providers from the scope of the SCM Agreement leaves a significant *de jure* policy space under the Agreement for the subsidization of both fossil fuel and renewable energy services. Such subsidies are, in principle, subject to the GATS, but the GATS contains no binding rules on subsidies.

5.3.1.1.1 Are Energy Support Measures Subsidies?

The first threshold issue in assessing the legality of energy support measures under the SCM Agreement is determining whether or not they meet the definition requirements laid down in Article 1.1. A government support measure qualifies as a ‘subsidy’ within the meaning of this provision when it falls within (at least) one of the three categories of ‘financial contributions’ listed in Article 1.1(a)(1) or constitutes ‘income or price support’ and thereby confers a ‘benefit’ (see *section 4.5.2*). How would fossil fuel and renewable energy support measures fare under this definition? We approach these question in two ways. First, we examine the overall scope of the definition of subsidies in Article 1.1 of the SCM Agreement to identify fossil fuel and renewable energy support measures that may fall outside the scope of the definition by virtue of express exclusion.¹⁰⁹² Second, we use illustrative examples to assess whether the common forms of fossil fuel and renewable energy support measures qualify as subsidies under this definition.

¹⁰⁹² Much of our discussion on the definition requirements of Article 1.1 in the preceding chapter focused mainly on what it includes but not on what it leaves out. We will consider the latter here because of its implications for the policy space available under the SCM Agreement for the subsidization of fossil fuel and renewable energy.

The analysis in this section will show that the definition of subsidies in Article 1.1 makes no distinction between fossil fuel and renewable energy support measures. Both sets of support measures stand an equal chance of qualifying as subsidies within the meaning of the SCM Agreement. From the perspective of policy space that arises from the definition of subsidies, there are only two points worth considering. First, the express definitional exclusion of infrastructure subsidies tends to create more policy space for the subsidization of fossil fuels than for renewables. Second, the policy space that the Appellate Body has created through the interpretation of the ‘benefit’ requirement in *Canada – Renewable Energy/FIT*, tends to benefit the subsidization of renewables than the subsidization of fossil fuels.

5.3.1.1.1 Definitional Exclusions

Establishing the outer parameters of what constitutes a ‘subsidy’ under Article 1.1 is a good starting point for determining whether and what forms of energy support measures meet the definitional threshold. However, it is difficult to establish the overall scope of the subsidy definition in Article 1.1 with any precision because the provision leaves some of the constituent elements of the definition open to interpretation.¹⁰⁹³ For example, it offers no definition whatsoever of key elements of the definition such as ‘benefit’ and ‘public body’. To use the words of Mavroidis, the definition is ‘full of holes and loopholes’.¹⁰⁹⁴ The adjudicatory bodies have attempted to fill these loopholes through interpretation. However, some of their interpretations are highly contested. The interpretation of the ‘benefit’ element in *Canada – Renewable Energy/FIT* also illustrates that the jurisprudence is far from settled on certain aspects of the definition. Moreover, there is virtually no interpretation of some key elements of the definition such as ‘any income or price support’. The implication is that whether a particular support measure constitutes a subsidy or not within the meaning of the SCM Agreement remains

¹⁰⁹³ Magnus (n 1066) (noting that ‘the definition’s odd, ungrammatical language contained seeds of many future fights and was as much a roadmap for avoiding ASCM remedies as a confirmation of the ASCM regime’s broad coverage’), at 986. Luca Rubini, ‘The International Context of EC State Aid Law and Policy: The Regulation of Subsidies in the WTO’ in Andrea Biondi, Piet Eeckhout and James Flynn (eds), *The Law of State Aid in the European Union* (Oxford University Press 2004) 149 (noting that ‘Despite its elaboration, the ‘financial contribution’ requirement leaves many important interpretative issues open’), at 160.

¹⁰⁹⁴ See Petros C Mavroidis, ‘The Regulation of Subsidies in the GATT/WTO’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016) 13.

highly uncertain. Rubini describes such legal uncertainties as ‘inherently inimical to policy space’.¹⁰⁹⁵ Uncertainties as to whether a particular measure constitutes a subsidy under the SCM Agreement undermine the policy space that may arise from the scope of the subsidy definition. There is also widespread confusion about the legal elements of the definition. Some commentators erroneously consider specificity as a constituent element of the definition.¹⁰⁹⁶ Such consideration leads to a false conclusion about the scope of the definition. As we discussed in *section 4.5.2* of the previous chapter, the specificity requirement is a separate legal requirement from the definition requirements. A subsidy exists when a government support measure constitutes a financial contribution or income or price support and thereby confers a benefit regardless of whether it is specific or not. The specificity requirement comes into the picture only after the measure meets the definition requirements of Article 1.1. As we discussed in *section 4.5.2.2* and further in *section 5.3.1.1.2* below, the specificity requirement serves as an administrative tool to differentiate between trade-distorting subsidies and other subsidies. It is not to distinguish between what qualifies as subsidy and what is not.

Once we take the specificity requirement out of the equation, it becomes clear that the definition encompasses most government support measures.¹⁰⁹⁷¹⁰⁹⁸ That said, the exhaustive list of financial contributions in Article 1.1(a)(1) unequivocally indicates the intent of the drafters not to treat all benefit-conferring government measures as subsidies.¹⁰⁹⁹ Government support measures that neither fall within one of the three categories of financial contributions nor constitute ‘income or price support’ are not subsidies within the meaning of Article 1.1 even if they confer benefits.

¹⁰⁹⁵ See Rubini, ‘Ain’t Wastin’ Time No More’ (n 51), at 540. On legal uncertainties and their effect on policy space, see also Lydgate (n 1089), at 171; Steve Charnovitz, ‘World Trade and the Environment: A Review of the New WTO Report’ (1999) 12 Georgetown International Environmental Law Review 523, at 539.

¹⁰⁹⁶ These include prominent experts in the field. See Mavroidis, ‘The Regulation of Subsidies in the GATT/WTO’ (n 1094) (stating that ‘panels and the Appellate Body are still struggling with key elements of the definition, like “specificity”’) 13.

¹⁰⁹⁷ There is a widespread consensus in the academic and trade policy community that the subsidy definition of the SCM Agreement is reasonably broad. It encompasses a wide range of government support measures that qualify as subsidies under most subsidy definitions. See Rubini, *The Definition of Subsidy and State Aid* (n 208).

¹⁰⁹⁸ Except in few areas, e.g. the meaning of ‘benefit’ in Canada – Renewable Energy/FIT and ‘public body’ in US – Antidumping and Countervailing Duties (China), the Appellate Body also interprets the constituent elements of the definition expansively. See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744).

¹⁰⁹⁹ See *US - Softwood Lumber IV* (n 863) (noting that ‘not all government measures capable of conferring benefits would necessarily fall within Article 1.1[a]. If that were the case, there would be no need for Article 1.1[a], because all government measures conferring benefits, per se, would be subsidies’), footnote 35.

The question is what type of government support measures fall outside this definition? As expressly stated in Article 1.1(a)(1)(iii), one such measure is the provision of general infrastructure. The second set of government support measures that allegedly fall outside the definition of subsidy are regulatory measures or regulatory subsidies. Unlike the former, the definition does not explicitly exempt regulatory subsidies from its scope. We will consider these two sets of subsidies and the degree of policy space their exclusion from the definition of subsidies offers for the subsidization of fossil fuel and renewable energy subsequently.

5.3.1.1.1.1 General Infrastructure Subsidies

The definition of subsidy in Article 1.1 expressly excludes the provision of general infrastructure from its scope.¹¹⁰⁰ The express definitional exclusion of general infrastructure subsidies has significant implications for the regulation of fossil fuel subsidies. Renewables are relatively less reliant on general infrastructure than fossil fuels.¹¹⁰¹ The fossil fuel industry heavily relies on publicly funded energy infrastructures such as power grids, oil and gas pipelines, rail networks, liquefied natural gas terminals and storage facilities. However, it bears recalling that the SCM Agreement does not define the meaning of ‘general infrastructure’. The jurisprudence suggests that there is no such thing as *per se* ‘general infrastructure’. The generality of even the most basic infrastructures such as railroads and electricity grids requires a case-by-case determination that considers not only the existence of *de jure* or *de facto* limitations on access or use but also ‘any other factors that tend to demonstrate that the infrastructure was or was not provided to or for the use of only a single entity or a limited group of entities’.¹¹⁰² Such understanding limits the concept of ‘general infrastructure’ to ‘generally available’ infrastructures.

Given the specificity requirement of Articles 1.2 and 2, defining general infrastructure in terms of general availability undermines the relevance of the ‘general infrastructure’ exemption.¹¹⁰³ Notwithstanding the exemption in Article 1.1(a)(1)(iii), the provision of generally available

¹¹⁰⁰ Art 1.1(a)(1)(iii), SCM Agreement. See also the discussion in section 4.5.2.1.1.1 of chapter four .

¹¹⁰¹ Renewable energy subsidies that may benefit from this exemption are subsidies to smart electricity grids.

¹¹⁰² See *EC and Certain Member States - Large Civil Aircraft* (n 860), para 7.1039 (see also the discussion in section 4.5.2.1.1 of the previous chapter).

¹¹⁰³ However, Charnovitz is of the view that the general infrastructure exemption ‘provides important policy space for governments’. See Charnovitz, ‘Green Subsidies and the WTO’ (n 49), at 43.

infrastructure avoids the bite of the SCM Agreement through the specificity requirement. That is, whether the provision of general infrastructure qualifies as a subsidy or not matters little for its treatment under the SCM Agreement insofar as it is generally available. The only instance in which generally available subsidies are subject to the SCM disciplines is when they are contingent upon export performance or the use of domestic over imported goods (i.e. prohibited subsidies). Article 2.3 considers prohibited subsidies as specific regardless of their general availability. In theory, the general infrastructure exemption of Article 1.1(a)(1)(iii) shields generally available infrastructure subsidies from the disciplines on prohibited subsidies even when they are contingent upon export performance or the use of domestic over imported goods. In practice, infrastructure subsidies which are contingent upon export performance or the use of domestic over imported goods are unlikely to be generally available. The general infrastructure exemption would have maintained more policy space had it been defined based on the type of infrastructures than based on the general availability of infrastructures.

In sum, the general infrastructure exemption has limited impact on the policy space under the SCM Agreement in the presence of the specificity requirement.¹¹⁰⁴ Perhaps its only effect is that it makes determining the legality of generally available infrastructure subsidies relatively easy and thereby reduces the uncertainty as to the legality of such subsidies under the SCM Agreement. Even here, the *EC – Large Civil Aircraft* dispute suggests that determining whether an infrastructure is generally available or not is not a straightforward exercise. In this dispute, the EU argued that several of the measures challenged as subsidies by the US were general infrastructures and hence fall outside the scope of the SCM Agreement. The measures in question include the provision of roads, the provision of extended runway, and the provision of an industrial site. The Panel found that only the provision of roads qualified as the provision of general infrastructure within the meaning of Article 1.1(a)(1)(iii) because of its general availability.¹¹⁰⁵ Regarding the provision of the other infrastructures, the Panel concluded that they were specific to Airbus and hence do not constitute ‘general infrastructure’.

¹¹⁰⁴ For a similar observation, see Nigel Bankes and others, ‘International Trade and Investment Law and Carbon Management Technologies’ (2012) 53 *Natural Resources Journal* 285, at 298-300.

¹¹⁰⁵ See *EC and Certain Member States - Large Civil Aircraft* (n 860), paras 7.1192-7.1196.

5.3.1.1.1.2 Regulatory Subsidies?

We have seen in chapter two of this thesis that quantity- and price-driven regulatory measures are one of the most common forms of both renewable energy and fossil fuel support measures. The prevailing view in the literature is that such measures fall outside the definition of subsidies in the SCM Agreement.¹¹⁰⁶ However, the issue is not as straightforward as the literature suggests. There is no explicit exclusion of regulatory measures from the scope of the SCM Agreement. Nor there is enough jurisprudence on the subject. To date, the status of only two regulatory measures, namely export restraints and feed-in tariffs, under the SCM Agreement has been the subject of legal disputes. The Panels both in *China – GOES* and *US –Export Restraints* found that voluntary export restraints do not constitute subsidies in the sense of Article 1.1. Concerning feed-in tariffs, as mentioned before and discussed further below in this chapter, the Appellate Body found that such measures constitute financial contributions but could not finish the benefit-analysis, leaving open the question whether or not such measures qualify as subsidies within the meaning of the SCM Agreement. The absence of explicit provision and the meagre jurisprudence on the subject makes it difficult to make definitive statements about whether regulatory measures *as such* fall within or outside the definition of subsidies in the SCM Agreement. The breadth of regulatory measures is also too vast to make any sweeping conclusions. Whether renewable energy (e.g. mandates, feed-in tariffs) and fossil fuel (e.g. dual pricing) regulatory measures constitute a subsidy or not requires a –case-by-case determination, not a categorical one.

5.3.1.1.1.2 Are Renewable Energy Support Measures Subsidies?

Renewable energy support measures take many different forms (see *section 2.4.1*). The only types of renewable energy support measures that fall outside the ambit of the SCM Agreement because of express definitional exclusion are support measures to generally available renewable

¹¹⁰⁶ See, e.g., Mavroidis, Messerlin and Wauters (n 916), at 303; Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), at 448-449; WTO, *World Trade Report 2006: Exploring the Links Between Subsidies, Trade and the WTO* (n 213), at 195; Jan Wouters and Dominic Coppens, ‘An Overview of the Agreement on Subsidies and Countervailing Measures – Including a Discussion of the Agreement on Agriculture’ in Kyle Bagwell, George A Bermann and Petros C Mavroidis (eds), *Law and economics of contingent protection in international trade* (Cambridge University Press 2010). On why some commentators (mostly economists) consider regulatory measures as subsidies in the first place, see the discussion in section 2.4.1.1 of this thesis and Rubini, ‘The “Elusive Frontier”’ (n 315).

energy infrastructures. All other renewable energy support measures could potentially fall within the definition of subsidies in Article 1.1 of the SCM Agreement. In what follows, we examine whether the common forms of renewable energy support measures meet the definition requirements of Article 1.1(i.e. financial contribution or income or price support and benefit).

5.3.1.1.1.2.1 Renewable Energy Grants and Rebates

As we discussed in *section 2.4.1.2.1* of chapter two, grants and rebates are one of the common forms of renewable energy support measures. Such measures qualify as subsidies under virtually any definition of the term. The subsidy definition of the SCM Agreement is no exception. Article 1.1(a)(1)(i) explicitly mentions grants as an illustrative example of a direct transfer of funds (i.e. the first form of financial contributions). It is also straightforward to establish that such measures confer a benefit in the sense of Article 1.1(b). Grants and rebates by definition make their recipients better off than they would otherwise have been. Renewable energy grants and rebates conditioned upon the use of local over imported equipment were the subject of a dispute in *China – Wind Power Equipment* (see *section 5.3.2.1.1.1*). Although not related to renewable energy, unconditional R&D grants have been the subject of trade disputes in the *US – Large Civil Aircraft (2nd complaint)* and *EC and Certain Member States – Large Civil Aircraft*. In the aircraft cases, the Appellate Body upheld the findings of the Panels that the R&D grants at issue constitute actionable subsidies within the meaning of the SCM Agreement.

5.3.1.1.1.2.2 Renewable Energy Loans and Loan Guarantees

As noted in *section 2.4.1.3*, 83 countries around the world had preferential loan and loan guarantee schemes in 2015. Such public financing schemes qualify as financial contributions within the meaning of Article 1.1(a)(1)(i). Like grants, this provision expressly mentions loans and loan guarantees as examples of direct transfer of funds and potential direct transfer of funds, respectively. Their explicit identification as illustrative examples in Article 1.1(a)(1)(i) makes it easier to establish that such support measures constitute financial contributions. It is equally straightforward to determine whether such measures confer benefits within the meaning of

Article 1.1(b). The comparative benchmark is the interest rate available in the private market. A ‘benefit’ exists to the extent that such schemes offer below-market rates.

Perhaps the major difficulty in establishing whether such support measures constitute subsidies within the meaning of Article 1.1 is determining the status of the entities providing the preferential loans or loan guarantees. We discussed in *section 4.5.2.1.1* that support measures may constitute financial contributions only insofar as they come from the government or public body or a private body entrusted or directed by the government. The Appellate Body interpreted the term ‘public body’ under Article 1.1(a)(1) narrowly to include only entities that are vested with or exercise governmental authority. Earlier Panels simply assumed financial entities wholly-owned or –controlled by the government as public bodies, but the Appellate Body refuted such assumptions. Mere government ownership or control of an entity is insufficient on its own. This makes it relatively difficult to establish the existence of a financial contribution even when the entities that provide the loans or loan guarantees for renewable energy projects are wholly owned or controlled by the government. The Appellate Body itself admitted that determining whether the financial entity at issue is a public or private body in the narrow sense of the term may be a ‘complex exercise’.¹¹⁰⁷ The degree of complexity increases when the entity at issue is partially-owned or -controlled by the government. However, it is worth noting that most countries provide preferential loans to renewable energy projects through wholly government-owned and –controlled development banks such as KfW in Germany and BNDES in Brazil. The legality of preferential loans and loan guarantees under the SCM Agreement have been the subject of several disputes - though unrelated to renewable energy.¹¹⁰⁸ These disputes show that such measures could face legal challenges to the extent that they distort international trade.

¹¹⁰⁷ See *US – Countervailing and Anti-Dumping Measures (China)* (n 803), para 345.

¹¹⁰⁸ See, for example, *Korea-Commercial Vessels* (n 483); *EC and certain member States - Large Civil Aircraft* (n 391); *Japan — DRAMs (Korea)* (n 839); *US – Countervailing Duty Investigation on DRAMs* (n 807); *Canada — Aircraft Credits and Guarantees* (n 935).

5.3.1.1.1.2.3 Renewable Energy Tax Incentives

Tax incentives such as tax exemptions and credits are by far the most popular forms of renewable energy support measures worldwide.¹¹⁰⁹ Determining whether such measures qualify as subsidies within the meaning of Article 1.1 of the SCM Agreement is inherently complex and uncertain. Establishing whether a particular tax incentive scheme has conferred a benefit is relatively straightforward.¹¹¹⁰ According to the Panel in *US – Large Civil Aircraft*, a tax break ‘is essentially a gift from the government or a waiver of obligations due, and it is clear that the market does not give such gifts’.¹¹¹¹ The uncertainty is whether such measures constitute a financial contribution. Tax incentives may constitute a financial contribution in the form of ‘government revenue that is otherwise due is foregone or not collected’ as set out in Article 1.1(a)(1)(ii). However, establishing the existence of financial contribution in the sense of this provision is complex (see *section 4.5.2.1.1.1*). The complexity lies in the ‘otherwise due’ element and identifying the normative benchmark for comparison. A financial contribution does not arise ‘simply because a government does not raise revenue that it could have raised’.¹¹¹² As we noted in *section 4.5.2.1.1.1*, tax incentives constitute financial contribution only to the extent that they represent a departure from the general tax rule. However, it is not always easy to identify the general tax rule. The jurisprudence suggests that in cases where it is difficult to identify the general tax rule, the appropriate benchmark for comparison is ‘the treatment applied to comparable income, for taxpayers in comparable circumstances in the jurisdiction in issue’.¹¹¹³ However, establishing such an alternative benchmark is neither straightforward nor uncontroversial. The numerous trade disputes over tax incentives illustrate that the subsidy status of such support measures depends on their specific design and implementation. The resultant uncertainty constrains the policy space for providing tax incentives for renewables.

¹¹⁰⁹ On the different forms of tax incentives and practical examples, see *section 2.4.1.2.2* of chapter two.

¹¹¹⁰ See *US – Large Civil Aircraft (2nd complaint)* (n 841), para 7.169.

¹¹¹¹ See *ibid*, para 7.170.

¹¹¹² See *US – Large Civil Aircraft (2nd complaint)* (n 820), para 807.

¹¹¹³ See *Appellate Body Report, United States - Tax Treatment for ‘Foreign Sales Corporations’, Recourse to Article 21.5 of the DSU by the European Communities (US – FSC (Article 21.5)), WT/DS108/AB/RW, Adopted on 29 January 2002* (n 827), para 91.

5.3.1.1.1.2.4 Renewable Energy Feed-in Tariffs

FITs are one of the most popular renewable energy support measures worldwide. As we saw earlier in *table 2.3*, at least 83 countries around the world had FITs with varying terms and conditions by 2015. Some of these FITs have been the subject of legal disputes not only at the WTO but also at the European Court of Justice (ECJ) and numerous international investment tribunals, albeit for different reasons. In response to the decline in the costs of renewable energy technologies, growing budgetary constraints and legal contestations, FIT Programs are also undergoing significant changes in many jurisdictions.¹¹¹⁴ Despite these changes, however, they remain a key policy tool for promoting renewable energy worldwide.

The FITs that have been challenged to date in the WTO are those that are conditioned upon the use of domestic over imported electricity generation equipment. However, it bears recalling from our discussion in chapter two that local content requirements are not inherent elements of FITs. FITs also come without such requirements. More importantly, the existence or otherwise of these requirements is irrelevant to the question of whether FITs amount to subsidies within the meaning of Article 1.1. Determining whether FITs qualify as subsidies under Article 1.1 is only the first (albeit essential) step in determining their legality under the SCM Agreement. In this regard, the WTO adjudicatory bodies have offered an extensive but controversial answer to this question. In *Canada – Renewable Energy/FIT*, the Panel and then the Appellate Body faced the question of whether the FIT Program of the Canadian province of Ontario constitutes a subsidy within the meaning of Article 1.1. Both took a long and convoluted route to answer this question and ultimately concluded that there were no sufficient undisputed facts on the record to complete their benefit analysis. The reasoning and findings in this dispute have significant implications for policy space under the SCM Agreement. In what follows, we detail the findings of the Panel majority, the dissenting panel member and the Appellate Body on the question of whether the Ontario's FIT Program constitutes a subsidy within the meaning of Article 1.1.

¹¹¹⁴ In the EU, for example, 'feed-in tariffs are progressively replaced by competitive bidding processes that will increase cost effectiveness and limit distortions of competition'. See EC, 'Energy and Environmental State Aid Guidelines – Frequently Asked Questions' (2014) Memo 14/276, at 2.

5.3.1.1.2.4.1 Are FITs ‘Financial Contributions’ or ‘Income or Price Support’?

Whether the FIT Program constitutes a ‘financial contribution’ or ‘income or price support’ is the first of the two discrete legal elements of the definition of subsidy in Article 1.1. The complainants alleged that the FIT Program constitutes an ‘income or price support’ and/or a ‘financial’ contribution in the form of ‘direct transfer of funds’, ‘potential direct transfer of funds’ and government ‘purchases of goods’. The Panel found that the proper legal characterization of the FIT Program is a ‘financial contribution’ in the form of government ‘purchases of goods’.¹¹¹⁵ It based its conclusion on three key elements: (i) the government pays for the electricity that is delivered into its electricity grid; (ii) the government takes ‘possession’ of the electricity; (iii) the relevant legislative and regulatory framework in Ontario characterizes the FIT Program as a ‘procurement or purchase of electricity’.¹¹¹⁶ Having found that the FIT Program constitute a ‘financial contribution’ within the meaning of Article 1.1(a)(1)(iii), the Panel rejected the claims that the FIT Program also constitutes a direct transfers of funds under Article 1.1(a)(1)(i) and exercised judicial economy on the question of whether the FIT Program may also be legally characterized as a form of ‘income or price support’ under Article 1.1(a)(2). It rejected the former claim because of its view that the list of financial contributions in Article 1.1(a)(1) are mutually exclusive and thus characterizing the FIT Program both as government purchases of goods and a ‘direct transfers of funds’ would be contrary to the principle of effective treaty interpretation.¹¹¹⁷ It exercised judicial economy on the latter claim simply because it did not find it necessary to decide whether the FIT Program may also constitute ‘income or price support’ given its decision that it constitutes a ‘financial contribution’ and that the complainants’ benefit arguments were ‘essentially the same’ irrespective of whether the FIT Program is characterized as ‘financial contributions’ or ‘income or price support’.¹¹¹⁸

¹¹¹⁵ See *Canada – Renewable Energy/FIT* (n 40), paras 5.128 and 5.133-5.139; *Canada-Renewable Energy/FIT* (n 888), para 7.249.

¹¹¹⁶ *Canada-Renewable Energy/FIT* (n 888), paras 7.223-7.242.

¹¹¹⁷ This is despite admitting that the FIT Program ‘exhibit some of the basic features of certain forms of ‘direct transfer[s] of funds’. See *ibid*, paras 7.243-7.246.

¹¹¹⁸ *ibid*, para 7.249.

The Appellate Body upheld the Panel's characterization of the FIT Program as 'purchases of goods' and its exercise of judicial economy on the question of whether the FIT Program also qualifies as 'income or price support'.¹¹¹⁹ However, it reversed the finding of the Panel that the list of financial contributions in Article 1.1(a)(1) are mutually exclusive.¹¹²⁰ The Appellate Body asserted that a government support measure 'may fall under more than one type of financial contribution' under Article 1.1(a).¹¹²¹ Nevertheless, it rejected Japan's claim that the FIT Program should also be characterized as 'direct transfers of funds'.

5.3.1.1.1.2.4.2 Do FITs Confer a Benefit?

Whether the FIT Program confers a 'benefit' within the meaning of Article 1.1(b) was the most controversial aspect of the findings in *Canada – Renewable Energy/FIT*. This second element of the subsidy definition was the point of contention not only between the parties but also among the Panel majority, the dissenting panel member and the Appellate Body.

The complainants alleged that the FIT Program confers a 'benefit' because it guarantees that renewable electricity producers receive a price for electricity that exceeds the price of electricity in the wholesale electricity market in Ontario.¹¹²² Japan additionally argued that the history of the Ontario electricity market and the objective design and structure of the FIT Program demonstrates that renewable electricity producers would be unable to operate in the wholesale electricity market of Ontario without the FIT Program and this in and of itself proves that the FIT Program has conferred a 'benefit'.¹¹²³ The EU advanced two alternative arguments in case the Panel finds that there is no single electricity market in Ontario. Even if the Panel were to find that the relevant market is the market for renewable electricity, the EU maintained that the FIT Program confers a 'benefit' to the wind and solar electricity producers because it offers higher prices to wind and solar electricity than what it offers to electricity generated from other

¹¹¹⁹ See *Canada – Renewable Energy/FIT* (n 40), paras 5.128 and 5.138.

¹¹²⁰ *ibid*, paras 5.119-5.120.

¹¹²¹ *ibid*.

¹¹²² In case the Panel finds that the Ontario-based electricity price benchmarks are distorted, they proposed electricity price benchmarks from four jurisdictions outside of Ontario. See *Brazil - Aircraft* (n 804), paras 7.250-7.258.

¹¹²³ The history of the electricity market in Ontario shows that the private electricity market was unable to attract sufficient supply of renewable electricity to cover the needs of Ontario on its own. See *Canada-Renewable Energy/FIT* (n 888), para 5.252.

renewable energy sources such as hydropower, biomass and biogas.¹¹²⁴ If the Panel were to determine that the relevant market is the market for wind and solar electricity, the EU submitted that the FIT Program confers a benefit because it offers ‘standardized prices to all generators regardless of their actual costs of production’.¹¹²⁵ Noting that the cost of wind and solar electricity production varies depending on the location of the plant, the EU argued that the standardized prices benefit wind and solar electricity producers in good locations. On its part, Canada contested the assertion that there is one single market for electricity generated from all sources of energy.¹¹²⁶ It submitted that the relevant market for benefit analysis is the separate market for wind and solar electricity and the benefit benchmark must be found within this market.

The Panel majority agreed with the complainants that there is only one single market for electricity generated from all sources of energy and the appropriate benchmark for the benefit analysis should be found within this market.¹¹²⁷ However, it disagreed with their assertion that the wholesale electricity market price in Ontario should serve as the appropriate benchmark. It found the wholesale electricity market prices inappropriate to serve as benefit benchmarks because no effective competition takes place within this market.¹¹²⁸ It also found that while competitive wholesale electricity markets may exist in theory, it is inappropriate to use them as benefit benchmarks because they would fail to attract the generation capacity needed to secure a reliable supply of electricity.¹¹²⁹ These considerations led the Panel to reject all of the complainants’ proposed benchmarks related to the wholesale electricity market in Ontario. It also used similar reasoning to reject the benchmarks from the four-out-of-province electricity markets put forward by the complainants as proxies for the wholesale electricity price in Ontario.¹¹³⁰ Having rejected both the in-province and out-of-province market benchmarks submitted by the complainants, the

¹¹²⁴ *ibid*, para 5.257.

¹¹²⁵ *ibid*, para 7.528.

¹¹²⁶ *ibid*, para 7.259.

¹¹²⁷ It then rejected Canada’s claim that there is a distinct market for renewable electricity in Ontario. In line with the complainants’ arguments, it underlined that consumers of electricity in Ontario do not distinguish electricity on the basis of different generation technologies. See *ibid*, para 7.318.

¹¹²⁸ The Panel majority was convinced that such prices do not reflect the unconstrained forces of supply and demand, but rather were defined by Ontario’s ‘decisions and regulations pertaining to the supply mix needed to ensure that Ontario has a safe, reliable, and long-term sustainable supply of electricity’. See *ibid*, para 7.308.

¹¹²⁹ The Panel majority underlined that ‘this goal can only be achieved by means of government intervention in what would otherwise be unacceptable competitive market outcomes’. *ibid*, paras 7.309-7.312.

¹¹³⁰ *ibid*, para 7.310.

Panel majority suggested what it considered to be an appropriate benchmark. It suggested that one approach to determining whether the FIT Program conferred a benefit could be comparing the rate of returns that wind and solar electricity generators obtained under the FIT Program with the ‘average cost of capital in Canada for projects having a comparable risk profile in the same period’.¹¹³¹ It clarified that such a comparison would allow for an immediate and clear determination of whether the FIT Program overcompensates and thus subsidize wind and solar electricity producers within the meaning of the SCM Agreement.¹¹³² It then tried to conduct the benefit comparison based on this benchmark, but it was unable to complete the analysis because there was no sufficient factual information on the record.¹¹³³ It ultimately concluded that the complainants failed to establish the existence of a benefit and hence a subsidy.

The dissent concurred with the majority that there is only one single electricity market in Ontario and the wholesale electricity market is too distorted to serve as an appropriate benefit benchmark. However, it disagreed with the majority that the competitive wholesale electricity market that could exist in Ontario is an inappropriate benchmark. According to the dissent, it was undisputed that the FIT Program facilitated the entry of renewable electricity generators into the wholesale electricity market in Ontario (that does exist) and this in and of itself demonstrates the existence of a benefit within the meaning of Article 1.1(b).¹¹³⁴ The dissent was of the view that the mere fact that renewable electricity generators would not have entered the wholesale electricity market, or such market would fail to attract the generation capacity needed to secure a reliable supply of electricity absent the FIT Program (as the majority reasoned) indicates that the FIT Program conferred a ‘benefit’ under Article 1.1(b) and hence amounts to a subsidy.

The Appellate Body approached the benefit analysis differently from the Panel (and the dissent) and reversed the key findings and ultimate conclusion of the Panel. It opined first that a proper benefit analysis begins with the definition of the relevant market, which is ‘central to, and a

¹¹³¹ See *ibid*, para 7.323.

¹¹³² *ibid*, para 7.323.

¹¹³³ *ibid*, para 7.326.

¹¹³⁴ See *ibid*, paras 9.3.

prerequisite for, a benefit analysis under Article 1.1(b)'.¹¹³⁵ Recalling its earlier finding in *EC and Certain Member States – Large Civil Aircraft*, it then underlined that defining the relevant market within which the appropriate benefit benchmark should be found requires considering both demand-side and supply-side substitutability.¹¹³⁶ On the one hand, demand-side factors suggest that electricity is physically identical and thus renewable and conventional electricity are highly substitutable.¹¹³⁷ On the other hand, supply-side factors imply that renewable electricity producers cannot compete with conventional electricity producers because of differences in cost structures (very high capital costs) and operating costs (very low operating costs) and characteristics (fewer economies of scale and intermittency in supply).¹¹³⁸ Such differences imply that the markets for renewable electricity can only come into existence as a matter of government regulation.¹¹³⁹ The Appellate Body further noted that although final consumers at the retail level may not distinguish between electricity based on generation technology, the government of Ontario makes such distinction while purchasing electricity at the wholesale level because of its definition of the energy supply-mix that includes wind and solar electricity.¹¹⁴⁰ It observed that 'where government decisions require a certain supply-mix, electricity from different generation technologies is not substitutable at the wholesale level'.¹¹⁴¹ The significant differences in cost structures and the fact that the renewable electricity markets would not have existed had it not been for the government definition of the energy supply-mix convinced the Appellate Body to agree with Canada that there are separate markets for renewable electricity in Ontario.¹¹⁴² It thus determined that the panel erred in concluding that the relevant market for the benefit analysis is the blended wholesale electricity market by solely relying on demand-side substitutability. Having reversed the Panel's conclusion, the Appellate Body defined the relevant market for the

¹¹³⁵ Here the Appellate Body criticized the Panel for not starting its benefit analysis by defining the relevant market. See *Canada – Renewable Energy/FIT* (n 40), para 5.169.

¹¹³⁶ It is worth noting here that its finding in *EU and Certain Member States – Large Civil Aircraft* was related to the definition of the relevant market to determine the existence of serious prejudice within the meaning of Article 6. Nevertheless, once again, it condemned the Panel for defining the relevant market for the benefit comparison solely based on the demand-side substitutability of electricity. See *ibid*, paras 5.170-5.171.

¹¹³⁷ The Appellate Body agreed with the Panel that there is a high degree of substitutability between renewable and conventional electricity. See *ibid*.

¹¹³⁸ *ibid*, para 5.174.

¹¹³⁹ *ibid*, para 5.175.

¹¹⁴⁰ *ibid*, para 5.176.

¹¹⁴¹ *ibid*.

¹¹⁴² *ibid*, para 5.178.

benefit analysis rather as the separate markets for wind and solar electricity, which are created by the government definition of the energy supply mix.¹¹⁴³ The benchmark for benefit comparison should thus be found within these separate renewable electricity markets.

Having narrowed down the relevant market to the wind and solar electricity markets, the Appellate Body turned to the question of the appropriate benchmark for the benefit analysis. Reading Article 1.1(b) in the context of Article 14(d) of the SCM Agreement, the Appellate Body first clarified that determining the existence of a benefit involves a comparison with a market benchmark or proxy.¹¹⁴⁴ A benefit is deemed to exist when ‘the purchase is made for more than adequate remuneration’, and the adequacy of the remuneration is determined in relation to the ‘prevailing market conditions’.¹¹⁴⁵ The Appellate Body explained that although ‘introducing legitimate policy considerations into the determination of benefit cannot be reconciled with Article 1.1(b)’, a market-based approach to the benefit analysis does not exclude taking into account situations where governments intervene to create markets that would otherwise not exist.¹¹⁴⁶ It stressed that although market-creating government interventions affect market prices, ‘it does not exclude *per se* treating the resulting prices as market prices for the purposes of a benefit analysis under Article 1.1(b)’.¹¹⁴⁷ Applying this to the Ontario FIT Program, the Appellate Body maintained that ‘a government’s choice to include wind power and solar PV generation in the energy supply-mix should not be considered as preventing the identification or adaptation of competitive benefit benchmarks for purposes of an analysis under Article 1.1(b)’.¹¹⁴⁸ However, this requires distinguishing between ‘government interventions that create markets that would otherwise not exist’ and ‘government interventions in existing markets’.¹¹⁴⁹ While the former does not in and of itself constitute subsidies, the latter may amount to subsidies when they take the form of financial contribution or income or price support and confer a

¹¹⁴³ *ibid*, para 5.178.

¹¹⁴⁴ *ibid*, para 5.183.

¹¹⁴⁵ *ibid*, para 5.183.

¹¹⁴⁶ *ibid*, para 5.185.

¹¹⁴⁷ The reason is that ‘in the absence of such government intervention, there could not be a market with a constant and reliable supply of electricity’. See *ibid*, para 5.185.

¹¹⁴⁸ *ibid*, para 5.186.

¹¹⁴⁹ *ibid*, para 5.188.

benefit.¹¹⁵⁰ Noting (albeit implicitly) that the Ontario Government created new markets for wind and solar electricity through its definition of energy supply-mix, the Appellate Body determined that the benefit benchmarks for solar and wind electricity should be found within the markets for wind and solar electricity that resulted from the energy supply-mix definition. The Appellate Body, therefore, concluded that the Panel erred in not conducting the benefit analysis based on a benchmark located in the market reflecting competitive prices for wind and solar electricity generation.¹¹⁵¹ Having found that the Panel committed an error both in its relevant market definition and identification of benefit benchmark it reversed the Panel's finding that the complainants failed to establish the existence of a benefit within the meaning of Article 1.1(b).¹¹⁵²

Having reversed the Panel's benefit finding, the Appellate Body tried to complete the analysis by itself. Here it underlined first that the appropriate benefit benchmark for wind and solar electricity generation in Ontario should be one that within the parameters of the government of Ontario's definition of the energy supply-mix, reflects what a market benchmark would yield for wind and solar electricity.¹¹⁵³ The guidelines contained in Article 14(d) gives priority to in-province benchmark. Out-of-province benchmark or proxy should be considered only when there is no suitable in-province benchmark. Through the FIT Program, the Ontario government sets prices, but setting a price does not in and of itself establish the existence of a benefit.¹¹⁵⁴ FIT prices may or may not reflect what a hypothetical market would yield. FIT prices constitute a benefit only if they reflect more than what a market outcome would be. The Appellate Body explained that whether the FIT does or does not provide more than adequate remuneration can be ascertained through the analysis of the methodology that was used to establish the FIT prices.¹¹⁵⁵ However, it found that there were no undisputed facts on the record that allowed it to determine whether the methodology used in Ontario to establish the FIT prices resulted in prices that provide more than adequate remuneration.¹¹⁵⁶ In cases such as this where there is insufficient information about the

¹¹⁵⁰ See *ibid* ('Where a government creates a market, it cannot be said that the government intervention distorts the market, as there would not be a market if the government had not created it').

¹¹⁵¹ *ibid*, para 5.219.

¹¹⁵² *ibid*.

¹¹⁵³ *ibid*, para 5.227.

¹¹⁵⁴ *ibid*, para 5.228.

¹¹⁵⁵ *ibid*, para 5.228.

¹¹⁵⁶ *ibid*, para 5.234.

price-setting methodology used or where the methodology is of limited help, it becomes necessary to identify a market benchmark or proxy by looking at in country or out-of-country administered prices for the same product ‘provided that it is determined based on a price-setting mechanism that ensures a market outcome’.¹¹⁵⁷ Such a market benchmark can also be found in price-discovery mechanisms such as competitive bidding or negotiated prices, which ensures that the price paid by the government is the lowest possible price offered by a willing supply contractor.¹¹⁵⁸ Here it found that renewable electricity prices under the Renewable Electricity Supply (RES) initiative of Ontario – a quantity-driven renewable energy support measures that were in place before the FIT - could sever as appropriate benchmarks. It noted that RES prices represent a market outcome for renewable electricity since they resulted from competitive bidding.¹¹⁵⁹ However, although the RES initiative was also open to solar electricity producers, ‘there does not seem to be any evidence on the panel record that solar electricity producers were awarded contracts under any of the RES initiatives’.¹¹⁶⁰ The lack of evidence convinced the Appellate Body that the FIT prices for solar electricity cannot be compared with the RES prices to establish whether the FIT Program confers a benefit in respect of solar electricity generation.¹¹⁶¹ On wind electricity generation, the Appellate Body noted that ‘it would be, in principle, possible to make a comparison of the FIT remuneration of wind power generators with the remuneration that wind power generators obtain under the RES initiative to determine whether the former confers a benefit’.¹¹⁶² It observed that ‘a comparison between prices under the FIT and RES seem to suggest that the former confer a benefit’,¹¹⁶³ but it was unable to complete the analysis because of insufficient undisputed facts on the record.¹¹⁶⁴ Consequently, it left open the question whether the FIT Program constitutes a subsidy or not.

It bears noting that neither the Panel nor the Appellate Body concluded that the FIT Program does not constitute a subsidy within the meaning of the SCM Agreement. The Appellate Body

¹¹⁵⁷ *ibid.*

¹¹⁵⁸ *ibid.*, para 5.228.

¹¹⁵⁹ *ibid.*, para 5.235.

¹¹⁶⁰ *ibid.*, para 5.236.

¹¹⁶¹ *ibid.*, para 5.236.

¹¹⁶² *ibid.*, para 5.240.

¹¹⁶³ *ibid.*, para 5.241.

¹¹⁶⁴ *ibid.*, para 5.246.

even went to the extent of stating that the FIT program seems to confer a benefit and hence constitute a subsidy. It did not complete the benefit analysis simply because of insufficient uncontested facts on the record.¹¹⁶⁵ It is fair to assume that similar circumstances are unlikely to arise in future as complainants will change their benefit arguments in accordance with the new jurisprudence. Nevertheless, some of the findings of the Appellate Body in this dispute have made it relatively difficult to establish that FITs constitute a subsidy. In particular, the need to consider both demand-side and supply-side substitutability substantively narrows down the relevant market and makes the identification of benefit benchmarks extremely difficult. This difficulty is further compounded by the finding that a market creating government intervention does not in and of itself constitute a subsidy. The significance of this finding is that FITs (and all other market creating government support measures) constitute a subsidy only if they offer excessive remuneration. This new jurisprudence effectively writes FITs with rates that cover the costs of energy production and a reasonable rate of returns out of the SCM Agreement. There is no doubt that the Appellate Body created a *de facto* policy space for a wide range of government measures through these findings. We will return to the scope of these *de facto* policy space and its implications for the regulation of energy subsidies under the SCM Agreement.

5.3.1.1.1.2.5 Renewable Energy Tendering/Competitive Bidding

As discussed in *section 2.4.1.1.3* of chapter two, tendering or competitive bidding has become an increasingly important form of renewable energy support measure in recent years. It shares most features of FITs. Perhaps the only significant difference between the two is that while governments fix prices under FITs, tendering schemes leave the determination of prices to the competitive bidding process. The bidding process sets electricity prices at ‘the levels of the lowest bids meeting the specified conditions’.¹¹⁶⁶ Tendering (like FITs) awards guaranteed electricity supply contracts at a fixed rate (albeit determined through competitive bidding).

The similarity with FITs suggests that tendering schemes would easily qualify as financial contributions in the form of government ‘purchases of goods’ within the meaning of Article

¹¹⁶⁵ The lack of sufficient uncontested facts on the Panel record is understandable given that the complainants mainly relied upon the blended wholesale electricity market to establish the existence of a benefit.

¹¹⁶⁶ See *Canada – Renewable Energy/FIT* (n 40), para 5.232.

1.1(a)(1)(iii). The challenge in establishing whether they constitute a ‘subsidy’ lies in establishing whether they confer a benefit within the meaning of Article 1.1(b). One may argue (like the dissenting panel member in *Canada –Renewable Energy/FIT*) that the mere fact that the tendering scheme allows renewable electricity producers to enter into a market that they would not have otherwise entered proves the existence of a benefit. However, the Appellate Body explained in that dispute that ‘creating a market by defining the energy supply mix ... cannot in and of itself be considered as conferring a benefit’.¹¹⁶⁷ Tendering schemes confer a benefit only if the prices that resulted from the competitive bidding process represent more than adequate remuneration. Determining the adequacy of the remuneration requires comparison with a market benchmark. The challenge here is to find prices that reflect the prevailing market conditions better than those resulting from the competitive bidding process. This requires establishing that prices derived from the bidding process do not reflect real market prices.

In *Canada – Renewable Energy/FIT*, the Appellate Body hinted that tendering schemes are unlikely to confer a ‘benefit’ and hence constitute a subsidy. It referred to competitive bidding as an example of a ‘market-based’ ‘price-discovery mechanism’.¹¹⁶⁸ The Appellate Body was of the view that a competitive bidding process ‘ensure[s] that the price paid by the government is the *lowest possible price* offered by a willing supply contractor’.¹¹⁶⁹ This consideration led the Appellate Body to recognize electricity prices that resulted from competitive bidding as ‘market outcomes’.¹¹⁷⁰ This assumption is questionable since several factors influence the outcome of a competitive bidding process. As Rubini pointed out ‘[a] tender may lead to very different results depending on its design and, most crucially, it does not necessarily lead to the provision of a service at the least possible cost’.¹¹⁷¹ It is also not impossible to imagine situations where there is only one bidder/supplier in the market or the possibility of collusion among the bidders.¹¹⁷² Such

¹¹⁶⁷ *ibid*, para 5.227.

¹¹⁶⁸ See *ibid*, para 5.228.

¹¹⁶⁹ See *ibid*, paras 5.228 and 5.233 (italics added for emphasis).

¹¹⁷⁰ *ibid*, para 5.235.

¹¹⁷¹ Luca Rubini, “‘The Wide and the Narrow Gate’: Benchmarking in the SCM Agreement after the Canada–Renewable Energy/FIT Ruling’ (2015) 14 *World Trade Review* 211, at 233.

¹¹⁷² See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744), at 85; Rubini, “‘The Wide and the Narrow Gate’” (n 1171).

considerations raise questions as to the extent to which we should take prices resulting from a bidding process as market prices. Such questions have also arisen in the case law.

In *China – GOES*, China imposed countervailing duties on grain oriented flat-rolled electrical steel (GOES) from the United States. In its countervailing determination, China recognized the existence of a competitive bidding process but concluded that the bidding process did not result in prices that reflect market conditions. China concluded that the competitive bidding does not reflect full market competition because of ‘the partial or complete exclusion of lower-priced foreign products from the “competitive bidding”’.¹¹⁷³ The US alleged that this conclusion is inconsistent with Article 22.3 of the SCM Agreement because China did not provide an adequate explanation as to how it arrived at this conclusion. The Panel found that China did not act inconsistently with this provision as it has explained the reasoning for its conclusion.¹¹⁷⁴ The Panel underlined that Article 22.3 is a procedural provision, while the arguments of the US seem to be targeted at the substantive adequacy of the reasoning.¹¹⁷⁵ The Panel seems to suggest here that had the US challenged China’s reasoning/conclusion under a substantive provision (Article 1.1(b)) it would have been able to consider whether and how the exclusion of foreign producers from the bidding process would result in a non-market price. The nature of the US claim meant that neither the Panel nor the Appellate Body determined whether or not a price derived from a competitive bidding process could be considered as a market price even if the bidding process excludes certain producers (foreign producers in this case). This dispute shows that government purchases of electricity through competitive bidding may be challenged as subsidies within the meaning of the SCM Agreement. However, the success of such challenges, as noted earlier, depends on the design and structure of the bidding process – its competitiveness.

Some commentators noted that the findings of the Appellate Body in *Canada – Renewable Energy/FIT* has made it unlikely for tendering to qualify as a ‘subsidy’ within the meaning of

¹¹⁷³ *China - GOES* (n 864), para 7.364.

¹¹⁷⁴ *ibid*, para 7.367.

¹¹⁷⁵ See *ibid*, paras 7.354-7.367.

Article 1.1.¹¹⁷⁶ While there is no doubt about this, as we will see later on in this chapter, it bears noting that some of the Appellate Body's findings in this dispute are questionable and it is not yet clear if it adopts the same benefit analysis in future disputes. However, it is safe to conclude for now that genuinely competitive renewable energy/electricity bidding schemes are unlikely to constitute a subsidy within the meaning of Article 1.1 of the SCM Agreement.

We conclude this section with two further points. Regardless of whether they constitute a subsidy or not under the SCM Agreement, tendering schemes are unlikely to face legal challenges anytime soon (as subsidies to renewable electricity) unless they are conditioned upon local content requirements. Second, however, even if they escape scrutiny under the SCM Agreement such schemes squarely fall under the Government Procurement Agreement (GPA) and hence are subject to the disciplines contained therein. However, it is worth noting that as a plurilateral agreement this agreement currently applies only to 47 WTO Members. Some Members have also exempted some sectors and measures from the scope of the GPA.

5.3.1.1.1.2.6 Renewable Energy Mandates

Renewable energy mandates are quantity-driven government support measures. As we discussed in *section 2.4.1.1.2*, such measures oblige electricity providers (utilities) to source a certain percentage of their electricity from renewable sources. To the extent that the electricity provider in question is a 'public body' such measures presumably qualify as a 'financial contribution' in the form of government purchases of goods. It is, however, relatively difficult to establish the existence of a financial contribution when the electricity provider at issue is a private body. In theory, the requirement that a private body purchase renewable electricity may qualify as a financial contribution within the meaning of Article 1.1(a)(1)(iv). This provision covers circumstances in which a government 'entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii)...which would normally be vested in the government'.¹¹⁷⁷ A requirement to buy renewable electricity presumably meets the first limb of

¹¹⁷⁶ See Rubini, "The Wide and the Narrow Gate" (n 1171), at 224; Steve Charnovitz and Carolyn Fischer, 'Canada-Renewable Energy: Implications for WTO Law on Green and Not-So-Green Subsidies' (2015) 14 World Trade Review 177, at 207.

¹¹⁷⁷ Art 1.1(a)(1)(iv), SCM Agreement.

this provision, since the purchase of goods is among the functions listed in Article 1.1(a)(1)(i)-(iii). However, it is unlikely that buying electricity qualifies as a normal government function (second limb).¹¹⁷⁸ This implies that requirements to buy renewable electricity may qualify as financial contributions only insofar as the electricity provider is a public body.

Then the issue will be whether such requirements confer a benefit. The Appellate Body explained in *Canada – Renewable Energy/FIT* that one of the ways in which governments create markets by defining the energy supply-mix is by ‘[requiring] that private distributors or the government itself buy part of their requirements of electricity from certain specified generation technologies’.¹¹⁷⁹ The question here is whether the government is conferring a benefit to renewable electricity producers when it creates a market by requiring itself to buy renewable electricity. As we have seen before, the Appellate Body has found that creating markets that would otherwise not exist should not be considered in and of itself as conferring a benefit. This *de facto* carve out seems to shelter requirements to purchase renewable electricity. The advantage of such requirements comes in the form of market creation, but the jurisprudence suggests that creating a market is not enough to meet the benefit requirement of Article 1.1(b).

This analysis equally applies to biofuel blending mandates.

5.3.1.1.1.3 Are Fossil Fuel Support Measures Subsidies?

We have seen in chapter two of this thesis that fossil fuel support measures take as many different forms as renewable energy support measures. Most fossil fuel support measures come in the form of grants and rebates, preferential loans and loan guarantees, and tax incentives and pricing regulations (including but not limited to dual pricing). Since they are similar in form, the subsidy status of the first three fossil fuel support measures under the SCM Agreement is the same as that of the corresponding renewable energy support measures. It bears recalling that neither its policy objective nor the sector to which a support measure pertains matters to the definition of subsidies in Article 1.1 of the SCM Agreement. A grant scheme constitutes a subsidy under the SCM

¹¹⁷⁸ For a similar conclusion, see Charnovitz and Fischer (n 1176), at 206.

¹¹⁷⁹ *Canada – Renewable Energy/FIT* (n 40), para 5.175.

Agreement regardless of whether it is a fossil fuel or renewable energy grant scheme. Apart from their policy objectives, perhaps the main difference between the above three forms of renewable energy and fossil fuel support measures is the nature of the recipients. While the renewable energy support measures are targeted at renewable energy producers (electricity or electricity generation equipment producers), their fossil fuel counterparts are targeted either at consumers (grants and tax exemptions and reductions) or producers (tax incentives and loans and loan guarantees). However, the nature of the recipients makes no difference for the purpose of determining whether they qualify as subsidies within the meaning of Article 1.1 of the SCM Agreement. Therefore, our analysis in *sections 5.3.1.1.1.2* above concerning renewable energy grants and rebates, loans and loan guarantees and tax incentives equally apply to fossil fuels. While the first two certainly qualify as subsidies, the subsidy status of tax incentives is uncertain and requires a case-by-case analysis. We will examine below whether dual pricing measures qualify as subsidies within the meaning of the SCM Agreement.

5.3.1.1.1.3.1 Dual Pricing and Price Regulations

As we discussed in *section 2.4.2.1*, dual pricing measures come either in the form of price regulations or export restrictions (quotas and export taxes and duties). Both sets of measures benefit fossil fuel consumers by directly (price regulations) or indirectly (export restrictions) suppressing domestic fuel prices. However, what determines the subsidy status of support measures under the SCM Agreement is not only their effects but also by their form. The subsidy status of export resections was at issue in *US – Export Restraints*. The lesson from that dispute is that export restrictions are unlikely to qualify as subsidies because they fail to meet the first element (financial contribution or income or price support) of the definition of subsidies in Article 1.1 of the SCM Agreement. The *US -Export Restraints* Panel found that the export restraint at issue was not a financial contribution in the form of government-entrusted or government-directed provision of goods simply because imposing export restraints is not entrusting or directing private bodies to increase domestic supply. One may argue that export restrictions constitute income or price support in the sense of Article 1.1(a)(2) because they provide price support by increasing domestic supply, which in turn suppress domestic prices.

However, the Panel in *China – GOES* has interpreted this provision narrowly to exclude regulatory measures (such as export restrictions) with incidental side effects on prices.

Determining the subsidy status of dual pricing measures that take the form of domestic price regulations is relatively more complicated. Many energy-endowed countries directly regulate energy prices to keep domestic prices below international prices. The nature of such measures is not different from price regulations in energy-importing countries. The latter regulate energy prices to shield energy consumers from fluctuating and rising energy prices. In both cases, price regulations constitute a subsidy to the extent that they meet the two definitional elements in Article 1.1. Although there is no case law on the issue, many commentators are of the view that energy price regulations qualify as subsidies within the meaning of the SCM Agreement.¹¹⁸⁰

Price regulations could potentially qualify as financial contribution either within the meaning of Article 1.1(a)(1)(iii) (government provision of goods) or Article 1.1(a)(1)(iv) (government-entrusted or government-directed provision of goods) or as ‘price support’ in the sense of Article 1.1(a)(2) of the SCM Agreement. The very first condition for price regulations to fall under any of these three provisions is that they come from a government or public body. However, meeting this requirement is unlikely to pose any challenge. Most energy price setting bodies qualify as public bodies under any interpretation of the term. In Russia, for example, the Federal Energy Agency sets domestic gas prices, which is a public body under Russian law.

The devil is in the details. To qualify as a government provision of goods in the sense of Article 1.1(a)(1)(iii), the government must not only set fuel prices but also engage in the provision of the fossil fuels. Merely setting prices is not providing goods. The Russian Federal Energy Agency is not providing gas when it sets domestic gas prices. The Agency’s gas price regulation would qualify as the provision of goods in the sense of Article 1.1(a)(1)(iii) only insofar as public bodies carry out the domestic gas supply. Gazprom is the dominant gas supplier in Russia, and the Russian government controls more than 50 percent of its shares. The question here is whether

¹¹⁸⁰ See Sergey Ripinsky, ‘The System of Gas Dual Pricing in Russia: Compatibility with WTO Rules’ (2004) 3 *World Trade Review* 463; Selivanova (n 428); Zarrilli (n 441); Pogoretsky (n 442); Espa (n 443). Most of them characterize price regulations as financial contributions and rule out the possibility that such measures may also qualify as price support in the sense of Article 1.1(a)(2).

Gazprom qualifies as a public body within the meaning of Article 1.1 of the SCM Agreement. It is now well-established that ownership and control are insufficient to demonstrate the ‘public body’ status of an entity. The question is rather whether the entity ‘possess, exercises or is vested with governmental authority’. Determining this is relatively easy where the government fully controls domestic energy supply. However, in most jurisdictions, which had privatized their energy sectors, private bodies are in charge of energy supply. Price regulations are unlikely to qualify as the provision of goods under Article 1.1(a)(1)(iii) in such jurisdictions.

Where private bodies are in charge of energy supply, price regulations may constitute a government-entrusted or government-directed provision of goods in the sense of Article 1.1(a)(1)(iv). If we assume that Gazprom is a private body for the purpose of Article 1.1, then we may argue that it is providing gas at a fixed price because of the entrustment or direction of the government. However, government entrustment or direction alone is not enough for a measure to fall within Article 1.1(a)(1)(iv). The second limb of this provision requires that the function, which the private body carried out is one which is normally vested in the government and the practice, in no real sense, differs from practices normally followed by governments. The question here is whether the provision of energy at a fixed price qualifies as a function ‘normally vested in’ and ‘normally followed by’ governments. Opinions vary greatly on this point. First, it is not clear whether this is a factual question (i.e. whether most governments around the world are vested with that function) or a value-based one (i.e. whether there is common acceptance of certain functions as normally vested with governments). The *US – Export Restraints* was the only case where the meaning of ‘normally vested in’ and ‘normally followed by’ was at issue, but the Panel found it unnecessary for the resolution of that dispute.¹¹⁸¹ Some commentators correctly argued that the value-based approach is problematic because of ideological and cultural differences across the world.¹¹⁸² However, notwithstanding which approach prevails and assuming that the fixed prices are below market prices, the private sector would not provide energy at the fixed price without the government direction. Private bodies have little incentive to

¹¹⁸¹ See *US – Export Restraints* (n 756), para 8.56-8.59.

¹¹⁸² See Arie Reich, ‘Privately Subsidized Recycling Schemes and Their Potential Harm to the Environment of Developing Countries: Does International Trade Law Have a Solution’ (2004) 23 *Virginia Environmental Law Journal* 203, at 217 et seq.

supply energy at fixed below market prices: domestic or international dumping hardly exist in the energy sector. Insofar as the private bodies supply fossil fuels at the fixed below market price because of the government regulation, price regulations constitute a government-entrusted or government-directed provision of goods under Article 1.1(a)(1)(iv).

Price regulations may also qualify as ‘price support’ under Article 1.1(a)(2). In fact, this provision is the most appropriate characterization of such measures. Governments provide price support to fossil fuel consumers (both households and industrial consumers) by setting fuel prices below market rates. The low domestic fuel prices are the direct results of the government regulation not an incidental side effects of any other government measure. As such, fuel price regulations qualify as ‘price support’ under any interpretation of Article 1.1(a)(2). Many commentators, however, disagree with such a conclusion. They are of the view that the income or price support measures that may fall under Article 1.1(a)(2) are only those that support producers. Selivanova for example, argues that the provision covers income or price support policies that ensure a certain minimum profit for domestic producers.¹¹⁸³ However, such interpretation finds support neither in the text of the provision nor in the jurisprudence. The definition of subsidies in Article 1.1 makes no distinction between producer and consumer subsidies. Price regulations that set maximum energy prices may not provide price support for energy producers, but they certainly offer price support for energy consumers.

Having determined that price regulations may constitute a financial contribution in the form of government-entrusted or government-directed provision of goods under Article 1.1(a)(1)(iv) or as a ‘price support’ under Article 1.1(a)(2), we now turn to the second element of the subsidy definition. Do price regulations confer a benefit within the meaning of Article 1.1(b)?

Energy price regulations confer a benefit to the extent that they were provided at less than adequate remuneration. In our earlier example, the question is whether Gazprom provides gas at less than adequate remuneration to gas consuming households and industries in Russia. Determining whether the remuneration was less than adequate requires a comparison with the

¹¹⁸³ See Selivanova (n 428), at 114. For the same line of interpretation, see Pogoretsky (n 442), at 469. Others recognize the uncertainty surrounding the meaning of ‘income or price support’, see *ibid*, at 202-203.

prevailing market condition in Russia. Gazprom is not the only gas supplier in Russia. However, its predominance in the Russian gas market implies that the Russian domestic gas market might be distorted. The *US – Softwood Lumber IV* jurisprudence suggests that the predominant position of the government in the market may render prices from such market inappropriate to serve as benefit benchmarks. The distorted nature of the domestic gas market allows for the use of alternative benchmarks to determine the adequacy of the remuneration. Such benchmark prices are either out of country prices or proxies constructed based on production costs. Finding alternative benchmark prices is relatively easy for oil. The existence of a world oil price simplifies the determination. Since most jurisdictions set the domestic prices substantially below international oil prices, such comparison would easily reveal that oil consumers receive their oil at less than adequate remuneration. Finding alternative benchmark prices for natural gas and electricity is not equally straightforward due to the absence of an international gas and electricity price. However, since energy-endowed countries such as Russia tend to set domestic gas prices even below production costs, the comparison with either out-of-country or constructed prices would result in the finding of a benefit within the meaning of the SCM Agreement.

In sum, fossil fuel price regulations are likely to qualify as subsidies within the meaning of Article 1.1 insofar as the fixed price is below the market price or production costs. Whether such subsidies are subject to the SCM Agreement depends on whether they meet the specificity requirement of Article 2. We will consider their specificity in *section 5.3.1.1.2.2* below.

5.3.1.1.2 Are Energy Subsidies Specific?

Energy support measures that meet the definition requirements of Article 1.1 are subject to the SCM disciplines only insofar as they are *de jure* or *de facto* specific. As we discussed in the preceding chapter, specificity is another crucial threshold set out to filter those subsidies that are of significant concern for the multilateral trading system.¹¹⁸⁴ It limits the scope of the SCM Agreement and thereby creates *de jure* policy space for governments to use subsidies that are not specific to an enterprise or industry or group of enterprises or industries.¹¹⁸⁵ This section

¹¹⁸⁴ See the discussion on the specificity requirement in section 4.5.2.2 of chapter four.

¹¹⁸⁵ See Art 2, SCM Agreement.

examines whether fossil fuel and renewable energy subsidies meet the specificity requirement and the implications of the *de jure* policy space that arise from this threshold requirement. The discussion will show that the specificity requirement appears to create more policy space for the subsidization of fossil fuels than for the subsidization of renewables. However, it is worth bearing in mind that specificity matters only to actionable subsidies. Energy subsidies contingent upon export performance and local content are prohibited regardless of their specificity.

5.3.1.1.2.1 The Specificity of Renewable Energy Subsidies

The nature of renewable energy subsidies suggests that they are likely to meet the specificity requirement of the SCM Agreement.¹¹⁸⁶ Renewable energy subsidies are usually targeted at renewable energy producers for various reasons. Foremost among these is the need to address the underlying supply-side constraints. As the Appellate Body noted in *Canada – Renewable Energy/FIT*, despite the sharp decline in renewable electricity generation equipment, renewable electricity producers cannot compete with conventional electricity producers because of their extremely high capital costs.¹¹⁸⁷ The differences in cost structures impede the very existence of renewable electricity generation, absent government intervention.¹¹⁸⁸ This consideration leads governments to use subsidies to stimulate investment in renewable energy generation. Another reason is that the demand-side substitutability of electricity coupled with the fact that final consumers would not be able to distinguish between renewable and conventional electricity once fed into the grid makes it difficult for governments to target their subsidies at renewable energy consumption.¹¹⁸⁹ A number of countries subsidize electricity consumption, but such subsidies often have social and economic policy goals and are not targeted at renewable energy as such. *table 5.1* below shows that despite the increase in the share of renewable electricity, conventional electricity currently dominates the global electricity supply-mix. One implication of this reality is that general subsidies to electricity consumption perpetuate the dominance of conventional electricity in the global electricity supply mix.

¹¹⁸⁶ It bears recalling that neither the SCM Agreement nor the jurisprudence provides a precise definition of specificity. As we noted in *section 4.5.2.2*, the specificity of a subsidy is subject to a case-by-case determination.

¹¹⁸⁷ *Canada – Renewable Energy/FIT* (n 40), para 5.174.

¹¹⁸⁸ See *ibid*, para 5.178.

¹¹⁸⁹ This may change in the future with advancement in smart grid technologies.

Table 5.1: World electricity generation by source and scenario (TWh)

	2000	2014	New Policies		Current Policies		450 Scenario	
			2025	2040	2025	2040	2025	2040
Total	15 476	23 809	29 540	39 047	30 886	42 511	27 688	34 092
Fossil fuels	10 017	15 890	17 175	20 243	19 183	26 246	14 113	8 108
Coal	6 005	9 707	9 934	10 787	11 479	15 305	7 062	2 518
Gas	2 753	5 148	6 514	8 910	6 957	10 361	6 466	5 389
Oil	1 259	1 035	727	547	746	580	585	200
Nuclear	2 591	2 535	3 405	4 532	3 319	3 960	3 685	6 101
Hydro	2 619	3 894	4 887	6 230	4 817	5 984	4 994	6 891
Other renewables	250	1 489	4 074	8 041	3 567	6 320	4 896	12 992
Fossil fuels	65%	67%	58%	52%	62%	62%	51%	24%
Coal	39%	41%	34%	28%	37%	36%	26%	7%
Gas	18%	22%	22%	23%	23%	24%	23%	16%
Oil	8%	4%	2%	1%	2%	1%	2%	1%
Nuclear	17%	11%	12%	12%	11%	9%	13%	18%
Hydro	17%	16%	17%	16%	16%	14%	18%	20%
Other renewables	2%	6%	14%	21%	12%	15%	18%	38%

Source: IEA 2017

Renewable energy production subsidies are often provided to producers of particular renewable energy technology or all renewable energy technologies. In both instances, such subsidies would be *de jure* specific within the meaning of Article 2.1(a) regardless of their form. This provision defines subsidies that are expressly limited to an enterprise/industry or group of enterprises/industries as specific subsidies. The Appellate Body in *US – Anti-Dumping and Countervailing Duties (China)* confirmed that the ‘the concept of an ‘industry’ relates to producers of certain products’.¹¹⁹⁰ The product in question here is either the energy (renewable electricity and biofuels) or the renewable energy generation technology. The renewable energy industry as a whole would qualify either as an industry or group of industries, whereas a particular renewable energy technology such as wind power or solar photovoltaic undoubtedly qualifies as an industry. The WTO adjudicatory bodies have not yet examined the specificity of renewable energy subsidies. Both the Panel and the Appellate Body came close to do so in *Canada – Renewable Energy/FIT*, but neither of them examined the specificity of the FIT program at issue because they failed to complete the benefit analysis. However, if they were able to complete the benefit analysis, the next step would have been determining the specificity of the

¹¹⁹⁰ *US – Anti-Dumping and Countervailing Duties (China)* (n 801), para 373.

FIT program. Such determination would have been fairly straightforward because Ontario expressly limited access to the FIT program to the generators of electricity from renewable sources of energy (wind and solar in particular). The limited access to the program implies that the FIT program was *de jure* specific within the meaning of Article 2.1(a).

Renewable energy subsidies that might avoid the bite of the SCM disciplines by virtue of the specificity requirement are those available to all green technologies.¹¹⁹¹ Such subsidies tend to cover a broad range of technologies including renewable energy, energy efficiency, and waste recycling. These technologies belong to different industries, but the subsidies may still pass the specificity test if these industries are considered as a ‘group of industries’ within the meaning of Article 2.1. However, the Panel in *US – Softwood Lumber IV* warned against ‘[labeling] an aggregation of producers as a group of industries merely because they use a particular program’.¹¹⁹² It stated that the nature of the output products is the critical link that holds a group of industries together.¹¹⁹³ This finding suggests that the specificity of subsidies to all clean technologies comes down to the question of whether renewable energy technology producers and other clean technology producers are engaged in the manufacturing of similar products. However, the WTO adjudicatory bodies are highly unlikely to find renewable energy technologies and other clean technologies such as waste recycling technologies as similar products. Such subsidies may, *in fact*, be specific within the meaning of Article 2.1(c) if renewable energy technology manufacturers predominantly use them. However, establishing the existence of *de facto* specificity is relatively more fact-intensive and challenging.

In sum, most existing renewable energy subsidies (except those that are available to all green or clean technologies) would meet the specificity requirement of Article 2 of the SCM Agreement. This suggests that the policy space that the specificity requirement creates is of limited relevance to the promotion of renewable energy. Since renewable energy sources are not yet fully cost-

¹¹⁹¹ One such example is the Dutch Green Funds scheme for 11 types of environmentally-friendly investment projects. See Carol Ní Ghiollarnáth, *Renewable Energy Tax Incentives and WTO Law: Irreconcilably Incompatible? An Examination of the WTO-Consistency of Direct Corporate Tax Incentives for the Development of Renewable Energy* (Wolf Legal Publishers 2011) (arguing that the scheme is not specific under the SCM Agreement), at 211.

¹¹⁹² See *US – Softwood Lumber IV* (n 898), para 8.121.

¹¹⁹³ See *ibid*, para 5.50.

competitive with conventional sources of energy, the need for subsidizing renewable energy primarily stems out of competitiveness concerns. Part of the reason for their lack of competitiveness is the existence of externalities. The Appellate Body also recognized this point in *Canada – Renewable Energy/FIT* when it underlined that:

... on the one hand, higher prices for renewable electricity have certain positive externalities, such as guaranteeing long-term supply and addressing environmental concerns, on the other hand, lower prices for non-renewable electricity generation have certain negative externalities, such as the adverse impact on human health and the environment of fossil fuel energy emissions and nuclear waste disposal.¹¹⁹⁴

It is well established in economics that subsidies help address externalities and market failures when they are directly targeted at the externality or market failure at issue. Renewable energy subsidies thus need to be specifically targeted to address the positive and negative externalities associated with energy production and consumption.¹¹⁹⁵ However, the SCM Agreement appears to discourage targeted subsidies.¹¹⁹⁶ Instead, it encourages the use of non-specific subsidies, but such subsidies are ineffective in addressing the competitiveness concerns noted above. Countries are also unlikely to subsidize the whole economy just to promote renewable energy. The insensitivity of the SCM Agreement to the effectiveness of subsidies stems from its inherent focus on trade distortion and the adverse effect of subsidies on international trade. We explained in the preceding chapter that the specificity requirement is based on the simple logic that the more specific subsidies are, the more trade-distorting they become. However, this logic works against the effective use of subsidies for the promotion of renewable energy.

5.3.1.1.2.2 The Specificity of Fossil Fuel Subsidies

The specificity requirement creates asymmetry in the size of the policy space under the SCM Agreement for the subsidization of fossil fuels and renewables. It does so by allowing a significant portion of fossil fuel subsidies escape the bite of the SCM Agreement. Examining the

¹¹⁹⁴ See *Canada – Renewable Energy/FIT* (n 40), para 5.189.

¹¹⁹⁵ On the importance of targeting in renewable energy support measures, see AA Amrutha, P Balachandra and M Mathirajan, 'Role of Targeted Policies in Mainstreaming Renewable Energy in a Resource Constrained Electricity System: A Case Study of Karnataka Electricity System in India' (2017) 106 *Energy Policy* 48.

¹¹⁹⁶ As Rubini puts it, the more targeted and specific subsidies are the more likely it is they may have problems under the SCM Agreement. See Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48), at 316.

policy space for the subsidization of fossil fuels that arise from the specificity requirement entails distinguishing between fossil fuel production and consumption subsidies. Unlike renewable energy subsidies that mostly target production, fossil fuel subsidies target both production and consumption. While fossil fuel consumption subsidies are prevalent in both energy exporting and importing countries, production subsidies exist mostly in fossil fuel producing countries.¹¹⁹⁷ The three fossil fuel industries (oil, natural gas and coal) together form a single (fossil fuel) industry or a ‘group of industries’ under Article 2.1. This implies that both fuel-specific and fuel-neutral subsidies would meet the specificity requirement of Article 2 to the extent that access to the subsidy at issue is limited to fossil fuels (*de jure* specificity) or there are reasons to believe that the subsidy may *in fact* be specific to fossil fuels (*de facto* specificity).

Fossil fuel production subsidies typically come in the form of tax incentives and royalty concessions and preferential loans and loan guarantees. Countries often explicitly limit access to such subsidies to fossil fuel producers in general or one in particular. In either case, most fossil fuel production subsidies are likely to pass the *de jure* specificity test of Article 2.1(a), like most renewable energy subsidies. Fossil fuel production subsidies that might fail the *de jure* specificity test are those aimed at all natural resources. The natural resource sector comprises several industries that might not constitute an ‘industry’ or ‘group of industries’ within the meaning of the SCM Agreement. However, in energy-endowed countries, subsidies that are *de jure* available to all natural resources may *in fact* be specific to fossil fuels.

Fossil fuel subsidies that are most likely to fail the specificity test of Article 2 are those targeted at consumption. Such subsidies are available to some or all energy consumers. The first sets of fossil fuel consumption subsidies are those explicitly targeted at specific segments of the society (e.g. energy subsidies to low-income households in the US). Access to such subsidies is often *explicitly* limited to certain vulnerable sections of the society (e.g. the elderly, disabled and poor). However, Article 2 of the SCM Agreement defines specificity in terms of industries and enterprises, not households. Subsidies become *de jure* or *de facto* specific under Article 2 only to

¹¹⁹⁷ It bears recalling that some fossil fuel importing countries also provide production subsidies for overseas oil exploration and production. Others subsidize domestic oil and natural gas refineries.

the extent that they benefit only certain industries or enterprises. Subsidies that are restricted to specific groups of the society are highly unlikely to pass the specificity test.

The second sets of fossil fuel consumption subsidies are generally available subsidies. Such subsidies certainly fail the *de jure* specificity test of Article 2.1(a), but their *de facto* specificity is the subject of longstanding debate in the literature.¹¹⁹⁸ Dual pricing and price regulations discussed earlier in *section 5.3.1.1.3.1* feature prominently in this debate. All energy consumers benefit from generally available fossil fuel consumption subsidies. Such subsidies are not *de jure* specific because they are generally available throughout the economy of the subsidizing country. The question here is whether they are *in fact* specific to downstream energy-intensive industries in the sense of Article 2.1(c). As we discussed in *section 4.5.2.2* of the previous chapter, determining the *de facto* specificity of a subsidy under this provision requires considering four factors. These factors are (i) use of a subsidy program by a limited number of certain enterprises; (ii) predominant use by certain enterprises; (iii) the granting of disproportionately large amounts of subsidy to certain enterprises; and, (iv) the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy. It is now well-established in the case law that it is not necessary to examine all the four factors to establish *de facto* specificity.¹¹⁹⁹ In this regard, the second and third factors are the ones worth considering in determining the *de facto* specificity of generally available fossil fuel consumption subsidies. Are energy-intensive industries the predominant or disproportionate users of generally available fossil fuel consumption subsidies such as dual pricing and price regulation schemes?

Energy-intensive industries such as petrochemicals, fertilizers, cement, steel and aluminium, industries rely heavily on fossil fuels. Their heavy reliance on fossil fuels makes them the principal users of generally available fossil fuel consumption subsidies. However, determining

¹¹⁹⁸ Howse argues that generally available fossil fuel consumption subsidies are *de facto* specific to energy intensive industries. See Robert Howse, 'Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis' (International Institute for Sustainable Development 2010), 9. Selivanova and Ripinsky argue that the Russian system of gas dual pricing is neither *de jure* nor *de facto* specific. See Selivanova (n 428), at 144-145; Ripinsky (n 1180), at 477-480. Marceau argued that energy dual pricing systems are not specific. See Marceau (n 672), at 90. Pogoretsky and Espa argue that energy dual pricing system may in fact be specific under certain conditions. See Pogoretsky (n 442), at 209-212; Espa (n 443), at 402-403.

¹¹⁹⁹ See *US - Softwood Lumber IV* (n 898), para 7.123.

whether such industries have been the predominant or disproportionate users of such subsidies within the meaning of Article 2.1(c) requires taking into account: (i) 'the extent of diversification of economic activities within the jurisdiction of the granting authority'; and (ii) 'the length of time during which the subsidy program has been in operation'.¹²⁰⁰ The first consideration is particularly relevant to determining the *de facto* specificity of generally available fossil fuel consumption subsidies. The Panel in *EC and Certain Member States – Large Civil Aircraft* dispute explained the implications of this consideration:

Where a subsidy program operates in an economy made up of only a few industries, the fact that those industries may have been the main beneficiaries of a subsidy program may not necessarily demonstrate 'predominant use'. Rather, use of the subsidy program by those industries may simply reflect the limited diversification of economic activities within the jurisdiction of the granting authority. On the other hand, the same subsidy program operating in the context of a highly diversified economy that is used mainly, or for the most part, by only a few industries would tend to indicate 'predominant use'.¹²⁰¹

This consideration implies that the fact that energy-intensive industries are the predominant or disproportionate users of generally available subsidies in and of itself does not prove the *de facto* specificity of generally available fossil fuel consumption subsidies. Taking the degree of economic diversification into account makes generally available fossil fuel consumption subsidies in most energy-endowed countries unlikely to pass the *de facto* specificity test. Such countries have relatively less diversified economic activities because of their heavy reliance on the fossil fuel industry. Energy-intensive industries are often the major non-energy industries in such countries partly because of their comparative advantage in the production of fossil fuels.¹²⁰² In the absence of other industries, the fact that energy-intensive industries are the only or major beneficiaries of generally available fossil fuel consumption subsidies does not make such industries the predominant or disproportionate users of such subsidies under Article 2.1(c) of the SCM Agreement. Establishing *de facto* specificity is relatively easier in countries with diversified economies. Those are mostly energy-importing countries and few energy-exporting economies. It is only in such jurisdictions that generally available fossil fuel consumption subsidies may pass

¹²⁰⁰ Art 2.1(c), SCM Agreement.

¹²⁰¹ See *EC and Certain Member States - Large Civil Aircraft* (n 860), paras 7.974-7.976.

¹²⁰² Energy-endowed countries such as Saudi Arabia explicitly argue that the provision of cheap energy reflects their comparative advantage in energy production but not subsidies. See G20 (n 638), at 30.

the *de facto* specificity test of Article 2.1(c). However, in *China – GOES*, the Panel found that China imposed countervailing duties against steel imports from the United States without ‘sufficient evidence’ proving the *de facto* specificity of the electricity, coal and natural gas subsidies in question.¹²⁰³ This finding, which was not appealed by either of the parties, once again confirms the difficulty of establishing *de facto* specificity.

5.3.1.2 Are Energy Subsidies Prohibited or Actionable?

Whether energy subsidies fall under the prohibited or actionable category has significant implications from the perspective of *de jure* policy space. Prohibited subsidies are *per se* illegal and have to be withdrawn once their existence is established. In contrast, Members are entitled to maintain actionable subsidies, subject to the remedies available to other Members under the SCM Agreement if they happen to cause an adverse effect. Moreover, establishing the existence of actionable subsidies is relatively more challenging. While contingency on export performance or import substitution is the only requirement to establish the existence of prohibited subsidies under Article 3, establishing the existence of actionable subsidies under Article 5 requires proving their specificity and adverse effect, which is a fact-intensive exercise that requires a detailed examination of the unique circumstances of each subsidy. The analysis in the remainder of this section will show that renewable energy subsidies are more likely to fall under the prohibited category than fossil fuel subsidies. Underlying this outcome are the inherent differences between fossil fuel and renewable energy subsidies that emanate from several factors including, but not limited to, the subsidized products at issue, the policy rationales for subsidization, the degree of competition in the respective international markets.

Before proceeding further, it is useful to recall that both fossil fuel and renewable energy subsidies may fall within the prohibited or actionable category to the extent that there is international trade in the product at issue. Although there is no explicit requirement to this effect in the SCM Agreement, subsidies to products that are not internationally traded are unlikely to satisfy the export and import elements of prohibited subsidies and the adverse effect requirement of actionable subsidies. As we will see below, the current state of international trade in electricity

¹²⁰³ See *China - GOES* (n 864), paras 7.120-7.147.

suggests that electricity subsidies are unlikely to constitute either prohibited or actionable subsidies on their own. However, such subsidies may constitute prohibited or actionable subsidies as indirect subsidies to other internationally traded products. While fossil fuel subsidies raise no additional issue here, renewable energy subsidies require drawing a distinction between renewable energy and renewable energy generation technologies.¹²⁰⁴ We have alluded to this distinction throughout this chapter but did not adequately elucidate its implications.

On the one hand, there is no doubt about the existence of cross-border trade in renewable energy generation technologies. In fact, the fast-growing trade in renewable energy technologies (e.g. wind turbines and solar panels and cells) is at the heart of the legal disputes over renewable energy subsidies at the WTO (see *section 5.3.2.1*). On the other hand, international trade in electricity is yet to flourish. To be sure, there is a cross-border trade in electricity in most parts of the world. A typical example is the EU internal electricity market, but cross-border-trade in electricity also takes place in Africa, North America and South America.¹²⁰⁵ However, most of this trade is, small-scale, between neighbouring countries and subject to bilateral or regional arrangements.¹²⁰⁶ The latest figure from the World Bank shows that global trade in electricity was around 3 percent of total electricity production in 2014.¹²⁰⁷ To put this into perspective, 64 percent of the oil produced worldwide is traded across national borders. The share of renewable electricity in cross-border electricity trade remains relatively small.¹²⁰⁸ In the absence of substantial cross-border trade, electricity subsidies are unlikely, on their own, to raise concerns under the SCM Agreement. However, as we will see further below, this is likely to change in the

¹²⁰⁴ On the importance of such distinction for assessing the green policy space under the SCM Agreement, see Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48), at 313-315.

¹²⁰⁵ For cross-border trade in various parts of the world, see Part II of Thomas Cottier and Ilaria Espa (eds), *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge University Press 2017), at 120-190. On EU internal electricity market, see Petri Mäntysaari, *EU Electricity Trade Law: The Legal Tools of Electricity Producers in the Internal Electricity Market* (Springer 2015).

¹²⁰⁶ See Thomas Cottier and Ilaria Espa, 'Introduction' in Thomas Cottier and Ilaria Espa (eds), *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge University Press 2017) (attributing the limited cross-border trade in electricity to technical and political constraints), at 2.

¹²⁰⁷ See Musiliu O Oseni and Michael G Pollitt, 'Institutional Arrangements for the Promotion of Regional Integration of Electricity Markets: International Experience' (The World Bank 2014), at 3.

¹²⁰⁸ Perhaps excerpt in few regions where cross-border trade in electricity is largely associated with regional hydropower projects such as in Africa (e.g. between Ethiopia and Sudan). See Callixte Kambanda, 'The African Experience' in Thomas Cottier and Ilaria Espa (eds), *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge University Press 2017) 156.

future. It also does not mean that electricity subsidies are currently immune from challenges under the SCM Agreement. There are at least two scenarios in which the subsidization of electricity raises concerns under the SCM Agreement either as prohibited or actionable subsidies.

The first scenario is where such subsidies are subject to local content requirements. The target of the legal challenges against the Canadian and Indian FIT programs in *Canada – Renewable Energy/FIT* and *India – Solar Cells* were the local content requirements but not the FITs as such. In the former case, the complainants even insisted that their challenge was against the discriminatory conditions tied to the FIT program but not the FIT itself. In the latter case, the US dropped its claim under the SCM Agreement altogether (see *section 3.5.2.1.1.1*). As we consider further below, these disputes show that renewable electricity subsidy programs could be the subject of legal challenges not because of their effects, but because of the adverse effects of the conditions attached to them on international trade in renewable energy technologies. The second scenarios in which electricity subsidies may raise concerns under the SCM Agreement is where they confer (indirect) benefits to upstream or downstream industries. One such potential indirect beneficiary is those industries that use electricity as input in producing internationally traded products. Electricity subsidies have already been challenged as indirect subsidies to energy-intensive industries.¹²⁰⁹ We will discuss these challenges in some detail later on in this chapter while discussing the legal challenges to fossil fuel subsidies. Other potential indirect beneficiaries are renewable energy generation equipment manufacturers.¹²¹⁰ Several studies, for example, show that German renewable electricity subsidies have contributed to the development of renewable energy generation technologies not just in Germany but also in China.¹²¹¹ Renewable electricity subsidies create markets for renewable energy generation equipment and thereby transfer the benefit to the manufactures of such equipment.

¹²⁰⁹ See *China - GOES* (n 864); WTO, 'Request for Consultations by the United States, China – Subsidies to Producers of Primary Aluminium' (2017) WT/DS519/1; *Panel Report, United States – Countervailing Measures on Supercalendered Paper from Canada (US – Supercalendered Paper)*, WT/DS505/R, circulated 5 July 2018.

¹²¹⁰ See David Buchan, 'The Energiewende - Germany's Gamble' (Oxford Institute for Energy Studies 2012) OIES Paper SP26, at 4; Anna Pegels and Wilfried Lütkenhorst, 'Is Germany's Energy Transition a Case of Successful Green Industrial Policy? Contrasting Wind and Solar PV' (2014) 74 *Energy Policy* 522; Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48), at 314 (footnote 4).

¹²¹¹ See Rubini, 'ASCM Disciplines and Recent WTO Case Law Developments' (n 48).

Beyond these two scenarios, electricity subsidies are likely to become a point of contention in the multilateral trading system in the future.¹²¹² Although cross-border trade in electricity is still in its infancy, there are some indications that change is on its way. One of the main impediments to electricity trade has been (and still is) its dependency on fixed physical infrastructure (i.e. transmission grids). Experts have long envisaged the gradual emergence of a global power grid for cross-border electricity transmission.¹²¹³ While this vision remains utopian, advances in electricity transmission technology are making the transportation of electricity over long distance relatively easier. Several intergovernmental initiatives have been launched in recent years to establish long-distance grids, paving the way for international trade in electricity.

Recent years have also witnessed a growing interest in electricity trade due to the increase in global demand for electricity and in particular for renewable electricity. As part of their sustainable energy transition plans, many countries have set ambitious goals to increase the share of renewable electricity in their electricity supply-mix. However, as Cottier pointed out, ‘substantial increases of renewable energy in the production of electricity will depend upon large-scale installations and long-distance trade’.¹²¹⁴ The security of supply concerns that stem from the intermittency and unpredictability of renewable energy sources strengthen the case for electricity trade.¹²¹⁵ International trade in electricity promotes competition in electricity production and, more importantly, enhances the reliability and security of electricity supply. It also allows for harvesting renewable electricity from ‘locations with abundant potential and very low production costs’ and thereby facilitates more efficient production.¹²¹⁶ The growth in international trade in

¹²¹² See Cottier and Espa (n 1205); Manuel Sánchez Miranda, ‘Liberalization at the Speed of Light: International Trade in Electricity and Interconnected Networks’ (2018) 21 *Journal of International Economic Law* 67.

¹²¹³ See Frederick M Abbott, ‘Transfer of Technology and a Global Clean Energy Grid’ in Thomas Cottier and Ilaria Espa (eds), *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge University Press 2017) (tracing the idea of a global power grid to the 1970s), at 417. See also Cottier and Espa (n 1206), at 5; Cottier (n 51), at 48.

¹²¹⁴ Cottier (n 51), at 47.

¹²¹⁵ The problem with the intermittent nature of renewable energy sources such as wind and solar is that their peak production may not coincide with peak system demand. In principle, energy storage technologies may address this problem but large-scale storage technologies are either unavailable or very expensive. Electricity trade address this problem in two ways: first, through time differences across the world, and second, through production in locations where it is most abundant (e.g. solar power from the South and wind power from the Northern).

¹²¹⁶ See Cottier and Espa (n 1206), at 3-4.

electricity, in turn, will pose serious regulatory challenges to the multilateral trade regime and this primarily concerns the multilateral disciplines on subsidies.

With this distinction in mind, we now turn to the specific situations in which fossil fuel and renewable energy subsidies constitute prohibited or actionable subsidies.

5.3.1.2.1 Prohibited Energy Subsidies

The SCM Agreement prohibits subsidies contingent upon export performance and the use of domestic over imported goods.¹²¹⁷ In what follows, we will examine whether countries do actually make, or are likely to make, fossil fuel and renewable energy subsidies contingent upon export performance or local content in the sense of Article 3 of the SCM Agreement.

5.3.1.2.1.1 Prohibited Renewable Energy Subsidies

5.3.1.2.1.1.2 Export Subsidies

Countries may tie renewable energy subsidies to export performance only insofar as they export renewable energy or renewable energy generation equipment. We have seen earlier that renewable electricity trade currently takes place only between neighbouring countries subject to intergovernmental arrangements. In the absence of competition, countries have no incentive to link their renewable electricity subsidies to export performance.¹²¹⁸ The situation may change as electricity trade and competition intensify in the next few years. For the moment, much of the export subsidy issues are associated with renewable energy generation equipment.

The global market for renewable energy technologies has seen tremendous growth over the past decade. Annual global investment in renewable energy technologies (excluding large hydro) rose exponentially from US\$47 billion in 2004 to over US\$241 billion in 2016.¹²¹⁹ The bulk of this

¹²¹⁷ Art 3, SCM Agreement. See the discussion on prohibited subsidies in section 4.5.3.1.1 of this thesis.

¹²¹⁸ Perhaps the only exception here is where countries identify renewable electricity exports as part of their strategy to boost export earnings and foreign currency inflow. One such example is Ethiopia's plan to become a regional electricity hub, see Md Alam Hossain Mondal and others, 'Ethiopian Power Sector Development: Renewable Based Universal Electricity Access and Export Strategies' (2017) 75 *Renewable and Sustainable Energy Reviews* 11.

¹²¹⁹ See BNEF, 'Global Trends in Renewable Energy Investment 2017' (Bloomberg New Energy Finance 2017).

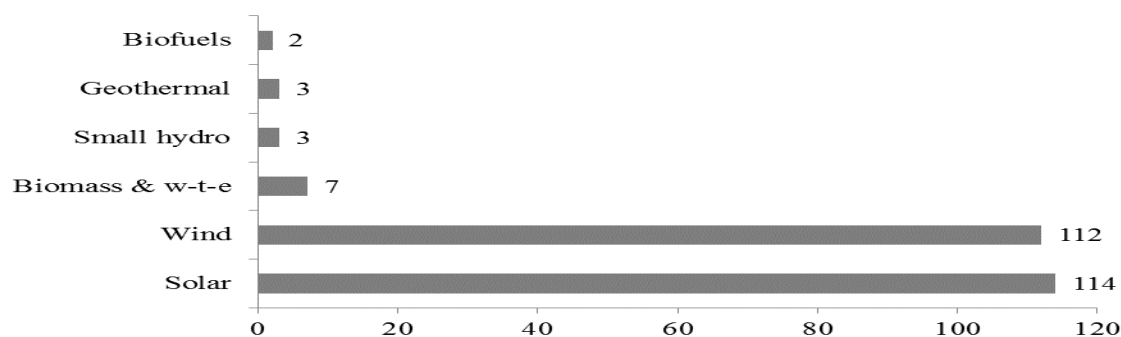
investment went to solar and wind power technologies both in developed and developing countries (see *figure 5.2* below). While developed countries such as Germany, the United States and Denmark traditionally dominated the renewable energy equipment market, recent years have seen the emergence of developing countries, particularly China as leading manufacturers of renewable energy equipment. This has brought significant competition in the global renewable energy equipment market and resulted in substantially reduced prices. Export subsidies were one of the driving forces behind the rise of China to become a leading manufacturer of solar panels and wind turbines in the world over the course of a decade or so. They are also at the heart of both the US-China and EU-China solar trade wars (see *section 5.3.2.1*).¹²²⁰ In its countervailing duty investigations into solar panel imports from China, the EU, for example, found the provision of preferential export credit insurances to producers of solar panels and cells were contingent upon export performance. Having also found that the export credit insurances constitute a financial contribution in the form of potential direct transfer of funds and confer a benefit, the Commission imposed countervailing duties on Chinese solar panels.¹²²¹ China did not contest the imposition of these duties. Instead, it launched its own countervailing duty investigation into solar panel imports from the EU and initiated a WTO dispute against Italian and Greece FIT programs.¹²²² However, it pursued neither of these challenges.

Figure 5.2: Global New Investment in Renewable Energy in 2016 (in US\$ billion)

¹²²⁰ See the discussion in section 5.3.2.1.2 on countervailing duty actions against renewable energy subsidies.

¹²²¹ See Council Implementing Regulation (EU) No 1239/2013 of 2 December 2013, Official Journal of the European Union L325/66, 5 December 2013, para 218-257; Commission Implementing Regulation (EU) 2017/366 of 1 March 2017, Official Journal of the European Union L56/1, 3 March 2017 130, para 276-304.

¹²²² The imposition of the countervailing duties has led to price undertaking (pursuant to Article 18 of the SCM Agreement), in which some Chinese exports voluntarily raised their prices. See Commission Implementing Regulation (EU) 2017/615 of 30 March 2017, Official Journal of the European Union L86/14, 31 March 2017 4.



Source: Adapted from BNEF, 2017

Such subsidies have no environmental objective whatsoever. The rationale for export subsidies is purely economic. Export subsidies provide renewable energy generation equipment manufacturers with a competitive edge to increase their market share abroad. They also help the subsidizing country enhance its balance of trade and create domestic jobs. The environmental issue here concerns the reaction of countries importing the subsidized renewable energy equipment. For example, the imposition of countervailing duties on subsidized solar panel imports adversely affects EU solar panel consumers. The subsidized imports reduce solar panel prices and thereby enhance the uptake of solar panels in the EU. The increased uptake of solar panels, in turn, help EU Members meet their renewable energy targets. The countervailing duties, as such, have adverse environmental effects. The economics of export subsidies also suggests that the EU stands to benefit from the subsidized imports (see *section 4.3*). Why then the EU imposed countervailing duties? The answer lies in the political economy of subsidies. Export subsidies always pit the interests of consumers against that of import-competing domestic industries. The EU launched the antidumping and countervailing duty investigations in response to the request of EU solar panel manufacturers – who stand to lose from the cheap imports. Although economics suggests the benefit to consumers outweighs the cost to the producers, producers are often more organized to influence government decisions than consumers. In taking the countervailing duty actions, the EU is prioritizing the interests of its solar panel manufactures at the expense of its renewable energy targets and solar panel consumers. The SCM Agreement prohibits subsidies contingent upon export performance simply because they distort international trade without due regard to their overall impact on welfare or the environment.

5.3.1.2.1.1.2 Local Content Subsidies

Many countries attach local content requirements to their renewable energy support schemes. They typically mandate foreign or domestic renewable energy generators to produce or purchase from local sources a certain percentage of their inputs.¹²²³ For example, the Ontario and Indian FIT programs that have been the subject of WTO disputes require renewable electricity generators to locally source a certain percentage of the intermediary goods they need for electricity generation. Such requirements are neither new nor unique to the renewable energy sector.¹²²⁴ Both developed and developing countries have and continue to use local content requirements in different sectors. Hufbauer et al., for example, documented 117 local content requirements between 2008 and 2013.¹²²⁵ While these requirements apply to a broad range of sectors, it is those in the renewable energy sector that has been the subject of several trade disputes.¹²²⁶ These disputes have brought the effectiveness and legality of such requirements to the spotlight. The existence of local content requirements in the renewable energy sector raises two interrelated questions from a green policy space perspective. First, does the SCM Agreement constrain the policy space of WTO Members to use local content requirements? Second, do local content requirements need ‘green’ policy space under the SCM Agreement?

¹²²³ The EU-Singapore FTA defines local content requirement (with respect to goods) as ‘a requirement for an enterprise to purchase or use goods of domestic origin or from a domestic source, whether specified in terms of particular products, in terms of volume or value of products, or in terms of a proportion of volume or value of its local production’. See Art 7.2(a)(i), EU-Singapore Free Trade Agreement (signed 17 September 2013).

¹²²⁴ Local content requirements have been the subject of trade negotiations and disputes in the multilateral trading system for decades. For early trade dispute over local content requirements, see *GATT Panel Report, Canada – Administration of the Foreign Investment Review Act (Canada - FIRA)*, (L/5504 - 30S/140, adopted 7 February 1984; *GATT Panel Report, Italy – Discrimination Against Imported Agricultural Machinery (Italy - Agricultural Machinery)*, L/833 - 7S/60, adopted 23 October 1958; *Panel Report, Indonesia - Certain Measures Affecting the Automobile Industry (Indonesia - Autos)*, WT/DS54/R, WT/DS55/R, WT/DS59/R, WT/DS64/R, adopted 23 July 1998.

¹²²⁵ Some of the countries that adopted local content requirements since 2008 include the United States (all sectors) Brazil (health sector), China (automobile industry), India (solar cells and modules), Canada (wind turbines), and Nigeria (oil and gas industry). See Hufbauer and others (n 335), at 47-136. Using the broader concept of ‘localization measures’, Evenett and Fritz identified 343 local content measures implemented since November 2008 (mainly in electrical machinery and equipment manufacturing sectors). See Simon Evenett and Johannes Fritz, *Global Trade Plateaus: The 19th Global Trade Alert Report* (CEPR Press 2016), at 21-24.

¹²²⁶ Recent WTO disputes over local content requirements in other sectors include *Brazil – Taxation* (n 1051) (the Panel found that the local content requirements at issue were inconsistent with GATT Article III, Article 2 of the TRIMs Agreement and Article 3.1[b] of the SCM Agreement); *Appellate Body Report, Argentina – Measures Affecting the Importation of Goods (Argentina – Import Measures)* WT/DS438/AB/R, WT/DS444/AB/R, WT/DS445/AB/R, adopted 26 January 2015 (the Appellate Body upheld the finding of the Panel that the local content requirements at issue were inconsistent with GATT Article III:4).

Article 3.1(b) of the SCM Agreement unambiguously prohibits renewable energy subsidies that are contingent upon the use of domestic over imported renewable energy equipment. Insofar as the accompanying support measure qualifies as a ‘subsidy’ within the meaning of Article 1.1, local content measures fall within Article 3.1(b) and hence would need to be withdrawn without delay. However, it bears recalling that the SCM Agreement is not the only WTO Agreement that constrains the policy space of WTO Members to use local content requirements.¹²²⁷ Local content measures are also subject to the GATT and the TRIMs Agreement. It is not clear which of these agreements leave less policy space for the use of such measures.

On the one hand, the SCM Agreement requires local content measures to be withdrawn without delay, while the GATT and the TRIMs Agreement contain relatively weak remedies.¹²²⁸ The SCM Agreement also lacks an exemption clause equivalent to GATT Article XX, which is available to measures that are otherwise inconsistent with the GATT and the TRIMs Agreement. Although no country has yet successfully justified local content measures under GATT Article XX, the existence of this and other specific exceptions suggests that countries have more leeway to use local content measures under the GATT and the TRIMs Agreement than under the SCM Agreement.¹²²⁹ On the other hand, establishing the inconsistency of local content requirements with the GATT and the TRIMs Agreement is relatively straightforward than establishing their inconsistency with the SCM Agreement. While proving their existence suffices to establish the inconsistency of local content measures with GATT Article III and Article 2 of the TRIMs Agreement, establishing their inconsistency with Article 3.1(b) of the SCM Agreement requires first establishing whether the accompanying government support measure constitutes a subsidy.

The legal analysis and findings of the adjudicatory bodies in *Canada – Renewable Energy/FIT* suggests that this is far from a straightforward exercise (at least in the case of some government

¹²²⁷ See the discussion in section 4.5.1.1.2 of chapter four.

¹²²⁸ The remedy against local content requirements under the SCM Agreement is withdrawal without delay (Article 4.7 of the SCM Agreement), which is typically 90 days, whereas the remedy under the GATT and the TRIMs Agreement is the standard withdrawal within a reasonable period of time set out in DSU Article 21.3(c), which is ostensibly up to 15 months. See *Brazil – Taxation* (n 1051), para 6.17.

¹²²⁹ The other specific exceptions under the GATT that are relevant to local content requirements include the public procurement exception in GATT Article III:8(b), the security exception in GATT Article XXI, and the infant industry exception for developing countries in GATT Article XVIII:C.

support measures).¹²³⁰ The implication is that although the SCM Agreement lacks express exceptions like the GATT and the TRIMs Agreement and contains relatively strong remedies, the difficulty of establishing the existence of a subsidy leaves some space for local content requirements to escape the bite of the SCM disciplines. Before turning to the normative question of whether there is a need to widen this space, it is imperative to consider the legal implications of creating a policy space for local content requirements under the SCM Agreement.

Local content requirements represent an area of overlap among three WTO Agreements (namely, the SCM Agreement, the GATT and the TRIMs Agreement). Introducing an exception for local content requirements under the SCM Agreement (provided that it is necessary) does not in itself guarantee policy space for WTO Members to impose such requirements. Complainants could bypass the SCM Agreement and challenge the local content requirements under the GATT and the TRIMs Agreement (like the US did in *India – Solar Cells*). Footnote 56 to Article 32.1 provides that the SCM Agreement does not preclude action [against subsidies] under other relevant provisions of GATT 1994, where appropriate'.¹²³¹ As Indonesia found out in *Indonesia – Autos*, this provision implies that the existence of an exemption from Article 3.1(b) in the SCM Agreement in and of itself does not help local content requirements escape scrutiny under the GATT and the TRIMs Agreement.¹²³² In principle, this is of no problem as the provisions of these agreements are subject to the general exceptions of GATT Article XX. However, no matter how broadly the Appellate Body interprets GATT Article XX, local content requirements are unlikely to pass the two-tier test of this provision because of their inherently discriminatory nature. Article XX does not justify measures that represent 'arbitrary or unjustifiable discrimination' or constitute 'a disguised restriction on trade', while the very purpose of local content requirements is discriminating in favour of domestic products and services.¹²³³ It is no surprise that no

¹²³⁰ Establishing the inconsistency of local content requirements with Article 3.1(b) is relatively easy when the accompanying government support measures are grants or tax incentives. See, for example, *Brazil – Taxation* (n 1051) (where the Panel easily found that local content requirements attached to a tax incentive scheme constitutes a subsidy which is contingent upon the use of domestic over imported goods), paras 7.366-7.507.

¹²³¹ See footnote 56 to Art 32.1, SCM Agreement.

¹²³² See *Indonesia – Autos* (n 1224) (and section 5.3.1.3.3 of this chapter).

¹²³³ See the discussion on GATT Article XX in section 5.3.1.3.3 of this chapter.

defendant successfully invoked Article XX to justify local content requirements.¹²³⁴ If they are not to be justified under the GATT, exempting local content requirements from Article 3.1(b) of the SCM Agreement is of limited use on its own. It only allows local content requirements to avoid the relatively strong remedy under the SCM Agreement. Any exemption for such measures under the SCM Agreement needs to be accompanied by an equivalent exemption under the GATT and the TRIMs Agreement to have practical value. However, broadening the policy space for local content requirements under the GATT is extremely difficult, if not impossible.

As to the second question, whether there is a need for an exemption from Article 3.1(b) for renewable energy local content requirements, it is essential first to examine the objectives behind such requirements. The vast literature on the subject identified four key rationales for the adoption of local content requirements in the renewable energy sector.¹²³⁵ The first and perhaps the most potent rationale is a political economy one: the need to garner public support for renewable energy support measures. Renewable energy technologies remain highly dependent on subsidies in most countries. However, policymakers find it difficult to sell such subsidies to politicians or the general public on environmental grounds alone, especially in times of fiscal restraint.¹²³⁶ Local content requirements add economic justifications and thereby make renewable energy subsidy schemes politically acceptable. The premise here is that local content requirements retain the economic benefits at home by creating domestic jobs in the renewable energy equipment manufacturing sector. This rationale suggests that local content requirements are not relevant on their own but as justifications for the subsidization of renewable energy generation. It also implies that such requirements would disappear once renewable energy technologies reach the stage where they no longer need a subsidy.

¹²³⁴ The Appellate Body rejected India's argument in *India – Solar Cells* that the local content requirements at issue were justifiable under GATT Article XX(d) and (d). See *India - Solar Cells* (n 336); Brazil also failed to justify its local content requirements under GATT Article XX(a). The Panel found that they are not necessary for the protection of public morals. See *Brazil – Taxation* (n 1051), paras 7.508-7.625.

¹²³⁵ For a comprehensive study on the use, effectiveness and legality of local content requirements, see Kuntze and Moerenhout (n 335). See also Hufbauer and others (n 335).

¹²³⁶ See Kuntze and Moerenhout (n 335), at 5; Hufbauer and others (n 335), at 1; James Leigland and Anton Eberhard, 'Localisation Barriers to Trade: The Case of South Africa's Renewable Energy Independent Power Program' (2018) 35 *Development Southern Africa* 569, at 584.

Creating ‘green’ jobs is the second rationale for the adoption of local content requirements. According to the latest IRENA report, the global renewable energy sector (excluding large hydropower) has created 8.3 million jobs in 2016.¹²³⁷ This number is set to increase substantially in the coming years.¹²³⁸ Governments, especially in developed countries, introduce local content requirements to keep these jobs at home.¹²³⁹ The idea here is that by increasing demand for domestic renewable energy equipment, local content requirements spur domestic jobs in the renewable energy equipment manufacturing industry. However, critics point out that the additional jobs in the equipment manufacturing industry come at the expense of job losses in the other parts of the renewable energy value chain. As Kuntze and Moerenhout put it, ‘energy costs more to produce because input prices are higher [and] hence, there is less [renewable energy] production, which means less employment in the electricity generation sector’.¹²⁴⁰ The prevailing view in the literature is that the balance between job gains and losses induced by the adoption of local content requirements is ambiguous and difficult to estimate *ex-ante*.

The third rationale for local content requirements is the classic case of ‘infant industry’. The argument here is that the renewable energy industry of developing countries, in particular, is relatively new and needs protection until it can compete on equal terms with its foreign counterparts. Local content requirements offer such protection by securing a certain percentage of the domestic renewable energy equipment market for the infant industries. The underlying assumption is that the infant industries have a latent comparative advantage, but they could not compete with their foreign counterparts in the short-term without such protection.¹²⁴¹ Developing countries have long used such arguments to justify their protectionist trade policies. There is also an infant industry exception for developing countries in GATT Article XVIII:C. However, no consensus exists in the academic literature over the effectiveness of infant industry protection. One common criticism of the infant industry argument lies in the (political) difficulty of

¹²³⁷ The largest number of jobs were in the solar and wind power sectors (3.1 and 1.2 million respectively). Most of these jobs were concentrated in China, Brazil, the United States, India, Japan and Germany. See IRENA, ‘Renewable Energy and Jobs: Annual Review 2017’ (International Renewable Energy Agency 2017).

¹²³⁸ IRENA estimated that the global renewable energy industry would create 16.7 million direct and indirect jobs by 2030. See IRENA, *Renewable Energy Jobs* (International Renewable Energy Agency 2013).

¹²³⁹ See Kuntze and Moerenhout (n 335); Hufbauer and others (n 335).

¹²⁴⁰ Kuntze and Moerenhout (n 335), at 7.

¹²⁴¹ One problem with this assumption is that it the difficulty of identifying latent comparative advantage *ex ante*.

removing local content requirements once in place.¹²⁴² The protection from foreign competition may lead to a situation where the infant industries may never become efficient enough to compete in the domestic or international market without government protection.

The final rationale for local content requirements is their positive environmental spillover effects.¹²⁴³ Underlying the environmental argument for local content measures is the assumption that they increase the number of renewable energy equipment manufacturers and thereby intensify competition in the global market over the medium-term. The competition between renewable energy equipment manufacturers fuels innovation and eventually reduces the costs of renewable energy technologies. The proponents of this argument contend that the medium-term benefits compensate for the short-term increase in renewable energy production costs.¹²⁴⁴ The cost reduction allows renewables to compete with fossil fuels and thereby accelerates their development and deployment worldwide. Like the infant industry argument, the environmental argument rests on the ability of local content requirements to create a competitive renewable energy industry, but there is no conclusive evidence on this yet.

None of these rationales for local content requirements justify a blanket exemption from Article 3.1(b) of the SCM Agreement on their own. No conclusive evidence exists to support the assumptions underlying the infant industry, environmental benefits and green jobs rationales. In contrast, there is a widespread consensus that local content requirements lead to trade-distortion and inefficient allocation of resources.¹²⁴⁵ Renewable energy local content requirements shield domestic manufacturers from foreign competition and thereby create a situation where countries produce intermediary goods in which they have no (actual or latent) comparative advantage. The latter implies that the domestic industries might not become efficient enough to compete with their foreign competitors without government support. As such, the economic welfare costs of local content requirements are not different from that of non-tariff barriers to trade. They run the

¹²⁴² See Kuntze and Moerenhout (n 335), at 7; Hufbauer and others (n 335), at 1.

¹²⁴³ See Sherry Stephenson, 'Addressing Local Content Requirements in a Sustainable Energy Trade Agreement' in Gary C Hufbauer, Ricardo Melendez-Ortiz and Richard Samans (eds), *The Law and Economics of a Sustainable Energy Trade Agreement* (Cambridge University Press 2016) 316, at 320.

¹²⁴⁴ See Kuntze and Moerenhout (n 335), at 6.

¹²⁴⁵ For a recent study on the adverse effects of local content measures, see Susan Stone, James Messent and Dorothee Flaig, 'Emerging Policy Issues: Localisation Barriers to Trade' (2015) OECD Trade Policy Papers 180.

risk of protecting inefficient domestic industries at the expense of efficient foreign producers and domestic consumers who would have benefited from cheaper imports.

It is imperative to note however that these economic arguments against local content requirements are based on the assumption of perfect competition.¹²⁴⁶ We have recited in chapter three of this thesis that such a perfect world does not exist in reality. This is even more so in the renewable energy industry. Almost all the leading firms in the global renewable energy market were born out of government support, and they continue to receive such support in one form or another. China currently has six of the top ten solar panel manufacturers and four of the top ten wind turbine manufacturers worldwide.¹²⁴⁷ These firms have greatly benefited from protectionist measures such as local content requirements. It is also hard to deny that the world has benefited from the competition borne out of the emergence of Chinese renewable energy equipment manufacturers in the global market. Solar PV module prices, for example, fell by more than 80 percent since 2009 due in part to the resultant competition.¹²⁴⁸ China is a typical case, but there are also other examples where protectionist measures fostered the development of a renewable energy manufacturing industry. For example, Spanish local content requirements were instrumental to the creation and success of Gamesa, one of the largest wind turbines manufacturers in the world.¹²⁴⁹ These practical considerations show that local content requirements can play some role in the development of renewable energy technologies. The key questions that pervade the relevant literature are to what extent or under what conditions.

In their widely cited study, Kuntze and Moerenhout put forward some conditions that make local content requirements economically effective: the size of the local market; the level of the local content; the nature of the accompanying government support measures; company-driven

¹²⁴⁶ DiCaprio and Gallagher (n 1090), at 790.

¹²⁴⁷ See The Economist, 'The East Is Green: China Is Rapidly Developing Its Clean-Energy Technology' <<https://www.economist.com/special-report/2018/03/15/china-is-rapidly-developing-its-clean-energy-technology>>.

¹²⁴⁸ See IRENA, *Renewable Power Generation Costs in 2017* (International Renewable Energy Agency 2018).

¹²⁴⁹ Joanna I Lewis and Ryan H Wiser, 'Fostering a Renewable Energy Technology Industry: An International Comparison of Wind Industry Policy Support Mechanisms' (2007) 35 *Energy Policy* 1844, at 1851.

strategies, transfer of technology and know-how, and governance.¹²⁵⁰ Their argument largely echoes that of Lewis and Wiser, who concluded back in 2007 that:

Local content requirements [in the wind industry] can work, but should generally be applied in a gradual, staged fashion and only in markets with sufficient market potential. [I]f the market is not sufficiently sizable or stable, or if the local content requirements are too stringent, then the advantages of attracting local manufacturing may be offset by the higher cost of wind equipment that results'.¹²⁵¹

Professor Robert Howse also reiterated the importance of market size for the effectiveness of local content requirements. Speaking in the context of the *China – Wind Power Equipment* dispute and the legality of the local content requirement at issue, he argued:

China has good grounds, environmental grounds, for wanting to ensure its security of a domestic supply of alternative energy technologies in the future [...] there might be a plausible argument [for domestic content requirements], which is that China's demand for clean energy is so enormous that it would be irresponsible for China not to take measures to ensure it has an adequate domestic industry in this area.¹²⁵²

The political considerations we recited earlier further strengthen the practical case for using local content requirements in the renewable energy sector. Renewable energy technologies are currently far from ready to compete with fossil fuels without government support. Despite the strong consensus within the academic and policy community over the importance of public support for renewable energy technologies, it remains difficult for governments to justify huge financial outlays for renewable energy projects without the promise of keeping the employment and economic benefits at home. Imposing local content requirements is the most direct way to do

¹²⁵⁰ See Kuntze and Moerenhout (n 335).

¹²⁵¹ Lewis and Wiser (n 1249), at 1852.

¹²⁵² See Simon Lester, 'GATT Article XX and Domestic Production of Environmental Goods' (*International Economic Law and Policy Blog*, 3 April 2011) <<http://worldtradelaw.typepad.com/ielpblog/2011/04/article-xx-domestic-production-of-environmental-goods.html>> accessed 9 October 2017. In *India – Solar Cells*, India argued along the same line in defence of its local content requirements, but both the Panel and Appellate Body rejected it because of the narrow constriction of GATT Article XX (j) (see section 5.3.2.1.1 below). Howse also seems to have changed his position. He wrote in 2013 that 'It is often claimed that domestic content requirements are necessary for gaining political support for incentives and other measures to support clean energy. This may have been true at some point in time in the past, but it may no longer be true, especially where the programs in question are now well-established and have constituencies supporting them for other reasons'. See Howse, 'Securing Policy Space for Clean Energy under the SCM: Alternative Approaches' (n 51) 55.

so.¹²⁵³ To the extent that they bring political support to renewable energy subsidies which would not otherwise exist, local content requirements are a ‘necessary evil’. As such, leaving no policy space for local content requirements risks throwing the proverbial baby (renewable energy subsidies) out with the bathwater (the discriminatory local content requirements).¹²⁵⁴ However, using this political feasibility rationale to justify an exemption will not be easy. Cosbey and Mavroidis, warn that ‘protectionist measures are inherently politically popular, so it would be unwise to open a door for measures on the grounds that they were a necessary evil to enable the passage of some good policy’.¹²⁵⁵ We mentioned at the beginning of this section that local content requirements currently exist in a broad range of sectors. Creating a policy space for renewable energy local content requirements may open the floodgate for demands for similar exemptions for other sectors. This concern is likely to be a significant source of resistance to initiatives to create any exemption for renewable energy local content requirements.

There are also other possible reasons that impede the creation of policy space for renewable energy local content requirements. The most prominent of these is the interest of some countries to maintain their first-mover advantage. Those countries that invested early in the renewable energy industry such as Germany and the United States now have a relatively matured industry. These first movers want to maintain their share in the global market and hence have significant incentive to make it difficult for the newcomers to have any foothold in the market. Such countries are unlikely to agree upon any exemption for local content requirements. Indeed, the *EU-Singapore FTA* and the *2011 APEC Declaration* indicate that they are actively working to constrain any policy space left for countries to use local content measures. The former enjoins the parties to ‘refrain from adopting measures providing for local content requirements’ in the renewable energy sector.¹²⁵⁶ The latter calls upon APEC Members to ‘eliminate, consistent with [their] WTO obligations, existing local content requirements that distort environmental goods and services trade in the region by the end of 2012, and refrain from adopting new ones, including as

¹²⁵³ See Lewis and Wiser (n 1249), at 1851.

¹²⁵⁴ We borrowed the expression from Albert Cho and Navroz K Dubash, ‘Will Investment Rules Shrink Policy Space for Sustainable Development? Evidence from the Electricity Sector’ (World Resources Institute 2003).

¹²⁵⁵ Cosbey and Mavroidis (n 51), at 33.

¹²⁵⁶ See Art 7.4(a), EU-Singapore FTA.

part of any future domestic clean energy policy'.¹²⁵⁷ Although the negotiating history of these instruments is not available, it is not far-fetched to imagine which countries pushed for the elimination of local content requirements in these regional trade agreements.

5.3.1.2.1.2 Prohibited Fossil Fuel Subsidies

5.3.1.2.1.2.1 Export Subsidies

Countries typically subsidize exports to provide a competitive edge to their exports. However, the international markets for fossil fuels operate differently from that of most other sectors. The concentration of fossil fuels in just a few countries means that only a few resource-endowed countries export fossil fuels. Given that virtually all countries of the world rely on fossil fuels to meet the bulk of their energy needs, this makes the fossil fuel sector different from most other sectors where exports are forced and imports are often curtailed. Moreover, OPEC influences, albeit indirectly, fossil fuel prices through its oil production quota system.¹²⁵⁸ These unique features imply that there is little or no incentive to subsidize fossil fuel exports. The sector is rather riddled with export-restrictive measures such as export duties and quantitative restrictions.¹²⁵⁹ One scenario in which fossil fuel subsidies may raise an export subsidy claim is as input subsidies contingent upon export performance. In theory, fossil fuel producing countries may provide cheap energy to energy-intensive industries under the condition that such industries export their products. However, there are no practical examples of such subsidies. These considerations suggest that the blanket prohibition of export subsidies under Article 3.1(a) imposes little practical constraint on the policy space for the subsidization of fossil fuels.

5.3.1.2.1.2.2 Local Content Subsidies

Local content measures are prevalent in the fossil fuel sector. Such measures have been in use in the oil and gas sector since the early 1970s, but the last few years have seen virtually all oil and

¹²⁵⁷ See Annex C, APEC 2011 Leaders' Declaration, Honolulu, Hawaii, United States, 12 November 2011.

¹²⁵⁸ On the legality of the OPEC production quota system under WTO law, see Anna-Alexandra Marhold, 'WTO Law and Economics and Restrictive Practices in Energy Trade: The Case of the OPEC Cartel' (2016) 9 *The Journal of World Energy Law & Business* 475; Farah and Cima (n 425).

¹²⁵⁹ On the prevalence of export restrictions in the natural resources sector, see *Espa* (n 445).

gas producing countries adopting a combination of quantitative and qualitative local content requirements.¹²⁶⁰ Driving the proliferation of these requirements in oil and gas producing countries are growing efforts to extract greater benefits from their exhaustible natural resources - beyond royalty and tax payments. In particular, local content requirements have now become policy instrument of choice for oil and gas producing countries seeking to foster backward and forward linkages between the oil and gas and other sectors of their economy.

The specific policy objectives underpinning local content requirements vary significantly among oil and gas producing countries, but the most frequently cited ones are four.¹²⁶¹ First, to generate more value-added in domestic supply sectors. Such requirements often take the form of procurement requirements that oblige oil and gas companies to procure a certain percentage of their capital goods and services locally. Second, to create local employment opportunities. Such requirements take the form of minimum level of local employment and management requirements. Some countries (e.g. Azerbaijan, Malaysia) provide subsidies for firms that offer training for local employees.¹²⁶² Third, to promote local ownership and control. Many oil and gas producing countries (e.g. Nigeria, Brazil, Ghana and Angola) require a certain percentage of local ownership or provide preferences for domestic oil and gas companies. The literature often presents Petrobras as the poster child of such policies.¹²⁶³ Some countries also provide subsidies to promote local ownership. India, for example, offers 10 percent corporate income tax reduction for domestic companies.¹²⁶⁴ Fourth, to enhance technology transfer. This objective is related to the last two objectives and aims at ensuring the transfer of technologies to local companies. Such

¹²⁶⁰ Quantitative local content requirements take the form of minimum number of local employees or a certain percentage of local procurement, while the qualitative ones concern transfer of technology and local staff training. See Silvana Tordo and others, *Local Content Policies in the Oil and Gas Sector* (The World Bank 2013).

¹²⁶¹ On local content requirements in the oil and gas sector, see *ibid*; Glauco De Vita, Oluwatosin Lagoke and Sola Adesola, 'Nigerian Oil and Gas Industry Local Content Development: A Stakeholder Analysis' (2016) 31 *Public Policy and Administration* 51; Claire Asiago Berryl, 'Role of Angolan Local Content Requirements: A Means for Benefit Sharing or an End in Itself?' *Art and Science of Benefit Sharing: Local Content Requirements in Angola's Petroleum Sector* in Patrick Chaumette (ed), *Economic challenge and new maritime risks management: What blue growth?* (Gomylex 2017) 255; Damilola S Olawuyi, 'Local Content Requirements in Oil and Gas Contracts: Regional Trends in the Middle East and North Africa' (2018) 36 *Journal of Energy & Natural Resources Law* 1.

¹²⁶² See Pierre Sauvé, 'Life beyond Local Content: Exploring Alternative Measures of Industry Support in the Context of WTO Accession' (2016) 1 *Journal of International Trade* 1, at 10; Tordo and others (n 1260), at 46.

¹²⁶³ See Aaron Cosbey and Howard Mann, 'Bilateral Investment Treaties, Mining and National Champions: Making It Work' (International Institute for Sustainable Development 2014) Background paper for the Ad Hoc Experts Group Meeting: Bilateral Investment Treaties and National Champions, at 10.

¹²⁶⁴ See Tordo and others (n 1260), at 43.

requirements often take the form of joint venture or local employee training requirements.¹²⁶⁵ Some energy producing countries (e.g. Brazil) implement the requirements for training local employees through mandatory contribution to their skills development funds.

Oil and gas producing countries implement local content requirements through a wide range of instruments. Most local content requirements in the oil and gas sector are implemented through licensing or concession agreements.¹²⁶⁶ Such requirements are as such preconditions for obtaining the license to operate – not to receive subsidies. Local content requirements that are not *de jure* or *de facto* linked to subsidies fall outside the ambit of the SCM Agreement. Such requirements are instead subject to other WTO Agreement such as the GATT, GATS, the GPA and the TRIMs Agreement.¹²⁶⁷ Only a small percentage of local content requirements in the oil and gas sector are implemented through subsidies. Examples of such requirements include the Australian tax relief on certain equipment used in petroleum operations for oil and gas companies that provide ‘full, fair and reasonable opportunity’ to domestic equipment suppliers.¹²⁶⁸ Nigeria also provides ‘fiscal and tax incentives for companies that establish operations in Nigeria to carry out production, manufacturing, or production of services’.¹²⁶⁹ Such subsidies are *de jure* contingent upon the use of local content and hence violate Article 3.1(b) of the SCM Agreement. However, not all local content requirements that are tied to subsidies are subject to the SCM Agreement. Most local content requirements in the oil and gas sector are targeted at services.¹²⁷⁰ Such local content requirements are not subject to the SCM Agreement even if they are tied to subsidies. Subsidies contingent upon the use of local services fall outside the ambit of the SCM Agreement.

To sum up, local content requirements are widely in use in the fossil fuel sector, but they are either not tied to subsidies or are often tied to subsidies in the services sector. This means that, in

¹²⁶⁵ See Sauvé (n 1262), at 8.

¹²⁶⁶ The most prominent of these are petroleum rights allocation systems, subsidies (tax incentives and others), penalties, procurement rules and training arrangements. See Tordo and others (n 1260), at 37-47.

¹²⁶⁷ See Isabelle Ramdoo, ‘Unpacking Local Content Requirements in the Extractive Sector: What Implications for the Global Trade and Investment Frameworks?’ (International Center for Trade and Sustainable Development 2015) Think Piece for E15 Expert Group on Trade and Investment in Extractive Industries, at 10-11 (Table 3).

¹²⁶⁸ See Tordo and others (n 1260), at 46.

¹²⁶⁹ See Ramdoo (n 1267), Table 3.

¹²⁷⁰ See Cosbey and Mann (n 1263), at 11.

contrast to local content requirements in the renewable energy sector, most local content requirements in the fossil fuel sector are not subject to the SCM Agreement.

5.3.1.2.2 Actionable Energy Subsidies

Energy subsidies that are not contingent upon export performance or local content are subject to the SCM disciplines on actionable subsidies.¹²⁷¹ WTO Members may take action against such subsidies either through the dispute settlement system or through countervailing duties insofar as they establish that the subsidies are ‘specific’ and cause ‘adverse effects’ to their interests. In this section, we examine the actionability of fossil fuel and renewable energy subsidies.

5.3.1.2.2.1 Actionable Renewable Energy Subsidies

The first question here is whether and which type of renewable energy subsidies may qualify as actionable subsidies. We established in the preceding chapter that the SCM Agreement defines actionable subsidies not by their nature but rather by their effects. This means that any renewable energy subsidy may become actionable if it is specific and causes one of the three forms of adverse effects: injury to the domestic industry, nullification or impairment of benefits; and serious prejudice.¹²⁷² The nature of these three forms of adverse effects suggests that adverse effect may exist only to the extent that there is international trade either in the subsidized product or at least in products that use the subsidized product as an input. The significance of this is that renewable electricity subsidies do not cause adverse effects on their own. At least for now, the only instance in which such subsidies may cause adverse effects is as indirect subsidies to the production of internationally traded products. However, the share of renewable electricity in national electricity supply mixes is currently too small for renewable electricity subsidies to cause significant adverse effects to the interest of other Members.

Subsidies to renewable energy technologies are once again the main candidate for scrutiny here. To illustrate the scenarios in which the subsidization of renewable energy technologies may cause

¹²⁷¹ See the discussion on actionable subsidies in *section 4.5.3.2.1* of this thesis.

¹²⁷² See Arts 2,5 and 6, SCM Agreement. It bears recalling that we established earlier in section 5.3.1.1.2.1 that almost all renewable energy subsidies meet the specificity requirement of Article 2.

adverse effects: assume that *Country X* subsidizes the production of solar panels and *Country Y* also produces solar panels. The subsidization leads to lower prices by reducing the production cost of solar panels in *Country X*. This may affect *Country Y* in one of three ways. First, if *Country Y* imports solar panels from *Country X*, the subsidized imports may cause injury to the import-competing solar panel producers of *Country Y* (injury to the domestic industry). The SCM Agreement authorizes *Country Y* to take action against such subsidies either through the multilateral dispute settlement system or through countervailing duties, insofar as it establishes their specificity and the existence of injury within the meaning of the SCM Agreement. Second, if *Country Y* exports solar panels to *Country X* or a third country market, the subsidies make it harder for *Country Y's* solar panel exports to compete with the subsidized solar panels of *Country X* (serious prejudice). Third, the subsidies may negate the market access benefits that accrue to *Country Y* from tariff commitments under the GATT (nullification or impairment). The last two forms of adverse effects allow *Country Y* to challenge the actionable subsidies, but only through the multilateral dispute settlement system.

To assess the extent to which the SCM Agreement constrains the policy space of *Country X* to use actionable subsidies it is important to consider the remedies available against such subsidies. Unlike prohibited subsidies, the SCM Agreement does not *per se* prohibit the use of actionable subsidies. This is clear from the wordings of Article 3 and 5 of the SCM Agreement. While the former states that ‘the following subsidies...shall be prohibited’, the latter simply provides that ‘no Member should cause adverse effect...to the interests of other Members’ through the use of any specific subsidy.¹²⁷³ *Country X* may grant or maintain actionable subsidies subject to the remedies available to *Country Y* under the SCM Agreement. If the subsidies are found to cause adverse effects, the SCM Agreement obliges *Country X* to either ‘take appropriate steps to remove the adverse effects’ or ‘withdraw the subsidy’.¹²⁷⁴ In contrast, the only remedy against prohibited subsidies is withdrawal without delay. The option of removing the adverse effects of actionable subsidies seems to suggest that the SCM disciplines on actionable subsidies impose

¹²⁷³ See Arts 3 and 5, *ibid*.

¹²⁷⁴ Art 7.8, *ibid*.

relatively little constraints on the policy space of *Country X* to use actionable subsidies. *Country X* is free to retain the actionable subsidies insofar as it removes their adverse effects.

However, as Charnovitz correctly pointed out, the option of removing adverse effects is impractical.¹²⁷⁵ There are limited options to remove the adverse effects of actionable subsidies. One such option is to restrict the export of the subsidized products, but voluntary export restraints are inconsistent with GATT Article XI and Article 11.1(b) of the Agreement on Safeguards. It also bears noting that export restraints cannot remove adverse effects that occur in the market of *Country X*. Another option available to *Country X* is to provide similar subsidies to the adversely affected solar panel producers of *Country Y*, but this is highly unlikely to happen for obvious reasons.¹²⁷⁶ Reducing the amount of the subsidies substantially may serve to lessen their adverse effects, but what the SCM Agreement requires is ‘removing (not lessening) the adverse effects.’¹²⁷⁷ This leaves *Country X* with the only option of withdrawing the actionable subsidies altogether. This consideration led Charnovitz to conclude that ‘practically speaking, the option of removing adverse effects is not an alternative to withdrawing the subsidy’.¹²⁷⁸ The impracticality of removing the adverse effects of actionable subsidies implies that the ultimate remedy against both prohibited and actionable subsidies is withdrawal. To sum up, the remedies available under the SCM Agreement against actionable subsidies imply that the SCM Agreement effectively constrains the policy space available for governments to promote renewables through specific subsidies that cause adverse trade effects.

The significant difference between prohibited and actionable subsidies lies in the difficulty of establishing the existence of actionable subsidies. The SCM Agreement assumes both the specificity and adverse effects of prohibited subsidies, but it leaves it up to the complainants to establish both the specificity and adverse effects of actionable subsidies.¹²⁷⁹ The WTO itself

¹²⁷⁵ See Charnovitz, ‘Green Subsidies and the WTO’ (n 49), at 31-32.

¹²⁷⁶ In principle, Article 7.8 of the SCM Agreement obliges *Country X* to remove the adverse effects to *Country Y* only. However, once *Country Y* establishes that the subsidies are actionable; other countries may initiate their own countervailing duty investigation or lodge parallel complaints through the dispute settlement system.

¹²⁷⁷ Moreover, substantially reducing the amount of the subsidy may defeat the purpose of the subsidy.

¹²⁷⁸ See Charnovitz, ‘Green Subsidies and the WTO’ (n 49), at 31.

¹²⁷⁹ The presumption here is that not all specific subsidies cause adverse effects. See *US — Upland Cotton* (n 816), para 7.1179.

admits that establishing adverse trade effects is ‘a fact-intensive analysis that panels may find difficult in some cases’.¹²⁸⁰ This difficulty may deter *Country Y* from taking action against actionable subsidies, particularly through the dispute settlement system.¹²⁸¹ In doing so, it reduces the impact of the SCM disciplines on the policy space for using actionable subsidies. However, it is difficult to determine whether a particular renewable energy subsidy is actionable or not *ex-ante*. The actionability of a subsidy can only be determined *ex-post*, depending on its effects, on a case-by-case basis. This, in turn, creates a vast grey area of uncertainty for governments. This uncertainty is likely to discourage risk-averse governments from adopting subsidies that are potentially actionable even if such subsidies are not prohibited *as such*.

Having positively answered the question whether SCM disciplines encroach upon the green policy space available for governments to use actionable subsidies, we now turn to the normative question of whether such subsidies need an exemption from the SCM disciplines. There are many reasons to answer this question in the affirmative. First, the actionable category encompasses subsidies that have purely environmental objectives. Unlike subsidies contingent upon export performance and local content, which are driven as much by economic rationales as by environmental ones, governments use actionable renewable energy subsidies to promote the development and deployment of renewables and thereby meet their renewable energy targets. Without such subsidies, the uninternalized negative externalities of fossil fuels and the positive externalities of renewables disincentive the development and deployment of renewable energy technologies. The fact that actionable subsidies are not contingent upon export performance or local content also implies that they are not as such targeted at promoting exports or inducing import substitution. However, the current SCM disciplines do not distinguish actionable subsidies on the basis of their policy rationale. Second, the impact of actionable renewable energy subsidies on international trade is relatively weak. It is this recognition that led the drafters of the SCM Agreement not to prohibit the use of actionable subsidies in the first place. However by authorizing other Members to take unilateral and multilateral actions against actionable subsidies

¹²⁸⁰ See WTO, ‘Subsidies and Countervailing Measures Overview’ <https://www.wto.org/english/tratop_e/scm_e/subs_e.htm> accessed 15 March 2018.

¹²⁸¹ However, this difficulty appears to be insufficient to save actionable subsidies from unilateral actions. Although establishing specificity and adverse effects is a prerequisite for both multilateral and unilateral actions, national countervailing duty investigation authorities tend to apply a lax approach than the WTO adjudicatory bodies.

– which in effect requires the withdrawal of the subsidies - the SCM Agreement has made it hard for governments to use actionable subsidies.

Finally, creating a carve-out for actionable renewable energy subsidies will not necessarily come at the expense of economic welfare. We established in *section 4.5.1* of the previous chapter that the underlying objective of the SCM Agreement is to discipline trade-distorting subsidies. However, the nature of the three forms of adverse effects in Article 5 suggests that the SCM disciplines are concerned with the adverse effects of trade-distorting subsidies on import-competing (injury) or export-competing (serious prejudice) industries of the complainants. If the SCM Agreement were concerned with enhancing economic efficiency or welfare, the requirements for imposing countervailing duties against actionable subsidies would not have solely focused on assessing the impact on the import- or export-competing industries of the complainants. The SCM Agreement disciplines actionable subsidies to protect such industries – not to enhance the welfare of the complainants or the world. To use our earlier example, exempting actionable renewable energy subsidies, may adversely affect the interests of solar panel producers in *Country Y* but not necessarily that of *Country Y* as a whole.

5.3.1.2.2.2 Actionable Fossil Fuel Subsidies

Most fossil fuel subsidies that are subject to the SCM Agreement fall in the category of actionable subsidies. Their actionability, however, depends on whether they meet the specificity and adverse effects requirements thereof. We established earlier in *section 5.3.1.1.2.2* that while most fossil fuel production subsidies pass the specificity test, only a few fossil fuel consumption subsidies are likely to qualify either as *de jure* or *de facto* specific subsidies. We turn in this section to examining whether specific fossil fuel subsidies cause adverse effects.

Of the three forms of adverse effects, ‘injury to the domestic industry’ and ‘serious prejudice to the interests of another Member’ are worth considering here. Nullification and impairment or ‘non-violation’ claims under Article 5(b) of the SCM Agreement are not different from non-violation claims under any other WTO Agreement. To date, such claims have been rare and mostly unsuccessful. None of the five non-violations complaints brought since 1995 were

successful.¹²⁸² The extreme caution with which the adjudicatory bodies deal with such claims suggests that non-violation claims against fossil fuel subsidies are unlikely to succeed.¹²⁸³ More promising are injury and serious prejudice claims under Articles 5(a) and 5(c).

Before turning to the thorny issue of proving the existence of injury or serious prejudice, it is useful first to identify the industries that are likely to be adversely affected by the subsidization of fossil fuels. What are the industries that fossil fuel subsidies may injure or seriously prejudice? From an economic perspective, fossil fuel subsidies may adversely affect the fossil fuel, renewable energy or energy-intensive industries of other Members. However, injury or serious prejudice may arise within the meaning of the SCM Agreement only to the extent that the subsidized industry and the allegedly injured or seriously prejudiced domestic industry are engaged in the production of ‘like products’. The question here is the likeness of the subsidized fossil fuel products and the adversely affected products at issue. Determining the likeness of two products under WTO Agreements typically requires considering four general factors: physical characteristics, end use, consumer preferences and tariff clarification.¹²⁸⁴ However, the exact meaning of the term varies from agreement to agreement and provision to provision.¹²⁸⁵ The SCM Agreement considers two products as like products when they are ‘identical, i.e. alike in all respects’ or at least have ‘characteristics closely resembling’ to each other.¹²⁸⁶ The adjudicatory bodies are yet to determine the contours of this definition. The only Panel to fully consider this

¹²⁸² The five cases are: Japan – Film; Korea – Procurement; EC – Asbestos; US – Offset Act (Byrd Amendment); and US – COOL (Article 21.5 – Canada and Mexico). In US – COOL (Article 21.5 – Canada and Mexico), the Panel exercised judicial economy with respect to the complainants' non-violation claims. Nevertheless, in case the Appellate Body were to reverse its exercise of judicial economy, it made a ‘conditional conclusion’ that the US measure in question meets all the necessary elements of non-violation complaints under GATT Article XXIII:1(b). The Appellate Body upheld the Panel’s exercise of judicial economy. See *Panel Reports, United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 215 of the DSU by Canada and Mexico (US – COOL (Article 215 – Canada and Mexico), WT/DS384/RW /, WT/DS386/RW, adopted 29 May 2015*, paras 7.673-7.716; *Appellate Body Reports, United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 215 of the DSU by Canada and Mexico (US – COOL (Article 215 – Canada and Mexico), WT/DS384/AB/RW / WT/DS386/AB/RW, adopted 29 May 2015*, para 5.383.

¹²⁸³ In any case, the serious prejudice form of adverse effects covers non-violation claims.

¹²⁸⁴ See *Panel Report, European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (EC – Asbestos), WT/DS135/R, adopted 5 April 2001*, paras 8.112-8.114.

¹²⁸⁵ One may recall here the Appellate Body’s famous metaphor that ‘The accordion of “likeness” stretches and squeezes in different places as different provisions of the WTO Agreement are applied’. See *Japan – Alcoholic Beverages II* (n 232), at 21.

¹²⁸⁶ Footnote 46 to Art 15.1, SCM Agreement.

definition found that the key term ‘characteristics closely resembling’ is ‘quite narrow’ and ‘includes but is not limited to physical characteristics’.¹²⁸⁷ This Panel underlined the crucial role that physical characteristics play in determining the likeness of two products under the SCM Agreement without ruling out the relevance of considering the other factors of likeness. The implication is that determining likeness under the SCM Agreement requires considering all the four factors of likeness with a particular emphasis on physical characteristics.

The success of injury and serious prejudice claims against fossil fuel subsidies, therefore, depends on the likeness of the subsidized fossil fuel product and the allegedly adversely affected product. As noted earlier, the latter may include renewable electricity, renewable energy products (e.g. solar panels and wind turbines), fossil fuels, and energy-intensive products. We consider below the likeness of these four sets of products with fossil fuels.

First, are renewable electricity and fossil fuel electricity like products under the SCM Agreement? Their similar physical characteristics, end use, and tariff classification suggest that they are highly likely to qualify as like products.¹²⁸⁸ Perhaps the only issue here is that of consumer preference. Environmentally conscious consumers may prefer renewable over conventional electricity for obvious reasons. However, as the Appellate Body found in *Canada – Renewable Energy/FIT*: ‘Final consumers at the retail level may not distinguish between electricity on the basis of generation technology, because all electricity fed into the grid is blended regardless of the energy generation technology used’.¹²⁸⁹ The inability of consumers to distinguish between electricity coupled with the other three factors makes conventional and renewable electricity ‘like products’ within the meaning of the SCM Agreement. However, the current state of cross-border electricity trade is not such that renewable electricity producing countries would file injury or serious prejudice claims against conventional electricity subsidies. In the short-term, conventional electricity subsidies may only face challenges under Article 5 of the SCM Agreement as indirect subsidies to energy-intensive industries (see below).

¹²⁸⁷ See *Indonesia — Autos* (n 1224), para 14.172-14.173.

¹²⁸⁸ See Chris Wold, Grant Wilson and Sara Foroshani, ‘Leveraging Climate Change Benefits through the World Trade Organization: Are Fossil Fuel Subsidies Actionable’ (2012) 43 *Georgetown Journal of International Law* 635.

¹²⁸⁹ See *Canada – Renewable Energy/FIT* (n 40), para 5.176.

Second, are renewable energy products and fossil fuels like products? These two sets of products have very different physical characteristics.¹²⁹⁰ Fossil fuels are natural resources, while solar panels and wind turbines are industrial products with different components. The two set of products also have different end use. Solar panels and wind turbines are used to generate electricity while fossil fuels (except coal) are mostly used for transportation. The tariff classifications of the two sets of products are also entirely different. These differences imply that fossil fuels and renewable energy products are highly unlikely to qualify as like products.

Third, are subsidized and unsubsidized fossil fuels like products? Here we need to differentiate between the three types of fossil fuels. Subsidized and unsubsidized crude oil, subsidized and unsubsidized natural gas and subsidized, and unsubsidized coal are highly likely to qualify as like products.¹²⁹¹ Perhaps the issue here is the likeness of two different fossil fuels. Are coal and crude oil/natural gas like products? All the three hydrocarbons fall within the same HS chapter. However, they have different physical characteristics and end use. Coal is mostly used for electricity generation, while the other hydrocarbons are used typically for transportation. Such differences suggest that the two sets of products are less likely to qualify as like products. In contrast, crude oil and natural gas are highly likely to pass the likeness test. Thus, most fossil fuels are likely to pass the likeness test of the SCM Agreement. It bears recalling here that only a limited number of countries have domestic fossil fuel industries. Most of these countries subsidize fossil fuels. The fear of countersuits prevents such countries from filing injury and serious prejudice claims against fossil fuel subsidies under the SCM Agreement.

Finally, we noted earlier that generally-available fossil fuel consumption subsidies might (under certain conditions) constitute *de facto* specific indirect subsidies to energy-intensive industries. Such subsidies may cause adverse effects to the energy-intensive industries of other Members. The question here is whether the products of these energy-intensive industries are like products. Since the energy-intensive industry produces a broad range of products, the likeness test depends

¹²⁹⁰ On the likeness of these two sets of products, see Wold, Wilson and Foroshani (n 1288), at 668-681.

¹²⁹¹ It is worth noting that the Panel in US - Gasoline found that imported and domestic gasoline are like products within the meaning of GATT Article III:4. See *Panel Report, United States - Standards for Reformulated and Conventional Gasoline (US-Gasoline), WT/DS2/R, adopted 20 May 1996*, para 6.9.

on the products under consideration. However, it is not difficult to envisage for example that subsidized and unsubsidized steel would easily pass the likeness test of the SCM Agreement.

The likeness analysis suggests that fossil fuel subsidies may face challenges as actionable subsidies only from countries with fossil fuel or energy-intensive industries. Of these, fossil fuel producing countries are less likely to challenge fossil fuel subsidies because of the glasshouse syndrome we mentioned earlier. This means that fossil fuel subsidies may face injury or serious prejudice claims under the SCM Agreement only as indirect subsidies to energy-intensive industries. The success of even such claims lacks certitude. For one, it depends on a case-by-case determination of their *de facto* specificity. We have seen in *China – GOES* that proving the *de facto* specificity of generally available subsidies requires sufficient evidence, which is often not readily available. For another, it requires proving the existence of injury or serious prejudice. The fact-intensive nature of this undertaking poses a daunting challenge for most countries. Proving the existence of serious prejudice is relatively less demanding than proving injury, but both require reams of trade data and factual and economic analysis. Not many countries have the resources or economic interest to overcome all these challenges. The absence of successful injury or serious prejudice claims against fossil fuel subsidies proves this point.

5.3.1.3 Environmental Exemptions

We have established in the preceding chapter that the SCM Agreement currently contains no express exception for renewable energy or any other environmentally helpful subsidy.¹²⁹² The rather rhetorical question in the title of this section serves as a springboard to discuss the applicability of GATT Article XX to the SCM Agreement, the legal relevance of Article 8 of the SCM Agreement, and the adequacy of the S&D provisions of the SCM Agreement in providing policy space for the subsidization of renewables. In what follows, we will examine the debate concerning these three issues and consider the green policy space that the associated provisions would offer for the subsidization of renewables if they were applicable.

¹²⁹² See the broad discussion on non-actionable subsidies in *section 4.5.3.1.3* of this thesis.

5.3.1.3.1 Article 8 of the SCM Agreement: Relevant?

Article 8 of the SCM Agreement has lapsed at the end of 1999. The only part of this provision that remains applicable is the non-actionability of non-specific subsidies, albeit by virtue of the specificity requirement of Articles 1.2 and 2 of the SCM Agreement.¹²⁹³ The non-actionability of specific R&D, regional and environmental subsidies enshrined in Article 8 does not apply any longer. This section attempts to briefly examine whether Article 8 has any relevance to the regulation of renewable energy subsidies under the SCM Agreement and, more importantly, whether its resurrection provides adequate policy space for the subsidization of renewables.

The short answer to the first question is no: the provisions of Article 8 have expired, and thus they have no legal relevance. Some commentators, however, debate whether the provisions might have some relevance to the interpretation of the SCM Agreement.¹²⁹⁴ Cosby and Mavroidis observed that ‘Art. 6.1 [of the] SCM Agreement has been rescinded by virtue of the same provision (Art. 31 SCM Agreement), and yet Panels continuously use it as legal context’.¹²⁹⁵ There is, however, a fundamental difference between Article 6.1 and Article 8. The former deals with conditions that justify the presumption of ‘serious prejudice’ put in place to mitigate the difficulty of establishing the existence of serious prejudice within the meaning of Articles 5(c) and 6 of the SCM Agreement.¹²⁹⁶ The expiry of Article 6.1 may have eliminated the presumption, but the conditions remain relevant to assess the existence of serious prejudice. In contrast, Article 8 deals with the concept of non-actionability that no longer exists.

Perhaps the most persuasive argument concerning the relevance of Article 8 is that it ‘still reflect a normative understanding among Members even though it is not formally in effect’.¹²⁹⁷ Shaffer et al. attribute the rarity of legal challenges to some of the former non-actionable subsidies to a

¹²⁹³ Since non-specific subsidies are not subject to the SCM disciplines, we consider non-specificity as a threshold issue (see section 5.3.1.1.1.2) rather than as an exception. This is in line with the jurisprudence. The Appellate Body drew a clear line between exceptions and limitations on the scope of an obligation first in *China – Raw Materials* and then in *Canada – Renewable Energy/FIT*, see *Canada – Renewable Energy/FIT* (n 40), para 5.56.

¹²⁹⁴ See Cosby and Mavroidis (n 51) (arguing that Article 8 has no legal relevance any longer); Flett (n 803) (arguing that the concept of non-actionability remains relevant like that of serious prejudice), 95-96 at .

¹²⁹⁵ See Cosby and Mavroidis (n 51) (referring to *US - Upland Cotton* and *Korea - Commercial Vessels*), at 38.

¹²⁹⁶ See WTO, ‘Subsidies and Countervailing Measures Overview’ (n 1280), footnote 2.

¹²⁹⁷ See Gregory Shaffer, Robert Wolfe and Vinhcent Le, ‘Can Informal Law Discipline Subsidies?’ (2015) 18 *Journal of International Economic Law* 711, at 727.

‘tacit acceptance’ and ‘a case of Members acting “as if” the subsidies are covered by the now lapsed provisions of Article 8’.¹²⁹⁸ They argue that ‘the ‘non-actionable’ category lives on implicitly in Members’ understanding of appropriate policy’.¹²⁹⁹ This common understanding, according to Shaffer et al. ‘allows actors ... to know what the WTO law is without formal amendment of the treaty or an Appellate Body decision’.¹³⁰⁰ However, it bears recalling that such understanding did not prevent the US and EU from challenging each other’s R&D subsidies in *EU – Large Civil Aircraft* and *US – Large Civil Aircraft*. The social understanding provides no guarantee that the former non-actionable subsidies will not face legal challenges in the future. This uncertainty may have a chilling effect on the use of such subsidies.

The second question requires consideration of the scope and content of Article 8. Our analysis in the preceding chapter suggests that the scope of Article 8 is too narrow to shield renewable energy subsidies from legal action under the SCM Agreement. In principle, two of the three categories of non-actionable subsidies under Article 8 are relevant to renewable energy subsidies: R&D and ‘environmental’ subsidies. The non-actionability of R&D subsidies is crucial given the much-needed public support to renewable energy R&D. Innovation and adaptation of new renewable energy technologies are essential to bring the cost of renewable energy technologies down and address the intermittency problem. However, the exemption in Article 8.2(a) covers only up to 75 percent of the costs of pre-market research. The provision excludes R&D subsidies beyond the pre-competitive development stage, including for the acquisition and adaptation of existing renewable energy technologies. It also limits the non-actionability of R&D subsidies to only five types of R&D costs (see *section 4.5.3.1.3*).

The exemption for ‘environmental’ subsidies has even more limited scope of application. The chapeau of Article 8.2(c) expressly limits the scope of the provision to ‘assistance to promote adaptation of existing facilities to new environmental requirements’. This limitation implies that renewable energy subsidies become non-actionable only where there are legally binding renewable energy targets. Countries that subsidize renewable energy technologies without setting

¹²⁹⁸ *ibid.*

¹²⁹⁹ *ibid.*

¹³⁰⁰ *ibid.*

mandatory targets cannot find shelter for their subsidies in Article 8.2(c).¹³⁰¹ Even where there are such mandates, renewable energy subsidies to new facilities do not qualify as non-actionable. The exemption applies only to ‘existing facilities’ – those that have been in operation for at least two years at the time when the renewable energy mandate entered into force.¹³⁰² In contrast, governments often subsidize renewables to attract new facilities. It also bears noting that the renewable energy industry is relatively new in many jurisdictions.

Subsidies to existing facilities also need to be one-time non-recurring subsidies to fall within the exemption.¹³⁰³ This requirement rules out most renewable energy subsidies such as feed-in tariffs, tenders and tax incentives. Perhaps the only forms of renewable energy subsidies that may meet this requirement are grants, rebates and a one-off tax credit for purchasing renewable energy generation equipment. However, even such subsidies fall within the ambit of Article 8.2(c) only if they meet the following three vague and arbitrary conditions. First, cover less than 20 percent of the costs of the equipment (excluding installation and operation costs). It bears noting that the SCM Agreement gives no justification for this restrictive 20 percent cost threshold.¹³⁰⁴ Second, directed at the beneficiaries’ planned pollution reduction. This condition completely rules out production subsidies to renewable energy equipment manufacturers. Such subsidies are not aimed at reducing the pollution that the manufacturers themselves caused.¹³⁰⁵ Third, available to all firms that can use the subsidized renewable energy generation equipment. The problem with this requirement is that if the subsidy in question is available to all firms, it would not be subject to

¹³⁰¹ See Mark Wu, ‘Re-Examining “Green Light” Subsidies in the Wake of New Green Industrial Policies’ (International Centre for Trade and Sustainable Development 2015) Think Piece for E15 Expert Group on Reinvigorating Manufacturing: New Industrial Policy and the Trade System, at 8.

¹³⁰² Footnote 33 to Art 8.2(c), SCM Agreement.

¹³⁰³ Art 8.2(c)(i), *ibid.*

¹³⁰⁴ On the arbitrariness of the 20 percent limitation set out in Article 8.2(c)(ii), see Howse, ‘Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis’ (n 1198) (asking ‘On what principled basis could such a limitation be justified?’), at 20; Hyung-Jin Kim, ‘Reflections on the Green Light Subsidy for Environmental Purposes’ (1999) 33 *Journal of World Trade* 167 (asking ‘why the threshold is 20 percent instead of, for example, 10 percent or 30 percent’), at 173.

¹³⁰⁵ This requirement suggests that the environmental exemption in Article 8.2(c) is more suited to subsidies to energy efficiency technologies than to renewable energy technologies. See Kenina Lee, ‘Inherent Conflict between WTO Law and a Sustainable Future-Evaluating the Consistency of Canadian and Chinese Renewable Energy Policies with WTO Trade Law’ (2011) 24 *Georgetown International Environmental Law Review* 57, at 88.

the SCM disciplines in the first place – because of the specificity requirement.¹³⁰⁶ As such, this requirement renders the non-actionability of ‘environmental’ subsidies meaningless.

The above points illustrate the inherent limitations of Article 8 in providing any meaningful shelter for renewable energy subsidies. Only a limited number of renewable energy subsidies may meet the numerous vague requirements enshrined therein. In fact, Article 8 would not have saved any of the renewable energy subsidies that have been the subject of multilateral and unilateral actions. It follows that any initiative to create policy space for renewable energy subsidies under the SCM Agreement needs to go far beyond merely reinstating or resurrecting Article 8.¹³⁰⁷ We will consider expanding the reach of Article 8 well beyond its original formulation in the next chapter as one of the options to green the SCM Agreement.

5.3.1.3.2 S&D Provisions: Sufficient?

The SCM Agreement provides some exemptions from the SCM disciplines for LDCs and developing countries. However, as we have seen in *section 4.5.3.3* of the previous chapter, most of these exemptions were transition periods and have already expired.¹³⁰⁸ Those that remain applicable are subject to several conditions that undermine their utility. Two S&D exemptions are worth considering here. First, the exemption for all LDCs and developing countries with per capita income below US\$1000 from the prohibition on export subsidies. The renewable energy export subsidies of these countries are, thus, free from scrutiny under Article 3.1(a). Second, the

¹³⁰⁶ On the self-defeating role of the general availability requirement in Article 8.2(c)(v), see Kim (n 1304), at 172.

¹³⁰⁷ There is a broad agreement among experts on this point, see Charnovitz, ‘Green Subsidies and the WTO’ (n 49) (noting ‘a simple reinstatement of Article 8 would not be enough’), at 66; Cosbey and Mavroidis (n 51) (concluding that ‘re-instating this provision is not the solution’), at 42; Howse, ‘Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis’ (n 1198) (calling for new approach to non-actionability), at 21; Bigdeli, ‘The Expired Non-Actionable Subsidies and the Lingered Question of “Green Space”’ (n 45) (arguing that renewable energy subsidies were mostly left outside the scope of Article 8); Wu, ‘Re-Examining “Green Light” Subsidies in the Wake of New Green Industrial Policies’ (n 1301) (arguing that ‘the scope of the non-actionable category must be broadened beyond the original Article 8’), at 9. Only a few commentators argued for the reinstatement of Article 8 without emphasizing the need for modification. See Paolo Davide Farah and Elena Cima, ‘World Trade Organization, Renewable Energy Subsidies and the Case of Feed-In Tariffs: Time for Reform Toward Sustainable Development?’ (2015) 27 *Georgetown International Environmental Law Review* 5, at 536.

¹³⁰⁸ It bears recalling that Indonesia invoked the S&D exemption contained in Article 27.3 for local content subsidies before the expiry of the provision. See *Indonesia — Autos* (n 1224).

exemption for all developing countries from claims of serious prejudice.¹³⁰⁹ It bears recalling that serious prejudice is one of the three forms of adverse effects that render specific subsidies actionable within the meaning of Article 5. This exemption provides legal shelter for developing country renewable energy subsidies that cause serious prejudice to the interest of other Members. However, the renewable energy subsidies of developing countries that cause injury or nullification or impairment of benefits remain actionable under the SCM Agreement.

Of some importance here is also the *Doha Decision on Implementation-related Issues and Concerns*. This decision calls upon the WTO membership to exercise due restraint in challenging developing country subsidies that have legitimate development goals, until the conclusion of the Doha Round negotiations on the SCM disciplines.¹³¹⁰ The inclusion of environmental subsidies in the illustrative list of ‘developmental subsidies’ suggests that the due restraint also applies to renewable energy subsidies. However, the multilateral and unilateral actions against the renewable energy subsidies of developing countries illustrate the ineffectiveness of the decision in providing legal shelter for renewable energy subsidies.¹³¹¹ The Doha Round negotiations on the SCM disciplines were supposed to create/expand the developmental policy space for developing countries under the SCM Agreement, but the negotiations are yet to bear any fruit.

5.3.1.3.3 GATT Article XX: Applicable?

Article XX is the most potent tool the multilateral trading system has to strike a balance between trade and non-trade concerns such as the protection of the environment.¹³¹² It offers an exhaustive list of grounds WTO Members may invoke to justify otherwise prohibited measures. This section

¹³⁰⁹ See Art 27.9, SCM Agreement (and the discussion in *section 4.5.3.3.3* of this thesis).

¹³¹⁰ See para 10.2, Implementation-Related Issues and Concerns: Decision of 14 November 2001, WT/MIN(01)/17 (and the discussion in *section 4.5.3.1.3.2* of this thesis).

¹³¹¹ Charnovitz, ‘Green Subsidies and the WTO’ (n 49) seems to suggest (albeit in a footnote) that this decision has been effective because only local content subsidies have been challenges so far (see footnote 92). However, this argument ignores the fact that the renewable energy subsidies of developing countries (especially that of China) have been the subject of several unilateral countervailing duty actions.

¹³¹² Matsushita et al. observed that the jurisprudence has overturned ‘Article XX into an adequate tool for a balanced approach to the trade and environment controversy’. See Matsushita and others (n 919), at 731. Rubini, quite rightly, describes it as ‘a crucial provision for the functioning of the GATT with a distinct normative value’. See Rubini, ‘Ain’t Wastin’ Time No More’ (n 51), at 560 (*italics in the original*).

considers whether Article XX applies to the SCM Agreement and, if it was applicable, whether it would provide adequate policy space for the subsidization of renewables.

The WTO adjudicatory bodies have not yet ruled on this specific question, but the issue has become the subject of intense debate due partly to recent Appellate Body findings on the possibility of using Article XX to justify measures inconsistent with other WTO Agreements. Equally critical factors drawing attention to this question are growing demands for policy space fueled by the proliferation of trade disputes over renewable energy subsidies, the absence of an express exemption under the SCM Agreement and lack of progress in trade negotiations.

Before exploring the debate, it is worth examining the existing case law on the cross-application of Article XX. The Appellate Body has confirmed the applicability of Article XX beyond the GATT itself first in *China – Publications and Audiovisual Products* and then in *China – Raw Materials* and *China – Rare Earths*. In these three disputes, China invoked Article XX to justify measures that were inconsistent with various provisions of its *WTO Accession Protocol*. In the first dispute, the Appellate Body found that the introductory clause of paragraph 5.1 of the *Accession Protocol*, i.e. ‘right to regulate trade in a manner consistent with the WTO Agreement’, allows China to invoke Article XX.¹³¹³ The Appellate Body reached this conclusion despite the absence of an express reference to Article XX in paragraph 5.1. In *China – Raw Materials*, the explicit commitment to eliminate export duties enshrined in paragraph 11.3 of the *Accession Protocol* and the lack of any textual reference to Article XX in this paragraph led the Appellate Body to reach a different conclusion.¹³¹⁴ It rejected China’s argument that Article XX is available to justify a breach of paragraph 11.3 of its *Accession Protocol*. This finding gave the impression that an express reference to Article XX is necessary for the cross-application of Article XX.¹³¹⁵ However, the Appellate Body subsequently clarified in *China – Rare Earths* that

¹³¹³ See *Appellate Body Report, China – Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products (China – Publications and Audiovisual Products) WT/DS363/AB/R, adopted 19 January 2010*, para 233.

¹³¹⁴ See *Appellate Body Reports, China – Measures Related to the Exportation of Various Raw Materials (China – Raw Materials) WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R, adopted 22 February 2012*, para 306.

¹³¹⁵ See, e.g., Danielle Spiegel Feld and Stephanie Switzer, ‘Whither Article XX? Regulatory Autonomy Under Non-GATT Agreements After China—Raw Materials’ (2012) 38 *Yale Journal of International Law Online* 16

this was not the case. It explained that its conclusion in *China – Raw Materials* was not based ‘solely on the absence of textual references to Article XX’ in paragraph 11.3 of the *Accession Protocol*.¹³¹⁶ Indeed, its analysis in that dispute involved not only the text of paragraph 11.3, but also the context provided by other relevant provisions of the *Accession Protocol* and the GATT: ‘the Appellate Body examined a number of textual and contextual elements and reached its conclusion on the basis of a holistic analysis of all elements’.¹³¹⁷ In *China – Rare Earths*, the Appellate Body explicitly acknowledged that ‘exceptions in one covered agreement, such as Article XX of the GATT 1994, may be invoked to justify a breach of an obligation set forth elsewhere than in the GATT 1994’ even where there is no ‘express language identifying the relationship between specific terms and provisions’.¹³¹⁸ China invoked Article XX in this dispute relying upon paragraph 1.2 of its *Accession Protocol*, which makes the *Accession Protocol* an integral part of the WTO Agreement, and hence part of the ‘single undertaking’. However, the Appellate Body found that the mere fact that the *Accession Protocol* and the GATT constitute ‘a single package of rights and obligations’ does not in and of itself mean that China may invoke the general exceptions in Article XX to justify a breach of an individual provision of the *Accession Protocol*.¹³¹⁹ According to the Appellate Body, such questions require ‘a thorough analysis of the relevant provisions on the basis of the customary rules of treaty interpretation and the circumstances of the dispute’.¹³²⁰ In sum, it was of the view that establishing the availability of Article XX to justify measures inconsistent with other WTO Agreements requires ‘a careful analysis of the relevant provisions at issue, their proper context, as well as the nature of the measure at issue’ – not just the existence or otherwise of express references to Article XX.¹³²¹ The question is, therefore, whether the text and context of the SCM Agreement support the application of Article XX to subsidies inconsistent with the SCM disciplines.

(concluding that ‘post-*Raw Materials* it seems highly doubtful that the Appellate Body will allow recourse to Article XX of the GATT where there is no specific textual basis for doing so’), at 27.

¹³¹⁶ See *Appellate Body Reports, China – Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum (China – Rare Earths) WT/DS431/AB/R-WT/DS433/AB/R, adopted 29 August 2014*, para 5.63.

¹³¹⁷ See *ibid.*, para 5.63 and 5.65.

¹³¹⁸ See *ibid.*, para 5.56.

¹³¹⁹ See *ibid.*, para 5.53.

¹³²⁰ See *ibid.*, para 5.68.

¹³²¹ See *ibid.*, para 5.64.

Those on both sides of the debate recognize the importance of applying Article XX to the SCM Agreement but disagree on the existence of a legal basis to do so. The proponents advance several arguments in support of their contention that the SCM Agreement is subject to the general exceptions contained in Article XX. First, the SCM Agreement does not set out entirely new disciplines, but rather elaborates on and interprets the GATT disciplines on subsidies (Article XVI) and countervailing duties (Article VI).¹³²² Its objective is to supplement but not supplant the GATT disciplines. Both the SCM Agreement and the GATT disciplines apply cumulatively and simultaneously - the former prevailing (as *lex specialis*) in case of conflict between the two.¹³²³ This direct connection between the two agreements is taken to imply that Article XX applies to the SCM Agreement since it applies to Articles VI and XVI.¹³²⁴ Second, the SCM Agreement and the GATT disciplines must be read cumulatively and harmoniously as they represent a 'single undertaking'.¹³²⁵ The thrust of this rather general argument is that all WTO agreements are parts of an 'integrated legal system' and hence the principle of effective interpretation requires their harmonious interpretation and application.¹³²⁶ The corollary of this interpretation is that all the agreements in Annex 1A of the Marrakesh Agreement, including the SCM Agreement, are subject to the general exceptions in Article XX. Third, not applying Article XX to the SCM Agreement creates 'unjustified inconsistency' and 'apparently illogical results'.¹³²⁷ It is now well established that Article XX is available to justify trade-restrictive measures such as import bans

¹³²² See, e.g., Rubini, 'Ain't Wastin' Time No More' (n 51), at 562; IISD, CELA, and Ecojustice, 'Amicus Curiae Submission: Canada - Certain Measures Affecting the Renewable Energy Generation Sector (DS412)' (International Institute for Sustainable Development 2012), at 7-8; Flett (n 803), at 94-95.

¹³²³ See General Interpretative Note to Annex 1A of the Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) (stating that in the event of conflict between the GATT and another agreement in Annex 1A the provision of the other agreement shall prevail to the extent of the conflict). On the interplay between the SCM Agreement and GATT Article VI, see *Brazil - Desiccated Coconut* (n 757).

¹³²⁴ See Bradley J Condon and Tapen Sinha, *The Role of Climate Change in Global Economic Governance* (Oxford University Press 2013) (asserting that 'It would be odd if GATT Article XX could be applied to GATT Articles VI and XVI, but not to the SCM Agreement itself, absent evidence of a contrary intention'), at 63.

¹³²⁵ See *ibid*; Christopher Tran, 'Using GATT, Art XX to Justify Climate Change Measures in Claims under the WTO Agreements' (2010) 27 *Environmental and Planning Law Journal* 346, at 356; Flett (n 803), at 94-95; Leal-Arcas and Filis (n 47); Rubini, 'Ain't Wastin' Time No More' (n 51); IISD, CELA, and Ecojustice (n 1322). For the principle of 'single undertaking', see Marrakesh Agreement.

¹³²⁶ This argument applies to all the *lex specialis* agreements contained in Annex 1A of the Agreement Establishing the WTO. On the debate over the application of GATT Article XX to the TBT Agreement, see Gabrielle Marceau and Joel P Trachtman, 'The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade' (2002) 36 *Journal of World Trade* 811.

¹³²⁷ See Howse, 'Securing Policy Space for Clean Energy under the SCM: Alternative Approaches' (n 51), at 17; Rubini, 'Ain't Wastin' Time No More' (n 51), at 563.

and quotas to the extent that they fall within one of the paragraphs and meet the conditions set out in the chapeau.¹³²⁸ As Robert Howse put it, this implies that ‘WTO members would have more policy space to enact much more obviously and severely trade-distorting measures, such as import bans and quotas, than what are generally understood to be less distortive measures, namely domestic subsidies’.¹³²⁹ The absurdity of making the general exceptions available to justify measures as trade-restrictive as import bans but not to subsidies calls for the application of Article XX to the SCM Agreement. Finally, in light of the direct link between the SCM Agreement and the GATT disciplines, proponents read the case law as supporting the application of Article XX to the SCM Agreement.¹³³⁰

Those who question the applicability of Article XX to the SCM Agreement contend that neither the text nor the context of the SCM Agreement supports such an interpretation.¹³³¹ The chapeau of Article XX expressly limits the scope of its application to the GATT.¹³³² Article XX may apply to another agreement only insofar as that other agreement directly or indirectly refers to it or the exceptions therein. However, no such reference whatsoever exists in the SCM Agreement. Indeed, two considerations suggest that the lack of reference to Article XX in the SCM Agreement was deliberate. First, there are 22 cross-references to the GATT in the SCM Agreement, but none to Article XX.¹³³³ Second, if the drafters intended to apply Article XX to the SCM Agreement, they would have done so expressly - as they did in the context of other WTO agreements.¹³³⁴ Instead of simply referring to the exceptions in Article XX, they created specific exceptions for subsidies in the now-defunct Article 8 of the SCM Agreement. According to Cosbey and Mavroidis, the negotiating documents ‘strongly support the conclusion that Article 8 was not thought of as an add-on to Article XX, but rather as the only provision dealing with

¹³²⁸ For a typical example, see *Brazil- Retreaded Tyres* (n 114).

¹³²⁹ Robert Howse, ‘Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis’ (International Institute for Sustainable Development 2010), at 17.

¹³³⁰ For this line of argument, see *Leal-Arcas and Filis* (n 47), at 47-48; *IISD, CELA, and Ecojustice* (n 1322), at 8.

¹³³¹ See in particular *Cosbey and Mavroidis* (n 51), at 34-35.

¹³³² The Appellate Body explained the obvious point that the phrase ‘nothing in this agreement’ in the chapeau of Article XX refers to the GATT itself. See *US – Gasoline* (n 108), at 24.

¹³³³ The phrase ‘except as provided in the Agreement on Agriculture’ in the introductory clause of Article 3.1 of the SCM Agreement also imply that the only exceptions applicable to prohibited subsidies are those contained in the Agreement on Agriculture. For this line of argument, see *Condon and Sinha* (n 1324), at 64.

¹³³⁴ An explicit reference to Article XX exists in the TRIMs (Article 3) and the SPS Agreement (preamble).

subsidies not bound by the disciplines embedded in the SCM Agreement'.¹³³⁵ Moreover, the SCM Agreement and the GATT have different logic and structure.¹³³⁶ The SCM Agreement (originally) attempted to strike a balance between trade and non-trade concerns by categorizing subsidies into prohibited, actionable and non-actionable subsidies.¹³³⁷ These three categories represent a carefully negotiated balance between allowing the use of subsidies for legitimate public policy purposes and limiting their adverse effects on international trade. It follows that applying the general exceptions in Article XX to the SCM Agreement would 'undermine the inner balance of right and obligations' of the agreement – contrary to the intention of the drafters.

Both sides of the debate have compelling arguments. The absence of any express language in the SCM Agreement makes the application of Article XX to the SCM Agreement relatively difficult. Indeed, the finding in *China – Rare Earths* that an express language is not mandatory for the cross-application of Article XX has left the door wide open. Here, the close relationship between the SCM Agreement and GATT Articles VI and XVI is perhaps the most persuasive legal argument in favour of applying Article XX to subsidies inconsistent with the SCM Agreement.¹³³⁸ However, a close relationship is not enough in and of itself to justify the cross-application of Article XX. The scope of the SCM Agreement goes far beyond the GATT Articles.¹³³⁹ Its balanced structure and the expired non-actionable category suggests that the drafters did not envisage Article XX to apply to actionable and prohibited subsidies. The negotiating history of the non-actionable category (recounted in the preceding chapter of this thesis) gives no indication that Article 8 was conceived as an addition to Article XX. Nor there was any mention of Article XX in the SCM Committee discussion over the extension of Article 8.

¹³³⁵ See Cosby and Mavroidis (n 51), at 35. However, Rubini, 'Ain't Wastin' Time No More' (n 51) disagrees with this conclusion. He is of the view that the 'negotiating history does not offer clear indications that the non-actionable category was supposed to be the only avenue of justification of certain "good" subsidies', at 563.

¹³³⁶ See Rubini, 'Ain't Wastin' Time No More' (n 51), at 562; Christiane R Conrad, *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals* (Cambridge University Press 2011), at 50.

¹³³⁷ The traffic light approach was borne out efforts to strike a balance between trade and non-trade concerns.

¹³³⁸ The incoherence argument is equally persuasive but it lacks textual support. See Howse, 'Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis' (n 1198), at 17.

¹³³⁹ It is also noteworthy that unlike the title of its predecessor (the *Subsidies Code*) and the Antidumping Agreement, the title of the SCM Agreement does not indicate that it is an interpretation of the GATT Articles.

It bears recalling, however, that the adjudicatory bodies have not addressed this thorny issue as of yet. No defendant has invoked Article XX to justify an alleged inconsistency with the SCM Agreement.¹³⁴⁰ Perhaps this reflects the understanding among WTO Members regarding the non-applicability of Article XX to the SCM Agreement. Interestingly, however, in *Brazil – Taxation* the Panel went out of its way to note that ‘Brazil has not raised any Article XX defence with regard to alleged inconsistencies with the SCM Agreement’.¹³⁴¹ Is the Panel saying Brazil could invoke Article XX to justify measures inconsistent with the SCM Agreement? In any case, as Marceau and Trachtman remarked in the context of the TBT Agreement, it would take a ‘heroic approach to interpretation’ to apply Article XX to the SCM Agreement.¹³⁴²

Having established that Article XX is unlikely to apply to the SCM Agreement, we now consider whether it is worth extending its application to the SCM Agreement - through legal reform. Does Article XX provide enough ‘green’ policy space for the subsidization of renewables? Article XX contains an exhaustive list of ten public policy exceptions. The five exceptions that have some relevance to renewable energy subsidies are set forth below, but we will focus on the two most directly related to environmental protection, namely Article XX(b) and (g).

Article XX
General Exceptions
<p>Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:</p>
<p>(a) necessary to protect public morals;</p> <p>(b) necessary to protect human, animal or plant life or health;</p> <p>(d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trademarks and copyrights, and the prevention of deceptive practices;</p>

¹³⁴⁰ This includes Canada in *Canada – Renewable Energy/FIT*. Note, however, that neither the Panel nor the Appellate Body would have addressed the issue in this dispute as they did not find inconsistency with the SCM Agreement. India invoked Article XX in *India – Solar Cells*, but to justify inconsistency with GATT Article III:4 and the TRIMs Agreement - the US dropped its claim under the SCM Agreement at the consultations stage.

¹³⁴¹ *Brazil – Taxation* (n 1051), para 7.509.

¹³⁴² See Marceau and Trachtman (n 1326), at 874.

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

(j) essential to the acquisition or distribution of products in general or local short supply; Provided that any such measures shall be consistent with the principle that all contracting parties are entitled to an equitable share of the international supply of such products, and that any such measures, which are inconsistent with the other provisions of the Agreement shall be discontinued as soon as the conditions giving rise to them have ceased to exist.¹³⁴³

Article XX(b) applies to measures ‘necessary to protect human, animal or plant life or health’. The Appellate Body has found in *Brazil – Tyres* that this provision provides shelter for measures taken to tackle climate change.¹³⁴⁴ It is now well established that the rapid expansion of renewable energy is necessary to combat climate change. One challenge here is establishing whether the subsidies are necessary within the meaning of Article XX(b). However, the Appellate Body has already observed in *Canada – Renewable Energy/FIT* that the double externality problem facing the renewable energy sector calls for government support or intervention.¹³⁴⁵ Article XX(g) applies to measures ‘relating to the conservation of exhaustible natural resources’. In *US – Gasoline*, the Appellate Body confirmed that clean air qualifies as an ‘exhaustible natural resource’ within the meaning of XX(g).¹³⁴⁶ Renewables reduce greenhouse gas emissions and thereby improve air quality. This subparagraph may also justify renewable energy subsidies as measures relating to the conservation of exhaustible fossil fuels.

Most renewable energy subsidies with clear environmental objectives are likely to qualify for provisional justification under both or either of these two subparagraphs. However, the subsidies must not only fall under one of these subparagraphs but also meet the requirements of the chapeau to be justified under Article XX.¹³⁴⁷ The chapeau requires that the subsidies must not ‘constitute a means of arbitrary or unjustifiable discrimination’ or ‘a disguised restriction on international trade’. This ‘tightly guarded gateway’ serves to ensure that countries use the

¹³⁴³ Art XX, GATT 1994.

¹³⁴⁴ See *Brazil- Retreaded Tyres* (n 114), para 151.

¹³⁴⁵ See *Canada – Renewable Energy/FIT* (n 40), para 5.189.

¹³⁴⁶ See *US – Gasoline* (n 108), at 18.

¹³⁴⁷ The Appellate Body established this so-called two-tiered test in *US - Gasoline*. See *ibid*, at 22.

exceptions in good faith to protect legitimate interests, not as a means to circumvent their obligations.¹³⁴⁸ Compliance with the chapeau has been the major challenge for most countries that sought to justify their measures under Article XX. And it is likely to be the sticking point for renewable energy subsidies. It is necessary to distinguish here between prohibited and actionable subsidies. Local content requirements, for example, are highly unlikely to satisfy the chapeau requirements. No country has yet invoked subparagraph (b) and (g) of Article XX to justify local content requirements, but India in *India – Solar Cells* and Brazil in *Brazil Taxation* unsuccessfully invoked subparagraphs (d) and (j) and (a), respectively.¹³⁴⁹ Their inherently discriminatory nature makes local content requirements highly unlikely to pass the chapeau's discrimination test. In contrast, most actionable renewable energy subsidies may find shelter in Article XX either as measures necessary for the protection of human health or relating to the conservation of exhaustible natural resources such as clean air and fossil fuels.

5.3.2 De Facto Policy Space

The impact of the SCM Agreement on the sustainable energy transition depends as much on its implementation and enforcement as the text of the agreement itself. Although the SCM disciplines do not provide enough policy space for the subsidization of renewables, they pose relatively less threat to the transition if they are not actively enforced. At the same time, the lack of enforcement against fossil fuel subsidies undermines the effectiveness of the disciplines in discouraging the subsidization of fossil fuels. The worst scenario from the energy transition perspective is one where Members use the SCM disciplines to challenge renewable energy subsidies but not fossil fuel subsidies. Unfortunately, this is the scenario we are facing.

Members generally tend to comply with their commitments under WTO Agreements without facing legal challenges. However, as Bown puts it, this has not been the case universally:

¹³⁴⁸ See *Brazil- Retreaded Tyres* (n 114), para 215.

¹³⁴⁹ Both India and Brazil invoked Article XX to justify the breach of GATT Article III and Article 2 of the TRIMs Agreement – not the SCM Agreement. See *India - Solar Cells* (n 336); *Brazil – Taxation* (n 1051).

At some points in time and over some sets of commitments, the mere existence of the agreement has not been enough – member countries have found the actual process of a formal trade dispute necessary to enforce the bargain.¹³⁵⁰

There are two adjudicatory mechanisms under the SCM Agreement for challenging energy subsidies. Members may challenge fossil fuel and renewable energy subsidies either through the multilateral dispute settlement system or through unilateral countervailing action. *Section 5.3.2.1* will examine the nature and extent to which renewable energy and fossil fuel subsidies have faced such legal challenges. We have mentioned from the outset that only renewable energy subsidies have been the subject of legal challenges so far. The current pattern of energy subsidy disputes implies that Members have more *de facto* policy space for subsidizing fossil fuels than renewables. However, adjudication is not the only means of ensuring compliance. Non-adjudicatory compliance control mechanisms such as notification and surveillance of subsidies in the SCM Committee and the TPRM are equally relevant in putting pressure on Members to comply with their commitments under the SCM Agreement.¹³⁵¹ In the words of a recent WTO report issued on the twentieth anniversary of the organization:

Enhanced surveillance and regular monitoring of trade policies and practices have significantly contributed to global efforts at countering the potential threat of protectionist pressures and at ensuring compliance with trade commitments. Transparency requirements – and the knowledge that WTO members stand on watchful guard – create a powerful incentive for members to abide by their commitments.¹³⁵²

The question here is whether Members use such mechanisms to challenge energy subsidies. In *section 5.3.2.2*, we will consider whether and to what extent Members use the transparency and surveillance mechanisms of the SCM Agreement and the TPRM to challenge the subsidization of renewables and fossil fuels. This section will demonstrate that while renewable energy subsidies,

¹³⁵⁰ See Bown (n 1088), at 45.

¹³⁵¹ Enforcement (in the broad sense) includes all the actions undertaken by States to induce or compel States to achieve compliance with their obligations. See Rüdiger Wolfrum, *Means of Ensuring Compliance with and Enforcement of International Environmental Law* (Collected Courses of the Hague Academy of International Law 1998), at 30. On the enforcement role of non-adjudicatory compliance control mechanisms, see Thomas Conzelmann, ‘Beyond the Carrot and the Stick: (How) Do State Reporting Procedures Matter?’ (Paper for presentation at ECPR Uppsala Joint Sessions, Uppsala, 13 April 2004) (presenting the TPRM as a soft compliance mechanism); Asif H Qureshi, ‘The New GATT Trade Policy Review Mechanism: An Exercise in Transparency or Enforcement’ (1990) 24 *Journal of World Trade* 147 (explaining the enforcement function of the TPRM).

¹³⁵² See WTO, ‘The WTO at Twenty Challenges and Achievements’ (World Trade Organization 2015), at 51.

once again, feature prominently in both oversight mechanisms, there is a growing attempt to use the TPRM in particular to challenge the subsidization of fossil fuels.

5.3.2.1 Legal Actions Against Energy Subsidies

We have repeatedly noted in this thesis that while fossil fuel subsidies face no such challenges, renewable energy subsidies have become the subject of an increasing number of dispute settlement and countervailing duty actions over the past few years. The analysis in *section 3.5.1* of this chapter suggests that this has much to do with the size of the *de jure* policy space under the SCM Agreement for the subsidization of fossil fuels and renewables. To further understand why the SCM Agreement barks only against renewable energy subsidies and the extent of its bite, it is necessary to examine the renewable energy support measures that have been the target of legal actions and the rationales underlying these actions. To this end, *section 5.3.2.1.1* will examine the dispute settlement and countervailing duty actions against renewable energy subsidies. Since there are no actual dispute settlement or countervailing duty actions targeted at fossil fuel subsidies, *section 5.3.2.1.2* will consider multilateral and unilateral legal actions in which fossil fuel subsidies featured as indirect subsidies to energy-intensive industries.

5.3.2.1.1 Legal Actions Against Renewable Energy Subsidies

5.3.2.1.1.1 Multilateral Actions

Nine renewable energy subsidy cases have been brought to the dispute settlement system since Japan lodged the first ever such case in 2010. Eight of these cases involve various forms of renewable energy subsidies conditioned upon local content requirements (see *table 5.2* below). The only formal dispute involving unconditional subsidies concerns countervailing duties imposed by the US against subsidized solar panel and wind power equipment imports from China (i.e. *US – Countervailing Measures (China)*). Five of the nine cases have moved beyond the consultations stage, four reaching the Appellate Body and one recently moving to the panel stage (i.e. *US – Renewable Energy (India)*). Of the remaining four cases, *China – Wind Power Equipment* has been resolved at the consultations stage with the withdrawal of the subsidy.

Table 5.2: Renewable Energy Subsidy Disputes (as of 31 December 2018)

Dispute	Renewable energy sources	Types of subsidies	Articles cited
<i>Canada - Renewable Energy (DS412)</i>	Wind power and solar	FIT+LCRs	SCM Article 3.1(b), GATT Article III:4, TRIMs Article 2.1
<i>Canada – FIT (DS426)</i>	PV		
<i>China – Wind Power Equipment (DS419)</i>	Wind power	Grants + LCRs	SCM Articles 3, 25 GATT Article XVI:1, Accession Protocol
<i>US – Countervailing Measures (China) (DS437)</i>	Wind power and Solar PV	Loans, provision of goods, grants, tax incentive	SCM Articles 11, 12, 30, 32, GATT Articles VI, XXIII
<i>EU and Certain Member States– Renewable Energy (DS452)</i>	Solar PV, biofuel and bioliquids	FIT+LCRs	SCM Article 3.1(b), GATT Article III:4, TRIMs Article 2.1
<i>India – Solar Cells (DS456)</i>	Solar PV	FIT+LCRs	GATT Article III:4, TRIMs Article 2.1
<i>EU and Certain Member States – Biodiesel (DS459)</i>	Biodiesel	Renewable energy mandate + LCRs, tax incentive + LCRs	SCM Articles 3.1(b), 5(b), 5(c), 6(a), GATT Article III:4, TRIMs Article 2.1
<i>US - Renewable Energy (India) (DS510)</i>	Solar PV, ethanol	RPS+LCRs, rebate +LCRs, Tax incentives +LCRs	SCM Agreement Articles 3.1(b), 5(a), 5(c), 6.3(a), and 6.3(c), GATT Article III:4, TRIMs Article 2.1
<i>US – Renewable Energy (China) (DS563)</i>	Solar PV	Tax incentive +LCRs, grants +LCRs	SCM Article 3.1(b), GATT Article III:4, TRIMs Article 2.1

Source: Compiled by the author

The disputes involve a limited number of countries with significant market size and renewable energy equipment manufacturing industries (see *table 5.3* below). Four countries, China, India, the EU and the US, have participated both as complainants and respondents.

Table 5.3: Renewable Energy Subsidy Disputes by Complainants and Respondents

Complainants	Respondents				
	Canada	China	European Union	India	United States
Argentina			x		
China			x		xx
European Union	x				
India					x
Japan	x				
United States		x		X	

Source: Compiled by the author

The overview (below) of these disputes indicates, first, that market access and political economy considerations were the driving forces behind most of the disputes. Second, the discriminatory measures, not the subsidies themselves, were the primary target of the disputes. Third, the tendency of countries to file countersuits. Almost half of the disputes were filed in response to dispute settlement or countervailing duty actions. Fourth, creating sufficient green policy space requires legal reform - not just a flexible interpretation of the existing rules.

5.3.2.1.1.1 Canada – Renewable Energy/FIT

At issue in these first-ever renewable energy subsidy disputes were local content requirements attached to the Ontario feed-in tariff program. The Ontario government launched the program in 2009 as part of its effort to increase the share of renewables in its electricity supply mix and thereby reduce its overreliance on fossil fuels. We have referred to these parallel disputes throughout this thesis and discussed the Appellate Body's analysis of the claims under the SCM Agreement earlier in this chapter. This section sets out to highlight some of the salient features and examine the implications of the jurisprudence that has emerged from these disputes.

The Ontario FIT program offers long-term above-market fixed prices for electricity from a range of renewable energy sources. However, renewable electricity generators benefit from the program only insofar as they source around 50 to 60 percent of the generation equipment from local (Ontarian) manufacturers. Neither Japan nor the EU export renewable electricity to Canada. The

target of their legal action was the local content requirements, not the FIT program itself. They both made this clear from the very outset.¹³⁵³ The question is why did Japan and then the EU challenge the Ontarian local content requirements? To be sure, both are home to some of the leading wind turbine and solar panel manufacturers in the world and thus have export interest in the Ontarian renewable energy generation equipment market.¹³⁵⁴ However, Ontario was neither the first nor the only jurisdiction with such requirements. Other jurisdictions including the neighbouring province of Quebec have had similar conditions for years. Reports suggest that the US\$7 billion deal between the Ontario government and the South Korean manufacturer Samsung to establish solar and wind energy plants in Ontario played a crucial role in enticing the complainants to initiate the dispute.¹³⁵⁵ Japan, in particular, saw this deal as a sign of its renewable energy equipment manufacturing companies losing ground in the industry.

Both Japan and the EU alleged that the local content requirements were inconsistent with Article 3.1(b) of the SCM Agreement, Article 2.1 of the TRIMs Agreement and GATT Article III:4.¹³⁵⁶ The claims under the GATT and the TRIMs Agreement were reasonably straightforward. Local content requirements explicitly discriminate against renewable energy generation equipment imports in favor of made-in-Ontario renewable energy generation equipment. Such a *de jure* discriminatory measure undoubtedly violates GATT Article III:4 and Article 2.1 of the TRIMs Agreement. As such, it came as no surprise that both the Panel and the Appellate Body easily found that the local content requirements were inconsistent with these provisions. The only

¹³⁵³ See *Panel Reports, Canada - Certain Measures Affecting the Renewable Energy Generation Sector (Canada-Renewable Energy)/Canada - Measures Relating to the Feed-in Tariff Program (Canada- Feed-In Tariff Program), WT/DS412/R/Add1, WT/DS426/Add1, Annex A-1, para 3 (Japan) and Annex A-2, para 1 (EU)*. The Panel also emphasized this point in one of its very first paragraphs. See *Canada-Renewable Energy/FIT* (n 888), para 7.7.

¹³⁵⁴ The EU, for example, mentioned its ‘substantial trade interest’ as one of its underlying reasons for initiating the dispute. See WTO, ‘Request to Join Consultations by the European Union, Canada – Certain Measures Affecting the Renewable Energy Generation Sector (Canada – Renewable Energy)’ (2010) WT/DS412/3.

¹³⁵⁵ As part of this agreement, Ontario committed to provide Samsung with subsidies in the form of preferential grid access, financial assistance, and land worth around \$110 million. See ICTSD, ‘Japan Challenges Canadian Renewable Energy Incentives at WTO’ (2010) 14 Bridges Weekly Trade News Digest 3. See also Luca Rubini, ‘“The Good, the Bad, and the Ugly.” Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies’ (2014) 48 Journal of World Trade 895, at 900; Bigdeli, ‘Clash of Rationalities: Revisiting The Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy’ (n 36), at 193.

¹³⁵⁶ In line with the sequence of their claims, both Japan and the EU argued that the SCM Agreement ‘deals most specifically and in detail with the measure at issue’. However, the Panel opted to start its analysis from the TRIMs Agreement/GATT for no good reason. See *Canada-Renewable Energy/FIT* (n 888), paras 7.69-7.70.

controversial issue that may arise concerning the inconsistency of local content requirements with the GATT and the TRIMs Agreement is whether they qualify for one of the exemptions contained therein. The two sets of relevant exceptions were GATT Articles III:8 and XX.

Canada opted not to invoke the latter for no apparent reason. Its entire defence strategy was based on the exemption in GATT Article III:8(a). This provision exempts certain government procurement measures from the national treatment obligation of Article III:4 (and thereby from Article 2.1 of the SCM Agreement).¹³⁵⁷ The Panel found that although the purchases of electricity under the FIT program qualify as ‘procurement’, the local content requirements fall outside the ambit of Article III:8(a) because the procurement was undertaken with a view to commercial resale.¹³⁵⁸ The Appellate Body upheld this finding, albeit with modified reasoning.¹³⁵⁹ It argued that Article III:8(a) did not cover the local content requirements not because the procurement was undertaken with a view to commercial resale, but rather because what the Ontario government procured was electricity while the products subject to the local content requirements were generation equipment.¹³⁶⁰ This finding has significant implications for local content requirements in the renewable energy sector. The Appellate Body seems to suggest that Article III:8(a) may provide legal shelter for local content requirements if the procured products and the products subject to the local content requirements are the same. Thus, for local content requirements to fall within the ambit of Article III:8(a), the Ontario government had to either purchase generation equipment under the FIT program or apply the local content requirements to the electricity it procures. However, governments introduce such conditions to encourage the domestic production of the generation equipment. They do not purchase the equipment except in a few jurisdictions where the government itself engages in renewable electricity generation. Nor do they apply the local content requirements to the electricity itself. Except in a few jurisdictions (e.g. in the EU), electricity imports are not yet matters of concern for governments to *de jure* restrict their renewable energy subsidies to domestically produced electricity.

¹³⁵⁷ Article III:8(a) reads: ‘The provisions of this Article shall not apply to laws, regulations or requirements governing the procurement by government agencies of products purchased for governmental purposes and not with a view to commercial resale or with a view to use in the production of goods for commercial sale’. GATT 1994.

¹³⁵⁸ See *Canada-Renewable Energy/FIT* (n 888), para 7.152.

¹³⁵⁹ See *Canada – Renewable Energy/FIT* (n 40), paras 5.75-5.85.

¹³⁶⁰ See *ibid*, para 5.84.

The most controversial findings in these disputes were those related to the claims under the SCM Agreement. As discussed at length earlier in this chapter, the Appellate Body found that the FIT program qualifies as a financial contribution in the sense of Article 1.1(a)(1)(iii), but was unable to finish its analysis as to whether the FIT program confers a ‘benefit’ within the meaning of Article 1.1(b). By not finishing its benefit analysis, the Appellate Body avoided the inevitable consequence of finding that the FIT program constitutes a prohibited subsidy under the SCM Agreement. The outcome was in favour of renewable energy subsidies. The Appellate Body saved the FIT program from the bite of the SCM disciplines by curving out a *de facto* policy space. The controversy lies in the benefit analysis that led to this outcome. Some commentators commend the Appellate Body for being ‘imaginative’ in a context of ‘legal draught’.¹³⁶¹ They applaud its effort to find shelter for subsidies with legitimate public policy goals:

At the time when WTO Members as law-makers so far remained idle over softening the existing subsidy regime where needed, the Appellate Body tried, through its interpretive authority to curve out some policy space for promotion of clean energy.¹³⁶²

Most others argue that the Appellate Body engaged in ‘legal acrobatics’ and created a ‘legal fiction’ to let the WTO save face.¹³⁶³ They view the findings as purely political devoid of legal basis.¹³⁶⁴ There is much truth in this criticism. The Appellate Body brought policy rationale into the SCM Agreement through the back door. The SCM Agreement provides no role for policy rationale in determining the existence of a ‘subsidy’. The only place where the SCM Agreement takes into account the policy rationale of subsidies was in determining their non-actionability. However, the non-actionable category is no longer applicable. The Appellate Body is well aware of this, and some suggest that this is the very reason behind its legal acrobatics:

¹³⁶¹ See Sherzod Shadikhodjaev, ‘First WTO Judicial Review of Climate Change Subsidy Issue’ (2013) 107 *American Journal of International Law* 864; Vincent Dalpé, ‘Canada-Feed-In Tariff: Are FITs Desirable, or Even Legal? A Case Comment’ (2015) 27 *Revue Québécoise de Droit International* 87, at 107; Vyoma Jha and Avidan Kent, ‘Keeping Up with the Changing Climate: The WTO’s Evolutive Approach in Response to the Trade and Climate Conundrum: A Comment on Canada – Certain Measures Affecting the Renewable Energy Sector’ (2014) 15 *The Journal of World Investment & Trade* 245, at 266-269.

¹³⁶² See Sherzod Shadikhodjaev, ‘Promotion of “Green” Electricity and International Dispute Settlement: Trade and Investment Issues’ (2016) 49 *The International Lawyer* 101, at 118.

¹³⁶³ See Cosbey and Mavroidis (n 51), at 12; Rubini, ‘The Good, the Bad, and the Ugly’ (n 1355), at 916.

¹³⁶⁴ See Coppens, *WTO Disciplines on Subsidies and Countervailing Measures* (n 744) (arguing that ‘the Appellate Body seems to have been guided by normative considerations ... rather than by legal reasoning’), at 455.

... the WTO adjudicating bodies felt that it was necessary to engage in legal acrobatics in order to avoid finding that a scheme aimed at promoting a public good—the underlying feed-in tariff (FIT) for renewable energy—was in fact a [prohibited] subsidy.¹³⁶⁵

... the Appellate Body's reasoning strains to reach what appears to be a preordained result motivated by a desire to exempt government support for renewable electricity from the disciplines of the SCM Agreement.¹³⁶⁶

The adjudicatory bodies laid the ground for the much-criticized benefit analysis from the outset. Although both Japan and the EU argued that the FIT program was first and foremost a 'price support' within the meaning of Article 1.1(a)(2), the Panel first examined whether the FIT program constitutes a financial contribution and then exercised judicial economy over the question whether the FIT program qualifies as a 'price support'. The Appellate Body upheld the exercise of judicial economy simply because the complainants' benefit argument was the same regardless of whether the measure constitutes a financial contribution or price support. However, the benefit analysis would not have been the same if the FIT program was considered as a 'price support' within the meaning of Article 1.1(a)(2). Considering a measure as a 'purchase of goods' offers much room for legal acrobatics than considering it as a 'price support'.

The pre-*Canada – Renewable Energy/FIT* jurisprudence for determining the existence of a 'benefit' under Article 1.1(b) was to examine whether the measure at issue has made the recipients better off than they otherwise would have been absent the measure.¹³⁶⁷ In *Canada – Renewable Energy/FIT*, instead of asking whether the FIT program has left the recipients better off than they would otherwise have been, the Appellate Body engaged in an extensive and overly activist benefit analysis. First, without any textual basis, it held that a benefit analysis under Article 1.1(b) must start with the definition of the relevant market. The only purpose of defining the relevant market from the outset is to narrow the market for the benefit comparison. Second, the Appellate Body then invented the requirement that the relevant market definition must take into account not only demand-side but also and supply-side substitutability. It borrowed the concept of supply-side substitutability from the determination of serious prejudice in Article 6 of

¹³⁶⁵ See Cosbey and Mavroidis (n 51).

¹³⁶⁶ See Rajib Pal, 'Has the Appellate Body's Decision in *Canada – Renewable Energy / Canada – Feed-in Tariff Program* Opened the Door for Production Subsidies?' (2014) 17 *Journal of International Economic Law* 125, at 126.

¹³⁶⁷ *Canada-Aircraft* (n 828), para 157.

the SCM Agreement where it helps determine the impact of subsidies to one product on another. However, the comparison in the benefit analysis is not between two products but between the situation with and without the government intervention. The only purpose of considering supply-side substitutability in the benefit analysis is to narrow the relevant market. Finally, the Appellate Body created the distinction between government intervention in new and existing markets. Such distinction finds no support in the text or context of the SCM Agreement. Whether the measure at issue created a new market or supported some players in a market that already exist makes little difference to the question of whether it has made the recipients better off than they would have otherwise been. The fact that the FIT program has created a market that would not otherwise exist demonstrates that it has made the recipients better off. However, the Appellate Body found that the FIT program confers a benefit not merely when it creates a market but when it offers more than adequate remuneration besides creating a market.

This finding makes it extremely difficult to find an appropriate benchmark for the benefit analysis and thereby reduces the likelihood that government support measures may qualify as subsidies within the meaning of Article 1.1 of the SCM Agreement. The Appellate Body, thus, created a *de facto* policy space under the SCM Agreement.¹³⁶⁸ However, the question is: is this policy space worth the heroic effort? Several considerations suggest a negative answer.

First, the contours of this *de facto* policy space are vague at best. The Appellate Body is yet to clarify what qualifies as a ‘more than adequate remuneration’ and the alternative benefit benchmarks it would use. It held that the price-setting methodology or price discovery mechanisms would help determine the excessiveness of the remuneration, but this is not yet tested in practice. It also appears that the scope of the policy space can only be determined on a case-by-case basis. This, in turn, leads to uncertainty.¹³⁶⁹ Second, in any case, this policy space would not save discriminatory renewable energy support measures from scrutiny under the GATT and the TRIMs Agreement. The Appellate Body’s effort in *Canada – Renewable*

¹³⁶⁸ Some refer to this *de facto* policy space as a ‘public goods exception’ or ‘exception for socially beneficial subsidies’, Jha and Kent (n 1361), at 265; Dalpé (n 1361), at 106. But, its scope not limited to such subsidies.

¹³⁶⁹ See Elizabeth Whitsitt, ‘A Modest Victory at the WTO for Ontario’s FIT Program’ (2014) 20 UC Davis Journal of International Law & Policy 75 (arguing that the new approach creates uncertainty in the application and result of the benefit analysis), at 96.

Energy/FIT was in vain, given that it found the local content requirements inconsistent with the GATT and the TRIMs Agreement. Third, the *de facto* policy space will be ‘short-lived’. Renewable energy markets are now up and running in most jurisdictions, and the new versus existing market dichotomy is unlikely to save future renewable energy support measures from scrutiny under the SCM Agreement. Fourth, the Appellate Body’s finding masks but not resolve the problem. The problem that the Appellate Body tried hard to address was the lack of environmental exemption under the SCM Agreement. However, addressing this problem requires more than legal acrobatics.¹³⁷⁰ Fifth, the Appellate Body’s acrobatics sets a dangerous precedent and may prove to be counterproductive. The scope of the policy space it has carved out is not specific to renewable energy subsidies or subsidies with legitimate public policy goals. It applies to any subsidy that creates markets (irrespective of its policy rationale). Finally, the above considerations suggest that it was a *pyrrhic victory*.¹³⁷¹ The Appellate Body went created the *de facto* policy space at the risk of facing criticism for its judicial activism. As such, it added credence to the criticism that led to its current existential crisis (see the next chapter).

5.3.2.1.1.2 China – Wind Power Equipment

This dispute concerns China’s *Special Fund for Industrialization of Wind Power Equipment*. The Fund provides grants to Chinese wind turbine manufactures that use locally produced inputs. In its formal request for consultations, the US alleged that the conditional grants are inconsistent with Article 3.1(b) of the SCM Agreement.¹³⁷² It also claimed that China violated Article 25 of the SCM Agreement by failing to notify the measure.¹³⁷³ China initially insisted that the Fund was consistent with its WTO obligations. More interestingly, in a statement issued following the filling of the dispute, China’s Ministry of Commerce (MOC) stated that:

¹³⁷⁰ See Liesbeth Casier and Tom Moerenhout, ‘WTO Members Not the Appellate Body Needs to Clarify Boundaries in Renewable Energy Support’ (International Institute for Sustainable Development 2013).

¹³⁷¹ See Tim Maxian Rusche, *EU Renewable Electricity Law and Policy: From National Targets to a Common Market* (Cambridge University Press 2015) (for the expression), at 162.

¹³⁷² See WTO, ‘Request for Consultations by the United States, China – Measures Concerning Wind Power Equipment (China – Wind Power Equipment)’ (2011) WT/DS419/1. The EU and Japan subsequently joined the consultations between the US and China, see WTO, ‘Request to Join Consultations by the European Union, China – Measures Concerning Wind Power Equipment’ (2011) WT/DS419/2; WTO, ‘Request to Join Consultations by Japan, China – Measures Concerning Wind Power Equipment’ (2011) WT/DS419/3.

¹³⁷³ It is worth noting here that the US did not claim violation of GATT Article III:4 and the TRIMs Agreement.

Every country in the world is seeking to develop renewable energy to cope with climate change. China's wind power measures are helping save energy and protect the environment [...] and is in accord with WTO principles.¹³⁷⁴

Despite this strong reaction, however, it revoked the measure less than two months later. The withdrawal of the measure has resolved the dispute for all practical purposes, but the dispute remains 'in consultations' procedurally because the withdrawal of the measure was not a mutually agreed solution to the dispute formally communicated to the WTO.

The almost immediate withdrawal of the measure raises the question: why did China choose to withdraw the measure despite its initial reaction that it was consistent with WTO law and has environmental justification? One explanation is that the measure has already accomplished its purpose.¹³⁷⁵ The Chinese wind power industry had grown significantly by the time the US initiated the dispute. From 2004 to 2010 China moved from importing 82 percent of the necessary equipment for wind power generation to manufacturing almost 90 percent of such equipment locally. The domestic market was also starting to saturate, turning the interest of the Chinese wind turbine manufacturers from the domestic to the international market.

Another possible explanation is the recognition that the measure is blatantly inconsistent with the SCM Agreement.¹³⁷⁶ Grants contingent on the use of local inputs over imported ones are the most straightforward of prohibited subsidies under Article 3.1(b) of the SCM Agreement. In the absence of any express exemption for such measures, perhaps China realized that it stood no chance of winning the case. This second explanation is consistent with the standard explanation for early settlement of WTO disputes. Busch and Reinhardt attribute the settlement of disputes at the consultations stage to the regime's 'ability to deliver a definitive, normative condemnation of

¹³⁷⁴ See 'China Highly Concerned about US Trade Challenge' *China Daily* (23 December 2010) <http://europe.chinadaily.com.cn/china/2010-12/23/content_11751104.htm> accessed 28 March 2018.

¹³⁷⁵ For such an explanation, see ICTSD, 'US Proclaims Victory in Wind Power Case: China Ends Challenged Subsidies' (2011) 15 Bridges Weekly Trade News Digest 3.

¹³⁷⁶ For this line of explanation, see Chien-Huei Wu and Kuei-Chih Yang, 'Aggressive Legalism: China's Proactive Role in Renewable Energy Trade Disputes?' (2015) 13 Oil, Gas & Energy Law 1.

defendants' policies'.¹³⁷⁷ By withdrawing the measure, China dodged not only the high cost of litigation but also the normative condemnation that comes with an unfavorable ruling.

One final (and perhaps rhetorical) question worth considering here is why did the US initiate the dispute? This dispute is an outcome of the investigation into China's green technology policies carried out by the United States Trade Representative (USTR) on the basis of a petition filed under Section 301 of the *1947 Trade Act* in September 2010.¹³⁷⁸ The fact that the US initiated this dispute in response to this petition is not unusual, pressure from domestic industries and the quest for market access are the driving forces behind most, if not all WTO disputes.

5.3.2.1.1.3 EU and Certain Member States – Renewable Energy

At the heart of this dispute were the Italian and Greek feed-in tariffs contingent upon local content requirements.¹³⁷⁹ The FIT programs were part of the renewable energy 'support schemes' introduced in accordance with the EU Directive 2009/28/EC, which mandates Member States to increase the share of renewables in their national energy mix to 20 percent by 2020. China alleged that these measures are inconsistent, *inter alia*, with GATT Article III:4, Article 2.1 of the TRIMs Agreement, and Article 3.1(b) of the SCM Agreement because of the requirements to use domestic over imported inputs.¹³⁸⁰ The dispute is still in the consultations stage.

Their close resemblance to the Ontario and Indian FIT programs suggests that the adjudicatory bodies would easily find the FIT programs at issue inconsistent with GATT Article III:4 and Article 2 of the TRIMs Agreement. Regarding the claims under the SCM Agreement, the Italian FIT program would qualify as a financial contribution in the form of government purchase of goods under Article 1.1(a)(1)(iii) of the SCM Agreement. Like the Ontario FIT Program, a public

¹³⁷⁷ See Marc L Busch and Eric Reinhardt, 'Bargaining in the Shadow of the Law: Early Settlement in GATT/WTO Disputes' (2000) 24 *Fordham International Law Journal* 158.

¹³⁷⁸ See United Steelworkers Union, 'Petition for Relief under Section 301 of the Trade Act of 1974, as Amended before the Office of the United States Trade Representative: China's Policies Affecting Trade and Investment in Green Technology'. It is worth mentioning that the petition was not specific to wind power equipment.

¹³⁷⁹ China also challenged the Greek sustainability criteria of biofuel and bioliquids.

¹³⁸⁰ See WTO, 'EU and Certain Member States – Renewable Energy' (n 337). Argentina, Australia and Japan later joined the consultations, see WTO, 'Acceptance by the European Union of Request to Join Consultations, European Union and Certain Member States - Certain Measures Affecting the Renewable Energy Generation Sector' (2012) WT/DS452/5.

body purchases the electricity at the FIT rate. However, the Greek FIT program is slightly different. The cost of the program is borne directly by consumers. Consumers pay for the feed-in premium in the form of *Special Tax for the Reduction of Greenhouse Gases* added to their electricity bill. This aspect makes the Greek FIT unlikely to qualify as a financial contribution within the meaning of Article 1.1(a)(1)(iii). However, it may still constitute a financial contribution within the meaning of Article 1.1(a)(1)(iv) (entrustment or direction) or as a ‘price support’ within the meaning of Article 1.1(a)(2). The problem lies in establishing whether the FIT programs confer a benefit. The *Canada – Renewable Energy/FIT* jurisprudence suggests that the existence of a ‘benefit’ depends on whether the FIT programs offer more than adequate remuneration. However, since neither of the FITs programs in this dispute determines the FIT prices based on a cost discovery mechanism, the adjudicators would run into the same problem of finding an appropriate benchmark within the narrow solar electricity market.

This dispute is part of China’s legal response to the antidumping and countervailing duties imposed by the EU against its solar panels. It was initiated only days after China launched countervailing duty investigations against solar panel imports from the EU.

5.3.2.1.1.4 India – Solar Cells

The measure at issue in this dispute was almost identical to the one in *Canada - Renewable Energy/FIT*. India launched the *Jawaharlal Nehru National Solar Mission (JNNSM)* in 2010 with the aim of increasing its grid-connected solar power capacity to 20 gigawatts (GW) by 2022.¹³⁸¹ To this end, it introduced a FIT program whereby the government enters into long-term power purchase agreements with solar power developers and then resells the purchased electricity to distribution utilities. However, to get these contracts and benefit from the long-term guaranteed rate, solar power developers must use solar cells and modules made in India.

The US brought its first formal complaint in this dispute on 6 February 2013 (three months before the *Canada – Renewable Energy/FIT* Appellate Body report came out) alleging that the measure was inconsistent with GATT Article III:4, Article 2 of the TRIMs Agreement and

¹³⁸¹ India subsequently increased the target to 100 GW by 2022. See *India – Solar Cells* (n 603), para 7.1.

Articles 3.1(b), 5(c), 6 and 25 of the SCM Agreement.¹³⁸² However, before the end of these consultations, India moved from JNNSM Phase I to Phase II. The US followed this change with a new request for consultations in February 2014. Interestingly, the US dropped its claims under the SCM agreement in this second consultations request.¹³⁸³ Since the Appellate Body issued its report in *Canada – Renewable Energy/FIT* in between the two consultations requests, it is fair to assume that the finding in that dispute has influenced this decision. As we have seen earlier, the Appellate Body's findings in that dispute have made it clear that it is much easier to challenge local content requirements under the GATT and the TRIMs Agreement than under the SCM Agreement. Unsurprisingly, both the Panel and the Appellate Body found that the local content requirements were inconsistent with GATT Article III:4 and Article 2.1 of the TRIMs Agreement. In doing so, they also rejected India's argument that the measure at issue was a government procurement and hence falls outside the ambit of GATT Article III:4 by virtue of GATT Article III:8(a).¹³⁸⁴ Relying on *Canada – Renewable Energy/FIT*, both the Panel and the Appellate Body concluded that the exception under Article III:8(a) applies to the purchase of electricity, but not to the products subject to discrimination (solar cells and modules).

Besides the absence of claims under the SCM agreement, the main difference between *Canada – Renewable Energy/FIT* and *India – Solar Cells* was that India invoked (albeit unsuccessfully) GATT Article XX to justify the local content requirements. India was of the view that these requirements should be viewed within the broader energy security and environmental objectives of the JNNSM. Interestingly, however, it invoked GATT Article XX(d) and (j) instead of the environmental exceptions contained in subparagraph (b) and (g) of GATT Article XX.

Article XX (d) provides shelter for measures necessary to secure compliance with laws and regulations that are not inconsistent with the GATT. Here, India argued that its local content requirements were 'integral to its compliance with both domestic and international law

¹³⁸² See WTO, 'Request for Consultations by the United States, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)' (2013) WT/DS456/1, G/L/1023 G/TRIMS/D/35, G/SCM/D96/1.

¹³⁸³ See WTO, 'Request for Consultations by the United States, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)' (2014) WT/DS456/1/Add1, G/L/1023/Add1, G/TRIMS/D/35/Add1, G/SCM/D96/1/Add1.

¹³⁸⁴ See *India - Solar Cells* (n 336), para 5.40.

obligations to ensure ecologically sustainable growth while addressing India's energy security challenge, and ensuring compliance with its obligations relating to climate change'.¹³⁸⁵ According to India, these obligations are embodied in four international instruments and four domestic instruments.¹³⁸⁶ The Appellate Body first upheld the Panel's conclusion that the domestic instruments except Section 3 of the *Electricity Act* do not constitute 'laws and regulations' in the sense of Article XX(d) and local content requirements are not measures 'to secure compliance' with the legal obligations in Section 3 of the *Electricity Act*.¹³⁸⁷ As regards the international instruments, it held that the term 'laws and regulations' in Article XX(d) refers only to domestic laws and regulations and that international instruments become relevant only to the extent that they form part of India's domestic legal system. However, it found that none of the four instruments has a direct effect, or is a rule that forms part of India's domestic legal system.¹³⁸⁸ It, thus, concluded that India failed to establish that the domestic and international instruments it has identified qualify as 'laws and regulations' within the meaning of Article XX(d).

Article XX(j) applies to measures essential to the acquisition or distribution of products in general or local short supply.¹³⁸⁹ India argued that solar cells and modules are products in 'general or local short supply' due to its lack of 'sufficient domestic manufacturing capacity'. According to India, its continued dependence on solar cell and module imports creates risks associated with supply-side vulnerabilities and fluctuations.¹³⁹⁰ The local content requirements avoid such risks by enhancing its domestic manufacturing capacity and thereby providing Indian solar power developers with access to 'a continuous and affordable supply of the solar cells and modules'. However, both the Panel and the Appellate Body found that solar cells and modules were not 'products in general or local short supply' in India within the meaning of Article XX(j).¹³⁹¹ The Appellate Body was of the view that whether a product is in general or local short supply

¹³⁸⁵ See *India – Solar Cells* (n 603), para 53.

¹³⁸⁶ The international instruments were the preamble of the WTO Agreement, the UNFCCC, the Rio Declaration on Environment and Development, and the UNGA Resolution adopting the Rio+20 Document. The four domestic instruments were the 2003 Electricity Act and three associated documents: the National Electricity Policy, the National Electricity Plan, and the National Action Plan on Climate Change. See Annex B-3 *ibid*, paras 53-57.

¹³⁸⁷ See *India - Solar Cells* (n 336), paras 5.104-5.137.

¹³⁸⁸ See *ibid*, paras 5.137-5.149.

¹³⁸⁹ GATT Article XX(j) was invoked in this dispute for the first time in its more than 70 years of history.

¹³⁹⁰ See *India - Solar Cells* (n 336), para 5.75.

¹³⁹¹ See *ibid*, paras 5.55-5.90 and 6.4-6.5.

depends on the extent to which it is available for purchase in India and whether this is sufficient to meet the demand in the Indian market. However, India failed to establish whether the quantity of available supply from both domestic and international sources in the Indian market was insufficient to meet the demand for solar cells and modules in India.

Having determined that the domestic and international instruments do not constitute ‘laws and regulations’ and that solar cells and modules are not ‘products in general or local short supply’, the Appellate Body refrained from determining whether the local content requirements were ‘necessary’ or ‘essential’ within the meaning of Articles XX(d) and (g).

Accordingly, the DSB recommended that India bring its measure into conformity with its obligations under the GATT and the TRIMs Agreement within a reasonable period of time. India and the US subsequently agreed for India to bring its measures in conformity within 14 months (by 14th December 2017).¹³⁹² India then announced that it has ‘ceased to impose any measures as found inconsistent’ in the dispute.¹³⁹³ However, the US disagreed with India that it has complied with the DSB recommendations and requested the latter for authorization to retaliate.¹³⁹⁴ In response, India sought the establishment of a compliance panel to determine whether it had complied with the DSB recommendations and rulings.¹³⁹⁵ The compliance panel is yet to issue its report at the time of writing. It is now almost four years since the US submitted its second formal complaint against the Indian local content requirements, but the case is far from over. What does this say about the effectiveness of the dispute settlement system and its impact on the *de facto* policy space of WTO Members to use subsidies?

¹³⁹² See WTO, ‘Agreement Under Article 21.3(b) of the DSU, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)’ (2017) WT/DS456/16.

¹³⁹³ See WTO, ‘Status Report Regarding Implementation of the DSB Recommendations and Rulings by India, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)’ (2017) WT/DS456/17.

¹³⁹⁴ WTO, ‘Recourse to Article 22.6 of the DSU by the United States, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)’ (2017) WT/DS456/18.

¹³⁹⁵ WTO, ‘Recourse to Article 22.6 of the DSU by India, India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)’ (2018) WT/DS456/19.

5.3.2.1.1.1.5 US – Renewable Energy (India)

This dispute represents the latest step in the *US – India* solar trade war. In its request for consultations, India identified 11 renewable energy support measures contingent upon local content requirements from eight US States, which are allegedly inconsistent, *inter alia*, with GATT Article III:4, Article 2.1 of the TRIMs Agreement, and Article 3.1(b), 5(a) and 5(c) of the SCM Agreement.¹³⁹⁶ A Panel was composed in April 2018 but is yet to issue its report at the time of writing. This case offers the first opportunity (post-*Canada – Renewable Energy/FIT*) for the adjudicatory bodies to determine whether a renewable energy subsidy constitutes a prohibited subsidy within the meaning of Article 3.1(b) of the SCM Agreement. It will be interesting to see whether the adjudicators will apply the distinction between interventions in a new versus existing market in determining the existence of a ‘benefit’ within the meaning of Article 1.1(b) of the SCM Agreement. However, unlike in *Canada – Renewable Energy/FIT*, the local content requirements at issue are attached to grants, rebates and tax reductions, support measures that would typically qualify as subsidies under Article 1.1 of the SCM Agreement.

Some considerations indicate that this dispute is India’s response to *India – Solar Cells*. The first consideration is the timing of the dispute. Although India submitted its formal complaint in September 2016, this dispute was three years in the making. India first raised the issue two months after the US filed its first request for consultations in February 2013. It requested information as per Article 25.8 of the SCM Agreement concerning the renewable energy support measures that are now at issue in this dispute.¹³⁹⁷ Three years after this inquiry and exactly a week before the Appellate Body issued its report in *India – Solar Cells*, India submitted its formal complaint in this dispute, but why? In 2017, India imported solar equipment worth US\$4.12 billion as compared to just US\$132.29 million worth of exports.¹³⁹⁸ These figures coupled with the local content requirements that are the subject of dispute in *India – Solar Cells* imply that

¹³⁹⁶ The eight States are Washington, California, Montana, Massachusetts, Michigan, Connecticut, Delaware and Minnesota. See WTO, ‘US – Renewable Energy’ (n 312).

¹³⁹⁷ See WTO, ‘Questions Posed by India to the United States under Article 25.8 of the Agreement on Subsidies and Countervailing Measures – State Level Renewable Energy Sector Subsidy Programs with Local Content Requirements’ (2013) G/SCM/Q2/USA/59.

¹³⁹⁸ See Ankita Rajeshwari, ‘Indian Solar Imports Witnessed 43% Increase While Exports Grew by 16% in 2017’ (*Mercom India*, 22 March 2018) <<https://mercomindia.com/indian-solar-import-export-2017/>>.

India's primary interest lies in protecting its domestic solar equipment manufacturing industry from foreign competition than seeking foreign market access. India is also considering to impose safeguard duties against solar panel imports from developed countries, China and Malaysia as part of its effort to protect the domestic industry.¹³⁹⁹ These considerations suggest that India might have initiated this counter-dispute to gain leverage in its ongoing dispute with the US over the implementation of the DSB recommendations in *India – Solar Cells*. Indeed, India attempted to find a negotiated settlement to *India – Solar Cells* dispute before the Panel issued its report.¹⁴⁰⁰ However, once these negotiations failed to bear any fruit, it went on to file this dispute perhaps in order to dissuade the US from pursuing its complaint in *India – Solar Cells*.

5.3.2.1.1.6 US – Renewable Energy (China)

This latest renewable energy subsidy dispute concerns five of the 11 the renewable energy support measures at issue in *US – Renewable Energy (India)*. China submitted its request for consultations on 14 August 2018 and is yet to request for the establishment of a panel, at the time of writing. In its consultations request, China targeted five renewable energy support measures from the State of Washington, California and Michigan that are contingent upon local content requirements.¹⁴⁰¹ Like India, alleged that these measures are inconsistent with GATT Article III:4, Article 2.1 of the TRIMs and Article 3.1(b) of the SCM Agreement. The only difference between the Indian and Chinese claims is their scope. While India opted for a machinegun approach, China took a shotgun approach to the case, focusing only on those measures in which it has a real economic interest (e.g. leaving out biodiesel support measures).

¹³⁹⁹ See Saumy Prateek, 'US, EU Countries on the List of 25% Solar Safeguard Duty Recommended by India's DGTR' (*Mercom India*, 20 July 2018) <<https://mercomindia.com/us-eu-25-solar-safeguard-duty-recommended/>> accessed 2 August 2018. The Indian Solar Manufacturers Association (ISMA) is behind these investigations.

¹⁴⁰⁰ See Vyoma Jha, 'Sunny Skies Ahead? Political Economy of Climate, Trade and Solar Energy in India' (2018) 9 *Trade, Law and Development* 138 (suggesting that the bilateral negotiations broken down on the question of publishing the Panel report, despite India's agreement to change its local content requirements), at 176. Such negotiations are what Busch and Reinhardt (n 1377) described as 'bargaining in the shadow of the law'.

¹⁴⁰¹ See WTO, 'Request for Consultation by China, United States — Certain Measures Relating to the Renewable Energy Sector (US — Renewable Energy)' (2018) WT/DS563/1.

5.3.2.1.1.1.7 EU and Certain Member States – Biodiesel

Argentina brought this dispute in May 2013 against various trade measures relating to biodiesel imposed by the EU and its Member States.¹⁴⁰² Two of these measures were Belgian and French biofuel support measures, implementing the *EU Directive 2009/28/EC*. The Belgian measure sets out biofuel blending obligations and offers an excise duty reduction to biofuel products that meet the EU sustainability criteria for biofuels. According to Argentina, this measure is inconsistent *inter alia* with Article 3.1(b) of the SCM Agreement as only biofuels produced in the EU could meet the sustainability criteria. Similarly, the French measure provides a reduction from internal consumption tax to certain biofuels, including biodiesel subject to certain conditions. Argentina alleged that this measure constitutes a prohibited subsidy within the meaning of Article 3.1(b) of the SCM Agreement because it is contingent upon the use of biodiesel produced in the EU. The sustainability criteria at issue equally apply to both imported and domestic biodiesel. Both domestic and imported biodiesel may enjoy the tax reductions to the extent that they achieve greenhouse gas emission savings of at least 35 percent (as compared to fossil fuels) and the crops are not from areas of high biodiversity and carbon stocks.¹⁴⁰³ Although it is not clear from the consultations request, Argentina seems to claim that the sustainability criteria constitute *de facto* local content requirements. It bears recalling here that the Appellate Body in *Canada – Autos* held that Article 3.1(b) covers both *de jure* and *de facto* contingency.¹⁴⁰⁴ However, establishing the existence of *de facto* contingency is a relatively difficult exercise.

This dispute remains in the consultations stage, and it is not clear whether Argentina has dropped it altogether. Since initiating this dispute, it has brought and won another dispute against EU antidumping duties on biodiesel imports from Argentina (*EU – Biodiesel*).

¹⁴⁰² See WTO, ‘EU – Biodiesel Support Measures’ (n 309).

¹⁴⁰³ The sustainability criteria is contained in the EU Directive 2009/28/EC. The 35 percent threshold has since increased to 50 percent in 2017 and 60 percent in 2018. For a detailed legal analysis of the sustainability criteria, see Jenya Grigorova, ‘EU’s Renewable Energy Directive Saved by GATT Art. XX? Reflections on the Provisional Justification of Sustainability Criteria under GATT Art. XX in the Recent WTO Case “European Union and Certain Member States–Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry” (DS459)’ (2015) 12 *Transnational Dispute Management* 1.

¹⁴⁰⁴ See *Canada - Autos (AB)* (n 945), paras 137-138.

5.3.2.1.1.8 US – Countervailing Measures (China)

China brought this dispute against the US in 2012, alleging that the initiation and conduct of the investigations that resulted in the imposition of countervailing duties on certain products from China were inconsistent with several provisions of the SCM Agreement. Two of the countervailing duty investigations at issue in this dispute were against solar panel and wind tower imports from China. The Panel found that the preliminary countervailing duty determinations concerning wind towers were not within its terms of reference.¹⁴⁰⁵ China did not appeal this finding. As regards the solar panel countervailing duty investigations, the Appellate Body reversed the Panel's conclusion that China failed to establish that the US Department of Commerce (USDOC) acted inconsistently with Article 14(d) and Article 1.1(b) of the SCM Agreement.¹⁴⁰⁶ In its countervailing duty investigations into solar panel imports from China, USDOC rejected in-country solar panel prices in China as benefit benchmarks on the grounds that they were distorted. Its sole reason for resorting to an alternative benchmark was the fact that 37 out of 47 Chinese solar panel producers were 'public bodies'.¹⁴⁰⁷ However, the Appellate Body held that government predominance does not necessarily imply price distortion and the mere fact that the government was a predominant supplier of solar panels in and of itself is insufficient to reject market prices as benefit benchmarks.¹⁴⁰⁸ Accordingly, it concluded that the USDOC acted inconsistently with the obligations of the US under Articles 14(d) and 1.1(b) of the SCM Agreement in its solar panels countervailing duty investigations.

5.3.2.1.1.2 Countervailing Duty Actions

Renewable energy subsidies have also been the subject of several countervailing duty actions in recent years. The SCM Agreement authorize Members to take either multilateral or unilateral action to countervail the injurious effect of subsidies on their domestic industries. This option is by default available only to Members that import the subsidized products. Such Members often

¹⁴⁰⁵ See *Panel Report, United States – Countervailing Duty Measures on Certain Products from China (US - Countervailing Measures (China))*, WT/DS437/R, adopted 16 January 2015, para 7.29.

¹⁴⁰⁶ See *Appellate Body Report, United States - Countervailing Duty Measures on Certain Products from China (US - Countervailing Measures (China))*, WT/DS437/AB/R, adopted 16 January 2015, paras 4.97 and 4.107.

¹⁴⁰⁷ See *ibid*, para 4.94.

¹⁴⁰⁸ See *ibid*, paras 4.94-4.97.

opt for unilateral actions for procedural reasons. Multilateral actions take time.¹⁴⁰⁹ It takes several years from the consultations stage to the appellate review. It also bears recalling that multilateral actions are resource intensive and result only in prospective remedies. Subsidizing Members also tend to drag their feet to withdraw the subsidy after they lost the case (e.g. *India – Solar Cells*).

In contrast, unilateral actions offer quick remedies. Members may impose countervailing duties to the extent that they meet the due process requirements contained in Part V of the SCM Agreement and establish the existence of the three substantive elements: subsidy, injury, and causal link between the two. These factors imply that countervailing duties are another area where the SCM disciplines bite deep into renewable energy support measures.¹⁴¹⁰ The last few years have witnessed at least 19 original countervailing duty investigations into subsidies for renewable energy products such as biodiesel, solar panels and wind turbines (see *table 5.4* below).¹⁴¹¹ Unlike the subsidies that have been the subject of multilateral actions, these are mostly non-discriminatory subsidies to promote either the production or export of renewable energy technologies. Unilateral actions pose a relatively high threat than multilateral actions:

Without a neutral multilateral body serving as an impartial adjudicator, the outcome of these administrative proceedings may be seen as politically motivated. Aggrieved parties will put pressure on their own government to respond in kind. This gives rise to an increased risk of a unilateral action sparking a tit-for-tat trade dispute.¹⁴¹²

To be sure, affirmative countervailing determinations are subject to multilateral judicial review as we have seen earlier in *US – Countervailing Measures (China)*.¹⁴¹³ However, Members may still undertake politically charged countervailing duty investigations knowing full well that such

¹⁴⁰⁹ Despite the ‘prompt settlement’ of disputes promise, the dispute settlement system has become time-consuming. Commentators attribute this to various factors ranging from the surge in the caseload and the increased complexity of disputes to the lack of human resources, high appeal rate, few early settlements and compliance problems. See Claus-Dieter Ehlermann, ‘The Workload of the WTO Appellate Body: Problems and Remedies’ (2017) 20 *Journal of International Economic Law* 705; Joost Pauwelyn and Weiwei Zhang, ‘Busier than Ever? A Data-Driven Assessment and Forecast of WTO Caseload’ (2018) 21 *Journal of International Economic Law* 461.

¹⁴¹⁰ See Bigdeli, ‘The Expired Non-Actionable Subsidies and the Lingering Question of “Green Space”’ (n 45), at 27.

¹⁴¹¹ These are only those notified to the WTO pursuant to Article 25.11 of the SCM Agreement.

¹⁴¹² See Wu and Salzman (n 36), at 443.

¹⁴¹³ See Asmelash, ‘Judicial Review of U.S. Trade Remedy Determinations: A Procedural Comparison’ (n 1042).

judicial review will only result in prospective remedies. The WTO adjudicatory bodies have no mandate to recommend the reimbursement of wrongfully collected countervailing duties.¹⁴¹⁴

Table 5.4: Countervailing Duty Investigations Involving Renewables

Investigating Member	Members under Investigation	Renewable Energy Products	Date of Initiation	WTO Notification Documents
EU	US	Biodiesel	13/6/2008	G/SCM/N/178/EEC
Peru	US	Biodiesel	26/8/2009	G/SCM/N/203/PER
Australia	US	Biodiesel	22/6/2010	G/SCM/N/212/AUS
EU	Canada/Singapore/US	Biodiesel	12/8/ 2010	G/SCM/N/219/EEC
US	China	Crystalline Silicon Photovoltaic Cells	16/11/2011	G/SCM/N/235/USA
EU	US	Bioethanol	25/11/2011	G/SCM/N/235/EU
US	China	Utility-scale wind towers	24/1/2012	G/SCM/N/242/USA
China	US	Solar grade polysilicon	20/7/2012	G/SCM/N/250/CHN
EU	China	Solar panels	08/11/2012	G/SCM/N/250/EU
China	EU	Solar grade polysilicon	01/11/2012	G/SCM/N/250/CHN
EU	Argentina/Indonesia	Biodiesel	10/11/2012	G/SCM/N/250/EU
EU	China	Solar glass	27/4/2013	G/SCM/N/259/EU
US	China	Crystalline silicon photovoltaic cells and modules	29/1/2014	G/SCM/N/274/USA
India	China	Castings of wind operated electricity generators	29/5/2014	G/SCM/N/281/IND
EU	US	Biodiesel	10/7/2014	G/SCM/N/281/EU
Peru	Argentina	Biodiesel	28/7/2014	G/SCM/N/281/PER
Canada	China	Certain photovoltaic modules and laminates	05/12/2014	G/SCM/N/281/CAN
China	US	Biofuels	12/1/2016	G/SCM/N/305/CHN
US	Argentina/Indonesia	Biodiesel	19/4/2017	G/SCM/N/321/USA
EU	Argentina	Biodiesel	31/1/2018	G/SCM/N/334/EU

Source: Compiled by the author from Article 25.11 notifications

Three observations about the countervailing duty actions against renewable energy subsidies are worth making here. First, Argentina and the US – the two leading biofuel producers in the world – were the subject of almost all the biodiesel countervailing duty actions. The biodiesel subsidies

¹⁴¹⁴ Countervailing duties are ‘wrongly collected’ to the extent that the countervailing duty investigation at issue was not initiated or conducted in accordance with the provisions of the SCM Agreement

at issue range from grants and tax incentives to loans and loan guarantees. Second, all Members except Japan that were parties to the multilateral actions (either as complainants or respondents) were also parties to the unilateral actions. The timing of the unilateral and the multilateral actions implies some causation. For example, the EU initiated countervailing duty investigations into biodiesel imports from Argentina on 10 November 2012 and then Argentina retaliated by initiating the *EU and Certain Members States – Biodiesel* dispute on 15 May 2013.¹⁴¹⁵ The US-China and EU-China solar panel subsidy disputes also show a similar pattern. Third, and related to the previous observation, some of the unilateral actions are tit-for-tat responses. This was especially the case for the Chinese countervailing duty investigations against solar panel imports from the US and the EU. This phenomenon of tit-for-tat countersuits is neither new nor specific to renewable energy subsidies. It has been the subject of discussion within the trade community since the early 2000s.¹⁴¹⁶ Reinhardt, for example, found in 2000 that each complaint raises the chance of the respondent filing its own complaint against the complainant within a year by 55 times.¹⁴¹⁷ Similarly, Prusa also found that almost two-thirds of antidumping actions are tit-for-tat responses to anti-dumping actions by other countries.¹⁴¹⁸ These findings suggest that Members initiated some of the renewable energy countervailing duty investigations not necessarily because the subsidies were that detrimental to their trade interests.

5.3.2.1.2 Legal Actions Against Fossil Fuel Subsidies

Unlike renewable energy subsidies, fossil fuel subsidies have faced no direct dispute settlement or countervailing duty actions. Our analysis in *section 5.3.1* suggests that the key reasons underlying the absence of direct legal actions against fossil fuel subsidies are both legal and

¹⁴¹⁵ Argentina's action was described as 'an apparent act of retaliation' at the time. See ICTSD, 'Argentina Trade Tensions Escalate with Six New WTO Cases' (2012) 16 Bridges Weekly 11, at 12.

¹⁴¹⁶ Nkenge Harmon - the former spokesperson for USTR - described it as 'a disturbing trend in which countries engaged in actions that are inconsistent with their WTO obligations retaliate with counter-complaints rather than fix the underlying problem raised in the complaint'. See *ibid.*, at 12. See Eric Reinhardt, 'Aggressive Multilateralism: The Determinants of GATT/WTO Dispute Initiation, 1948-1998' (Emory University 2000) Manuscript; Marc L Busch and Eric Reinhardt, 'Testing International Trade Law: Empirical Studies of GATT/WTO Dispute Settlement' in Daniel LM Kennedy and James D Southwick (eds), *The Political Economy of International Trade Law* (Cambridge University Press 2002); Mikhail Klimenko, Garey Ramey and Joel Watson, 'Recurrent Trade Agreements and the Value of External Enforcement' (2008) 74 *Journal of International Economics* 475 (arguing that tit-for-tat lawsuits were especially common among the US, Canada and the EU), at 480.

¹⁴¹⁷ See Reinhardt (n 1416), at 19-20.

¹⁴¹⁸ Thomas J Prusa, 'On the Spread and Impact of Anti-Dumping' (2001) 34 *Canadian Journal of Economics* 591.

practical. First, the specificity requirement of Article 2 leaves a considerable portion of fossil fuel subsidies outside the ambit of the SCM Agreement. The only scenario in which generally available fossil fuel consumption subsidies may pass the specificity test is as *de facto* specific subsidies to energy-intensive industries. However, as we repeatedly noted in this chapter, establishing *de facto* specificity is a complex exercise. Second, the SCM Agreement prohibits only subsidies that are contingent upon export performance and local content, while the nature of the fossil fuel industry is such that fossil fuel subsidies do not normally come in such form.

Most fossil fuel subsidies that pass the specificity test rather fall within the actionable category. However, taking action against such subsidies requires establishing adverse effects. Renewable energy equipment manufacturing industries seat at the forefront of industries that may suffer from the subsidization of fossil fuels. However, the likeness requirement means fossil fuel subsidies face no action under the SCM Agreement for adversely affecting these industries. The two other industries, which fossil fuel subsidies may adversely affect are the renewable electricity industry and unsubsidized fossil fuels. However, the current low-level of international trade in electricity suggests that fossil fuel electricity subsidies are unlikely (at least in the short term) to face legal action from renewable electricity producing countries. Since most fossil fuel producing countries subsidize their fossil fuel industry, they are less likely to challenge each other. This leaves us with energy-intensive industries, which stand to lose or benefit from the subsidization of fossil fuels. So far, almost all the dispute settlement and countervailing duty actions involving fossil fuel subsidies are against the provision of fossil fuels at below market prices and the pass-through of fossil fuels subsidies to energy-intensive industries. We will now turn to the dispute settlement and countervailing duty actions featuring fossil fuel subsidies as indirect subsidies to energy-intensive industries such as steel and aluminium.

5.3.2.1.2.1 Multilateral Actions

Only two cases involving fossil fuel subsidies have been brought so far, *China – GOES* and *China - Primary Aluminum*. While the Appellate Body issued its report on the former, the latter remains in the consultation stage. Both disputes are not targeted at the fossil fuel industry as such, but rather at energy-intensive industries (steel and aluminium). The US filled both cases against

China. However, while the former concerns a countervailing duty action against US subsidies to the steel industry, the latter concerns Chinese subsidies to the aluminium industry. In what follows, we will briefly discuss the key findings and issues raised in these two disputes.

5.3.2.1.2.1.1 China – GOES

In this dispute, the US challenged the imposition of antidumping and countervailing duties by China against grain oriented flat-rolled electrical steel (GOES) from the US. China imposed the countervailing duties having identified 11 support programs that allegedly constitute direct and indirect specific subsidies to the steel industry. Three of the support programs at issue were related to fossil fuels. China argued that the US subsidized its steel industry directly through the provision of natural gas and electricity at below-market prices (through price regulation) and indirectly through the subsidization of the natural gas, electricity and coal industries. The US alleged, *inter alia*, that China acted inconsistently with Articles 11.2 and 11.3 of the SCM Agreement by initiating and imposing the countervailing duties without ‘sufficient evidence’ of the existence of a ‘financial contribution’, ‘benefit’ and ‘specificity’.¹⁴¹⁹ The Panel examined the sufficiency of the evidence underlying the determination of the countervailing duties.

Here, we will summarize the relevant part of its findings in three points. First, concerning the provision of natural gas at below market prices, it found that there was no sufficient evidence of the existence of a financial contribution or a benefit.¹⁴²⁰ The allegation was that the US Government provided the subsidy through price regulation, but the US deregulated the natural gas market in the 1980s. Nor there was any other evidence supporting the allegation that the US currently provides natural gas below market prices to the steel industry. Second, concerning the provision of electricity below market prices, the Panel found that there was no sufficient evidence of the existence of a benefit and specificity.¹⁴²¹ Establishing whether the alleged government electricity price regulation has benefited the steel industry requires a comparison with a market benchmark. However, the Panel found that China had no sufficient evidence of the appropriate

¹⁴¹⁹ See *China - GOES* (n 864), para 7.23-7.25.

¹⁴²⁰ See *ibid*, paras 7.120-7.125.

¹⁴²¹ See *ibid*, paras 7.132-7.136.

market benchmark price to determine the existence of a benefit. The Panel further noted that even if the government intervenes in the electricity market, there was no evidence of specificity, i.e. that the steel industry alone benefits from this intervention. Third, concerning the alleged pass through subsidies, the Panel found that there was no sufficient evidence of specificity.¹⁴²² It argued that China had insufficient for any unbiased and objective investigating authority to concluded that the pass-through from the natural gas, electricity and coal subsidies was specific to the steel industry. The Panel found nothing that indicates that the steel industry was the only beneficiary from the subsidies in question. Having found no sufficient evidence supporting any of the subsidy claims that led to the initiation and imposition of countervailing duties, the Panel ultimately concluded that China acted inconsistently with Articles 11.2 and 11.3 of the SCM Agreement in initiating and imposing countervailing duties on GOES imports from the US without ‘sufficient evidence’.¹⁴²³ China did not appeal any of these findings.

The finding in this dispute underscores our earlier point concerning the difficulty of establishing the specificity of generally available fossil fuel consumption subsidies. The fact-intensive nature of the exercise coupled with the lack of transparency about fossil fuel subsidies makes it extremely difficult for countries to challenge such subsidies under the SCM Agreement successfully. The Panel in this dispute did not as such rule on the existence of a subsidy or the specificity of the alleged subsidy – its task was to determine the sufficiency of the evidence that the countervailing duty investigating authority used to make its determination. However, it was almost straightforward for the Panel to establish the insufficiency of the evidence. China did not argue that its investigating authority had sufficient evidence either. Instead, it argued that ‘evidence of *de facto* specificity is typically not reasonably available to applicants’.¹⁴²⁴ However, the Panel underlined that the difficulty of obtaining evidence of *de facto* specificity is not a justification to initiate countervailing duty investigations without a ‘sufficient evidence’ under

¹⁴²² See *ibid*, paras 7.127-7.130 (natural gas), 7.137-138 (electricity) and 7.140-7.147 (coal).

¹⁴²³ See *ibid*, para 7.148.

¹⁴²⁴ See *ibid*, paras 7.130 & 7.146.

the SCM Agreement.¹⁴²⁵ Applying such a high standard of ‘sufficient evidence’ makes taking countervailing duty actions against fossil fuel subsidies even more difficult.

5.3.2.1.2.1.2 China – Primary Aluminum

This is another dispute in which fossil fuel subsidies featured as indirect subsidies to energy-intensive industries. The US filed this dispute in January 2017 against several subsidy programs benefiting Chinese primary aluminium producers.¹⁴²⁶ One of the subsidies at issue is the provision of coal for less than adequate remuneration. The US alleged that these subsidies are causing adverse effects to its interests within the meaning of Article 5(c) of the SCM Agreement. Perhaps the main difficulty here is establishing the public body status of the coal producers and resellers at issue and the specificity of the alleged subsidy. Finding a market benchmark price for the benefit comparison will also pose another challenge given the distorted nature of coal markets and the financial form of the alleged subsidy. Notwithstanding the outcome, the filing of this dispute reinforces our earlier point that the most likely challenge against fossil fuel subsidies under the SCM Agreement is in the form of indirect subsidies to energy-intensive industries.

5.3.2.1.2.1 Countervailing Duty Actions

Although there are no countervailing duty actions directly targeted at fossil fuel subsidies, recent years have seen a growing number of countervailing duty investigations featuring fossil fuels or fossil fuel subsidies. They have been the subject of 12 countervailing duty investigations into the subsidization of energy-intensive industries (see *table 5.6* below). The US and Canada initiated all these countervailing duty investigations.¹⁴²⁷ Since countervailing duty investigations are initiated only at the request of the domestic industry, the investigations indicate the active role of the energy-intensive industries of these two countries. The investigations targeted a wide range of energy-intensive industries, but the steel industry was the most common target.

¹⁴²⁵ See *ibid*, paras 7.53-7.57, 7.130 & 7.146.

¹⁴²⁶ See WTO, ‘Request for Consultations by the United States, China – Subsidies to Producers of Primary Aluminium’ (n 1209).

¹⁴²⁷ These are those countervailing duty investigations notified pursuant to Article 25.11 of the SCM Agreement. It bears noting that countries do not always comply with this obligation. A case in point here is the investigation behind the *China – GOES* dispute. China notified neither the initiation nor the imposition of the duties.

Fossil fuel subsidies feature in these investigations in two forms. First, as the provision of fossil fuels at below market prices to energy-intensive industries. The allegation here is that governments directly or indirectly provide fossil fuels (in the form of coal, natural gas or conventional electricity) to energy-intensive industries at less than adequate remuneration. In jurisdictions where the government directly involves in energy supply, the allegation is that such measures constitute financial contributions within the meaning of Article 1.1(a)(1)(iii) – the provision of goods. In other jurisdictions, the claim takes the form of government-entrusted or government-directed provision of goods within the meaning of Article 1.1(a)(1)(iv). The common claim here is that governments entrust or direct private energy suppliers to provide natural gas, coal or conventional electricity at below-market prices to energy-intensive industries through price regulations. The challenge with such claims is establishing the existence of entrustment or direction. In *China – GOES* and recently in *US – Supercalendered Paper*, China and the US alleged that the government regulation of electricity prices in jurisdictions where private entities supply electricity constitutes a government-entrusted or government-direct provision of electricity at below market prices. National countervailing duty investigating authorities may determine without sufficient evidence of the existence of financial contribution, but it bears recalling that such determinations are subject to domestic and multilateral judicial review. As we have seen in *China – GOES* the adjudicatory bodies require a high standard of sufficient evidence even if it is not reasonably available to applicants.

Second, as pass-through subsidies to energy-intensive industries. There is no doubt that the subsidization of fossil fuels benefits (albeit indirectly) energy-intensive industries. The challenge is establishing whether it specifically benefits such industries. The specificity of the fossil fuel subsidy is not the issue here but that of the pass-through to the energy-intensive industries. All industries that use energy benefit from the provision of fossil fuels, unless access to the below-market price energy is *de jure* limited to energy-intensive industries. Even such cases require establishing whether subsidies to an energy-intensive industry qualify as specific subsidies within the meaning of Article 2 of the SCM Agreement. The Panel in *China – GOES* suggested that an investigating authority requires sufficient evidence even to determine whether ‘the steel industry

falls within a category of "certain enterprises" to which the subsidy is specific'.¹⁴²⁸ The need for information gets bigger when the fossil fuel subsidy at issue is generally available throughout the economy. We have repeatedly noted that establishing *de facto* specificity a complex fact-intensive exercise. Investigating authorities overcome this obstacle by adopting a less stringent evidentiary standard in determining the existence of *de facto* specificity. However, such a standard is inconsistent with Articles 11.2 and 11.3 of the SCM Agreement. This is partly why most *de facto* specificity determinations authorities fail to pass the scrutiny of the adjudicatory bodies when they are subject to multilateral judicial review (see *China – GOES*).

Table 5.5: Countervailing Duty Investigations Involving Fossil Fuels

Investigating Member	Members under Investigation	Fossil Fuels	The Subsidized Products	Date of Initiation	WTO Notification Documents
US	India	Coal	Hot-rolled carbon steel flat products	2/2/2007	G/SCM/N/212/USA
US	India	Oil	Polyethylene terephthalate (PET) film	26/8/2008	G/SCM/N/203/USA
US	China	Coal	Citric acid and certain citrate salts	28/6/2011	G/SCM/N/228/USA
Canada	India	Coal & oil	Carbon steel welded pipe	14/5/2012	G/SCM/N/250/CAN
US	Turkey	Natural gas	Steel concrete reinforcing bar	2/10/2013	G/SCM/N/281/USA
Canada	Indonesia	Coal	Oil country tubular goods	21/7/2014	G/SCM/N/281/CAN
Canada	India	Oil	Oil country goods tubular	21/7/2014	G/SCM/N/281/CAN
US	Russia	Natural	Cold-rolled steel	24/8/2015	G/SCM/N/298/USA

¹⁴²⁸ See *China - GOES* (n 864), para 7.128.

		gas	flat products		
US	China	Oil	Truck and bus tires	25/2/2016	G/SCM/N/321/USA
US	Canada	Gasoline & oil	Softwood lumber products	22/12/2016	G/SCM/N/321/USA
US	Canada	Gasoline & oil	Supercalendered paper	13/2/2017	G/SCM/N/334/USA
Canada	Turkey	Oil	Dry wheat pasta	28/12/2017	G/SCM/N/334/CAN

Source: Compiled by the author from Article 25.11 notifications

5.3.2.2 Transparency and Surveillance of Energy Subsidies

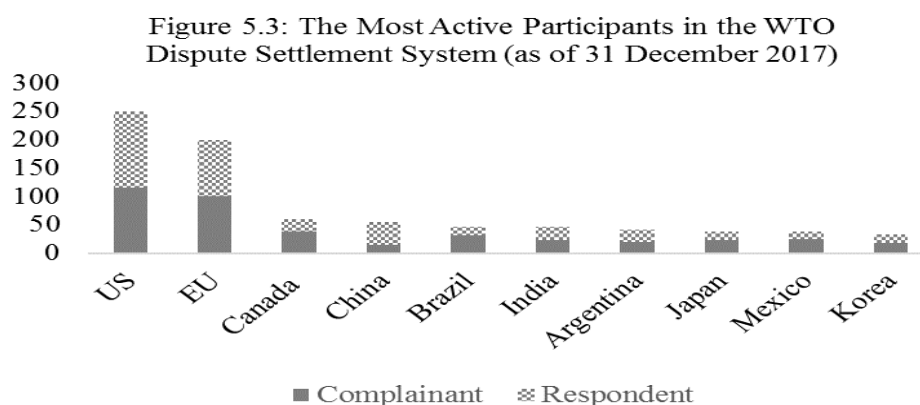
The dispute settlement system and countervailing duty investigations are only one side of the enforcement coin. Albeit not judicial, the transparency and surveillance mechanisms of the multilateral trading system complement the adjudicatory mechanisms in exerting pressure on Members to comply with their commitments.¹⁴²⁹ They do so by enhancing the transparency and understanding of the trade policies and practices of Members and demonstrating inconsistencies with WTO Agreements.¹⁴³⁰ Two separate transparency and surveillance mechanisms are relevant to energy subsidies. The first one is specific to subsidies – the notification and surveillance mechanism set out in Articles 25 and 26 of the SCM Agreement. We have discussed the nature and limitations of this mechanism in the previous chapter (see *section 4.5.3.4*). The second transparency and surveillance mechanism is the one that applies to all forms of trade policies and practices that are subject to the WTO agreements – the TPRM.

In what follows we will consider whether these two mechanisms have been put to use in practice to question the subsidization of fossil fuels and renewables. Doing so requires examining thousands of documents pertaining to the notification of subsidies under Article 25, questions and replies under Articles 25.8 and 25.10 of the SCM Agreement, minutes of the SCM Committee

¹⁴²⁹ See Julien Chaisse and Debashis Chakraborty, 'Implementing WTO Rules Through Negotiations and Sanctions: The Role of Trade Policy Review Mechanism and Dispute Settlement System' (2007) 28 *University of Pennsylvania Journal of International Economic Law* 33 (arguing that the TPRM is 'another instrument to implement WTO law, though it is more of a negotiation than a judicial process like the DSB'), at 158.

¹⁴³⁰ *ibid*, at 160.

meetings and Trade Policy Review Reports (TPRRs). However, for practical reasons, we consider only documents circulated in the G/SCM/Q2/* series containing questions raised by and against the ten most active participants in the dispute settlement system from 1 January 2008 to 31 December 2017, and the latest TPRs of these ten Members. Our purpose here is to assess whether Members question the subsidization of fossil fuels and renewables through these mechanisms. We excluded self-notifications under Article 25.1 of the SCM Agreement and the minutes of the SCM Committee meetings because of their limited relevance. What matters is whether other Members raised questions as to the notified and non-notified subsidies and we learn this from the documents pertaining to questions and replies under Articles 25.8 and 25.10 (i.e. G/SCM/Q2/* series), not from the notifications themselves. The minutes of the SCM Committee meetings also contain no additional information than the Articles 25.8 and 25.10 question and reply documents. The ten most active participants in the dispute settlement system (as complainants and respondents) are the largest economies in the world (see *figure 5.4* below). This makes them both the main source (because of their trade interests) and target (because of their large market and capacity to subsidize) of Articles 25.8 and 25.10 questions.



Source: Compiled by the author from www.wto.org

5.3.2.2.1 Notification and Surveillance

Articles 25.8 and 25.10 of the SCM Agreement allow Members to raise questions concerning both notified and non-notified subsidies of other Members. The thousands of written questions and replies under these provisions illustrate that Members take advantage of these provisions not

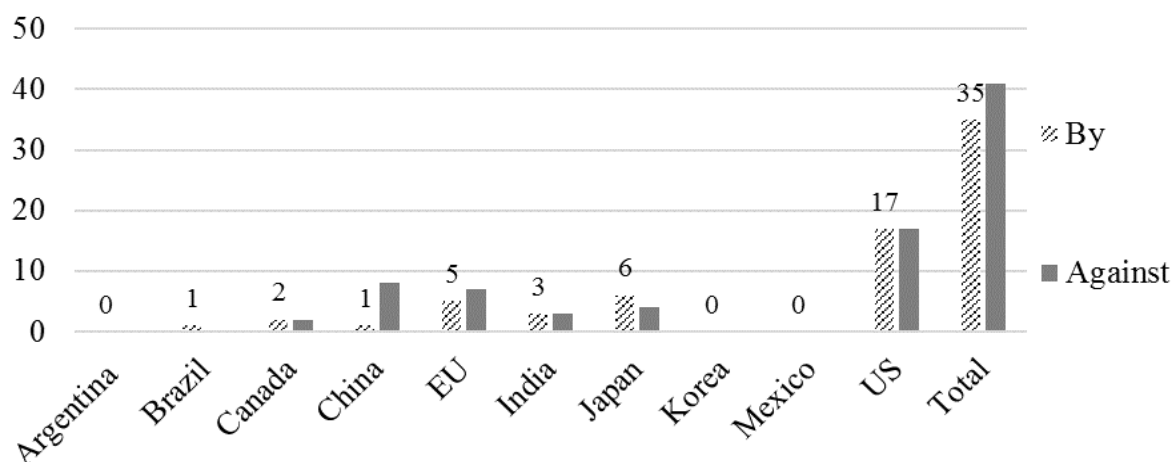
only to seek clarification or additional information but also to express their concerns about the subsidies of other Members.¹⁴³¹ Our examination of the questions and replies involving the ten Members in our sample between 2008 and 2017 reveal that both renewable energy and fossil fuel subsidies have been the subject of several inquiries. Perhaps the key difference here is that while some of the renewable energy subsidy inquiries led to dispute settlement or countervailing duty actions, none of the inquiries about fossil fuel subsidies prompted such actions. Underlying this are the same legal and practical factors explained earlier. Below, we will consider the nature of the inquiries into fossil fuel and renewable energy subsidies separately.

5.3.2.2.1 Renewable Energy Subsidies

Renewable energy subsidies appeared in 45 written requests submitted pursuant to Articles 25.8 and 25.10 of the SCM Agreement by and against the ten most active participants in the dispute settlement system (see *figure 5.4* and *table 5.5*). The United States was by far the primary source and target of most of these questions. While its questions were mostly targeted at China, a range of Members raised questions about US renewable energy subsidies. The EU, Japan and China were also active in raising questions or replying to questions concerning their renewable energy subsidies. The Chinese renewable energy subsidies at issue were those that China failed to notify, while most of the questions concerning the renewable energy subsidies of the EU and Japan were requests for clarification and additional information under Article 25.8.

The Articles 25.8 and 25.10 questions concerning renewable energy subsidies (see *table 5.5* below) suggests that the renewable energy subsidies that have been the subject of judicial actions represent only a tip of the iceberg. Most of the renewable energy subsidies that have been the subject of Articles 25.8 and 25.10 questions remained unchallenged. This was either because the replies to the questions clarified that the subsidies at issue were consistent with the SCM Agreement or just because the Members that raised the questions did not follow up. It could also be that the subsidizing Members brought the subsidies into compliance. We have noted earlier that such ‘bargaining in the shadow of the law’ is common in the multilateral trade regime.

¹⁴³¹ See WTO documents in the G/SCM/Q2/* series, available at www.wto.org.

Figure 5.4: Articles 25.8 and 25.10 Questions Concerning Renewable Energy Subsidies

Source: Compiled by the author from the WTO document G/SCM/Q2/* series

The review of Article 25.8 and 25.10 questions also yields three other observations. First, such questions often precede judicial actions against renewable energy subsidies. Members often seek clarification or express their concern under these provisions before taking legal actions against renewable energy subsidies (see *table 5.5*). Second, although the questions are simple requests for clarification or additional information, the replies often go beyond explanation and justify the consistency of the subsidies at issue with the SCM Agreement. Sometimes this leads to several rounds of questions and replies over the same subsidy program. Third, like the judicial actions, most of the Article 25.8 and 25.10 questions were tit-for-tat counter questions. Members tend to raise questions as to the renewable energy subsidies of other Members that raised questions about their renewable energy subsidies. The possible rationale of counter-questions is to deter the other Member from taking legal actions against their subsidies. Finally, while some of the subsidies that were the target of such questions contain local content requirements, many others were non-discriminatory subsidies, including subsidies for electricity generation.

Table 5.6: Articles 25.8 and 25.10 Questions Concerning Renewable Energy Subsidies

Requesting Member	Subsidizing Member	Date	WTO Document	Related Actions	Legal
Canada	US	30/1/2008	G/SCM/Q2/USA/31		
EU	Australia	5/2/2008	G/SCM/Q2/AUS/31		

Tesi di dottorato "The Regulation of Energy Subsidies in the WTO: Bridge or Bottleneck for Sustainable Energy Transition?" di ASMELASH HENOK BIRHANU

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2019

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EU	US	5/2/2008	G/SCM/Q2/USA/33	G/SCM/N/178/EEC G/SCM/N/203/PER
Chinese Taipei	US	20/2/2008	G/SCM/Q2/USA/34	
US	Japan	7/8/2008	G/SCM/Q2/JPN/41	
EU	US	23/9/2009	G/SCM/Q2/USA/36	
Canada	US	1/2/2010	G/SCM/Q2/USA/37	
US	Australia	1/2/2010	G/SCM/Q2/AUS/39	G/SCM/N/212/AUS
US	Japan	1/2/2010	G/SCM/Q2/JPN/45	
EU	Japan	17/2/2010	G/SCM/Q2/JPN/46	
Japan	US	8/4/2010	G/SCM/Q2/USA/40	
Japan	Canada	21/4/2010	G/SCM/136	<i>Canada – Renewable Energy</i>
US	India	10/2/2011	G/SCM/Q2/IND/16	
India	US	18/3/2011	G/SCM/Q2/USA/43	
Japan	US	29/4/2011	G/SCM/Q2/USA/44	
Japan	India	29/4/2011	G/SCM/Q2/IND/18	<i>India – Solar Cells</i>
Japan	US	3/5/2011	G/SCM/Q2/USA/45	
India	Japan	20/6/2011	G/SCM/Q2/JPN/51	
Brazil	US	26/6/2011	G/SCM/Q2/USA/48	
US	India	10/10/2011	G/SCM/Q2/IND/20	<i>India – Solar Cells</i>
US	China	11/10/2011	G/SCM/Q2/CHN/42	<i>China – Wind Equipment</i>
EU	Australia	22/12/2011	G/SCM/Q2/AUS/44	
Australia	Japan	23/1/2012	G/SCM/Q2/JPN/26	
US	EU	25/1/2012	G/SCM/Q2/EU/9	
US	EU	27/1/2012	G/SCM/Q2/EU/10	<i>G/SCM/N/235/EU</i>
EU	US	18/6/2012	G/SCM/Q2/USA/52	<i>G/SCM/N/281/EU</i>
Turkey	US	20/6/2012	G/SCM/Q2/USA/53	
Japan	China	10/10/2012	G/SCM/Q2/CHN/45	<i>China – Wind Equipment</i>
US	China	29/10/2012	G/SCM/Q2/CHN/46	<i>G/SCM/N/242/USA</i>
India	US	18/4/2013	G/SCM/Q2/USA/59	<i>US - Renewable Energy (India)</i>
US	Viet Nam	26/7/2013	G/SCM/Q2/VNM/1	
US	China	14/5/2014	G/SCM/Q2/CHN/50	<i>G/SCM/N/274/USA</i>
US	Canada	6/5/2014	G/SCM/Q2/CAN/61	
Russia	EU	27/4/2015	G/SCM/Q2/EU/44	
US	China	19/10/2015	G/SCM/Q2/CHN/53	
Russia	EU	23/10/2015	G/SCM/Q2/EU/47	
Russia	US	12/2/2016	G/SCM/Q2/USA/64	
US	China	21/4/2016	G/SCM/Q2/CHN/59	
US	China	28/1/2016	G/SCM/Q2/CHN/57	
Chinese Taipei	US	4/8/2016	G/SCM/Q2/USA/68	

US	EU	30/8/2012	G/SCM/Q2/EU/20	
Russia	EU	27/4/2015	G/SCM/Q2/EU/44	
Russia	EU	25/10/2015	G/SCM/Q2/EU/47	
Russia	US	12/2/2016	G/SCM/Q2/USA/64	
US	China	19/4/2017	G/SCM/Q2/CHN/71	
China	US	13/10/2017	G/SCM/Q2/USA/73	

Source: Compiled by the author from the WTO document G/SCM/Q2/* series

5.3.2.2.1.2 Fossil Fuel Subsidies

Fossil fuel subsidies have been the subject of 18 written questions raised by and against the ten Members in our sample between January 2008 and December 2017 (see *table 5.7*). Although their number is less than half of the questions concerning renewable energy subsidies, these questions indicate the potential of the notification and surveillance mechanisms of the SCM Agreement in enhancing the transparency of fossil fuel subsidies. They also confirm the obvious point that fossil fuel subsidies raise trade concerns and that lack of interest is not the reason for the absence of direct legal actions against such subsidies in the multilateral trading system.

The fossil fuel subsidies of the United States and Brazil were the target of more than half of the questions, while that of Japan, South Korea and China were also the subject of enquiries. The most frequent questions are related to eligibility criteria and actual beneficiaries of the subsidies. Such information is essential to determine the specificity and discriminatory nature of the subsidies at issue. However, unlike the questions concerning renewable energy subsidies, most of the fossil fuel subsidy questions were Article 25.8 questions. Such questions are typically clarification and additional questions on the basis of self-notifications under Article 25.

In contrast, Article 25.10 questions concern subsidies that were not self-notified. The underlying reason for the absence of Article 25.10 question is the lack of information about foreign fossil fuel subsidies. We noted in chapter two of this thesis that it is much easier to find information about renewable energy subsidy than about fossil fuel subsidies. Part of the reason is that most renewable energy subsidies are relatively recent and several databases record renewable energy support programs. Governments also tend to present renewable energy subsidies as evidence of their support for the protection of the environment. In contrast, they tend to disguise fossil fuel

subsidies not least for fear of condemnation. This makes it difficult for foreign countries to obtain the necessary information to cross-notify fossil fuel subsidies. pursuant to Article 25.10. However, this provision essential to enhance the transparency of fossil fuel subsidies. The lesson from the intergovernmental efforts to phase out fossil fuel subsidies is that the self-notification of fossil fuel subsidies is not efficient. The strong tendency of countries not to fully notify their fossil fuel subsidies makes cross-notifications essential.

Articles 25.8 and 25.10 also offer an ideal opportunity to raise not only trade but also environmental concerns about the subsidization of fossil fuels. As we will see shortly in *section 5.3.2.2.2*, the friends of fossil fuel subsidies (FFFS) are using the TPRM to voice their concerns about the adverse environmental effects of fossil fuel subsidies. However, neither the friends nor other environmentally-friendly countries are using Articles 25.8 and 28.10 for this purpose. To date, the only such attempt was that of New Zealand. Its written question to Brazil reads:

Given international concerns with fossil fuel and fishery subsidies, from both environmental and trade perspectives, we ask that Brazil provide further background on the scheme: why is the rebate needed; what types of entities receive it (are they small or large scale operations); and is Brazil planning on phasing out this program?¹⁴³²

Pursuing such naming and shaming strategies through the notification and surveillance mechanism would help not only to enhance transparency but also to narrow the wide policy space that the SCM Agreement has left for the subsidization of fossil fuels.

Table 5.7: Articles 25.8 and 25.10 Questions Concerning Fossil Fuel Subsidies

Requesting Member	Responding Member	WTO Documents	Date	Subsidy Program
Chinese Taipei	Brazil	G/SCM/Q2/BRA/19 G/SCM/Q2/BRA/22	2008	Program for diesel oil support
EU	US	G/SCM/Q2/USA/33 G/SCM/Q2/USA/35	2008	Alcohol fuel credit and partial exemption from Federal excise tax on gasoline
US	Brazil	G/SCM/Q2/BRA/18	2008	Program for diesel oil

¹⁴³² See WTO, 'Questions Posed by New Zealand Regarding the New and Full Notification of Brazil' (2017) G/SCM/Q2/BRA/49.

		G/SCM/Q2/BRA/21		support
Canada	US	G/SCM/Q2/USA/37 G/SCM/Q2/USA/38	2010	Excess of percentage over cost depletion for oil, gas and other fuels
Canada	US	G/SCM/Q2/USA/41 G/SCM/Q2/USA/47	2011	Fossil energy research and development
India	US	G/SCM/Q2/USA/43 G/SCM/Q2/USA/50	2011	Fossil energy research and development
India	Japan	G/SCM/Q2/JPN/52 G/SCM/Q2/JPN/51	2012	Liability guarantees for overseas exploration and development of oil and gas
US	China	G/SCM/Q2/CHN/46	2012	Fuel subsidies for fisheries
Canada	Brazil	G/SCM/Q2/BRA/34 G/SCM/Q2/BRA/36	2012	Program for diesel oil support
Turkey	US	G/SCM/Q2/USA/53 G/SCM/Q2/USA/56	2012	Expensing of exploration and development (E&D) costs for oil, gas and other fuels
India	US	G/SCM/Q2/USA/50	2012	Fossil energy research and development
Australia	Japan	G/SCM/Q2/JPN/60 G/SCM/Q2/JPN/62	2014	Subsidy for loans to develop domestic oil and natural gas
Canada	Brazil	G/SCM/Q2/BRA/41 G/SCM/Q2/BRA/44	2014	Diesel oil price equalization Scheme
New Zealand	Brazil	G/SCM/Q2/BRA/45	2014	Diesel oil price equalization scheme
Chinese Taipei	US	G/SCM/Q2/USA/68 G/SCM/Q2/USA/71	2016	Gasoline & special fuel taxes for commercial fisherman
Chinese Taipei	South Korea	G/SCM/Q2/KOR/55 G/SCM/Q2/KOR/56	2016	Subsidy for natural gas vehicle procurement and fuel expenses
China	US	G/SCM/Q2/USA/73 G/SCM/Q2/USA/75	2017	Coal loading facilities credit
New Zealand	Brazil	G/SCM/Q2/BRA/49 G/SCM/Q2/BRA/50	2017	Diesel oil price equalization scheme

Source: Compiled the author from WTO Document G/SCM/Q2* series

5.3.2.2.2 Trade Policy Review Mechanism

Unlike the subsidy-specific notification and surveillance mechanism of the SCM Agreement, the TPRM is a peer-review process that covers all trade policies and practices that are subject to

WTO Agreements. By achieving greater transparency in, and understanding of, the trade policies and practices of Members, it aims to contribute to improved adherence to WTO Agreements.¹⁴³³ The periodic review applies to all Members, albeit with varying frequency: every three years for the four Members with the largest share in world trade, every five years for the next 16 largest traders, and every seven years for other Members.¹⁴³⁴ The Trade Policy Review Body (TPRB) conducts the review on the basis of two reports prepared by the Member under review and the WTO Secretariat. The report by the Member under review is more of a policy statement, while that of the Secretariat is a comprehensive and technical analysis of the trade policies and measures of the Member under review. The Secretariat refrains from assessing the legality of the reviewed trade measures under WTO law, but Members typically enquire into doubtful trade measures during the review process.¹⁴³⁵ It is these questions and replies that matter for our analysis here. Do Members raise questions concerning energy subsidies?

Before answering this question, however, it is useful to consider the implications of the trade policy review reports (TPRRs). Annex 3 to the Marrakesh Agreement expressly states that the TPRM is not ‘intended to serve as a basis for the enforcement of specific obligations under the Agreements or for dispute settlement procedures’.¹⁴³⁶ This provision precludes Members from invoking TPRRs in dispute settlement proceedings.¹⁴³⁷ Nevertheless, it is now well-established that such peer-review mechanisms exert peer pressure on Members to comply with their commitments through transparency and naming and shaming.¹⁴³⁸ Although the results of the review have no binding effect, the ‘diplomatic pressure is sometimes so severe that a country will have to conform to the report, if only to avoid a potential litigation’.¹⁴³⁹ The Trade policy reviews (TPRs) often provide ammunition for subsequent legal challenges. Such considerations have led

¹⁴³³ Annex 3 (A)(i), Marrakesh Agreement.

¹⁴³⁴ The review of LDCs may take place even less frequently than once in every seven years. See Annex 3 (C)(ii), *ibid*; WTO, ‘Amendment of the Trade Policy Review Mechanism: Decision of 26 July 2017’ (2017) WT/L/1014.

¹⁴³⁵ The WTO publishes such questions and replies as part of the Minutes of the TPRB meetings.

¹⁴³⁶ See Annex 3 (A)(i), Marrakesh Agreement.

¹⁴³⁷ Brazil relied on a statement from the Trade Policy Review of Canada in *Canada – Aircraft* to establish the existence of a benefit within the meaning of the SCM Agreement, but the Panel rejected this argument referring to Annex 3(A)(i) of the Marrakesh Agreement. See *Canada - Aircraft* (n 804), para 9.274. The Panels in *Chile – Band System* and *US – Gambling* and the Appellate Body in *Canada – Continued Suspension* made similar findings.

¹⁴³⁸ According to Kende, the naming and shaming potential of the TPRM remain ‘untapped’. See Mathias Kende, *The Trade Policy Review Mechanism: A Critical Analysis* (Oxford University Press 2018), at 287.

¹⁴³⁹ See Chaisse and Chakraborty (n 1429), at 161.

some commentators to describe the TPRM as an ‘extended wing’ of the dispute settlement system or midway between self-surveillance and dispute settlement.¹⁴⁴⁰ Recent works, however, lament that the compliance function of the TPRM has not received as much attention as its transparency counterpart.¹⁴⁴¹ We will consider this point further shortly below while discussing renewable energy and fossil fuel subsidy issues raised during TPRs.

5.3.2.2.1 Renewable Energy Subsidies

The TPRs of the ten Members in our sample reveal that Members do raise questions concerning renewable energy support measures during TPRs. Renewable energy support measures were at issue in the latest TPRs of all the ten Members except that of Argentina and Mexico.¹⁴⁴² However, as we will see below, most were clarification questions based on the reports of the Secretariat.¹⁴⁴³

During the 2017 TPR of Brazil, the EU questioned Brazil’s plans to support the ethanol industry and its potential impact on sugar exports.¹⁴⁴⁴ Brazil argued that its policy has no projected impact on sugar exports and, in any case, has environmental grounds:

Regarding the ethanol industry, the Brazilian Intended Nationally Determined Contribution presented in the context of UNFCCC COP-21, in Paris, states Brazil's intention to increase the share of sustainable biofuels in the Brazilian energy mix to approximately 18% by 2030...This measure is in line with IPCC's conclusions that global scenarios consistent with a likely chance to keep temperature change below 2°C relative to pre-industrial levels are characterized by sustainable use of bioenergy, among others.¹⁴⁴⁵

In the 2015 TPR of Canada, the EU requested for clarification concerning the various mechanisms that the Canadian provinces are supporting for the introduction of non-hydro

¹⁴⁴⁰ See *ibid*; Craig VanGrasstek, *The History and Future of the World Trade Organization* (WTO 2013), at 272.

¹⁴⁴¹ See Kende (n 1438).

¹⁴⁴² In the 2013 TPR of Argentina, China enquired about some aspects of an incentive scheme that benefited various sectors including the biofuel industry. However the question was not targeted at the biofuel industry as such. See WTO, ‘Trade Policy Review - Argentina: Minutes of the Meeting’ (2013) WT/TPR/M/277/Add.1, at 233.

¹⁴⁴³ These reports provides an overview of the renewable energy laws and policies of the Member under review. The chapters on ‘trade and investment regime’, ‘trade policies by measures’ and ‘trade policies by sectors’ of the Secretariat’s reports touch upon renewable energy support measures, albeit to varying degrees. The ‘electricity’ section of the latter is where renewable energy support measures feature most prominently.

¹⁴⁴⁴ See WTO, ‘Trade Policy Review - Brazil: Minutes of Meeting’ (2017) WT/TPR/M/358/Add.1, at 126.

¹⁴⁴⁵ See *ibid*, at 126.

renewables.¹⁴⁴⁶ Canada explained the various provincial renewable energy support measures. The 2016 TPR of China was one of the TPRs that raised several questions concerning renewable energy support measures. Chinese Taipei, Ecuador, Turkey and the United States raised questions specific to renewable energy support measures. These include requests for clarification concerning local content requirements (Chinese Taipei and the US), preferential loan and loan guarantees for green technologies (Ecuador), the *Renewable Energy Development Special Fund* (Turkey and the US).¹⁴⁴⁷ In its reply, China emphasized the importance of promoting renewable energy without providing much detail about the support measures at issue.

The 2016 TPR of the European Union also attracted several questions concerning renewable energy support measures from Switzerland, Argentina, Indonesia, Russia, New Zealand and the US. The questions were concerned with the costs and beneficiaries of EU's increased support for renewable energy (Switzerland), the 2016 amendment to the EU Renewable Energy Directive (Argentina, Indonesia and Russia), and renewable energy competitive bidding schemes (Russia and New Zealand).¹⁴⁴⁸ The EU responded to these question with additional information without engaging into their compatibility with its commitment under WTO Agreements.

The latest TPR of India took place in 2015 after the US initiated the *India – Solar Cells* disputes but before the Panel and the Appellate Body issued their reports. The timing of the TPR and the dispute meant that most of the questions concerning renewable energy support measures were related to the local content requirements under the JNNSM. Saudi Arabia, EU, and the US sought clarification from India concerning its local content requirements.¹⁴⁴⁹ India responded to these questions by simply explaining the scope of the local content requirements. China also enquired about the legality of the countervailing duty investigation India initiated against Chinese wind generator castings in 2014.¹⁴⁵⁰ India insisted that it initiated the investigation according to the law based on accurate and adequate evidence.

¹⁴⁴⁶ See WTO, 'Trade Policy Review - Canada: Minutes of the Meeting' (2015) WT/TPR/M/314/Add.1, at 60-61.

¹⁴⁴⁷ See WTO, 'Trade Policy Review - China: Minutes of the Meeting' (2016) WT/TPR/M/342/Add.1.

¹⁴⁴⁸ See WTO, 'Trade Policy Review - European Union: Minutes of the Meeting' (2017) WT/TPR/M/357/Add.1.

¹⁴⁴⁹ See WTO, 'Trade Policy Review - India: Minutes of the Meeting' (2015) WT/TPR/M/313/Add.1.

¹⁴⁵⁰ See *ibid*, at 63.

In the 2017 TPR of Japan, Chinese Taipei and New Zealand enquired about the policy instruments that Japan was using to meet its objective of increasing the share of renewables in its energy mix.¹⁴⁵¹ The question from Chinese Taipei is noteworthy here:

Many other countries have applied a feed-in-tariff (FIT) system to incentivize the development of green energies. However, *such a policy tool is considered as a form of subsidy that violates WTO rules*. Has Japan used similar means to boost the development of offshore wind power?¹⁴⁵² [italics added]

Japan admitted that '[it] has applied a Feed-in Tariff (FIT) system to incentivize the development of green energies, including off-shore wind power'.¹⁴⁵³ However, it refrained from commenting on the legality of the FIT program under the SCM Agreement.

Renewable energy subsidies were also at issue in the 2016 TPR of South Korea. Canada enquired about the steps Korea is taking to realize its renewable energy targets, while Chinese Taipei asked (in the context of renewable energy support measures) whether there are any restrictions for foreign companies to invest in the Korean renewable energy sector.¹⁴⁵⁴ Korea explained that it had adopted various support measure to meet its target and there were no special restrictions on the participation of foreign companies in the renewable energy sector.

The 2017 TPR of the United States attracted questions from Brazil, China, Costa Rica, Indonesia, and Chinese Taipei.¹⁴⁵⁵ Most of the questions were requests for clarification and additional information concerning renewable energy support measures. In its responses, the US simply referred to its subsidy notification under Article 25 of the SCM Agreement.

In sum, none of these questions constitutes a challenge for the subsidization of renewables on their own. The nature of the TPRM means that Members under review do not even receive criticism for maintaining blatantly discriminatory renewable energy support measures. Neither

¹⁴⁵¹ See WTO, 'Trade Policy Review - Japan: Minutes of the Meeting' (2017) WT/TPR/M/351/Add.1, at 169 and 177.

¹⁴⁵² See *ibid.*, at 169.

¹⁴⁵³ *ibid.*

¹⁴⁵⁴ See WTO, 'Trade Policy Review - Republic of Korea: Minutes of the Meeting' (2016) WT/TPR/M/346/Add.1, at 18 & 53-54.

¹⁴⁵⁵ See WTO, 'Trade Policy Review - United States of America: Minutes of the Meeting' (2017) WT/TPR/M/350/Add.1.

the WTO Secretariat nor any Member, for example, condemned India for its local content requirements although the latest Indian TPR took place in the aftermath of the Appellate Body's ruling in *Canada – Renewable Energy/FIT*. However, it bears noting that Members do not raise questions about measures in which they have no interest. The enquiries about renewable energy support measures imply the existence of trade concerns associated with the support measures in question. The ultimate impact of the TPRs on the subsidization of renewables relies on whether Members act upon the new information brought by the review process and take legal actions. It is now well-established that Members cannot rely upon TPRs in dispute settlement proceedings, but this does not prevent them from using the new information to challenge renewable energy support measures (without relying on the TPRs) either multilateral or unilaterally.

5.3.2.2.2 Fossil Fuel Subsidies

The TPRM has increasingly become a major forum for discussing cross-cutting issues such as fossil fuel subsidies.¹⁴⁵⁶ Unlike the discussion within the SCM Committee, the TPRM allows Members to raise any question concerning the adverse trade and environmental effects of fossil fuel subsidies. The minutes of the latest TPRs of the ten Members under our consideration reveal that the friends of fossil fuel subsidy reform (FFFSR) are actively using this forum to challenge the subsidization of fossil fuel subsidies and call for fossil fuel subsidy reform (see *table 5.8*). FFFSR Members, Costa Rica, New Zealand, Norway and Switzerland raised questions concerning fossil fuel subsidy reform during the TPRs of six of the ten Members under our consideration. The question and replies indicate a growing consensus within the multilateral trading system over the need to tackle inefficient and environmentally harmful fossil fuel subsidies. Perhaps the reduced frequency of the reviews may undermine the role of the TPRM as a forum for tackling fossil fuel subsidies, but its broad scope offers an opportunity to raise issues that might not strictly fall within the mandate of a specific WTO Committee.

Table 5.8: Fossil Fuel Subsidy Reform Related TPR Questions

Member under	WTO Document	Members Raising	Questions
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¹⁴⁵⁶ See Casier and others (n 1065).

Review & Year	Questions		
Brazil 2017	WT/TPR/M/358/Add.1	New Zealand	What plans does Brazil have for utilizing the G20 Voluntary Peer Review Mechanism for Reform of Inefficient Fossil Fuel Subsidies, as a way to increase transparency, and to share reform experiences and best practice?
		Switzerland	What are generally Brazil's objectives and policies with regard to fossil fuels subsidies and its reduction or elimination with regard to environmental protection? To what extent does Brazil's Ten-Year Plan for Energy Expansion 2024 mentioned in para 4.46 include reforms to fossil fuel subsidies? Such reforms liberate financial resources that could be redirected to the production of renewable energy. What is Brazil's policy in that regard?
China 2016	WT/TPR/M/342/Add.1	Costa Rica	Can China please explain if there have been actions taken to address fossil fuel subsidies?
EU 2017	WT/TPR/M/357/Add.1	Switzerland	What is the policy in the EU and its Member States on fossil fuel subsidies, the exemption of sectors such as agriculture or mining from fossil fuel taxes and its reduction or elimination?
		New Zealand	What specific actions is the European Union taking to reduce its reliance on fossil fuels, and to phase out fossil fuel subsidies?
		Russia	Please provide an updated data on the volumes of fossil fuel subsidization in the EU Member states as well as the information on the legislative reforms at the level of the EU and the level of the EU Member states taken towards phasing out of fuel subsidies.
Japan 2017	WT/TPR/M/351/Add.1	Switzerland	What are the policies foreseen to attain this goal and, how do these policies relate to Japans G7 commitment to end fossil fuel subsidies by 2025?
		Norway	Has Japan considered utilizing the G20 peer review process for reform of fossil fuel subsidies as a mechanism for both reviewing its fossil fuel policies and sharing lessons learned from recent challenges?

South Korea 2016	WT/TPR/M/346/Add.1	Switzerland New Zealand	What measures does Korea consider in order to support low-income groups? Furthermore, are there other fossil fuel subsidies in place distorting trade? If this is the case, are there plans for a phasing out of these subsidies? We understand that Korea intends to phase out its coal briquette consumer subsidy by 2020 in addition to the coal production subsidy, and in this light, has Korea considered utilizing the G20 or APEC peer review process for reform of fossil fuel subsidies as a mechanism for reviewing its fossil fuel policies and accessing expert advice? 2. Could Korea elaborate on possible targeted measures to support low-income groups that would not incentivize coal consumption?
Mexico 2017	WT/TPR/M/352/Add.1	Norway	Can Mexico outline what actions that have been implemented to remove the subsidy on fossil fuels, and what actions are being taken to mitigate the effects on vulnerable groups?
India 2015	WT/TPR/M/313/Add.1	Switzerland	How will India tackle pressure to reintroduce fuel subsidies once world oil prices start soaring again?

Source: Compiled by the author

Part III

Conclusion and the Way Forward

Chapter Six

Options for Making the WTO Rules on Subsidies Work for the Energy Transition

6.1 Introduction

Energy subsidies play a dual role in the ongoing transition to sustainable energy sources. Growing recognition of this in recent years has led to the widespread subsidization of renewables and calls for and efforts to phase out fossil fuel subsidies. This thesis has sought to examine whether the WTO rules on subsidies support or constrain the implementation of these energy transition subsidy policies and hence enable or undermine the transition. The existing subsidy rules have the potential to constrain the policy space for the subsidization of both fossil fuels and renewables albeit only to the extent that the subsidies distorted international trade. However, the analysis of the main features of fossil fuel and renewable energy subsidies *vis-à-vis* the SCM disciplines has shown that the latter are more likely to distort international trade than the former. This makes renewable energy subsidies more vulnerable to legal challenge than fossil fuel subsidies. The SCM Agreement and its key elements ranging from the definition and specificity requirements to the conditions for prohibition and actionability are designed to capture and discipline subsidies that distort international trade. The insensitivity of the SCM disciplines to the environmental implications of energy subsidies imply that the current pattern of multilateral and unilateral legal actions against energy subsidies is unlikely to change.

Making the regulation of energy subsidies in the multilateral trading system work for - not against - the sustainable energy transition require changes. This chapter will first address the key issues and avenues for reform (*section 6.2*). There are several ways to change the status quo and ensure that the SCM disciplines help accelerate the transition. These options range from the most ambitious, negotiating an agreement on energy subsidies (*section 6.3*), to the more modest ways of greening the SCM Agreement (*section 6.4*). Two caveats are worth stating at the outset. First, the aim of this chapter is not to present a blueprint for reform. Instead, it is to offer a menu of options that are worth considering. Second, not all the options here are new or specific to energy subsidies. The literature on trade and environment and energy subsidies is replete with reform

proposals. The subsequent sections in this chapter will examine the pros and cons of the various reform options and assess their political feasibility. The current political economy environment (*section 6.2.1*) and the urgency of tackling climate change call for more serious attention to second-best practical options than to their unattainable first best alternatives.

6.2 Key Issues and Avenues for Reform

Reforming the current WTO rules applicable to energy subsidies raises a broad range of substantive and procedural issues. This section will consider the most prominent ones.

6.2.1 The Political Economy Landscape

The political economy environment is an essential issue that stands to shape the success of any effort to align the regulation of energy subsidies with the sustainable energy transition. It bears recalling here that the WTO is a member-driven organization that relies on its members to initiate negotiations and enforce the negotiated outcomes. The recent history of multilateral trade negotiations under the Doha Round, however, indicates that gaining consensus among the diverse membership over any course of action has become extremely difficult (see *section 6.2.3*). Over the last two decades, the dispute settlement system has been the most effective arm of the organization.¹⁴⁵⁷ However, the dispute settlement system itself is now under threat. This threat predates the Trump administration, but it has become more serious ever since. By blocking the appointment of new Appellate Body Members, the US is threatening to dismantle the system. The impasse in the appointment process and the current administration's hostile approach to the rule-based multilateral trading system in general has sparked an existential crisis for the system. While history and several reasons suggest that the multilateral trading system is likely to withstand this crisis, it is too early to predict when and in what shape it will emerge from it.

¹⁴⁵⁷ On the successful track-record of the dispute settlement system over the last two decades, see Robert Howse, 'The World Trade Organization 20 Years On: Global Governance by Judiciary' (2016) 27 *European Journal of International Law* 9; Giorgio Sacerdoti, 'The WTO Dispute Settlement System: Consolidating Success and Confronting New Challenges' in Manfred Elsig, Bernard Hoekman and Joost Pauwelyn (eds), *Assessing The World Trade Organization* (Cambridge University Press 2017).

The institutional crisis presents both a challenge and an opportunity for reform. On the one hand, it makes it unlikely that any negotiations on energy subsidies will take place anytime soon. Members are most likely to focus on the more pressing issue of saving the trading system from its imminent demise. On the other hand, the crisis also creates an opportunity for broader reform of the multilateral trading system. Most of the current multilateral trade rules, including those applicable to energy subsidies, were negotiated almost three decades ago during the heydays of the Washington Consensus. Much has changed since then that require updating the rulebook of the multilateral trading system. The most prominent developments from the perspective of energy subsidy governance are two. First, the 2008 global financial crisis has resulted in increased government interventions both in developed and developing countries. Second, climate change has also moved high on the international agenda ever since the entry into force of the Uruguay Round agreements in January 1995. None of these agreements was negotiated having the energy transition or energy issues in mind. The regulation of energy subsidies could form part of the broader reform package that may arise from the current institutional crisis.

6.2.2 Adjudication or Legislative Reform?

The impasse in multilateral trade negotiations has put the spotlight on adjudication as a possible avenue for reform. The dispute settlement system has undoubtedly played a significant role in shaping international trade rules over the last two decades while the negotiating function of the multilateral trading system has been in a paralytic state.¹⁴⁵⁸ It has ensured the continued functioning of the trading system by filling gaps negotiations were unable to fill. One area where such a role was in full display was the regulation of renewable energy subsidies. The analysis of the *Canada – Renewable Energy/FIT* jurisprudence has shown that the Appellate Body went so far as to create a carve out for renewable energy subsidies under the SCM Agreement and thereby partly fill the void that was left since the expiry of Article 8 at the end of 1999.

¹⁴⁵⁸ On the role of the adjudicatory bodies in shaping the rules on subsidies, see Gary N Horlick, ‘How Subsidies Rules Have Been Shaped’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016), at 67; Dominic Coppens, ‘Twenty Years of (Re)-Shaping O Subsidy Law by the Appellate Body and Panels’ in Luca Rubini and Jennifer Hawkins (eds), *What Shapes the Law? Reflections on the History, Law, Politics and Economics of International and European Subsidy Disciplines* (European University Institute 2016).

Unfortunately, such efforts are part of the reasons that led it into the present crisis. Any reform of the dispute settlement system is now likely to curb the role of adjudication as a possible avenue for reform. However, even assuming that the dispute settlement system will emerge from the present crisis intact, some legal and practical considerations suggest that adjudication is inadequate to bring about the necessary change in the regulation of energy subsidies. First, there is only so much the adjudicatory bodies can do. Article 3.2 of the DSU expressly limits the role of the dispute settlement system to ‘preserve the rights and obligations of Members under the Covered Agreements’ and ‘clarify the existing provisions’. The DSU further underlines that the adjudicatory bodies may not ‘add to or diminish the right and obligations of Members embodied in the WTO Agreements’.¹⁴⁵⁹ These provisions recognize neither judicial law-making nor a binding precedent system. They limit the authority of the adjudicatory bodies to judicial interpretation, which is insufficient to bring about the requisite change in the rules on energy subsidies. For example, the analysis of the *Canada – Renewable Energy/FIT* ruling in this thesis has illustrated that no ‘legal acrobatics’ can adequately address the lack of an express exception for renewable energy subsidies under the SCM Agreement. It also bears noting that the adjudicatory bodies interpret the law only to the extent that there are disputes.¹⁴⁶⁰ This further limits the potential scope of judicial reform to issues that arise in formal disputes. There is no room for judicial reform with respect to issues that are not likely to face legal challenges.

Second, adjudication is also unpredictable because of its specificity to the case under consideration. The risk of pursuing litigation as a reform strategy is that ‘the outcome of a case depends on the particular facts and circumstances’.¹⁴⁶¹ The litigation tactics and strategy of the parties may also influence the outcome of a case.¹⁴⁶² The uncertainty inherent to adjudication undermines its ability to bring about the necessary change in the subsidy rules.

¹⁴⁵⁹ Arts 3.2 and 19.2, DSU.

¹⁴⁶⁰ Neither Panels nor the Appellate Body has jurisdiction to issue advisory opinions under the DSU.

¹⁴⁶¹ See Amelia Porges and Thomas Brewer, ‘Climate Change and a Renewable Energy Scale-up: Responding to Challenges Posed to the WTO’ in ICTSD (ed), *Clean Energy and the Trade System Group Proposals and Analysis* (International Centre for Trade and Sustainable Development 2013), at 61.

¹⁴⁶² It bears noting here that the adjudicatory bodies have no mandate to invoke provisions that the parties failed to do so. Although it has not changed the outcome of the cases as such, a useful example here is the defense strategy of

The legal and practical limitations of adjudication as a potential avenue for reform underline the need for legislative reform. This is not to say that litigation plays no role. Nor is it to say that negotiation is the easiest option. The ever-increasing difficulty of reaching a consensus in the multilateral trading system has made negotiations a difficult route for legal reform (see *section 6.2.3* below). However, only negotiations can bring the requisite change in the rules.

6.2.3 Multilateral or Plurilateral Negotiations?

Once we determine that negotiation is the way forward to bring about the necessary change, the next question is whether to pursue multilateral or plurilateral negotiations. This is another question that has arisen in recent years because of the ever-increasing difficulty of reaching a consensus in the multilateral trading system. Plurilateral arrangements have received significant attention as viable alternatives to overcome this difficulty.¹⁴⁶³ The principal argument for plurilateralism is that finding a consensus is relatively easier and less costly among a subset of like-minded countries. Admittedly, plurilateral negotiations represent the fastest route of legislative reform in the multilateral trading system. However, the following considerations suggest that multilateralism remains a desirable (and viable) option for reform.

First, the prevalence of subsidies in the energy sector means that the regulation of energy subsidies concerns virtually all countries in the world. This is not an issue relevant only for specific countries. Second, it bears recalling here that the underlying reason for changing the existing rules governing energy subsidies is environmental. The public good nature of environmental protection and the associated collective action problem call for a multilateral, not plurilateral, approach. The need for creating sufficient green policy space for the subsidization of renewables, for example, is relevant to all countries. The subsidy rules also need to discipline the subsidization of fossil fuels in as many jurisdictions as possible to make a meaningful contribution towards the sustainable energy transition. Third, recent initiatives suggest that the plurilateral approach is not a guarantee for success. Frustrations with lack of progress in the

Canada in *Canada – Renewable Energy/FIT* and India in *India – Solar Cells*. Both cases involve identical measures, but only the latter invoked GATT Article XX to justify its local content measures (see *section 5.3.2.1.1.1*).

¹⁴⁶³ See Bernard M Hoekman and Petros C Mavroidis, 'WTO "à La Carte" or "Menu Du Jour"? Assessing the Case for More Plurilateral Agreements' (2015) 26 *European Journal of International Law* 319.

multilateral negotiations on environmental goods and services led some like-minded countries to turn the negotiations into a plurilateral one.¹⁴⁶⁴ However, despite the significant reduction in the number of participating countries, the negotiations are yet to make any progress. Fourth, despite the deadlock in the Doha Round negotiations, multilateral trade negotiations have been successful on certain issues. The *Agreement on Trade Facilitation*, the *Agreement on Information Technology* and the Agreement to eliminate agricultural export subsidies are the fruits of recently concluded multilateral trade negotiations. The successful conclusion of these multilateral trade agreements suggests that multilateralism is still a viable option for legislative reform.

However, although multilateralism is the first-best option to bring about the necessary change in the regulation of energy subsidies in the multilateral trading system, the political sensitivity of energy subsidies and the lack of consensus over the need to phase out of fossil fuel subsidies imply that a plurilateral approach is the most viable option at this time. Whichever negotiation route is taken, however, it is essential that it involves the leading greenhouse gas emitters, renewable energy generation equipment exporters and importers and fossil fuel subsidizers.

6.2.4 The Relevance of the Doha Negotiating Mandate

Another issue worth considering in the search for reform avenues is whether to seek a new negotiating mandate or to try to fit the energy subsidy issues within the existing negotiating mandate. The difficulty in securing a new mandate for negotiations in the multilateral trading system suggests that the latter is the more practical option. The question here is whether the Doha mandate is broad enough to cover energy subsidies. The Doha mandate for negotiations on the SCM disciplines, fisheries subsidies, natural resources and energy pricing and environmental goods and services are relevant to energy subsidies (see *section 4.4.4*).

The most relevant one here is the negotiations on environmental goods and services. The objective behind these negotiations is to enhance the synergy between trade and the environment. The original mandate for the negotiations covers ‘the reduction or, as appropriate, elimination of

¹⁴⁶⁴ On the shift from multilateralism to plurilateralism in the negotiations on environmental goods and the failure to facilitate progress in the negotiations, see Mark Wu, ‘Why Developing Countries Won’t Negotiate: The Case of the WTO Environmental Goods Agreement’ (2014) 6 *Trade, Law and Development* 93.

tariff and non-tariff barriers to environmental goods and services'.¹⁴⁶⁵ The energy subsidy issues fit well both with the object and scope of these negotiations. Enhancing the nexuses between trade and environment is the underlying rationale for negotiating new rules (or adjusting the existing one) on energy subsidies. We have also established in this thesis that the imposition of countervailing duties against renewable energy generation equipment constitutes a trade barrier. The subsidization of fossil fuels also undermines international trade in such equipment. The negotiations on environmental goods and services have now become plurilateral, and their scope has narrowed to environmental goods. They are also not specific to the energy sector or subsidies, but the original mandate is broad enough to include energy subsidies. Perhaps the major concern here is that adding energy subsidies will further complicate the negotiations, which are at an impasse due to disagreement over the list of environmental goods.

There has been no progress in the negotiations on the SCM disciplines for over a decade now but the Doha mandate to clarify and improve the SCM disciplines is particularly relevant to greening the SCM Agreement (see *section 6.4* below). Two additional areas of negotiations under this mandate are also specifically relevant to fossil fuel subsidies. The negotiations on natural resources and energy pricing are directly related to fossil fuel subsidies. However, no negotiation has taken place on this issue since 2003 (see *section 4.4.4.2*). The underlying objectives of the negotiations on fisheries subsidies (see *section 4.4.4.1*) is also similar to those of disciplining fossil fuel subsidies. However, since the fisheries negotiation is currently in an advanced stage, it is almost impossible to add any new item on its agenda - let alone fossil fuel subsidies.

In sum, the Doha mandate for negotiations on environmental goods and services and for the clarification and improvement of the SCM disciplines is relevant for any effort to place energy subsidies on the negotiating agenda of the multilateral trading system. However, at the same time, the deadlocks in these negotiations imply that finding a new negotiating mandate and conducting separate negotiations on energy subsidies is the best way forward.

¹⁴⁶⁵ Para 31(iii), Doha Declaration.

6.2.5 Overcoming the Developed-Developing Country Divide

Overcoming the divide between developed and developing countries is critical to the success of any negotiation in the multilateral trading system. It is even more so in the area of subsidies. One of the reasons for the premature death of Article 8 was the feeling among developing countries that the provision did not reflect their interests (see *section 4.5.3.1.3.2*). Renewable energy subsidies are now prevalent both in developed and developing countries and hence both group of countries will find it in their interest to create adequate green policy space for the subsidization of renewables. However, the asymmetry in their ability to subsidize implies that developed countries stand to benefit more from the resultant green policy space. Narrowing the policy space for the subsidization of fossil fuels may also become a point of contention. Fossil fuel consumption subsidies are more prevalent in developing than in developed countries. Phasing out such subsidies is relatively more difficult than removing production subsidies because of political economy reasons (e.g. public protests). Developing countries also use fossil fuel subsidies for legitimate policy goals such as poverty alleviation and income distribution. Such considerations suggest that developing countries and fossil fuel producing countries are likely to resist any effort to tighten the disciplines on fossil fuel subsidies. Bringing developing countries on board will require better S&D provisions that provide additional flexibilities, technical assistance and longer implementation periods for developing countries.

6.2.6 Enhancing the Transparency and Surveillance of Energy Subsidies

The availability of accurate information about the extent and nature of energy subsidies is crucial not only for the implementation of the negotiated outcomes but also to get the negotiations off the ground. The last few years have seen tremendous efforts to shed light on energy subsidies, albeit outside the multilateral trading system. The self-reporting and peer-reviews of fossil fuel subsidies within the G20 and APEC, the establishment of the OECD inventory on fossil fuel support measures, the IMF reports on fossil fuel subsidies, the IEA annual reports and reports from non-governmental organizations such as the Global Subsidies Initiative (GSI) and the Overseas Development Institute (ODI) have played massive role in shining light on fossil fuel subsidies. However, all these organizations use different definitions of energy subsidies and

methodologies to estimate the value of energy subsidies. No mechanism currently exists that provides standardized and comprehensive data on energy subsidies. The WTO notification and surveillance mechanisms are also unable to ensure the necessary level of transparency. Addressing the transparency problem is the first, and perhaps the most important, step in making the WTO rules on energy subsidies work for the sustainable energy transition.

Several options exist to enhance the transparency of energy subsidies in the multilateral trading system. The obvious starting point here is the notification and surveillance mechanism of the SCM Agreement. This mechanism has mostly been ineffective (see *section 4.5.3.4*), but it is the subject of ongoing reform efforts. It is essential that such efforts take into account the peculiarities of energy subsidies. In the meanwhile, the options for clarification question under Article 25.8 and cross-notification under Article 25.10 are of paramount importance to enhancing the transparency of energy subsidies. We have shown in *section 5.3.2.2.1* that Members take advantage of these provisions to raise questions and cross-notify energy subsidies. However, it is important to ensure the increased use of these provisions to enhance the transparency of fossil fuel subsidies in particular.¹⁴⁶⁶ For example, Members of the FFFSR have shown their commitment to driving the fossil fuel subsidy reform agenda in the multilateral trading system. Such Members should consider using the cross-notification more actively to notify fossil fuel subsidies that the subsidizing Members fail to notify. Admittedly, this is not an easy undertaking, but such Members may work in cooperation with non-governmental organizations (e.g. the GSI) to this end. Another option here is empowering the SCM Committee (with the support of the Secretariat) to cross-notify energy subsidies at its own initiative.

The TPRM is another transparency and surveillance mechanism worth considering here. As we have seen in *section 5.3.2.2.2*, trade policy reviews tend to cover both renewable energy and fossil fuel subsidies. However, the TPRM requires adjustment if it is to play a meaningful role in enhancing the transparency of energy subsidies. One option here is to dedicate a section or a chapter of the Secretariat's report to energy subsidies. It is also useful to mandate the Secretariat

¹⁴⁶⁶ In theory, exempting renewable energy subsidies from the SCM disciplines boosts the notification of such subsidies as Members fear no legal scrutiny. However, the experience of notification under the now-defunct Article 8.3 of the SCM Agreement suggest that non-actionability may even serve as a disincentive for notification (see *section 4.5.3.1.3*). One option here is to make non-notified renewable energy subsidies *prima facie* actionable.

to work in cooperation with other international organizations such as the OECD and the IEA to bring more light on fossil fuel subsidies. Allowing non-governmental organizations to report energy subsidies during trade policy reviews is also another option that may strengthen the relevance of the TPRM as a transparency and surveillance mechanism for energy subsidies.

6.3 Towards a WTO Agreement on Energy Subsidies?

The first best option to align the regulation of energy subsidies in the multilateral trading system with the sustainable energy transition is negotiating a specific agreement on energy subsidies. A sectoral agreement that takes into account both the trade and environmental implications of energy subsidies allows striking the right balance between these two competing interests. The SCM Agreement, as it stands, take into account only the adverse trade effects of energy subsidies. This has led to its failure to distinguish between environmentally beneficial renewable energy subsidies and environmentally harmful fossil fuel subsidies. Negotiating a new agreement that accommodates renewable energy subsidies and discourages fossil fuel subsidies will go a long way to making the multilateral trading system environmentally friendly.

Most of the necessary ingredients to launch the negotiation are in place. We have shown in *chapter three* that although there is no single international agreement on sustainable energy transition, there is a sufficient legal basis for the subsidization of renewables and the phasing out of fossil fuel subsidies in international law. Most WTO Members are parties to the binding and non-binding international instruments that call for the promotion of renewable energy and the elimination of inefficient and environmentally harmful fossil fuel subsidies. This implies that there is some understanding among the membership over the need to create ample policy space for the subsidization of renewables and tighten the rules on fossil fuel subsidies.

The fact that almost all WTO Members subsidize renewables (albeit to varying degrees) and they initially created a category of non-actionable subsidies under the SCM Agreement suggests that the renewable energy subsidy side of the negotiations is unlikely to face many challenges. Perhaps the main issue here will be determining the scope of the exception. The history of Article 8 of the SCM Agreement shows that Members are unlikely to agree upon a blanket exception for

renewable energy subsidies. Nor such an exemption is necessary from the perspective of the energy transition. A blanket exception may lead to the use of renewable energy subsidies as disguise restrictions on international trade in renewables. However, at the same time, setting vague and unreasonable restrictions as in the case of Article 8 makes the exception impractical. One option here is introducing a flexible necessity test (*à la* GATT Article XX) to determine whether the renewable energy subsidy at issue qualifies for the exception.

The situation is slightly different with regard to fossil fuel subsidies. Most of the intergovernmental efforts to phase out fossil fuel subsidies currently take place outside the multilateral trading system, albeit without much success. The issue also remains without a single institutional home that coordinates the fragmented international efforts.¹⁴⁶⁷ The multilateral trading system has both the legal and institutional framework to spearhead the global effort to tackle fossil fuel subsidies. The belated recognition of this has led to the formation of the FFFSR. Members of the FFFSR are now actively raising the fossil fuel subsidy issue within the multilateral trading system through the transparency and surveillance mechanisms of the SCM Agreement and the TPRM (see *section 5.3.2.2*) as well as within the Committee on Trade and Environment. Such efforts recently resulted in the Buenos Aires Declaration on Fossil Fuel Subsidies at the latest WTO Ministerial Conference.¹⁴⁶⁸ These developments confirm the growing consensus over the need to tackle fossil fuel subsidies within the multilateral trading system. However, the experience of fossil fuel subsidy reform efforts in other intergovernmental forums such as the G20 and APEC suggest that governments are highly likely to resist undertaking binding and enforceable commitments in this area. Overcoming this resistance will require introducing some flexibilities, especially for developing countries (see *section 6.2.5* above).

The idea of such a sectoral agreement is not new to the multilateral trading system. The Uruguay Round Agreement on Agriculture and the Doha Round negotiations on fisheries subsidies are

¹⁴⁶⁷ On the various intergovernmental forums engaged in the global fight against fossil fuel subsidies, see Henok Birhanu Asmelash, 'Falling Oil Prices and Sustainable Energy Transition: Towards a Multilateral Agreement on Fossil-Fuel Subsidies' in Douglas Arent and others (eds), *The Political Economy of Clean Energy Transitions* (Oxford University Press 2017).

¹⁴⁶⁸ See WTO 11th Ministerial Conference: Fossil Fuel Subsidies Ministerial Statement on behalf of Chile; Costa Rica; Iceland; Liechtenstein; Mexico; The Republic of Moldova; New Zealand; Norway; Samoa; Switzerland; The Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu; Uruguay, Buenos Aires, 11 December 2017.

previous efforts in this direction. Although not specific to subsidies, there have been calls for a WTO agreement on energy in the literature. Cottier et al., for example, called for a ‘Framework Agreement on Energy’ in the WTO in response to the lack of coherent rules governing energy in international law.¹⁴⁶⁹ Their proposal is not specific to subsidies as such, but they envisaged the framework agreement to cover energy subsidies. Similarly, ICTSD advocated for a ‘Sustainable Energy Trade Agreement’ (SETA) in the WTO. This proposal is for a plurilateral agreement (*à la* the GPA or the Information Technology Agreement) to support international trade in sustainable energy goods and services.¹⁴⁷⁰ Cottier also proposed a ‘sectorial agreement on electricity’ to promote trade in electricity.¹⁴⁷¹ All these proposed energy agreements appear to be modelled on the Agreement on Agriculture in terms of their coverage. The advantage of addressing energy subsidies within the framework of such agreements is that it allows for a comprehensive solution to all issues affecting trade in energy. It may also create ample room for exchanging concessions and thereby facilitate the negotiations. However, given the sensitivity of the energy sector and the strong divide between energy exporting and importing countries such an approach may complicate the negotiations and make reaching an agreement more difficult. Focusing on the specific issue of energy subsidies and approaching it from a trade and environment perspective seems more promising. Although yet to bear fruit, the negotiations on fisheries subsidies indicate that a sectoral agreement on subsidies is not inconceivable.

However, under current circumstances, such an agreement is only remotely possible. It is highly unlikely that any negotiations towards a new agreement on energy subsidies will take place anytime soon. Addressing the outstanding Doha issues is most likely to be the priority. In the short term, as suggested in *section 6.2.4*, it is better to try to fit the energy subsidy issues into the Doha mandate and/or focus on modifying the SCM Agreement (see *section 6.4* below).

¹⁴⁶⁹ See Cottier and others (n 405).

¹⁴⁷⁰ See ICTSD, ‘Fostering Low Carbon Growth: The Case for a Sustainable Energy Trade Agreement’ (International Centre for Trade and Sustainable Development 2011); Matthew Kennedy, ‘Legal Options for a Sustainable Energy Trade Agreement’ (International Center for Trade and Sustainable development 2012).

¹⁴⁷¹ See Cottier (n 51), at 49-50.

6.4 Greening the SCM Agreement

Modifying the SCM Agreement holds some pragmatic ways forward in the short term. In this section, we will consider concrete proposals to modify the SCM Agreement so as to make it environmentally friendly and the legal avenues available to this end. Since the legal mechanisms through which to modify the SCM Agreement are common to both renewable energy and fossil fuel subsidies, we will consider them first and then turn to the specific proposals for reform.

6.4.1 Procedural Paths to Reform the SCM Agreement

There are four ways through which to modify the disciplines of the SCM Agreement: (i) amendment, (ii) authoritative interpretation, (iii) waiver, and (iv) subsequent agreement and subsequent practice.¹⁴⁷² Amendment of the SCM Agreement requires ‘acceptance by two-thirds of the Members’ and takes effect only for the Members that have accepted it.¹⁴⁷³ The major advantage of an amendment is that it allows for ‘alter[ing] the rights and obligations of the Members’ under the SCM Agreement.¹⁴⁷⁴ It is the best option to make comprehensive and far-reaching changes to the SCM disciplines. However, this is the most difficult route to modifying the SCM Agreement because of the strict procedural requirements. The difficulty is apparent from the fact that there have been only two attempts at formal amendments of WTO Agreements to date. In 2005, the General Council adopted a decision to amend the TRIPS Agreement, but this amendment has so far failed to attract the two-thirds ratification necessary for entering into force.¹⁴⁷⁵ In 2014, the General Council adopted a *Protocol Amending the Marrakesh Agreement* to add the *Agreement on Trade Facilitation* into Annex 1A of the Marrakesh Agreement.¹⁴⁷⁶ This

¹⁴⁷² On law-making in the multilateral trading system, see Mary E Footer, ‘The Making of International Trade Law’ in Catherine Brölmann and Yannick Radi (eds), *Research Handbook on the Theory and Practice of International Lawmaking* (Edward Elgar Publishing 2016) 395; Gerlado Vidigal, ‘From Bilateral to Multilateral Law-Making: Legislation, Practice, Evolution and the Future of Inter Se Agreements in the WTO’ (2013) 24 *European Journal of International Law* 1027.

¹⁴⁷³ See Art X:3, Marrakesh Agreement Any WTO Member may initiate the amendment of the SCM Agreement. However, the Ministerial Conference decides whether to submit the proposed amendment to the Members for acceptance by consensus or two-thirds majority of the Members. See Art X:1.

¹⁴⁷⁴ Art X:3, *ibid.*

¹⁴⁷⁵ See WTO, ‘Amendment of the TRIPS Agreement: Decision of 6 December 2005’ (2005) WT/L/641.

¹⁴⁷⁶ See WTO, ‘Protocol Amending the Marrakesh Agreement Establishing the World Trade Organization: Decision of 27 November 2014’ (2014) WT/L/940.

Protocol has now received the necessary number of ratification and entered into force on 22 February 2017. The contrasting results of these two formal amendment attempts suggest that a strong political will and commitment is essential to amend the SCM Agreement.

Authoritative interpretation offers another option to modify the SCM disciplines. Article IX:2 of the Marrakesh Agreement provides that an authoritative interpretation of the SCM Agreement requires a three-fourths majority of the membership. It is, however, unclear the extent to which interpretations can modify the SCM disciplines given the condition that they ‘shall not be used in a manner that would undermine the amendment provision in Article X’.¹⁴⁷⁷ The US invoked these conditions to prevent two previous initiatives for the interpretation of the DSU.¹⁴⁷⁸ The critical difference between an amendment and authoritative interpretation is that the scope of the latter is limited to clarifying the meaning of existing rights and obligations.¹⁴⁷⁹ For example, it may serve to clarify the definition and specificity requirements or the conditions of actionability to broaden or narrow the policy space for the subsidization of renewables and fossil fuels, respectively. However, the three-quarter majority requirement and the disguised amendment condition makes authoritative interpretations a difficult avenue for modifying the SCM disciplines.

Waiver from the SCM disciplines is particularly relevant for securing green policy space for the subsidization of renewables (see *section 6.4.2.2* for the content of the waiver).¹⁴⁸⁰ Article IX:3 of the Marrakesh Agreement authorizes the Ministerial Conference and General Council to grant a waiver (by three-fourth majority of all Members) from any obligation under the SCM Agreement for an individual Member or a subset of Members (or all WTO Members).¹⁴⁸¹ Such waivers may be granted only ‘under exceptional circumstances’ for limit periods of time and subject to terms

¹⁴⁷⁷ Art IX:2, Marrakesh Agreement.

¹⁴⁷⁸ See Footer (n 1472), at 406.

¹⁴⁷⁹ On the scope and legal status of authoritative interpretations, see Claus-Dieter Ehlermann and Lothar Ehring, ‘The Authoritative Interpretation Under Article IX:2 of the Agreement Establishing the World Trade Organization: Current Law, Practice and Possible Improvements’ (2005) 8 *Journal of International Economic Law* 803.

¹⁴⁸⁰ On calls for a waiver from the SCM Agreement for renewables, see, e.g., Howse, ‘Securing Policy Space for Clean Energy under the SCM: Alternative Approaches’ (n 51); James Bacchus, ‘The Case for a WTO Climate Waiver’ (Centre for International Governance Innovation 2017) Special Report.

¹⁴⁸¹ See Art IX:3-4, Marrakesh Agreement.

and conditions.¹⁴⁸² The Appellate Body has clarified the purpose and scope of waivers in the Article 21.5 compliance proceeding of the *EC – Bananas III* dispute:

In our view, the function of a waiver is to relieve a member, for a specified period of time, from a particular obligation provided for in the covered agreements, subject to the terms, conditions, justifying exceptional circumstances or policy objectives described in the waiver decision. Its purpose is not to modify existing provisions in the agreements, let alone create new law or add to or amend the obligations under a covered agreement or Schedule. Therefore, waivers are exceptional in nature, subject to strict disciplines and should be interpreted with great care.¹⁴⁸³

The Appellate Body further stated that waivers are neither subsequent agreements nor amendments. This implication is that waivers will not result in the modification of the SCM Agreement, but will provide a temporary exception for renewables from the SCM disciplines. The only substantive requirement to obtain a waiver for renewable energy subsidies is establishing the existence of ‘exceptional circumstances’. However, in the absence of a definition of what constitutes an exceptional circumstance, waivers are generally granted to the extent that there is a consensus in favor.¹⁴⁸⁴ In contrast to amendments and authoritative interpretations, waivers are frequently granted both in the GATT and the WTO. We will shortly consider how to use waivers to tackle both the renewable energy and fossil fuel subsidy side of the problem.

6.4.2 Substantive Proposals

6.4.2.1 (Re)-Defining the Object and Purpose of the SCM Agreement

The key starting place for greening the SCM Agreement is its object and purpose. We noted in *section 4.5.1* that the SCM Agreement contains no preamble or provision that expressly defines its object and purpose. The absence of an express statement on its object and purpose denies the

¹⁴⁸² Art IX:4, *ibid.* On the use of waivers in the multilateral trading system, see Isabel Feichtner, *The Law and Politics of WTO Waivers: Stability and Flexibility in Public International Law* (Cambridge University Press 2011).

¹⁴⁸³ See *Appellate Body Report, European Communities – Regime for the Importation, Sale and Distribution of Bananas – Second Recourse to Article 215 of the DSU by Ecuador (EC – Bananas III (Article 215 – Ecuador II)/ European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Article 215 of the DSU by the United States (EC – Bananas III (Article 215 – US) WT/DS27/AB/RW2/ECU, WT/DS27/AB/RW/USA, adopted 11 and 22 December 2008*, para 382.

¹⁴⁸⁴ Despite the three-fourths requirement, all previous waivers were adopted by consensus. See Bacchus (n 1481).

SCM Agreement an overall sense of direction.¹⁴⁸⁵ The prevailing understanding is that its provisions are targeted at trade-distorting subsidies. The specificity requirement and the conditions that render a subsidy prohibited or actionable have the primary purpose of identifying and disciplining trade-distorting subsidies. However, trade distortion should not be the only concern that determines the desirability or otherwise of subsidies. Such recognition underlies the use of environmental effects to determine the legality of subsidies in the fisheries negotiations. Some Members were of the view that it is outside the scope and expertise of the multilateral trading system to examine the environmental effects of subsidies.¹⁴⁸⁶ However, the latter stages of the negotiations saw calls for moving away from the ‘fruitless discussions on trade distortion’ to a greater focus on ‘conservation and sustainable utilization of fisheries resources’.

Trade-distorting subsidies may have positive social or environmental effects. Equally, non-trade distorting subsidies may have adverse social or environmental effects. It is imperative that the SCM Agreement recognizes this at the very outset and distinguishes between environmentally beneficial and environmentally harmful subsidies. Defining the object and purpose of the Agreement in such a way allows for the coherent and consistent interpretation of its provisions. Article 31 of the VCLT requires the adjudicatory bodies to interpret the terms of the SCM Agreement ‘in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose’. The Appellate Body’s heavy reliance on textual analysis, admittedly, undermines the relevance of object and purpose for interpreting the provisions of WTO Agreements. However, not having a clear statement of intent leaves the SCM Agreement without one of the key interpretive reference points.

Redefining the object and purpose of the SCM Agreement will require an amendment pursuant to Article X:3 or authoritative interpretation under Article IX:2 of the Marrakesh Agreement. However, both routes will require overcoming the diverging views on the ultimate objective of the SCM disciplines that left the Agreement without a preamble in the first place.

¹⁴⁸⁵ See Flett (n 803) (making the case for a preamble to the SCM Agreement).

¹⁴⁸⁶ Roman Grynberg and Natallie Rochester, ‘The Emerging Architecture of a World Trade Organization Fisheries Subsidies Agreement and the Interests of Developing Coastal States’ (2005) 39 *Journal of World Trade* 503.

6.4.2.2 Options for Widening the Policy Space for the Subsidization of Renewables

The SCM Agreement – as it stands - leaves insufficient policy space for the subsidization of renewables. Most renewable energy subsidies tend to meet the definition and specificity requirements and the conditions for prohibition or actionability. Together with the lack of an express exception for environmentally beneficial subsidies, this makes renewable energy subsidies vulnerable to multilateral and unilateral legal challenges. The Appellate Body has tried to mitigate this vulnerability by reducing the likelihood that renewable energy subsidies are found to have conferred a ‘benefit’ under Article 1.1(b), but the status of most renewable energy subsidies under the SCM Agreement remains uncertain. Putting an end to this uncertainty requires legal reform, and we will consider the different avenues to do so in this section.

Several options exist to broaden the policy space for the subsidization of renewables under the SCM Agreement. These options fall under two categories. The first set of options require changes to the definition and specificity requirements of the Agreement. Howse, for example, calls for defining or clarifying the key concepts of financial contribution, benefit and specificity in such a way as to create policy space for subsidies with legitimate public policy objectives.¹⁴⁸⁷ The basic idea here is to narrow the definition of subsidies through authoritative interpretation to read renewable energy subsidies such as feed-in tariffs out of the SCM Agreement. This is a similar approach to the one the Appellate body pursued in *Canada – Renewable Energy/FIT*. The benefit analysis in that dispute has shown that bringing policy objectives into the definitional analysis complicates the analysis and fails to provide the necessary certainty.

The second set of options involve broadening the policy space for the subsidization of renewables through exceptions. These options are relatively more practical and require modifying neither the definition and specificity requirements nor the conditions for prohibition and actionability. They are also consistent with the original structure of the SCM Agreement. There are at least three such concrete and practical options. The first and most logical one is extending the application of

¹⁴⁸⁷ See Howse, ‘Securing Policy Space for Clean Energy under the SCM: Alternative Approaches’ (n 51), at 51-52.

GATT Article XX to the SCM Agreement.¹⁴⁸⁸ We established in *section 5.3.1.3.3* that Article XX is currently inapplicable to the SCM Agreement. However, extending its application to the SCM Agreement would secure significant policy space for renewable energy subsidies with genuine environmental objectives. WTO Members have no compelling reason not to do so. The drafters of the TRIMs Agreement and the Appellate Body have shown that the general exceptions may apply beyond the GATT. The only reason that currently prevents the application of Article XX to the SCM Agreement is the lack of textual basis in the latter. The drafters of the SCM Agreement did not envisage the need for applying Article XX to the SCM Agreement given that they created its equivalence in Article 8.¹⁴⁸⁹ However, Article 8 has lapsed now. Applying Article XX to the SCM Agreement is also a matter of coherence and logic. Why would the multilateral trading system let Members invoke Article XX to justify measures as trade restrictive as import and export bans, but not to justify the much less trade restrictive subsidies? Members could extend the application of Article XX to the SCM Agreement by simply adding a reference to this effect in the SCM Agreement either through amendment or authoritative interpretation. They may extend all or only the relevant subparagraphs. The fact that the general exceptions have been the subject of many cases offers clarity as to their scope. At the same time, the Appellate Body's conservative interpretation of the provisions of Article XX implies that the resultant policy space for the subsidization of renewables may not be ample enough. Renewable energy subsidies with objectives that go beyond environmental protection such as renewable energy local content subsidies will not pass the two-tier test of Article XX (see *section 5.3.1.3.3*).

Another possibility is a long-term waiver for renewable energy subsidies from the SCM disciplines.¹⁴⁹⁰ We explained in *section 6.4.1* that waiver is a rather frequently used instrument to create policy space for measures with legitimate public policy objectives. One key feature of waivers is that they provide only temporary relief. However, since no limitation exists as to the

¹⁴⁸⁸ For such proposals, see *ibid*; Shadikhodjaev, 'Renewable Energy and Government Support' (n 51); Samuel Griffin, 'The World Trade Organization: A Barrier to Green Energy' (2013) 22 *Transnational Law & Contemporary Problems* 205; Green (n 131), at 409.

¹⁴⁸⁹ There is no doubt that the two provisions were not equivalent in terms of their scope, but they shared the same purpose of providing shelter for trade measures with some legitimate public policy objectives.

¹⁴⁹⁰ See Howse, 'Securing Policy Space for Clean Energy under the SCM: Alternative Approaches' (n 51), at 53-54; Paolo R Vergano and Eugenia C Laurenza, 'Subsidies to Renewable Energy Sources and International Trade: Issues and Tools to Reconcile Trade Rules and Environmental Policies' (2010) 5 *Global Trade and Customs Journal* 223, at 284.

number of years, it is important to seek a long-term waiver. It is equally imperative to link the duration of the waiver to the amendment of the SCM Agreement or the adoption of a subsequent agreement (see *section 6.3*). It bears noting here that waivers of more than one year are subject to annual review by the Ministerial Conference, which has the mandate to extend, modify or terminate the waiver having considered the continued existence of the ‘exceptional circumstances’ and the fulfilment of the terms and conditions governing the waiver.¹⁴⁹¹ The failed attempts to extend the application of Article 8 of the SCM Agreement beyond its provisional period of five years suggests that obtaining extensions could be difficult. One way of overcoming this difficulty is designing the terms and conditions of the waiver in such a way as to ensure its automatic extension. Members could also use the renewable energy subsidy waiver to encourage fossil fuel subsidy reform by making it a precondition to benefit from the waiver.¹⁴⁹² The advantage of a waiver is that it requires no change to the provisions of the SCM Agreement. It also provides certainty to the extent that its terms and conditions are clearly defined.

The third option is to resurrect Article 8 of the SCM Agreement from the dead.¹⁴⁹³ We established in *section 5.3.1.3.1* that the provision (in its original form) is of limited use to renewable energy subsidies because of its vague and strict substantive and procedural requirements. Any attempt at resurrecting this provision thus requires revising its provisions to ensure that it provides a clear and express exception for renewable energy subsidies. One may argue that the mandate for extending the application of Article 8 is still valid. The only requirement for the extension was for the SCM Committee to review the operation of Article 8 no later than 180 days before the expiry of the provision *with a view to determining* whether to extend its application.¹⁴⁹⁴ It is stated nowhere in the SCM Agreement that the SCM Committee must determine the extension or otherwise of Article 8 before its expiry. The SCM Committee raised this issue while discussing the extension of Article 8, but reached no conclusion. The mandate is also broad enough to allow for the modification of the original provisions. Such changes will arguably escape the strict requirements of an amendment and authoritative interpretation.

¹⁴⁹¹ Art IX:4, Marrakesh Agreement.

¹⁴⁹² See Howse, ‘Securing Policy Space for Clean Energy under the SCM: Alternative Approaches’ (n 51).

¹⁴⁹³ For proposals to resurrect Article 8, see, e.g., Bigdeli, ‘The Expired Non-Actionable Subsidies and the Lingering Question of “Green Space”’ (n 45); Cosby and Mavroidis (n 51).

¹⁴⁹⁴ Art 31, SCM Agreement.

6.4.2.3 Options for Narrowing the Policy Space for the Subsidization of Fossil Fuels

The legal analysis in this thesis has shown that the existing SCM disciplines are inadequate to discourage the subsidization of fossil fuels. This finding is consistent with the recognition in the WTO that the disciplines are not sufficient to regulate environmentally harmful fisheries subsidies. The need for the regulation of both fisheries and fossil fuel subsidies primarily stems not from their adverse trade effects, but rather from their adverse environmental effects. However, such subsidies may face scrutiny under the SCM Agreement only to the extent that they also distort trade. The trade-distortion rationale underlying the SCM disciplines severely limits their role in effectively constraining the policy space for the subsidization of fossil fuels. Tightening the SCM disciplines to tackle fossil fuel subsidies entails making substantial changes. The best approach to do so remains to negotiate new energy-specific subsidy disciplines within a sectoral agreement on energy subsidies similar to the ongoing negotiations on fisheries subsidies. However, the negotiations on fisheries subsidies suggest that this is rather a long-term solution.

The focus for short to medium term should be on modifying the SCM Agreement. The first step in such modifications is to re-define the object and purpose of the Agreement in such a way that it also recognizes the environmental implications of subsidies (see *section 6.4.1*). The next step will be to bring the SCM disciplines in line with this object and purpose. We established in this thesis that most fossil fuel subsidies meet the definitional requirements of financial contribution and benefit. The problem lies with the specificity requirement and the conditions for prohibition in Article 3 and actionability in Article 5 of the SCM Agreement. The only way non-specific fossil fuel subsidies may face scrutiny under the SCM Agreement is as prohibited subsidies. However, fossil fuel subsidies are hardly contingent upon export performance or local content to fall under the prohibited category. One option here is to include environmentally harmful fossil fuel subsidies in the list of prohibited subsidies in Article 3. This proposal fits well with existing initiatives to expand the list of prohibited subsidies under the SCM Agreement.

Specific fossil fuel subsidies may qualify as actionable subsidies only to the extent that they cause one of the three forms of adverse effects set out in Article 5. However, the legal analysis in *section 5.3.1.2.2.2* has shown that it is extremely difficult to establish the adverse effects of fossil

fuel subsidies within the meaning of this provision. Here again, expanding the list of adverse effects to include adverse environmental effects will enhance the ability of the SCM Agreement to discipline fossil fuel subsidies. Admittedly, using adverse environmental effects as grounds of actionability has two limitations. The first is the difficulty of establishing the causation between the subsidization of fossil fuels and the alleged environmental adverse effects. The second limitation is general to the regulation of fossil fuel subsidies in the multilateral trading system – who will take action? Environmental adverse effects are not specific to one Member. Given the costs of taking action against subsidies, this creates a classic collective action problem.¹⁴⁹⁵ Empowering the WTO Secretariat or allowing environmental groups to take action against fossil fuel subsidies through the dispute settlement system would overcome this problem, but this raises a systemic issue that goes beyond the SCM Agreement. Perhaps the more practical solution is for a group of like-minded countries (e.g. FFFSR) to take coordinated actions.

Expanding the grounds of prohibition and actionability under Articles 3 and 5 will require amending the SCM Agreement pursuant to Article X of the Marrakesh Agreement. The strict procedural requirements therein suggest that this will take time and need strong political will and commitment from the entire membership. In the meanwhile, it is imperative to use the transparency and surveillance mechanisms of the SCM Agreement and the TPRM more effectively not only to enhance the transparency of fossil fuel subsidies but also to name and shame Members that keep providing environmentally harmful fossil fuel subsidies.

¹⁴⁹⁵ For recent literature on the collective action problem in WTO litigation, see Leslie Johns and Krzysztof J Pelc, 'Free Riding on Enforcement in the World Trade Organization' (2018) 80 *The Journal of Politics* 873.

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Annexes

Annex 3.1: Examples of NDCs Referring to Energy Subsidies

Countries	Fossil Fuel Subsidy Reform	Renewable Energy Subsidies
China	To advance the reform in the pricing and taxation regime for energy-and resource-based products.	To implement preferential taxation policies for promoting the development of new energy and to improve mechanisms of pricing, grid access and procurement mechanisms for solar, wind and hydropower.
Costa Rica		The availability of credit and microcredit, as well as, incentives for clean energy use and water reductions will be critical to ensure the uptake of low emission technology development in the agricultural sector.
Egypt	Reform energy subsidies. This policy is implemented using four pillars, namely: set different prices for petroleum products based on energy generation efficiency; increase the efficiency of energy use [...] and apply the fuel subsidy smartcard system to ensure that subsidies are received by target beneficiaries.	Provide support to certain sectors to promote switching from conventional energy sources to clean energy sources
Ghana	Phasing out fossil fuel subsidies.	Set up feed-in-tariff for renewable energy technologies. Established of national renewable energy fund. Design renewable energy purchase obligation. Net metering scheme for households.
India	India has cut subsidies and increased taxes on fossil fuels (petrol and diesel) turning a carbon subsidy regime into one of carbon taxation. Further, in its effort to rationalize and target subsidies, India has launched 'Direct Benefit Transfer Scheme' for cooking gas, where subsidy will be transferred directly into the bank accounts of the targeted beneficiaries. In fact, over the past one year, India has almost cut its petroleum subsidy by about 26%.	Policies to promote actions that address climate concerns also include fiscal instruments like [...] Renewable Energy Certificates (REC) and a regulatory regime of Renewable Purchase Obligation (RPO). -
Jordan		The 2012 Energy Efficiency and

		Renewable Energy Law no. 13 is also a key enabler, providing incentives for sustainable energy solutions as Jordan seeks to increase renewable energy from 2% of overall energy in 2013 to 10 % in 2020 and to improve energy efficiency by 20 % by 2020.
Malaysia		These consist of the introduction of a feed-in-tariff (FiT) mechanism in conjunction with the Renewable Energy Policy and Action Plan (2010) to help finance renewable energy investment, providing fiscal incentives and funding for green technology investments and promoting projects eligible for carbon credits.
Morocco	Substantially reducing public fossil fuel subsidies, building on reforms already undertaken in recent years.	
Nigeria	The removal of consumer and producer subsidies for fossil fuels can help stabilize government budgets. While intended to reduce the cost of living for the poor, these subsidies have ended up mostly benefiting the rich.	
Singapore		Supports continued investment in research, development, and demonstration (RD&D) to reduce the cost of solar PV modules and improve their efficiency.
South Africa		South Africa established a South African Green Fund with an allocated US\$ 0.11 billion in the 2011 to 2013 budgets to support catalytic and demonstration green economy initiatives.
Thailand		Thailand has launched several support mechanisms such as feed-in tariffs, tax incentives and access to investment grants and venture capital to promote renewable energy.
Viet Nam	Implement the roadmap to phase out subsidies for fossil fuels.	Develop and implement financial and technical mechanisms and policies to

		support research and the application of appropriate advanced technologies; exploit and optimize the use of renewable energy sources
UAE	The UAE is undertaking investments and initiatives, which will have significant mitigation co-benefits in addressing the transport sector's greenhouse gas emissions, including [...] the introduction of a new fuel pricing policy, which will put the UAE in line with global prices.	

Source: Compiled by the author from UNFCCC's NDC Registry

Annex 3.2 Commitments to Phase Out Fossil Fuel Subsidies

Institutions	Legal Instrument	Year	Commitment
UNFCCC	Kyoto Protocol	2005	Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments.
	Paris Agreement	2016	Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.
G20	Pittsburgh Declaration	2009	To phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest.
APEC	Singapore Declaration	2009	We also commit to rationalise and phase out over the medium term fossil fuel subsidies that encourage wasteful consumption, while recognising the importance of providing those in need with essential energy services.
UN	UNGA Resolution 66/288	2012	Countries reaffirm the commitments they have made to phase out harmful and inefficient fossil fuel subsidies that encourage wasteful consumption and undermine sustainable development.
	UNGA Resolution 69/313	2015	We reaffirm the commitment to rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful

			subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.
	UNGA Resolution 70/1	2015	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities
FFFSR	Fossil-Fuel Subsidy Reform Communiqué	2015	We invite all countries, companies and civil society organizations to join us in supporting accelerated action to eliminate inefficient fossil-fuel subsidies in an ambitious and transparent manner as part of a major contribution to climate change mitigation.
G7	Ise-Shima Declaration	2016	We remain committed to the elimination of inefficient fossil fuel subsidies and encourage all countries to do so by 2025.
NALS	Ottawa Summit Leaders' Statement	2016	We commit to phase out inefficient fossil fuel subsidies by 2025 and call on the other members of the G-20 to do the same.

Source: Compiled by the author

Annex 3.3: G20 Declarations & Fossil Fuel Subsidies

G20 Summits	References to FFSR in G20 Declarations
Pittsburgh Summit 24-25 September 2009	<p>Rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption. As we do that, we recognize the importance of providing those in need with essential energy services, including through the use of targeted cash transfers and other appropriate mechanisms. This reform will not apply to our support for clean energy, renewables, and technologies that dramatically reduce greenhouse gas emissions.</p> <hr/> <p>We will have our Energy and Finance Ministers, based on their national circumstances, develop implementation strategies and timeframes, and report back to Leaders at the next Summit.</p> <hr/> <p>We ask the international financial institutions to offer support to countries in this process.</p>

	<p>We call on all nations to adopt policies that will phase out such subsidies worldwide.</p> <p>We request relevant institutions, such as the IEA, OPEC, OECD, and World Bank, provide an analysis of the scope of energy subsidies and suggestions for the implementation of this initiative and report back at the next summit.</p>
<p>Toronto Summit 26-26 June 2010</p>	<p>We note with appreciation the report on energy subsidies from the International Energy Agency (IEA), Organization of the Petroleum Exporting Countries (OPEC), OECD and World Bank.</p> <p>We welcome the work of Finance and Energy Ministers in delivering implementation strategies and timeframes, based on national circumstances, for the rationalization and phase out over the medium term of inefficient fossil fuel subsidies that encourage wasteful consumption, taking into account vulnerable groups and their development needs.</p> <p>We also encourage continued and full implementation of country-specific strategies and will continue to review progress towards this commitment at upcoming summits.</p>
<p>Seoul Summit 11-12 November 2010</p>	<p>We reaffirm our commitment to rationalize and phase-out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, with timing based on national circumstances, while providing targeted support for the poorest.</p> <p>We direct our Finance and Energy Ministers to report back on the progress made in implementing country-specific strategies and in achieving the goals to which we agreed in Pittsburgh and Toronto at the 2011 Summit in France.</p>
<p>Cannes Summit 3-4 November 2011</p>	<p>We reaffirm our commitment to rationalise and phase-out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, while providing targeted support for the poorest.</p>
<p>Los Cabos Summit 18-19 June 2012</p>	<p>We welcome the progress report on fossil fuel subsidies, and we reaffirm our commitment to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term while providing targeted support for the poorest</p> <p>We ask Finance Ministers to report back by the next Summit on progress made, and acknowledging the relevance of accountability and transparency, to explore options for a voluntary peer review process for G20 members by their next meeting.</p> <p>We also welcome a dialogue on fossil fuel subsidies with other groups already engaged in this work.</p>
<p>Saint Petersburg Summit</p>	<p>We reaffirm our commitment to rationalise and phase out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term while being conscious of necessity to provide targeted support for the poorest.</p>

5-6 September 2013	We welcome the efforts underway in some G20 countries as described in the country progress reports. We welcome the development of a methodology for a voluntary peer review process and the initiation of country-owned peer reviews and we encourage broad voluntary participation in reviews as a valuable means of enhanced transparency and accountability.
	We ask Finance Ministers to report back by the next Summit on outcomes from the first rounds of voluntary peer reviews.
	Recognising the importance of providing those in need with essential energy services, we ask Finance Ministers to consider, in conjunction with the relevant international institutions, policy options for designing transitional policies including strengthening social safety nets to ensure access for the most vulnerable.
Brisbane Summit 15-16 November 2014	We reaffirm our commitment to rationalise and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, recognising the need to support the poor.
Antalya Summit 15-16 November 2015	We reaffirm our commitment to rationalise and phase-out inefficient fossil fuel subsidies that encourage wasteful consumption, over the medium term, recognising the need to support the poor.
	We will endeavour to make enhanced progress in moving forward this commitment.
Hangzhou 4-5 September 2016	We also reaffirm our commitment to rationalize and phase-out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term, recognizing the need to support the poor.
	We welcome G20 countries' progress on their commitments and look forward to further progress in the future.
	Further, we encourage G20 countries to consider participating in the voluntary peer review process.
Hamburg 7-8 July 2017	We reaffirm our commitment to rationalise and phase out, over the medium-term, inefficient fossil fuel subsidies that encourage wasteful consumption, recognising the need to support the poor and we will endeavour to make further progress in moving forward this commitment.
	We encourage all G20 members that have not yet done so to initiate a peer review of inefficient fossil fuel subsidies that encourage wasteful consumption as soon as feasible.
	We take note the OECD/IEA progress report and its options on how to further develop and improve the G20 peer review process based on recent experience and how to facilitate the phase out of inefficient fossil fuel subsidies that encourage wasteful consumption.

Source: Updated from Asmelash (2017)