

FIT FOR PURPOSE?

**Toward trade rules that support fossil fuel
subsidy reform and the clean energy transition**



**Nordisk
ministerråd**



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Global Subsidies Initiative

This report was produced as part of the International Institute for Sustainable Development's (IISD) Global Subsidies Initiative (GSI). GSI supports international processes, national governments and civil society organizations to align subsidies with sustainable development. GSI does this by promoting transparency on the nature and size of subsidies; evaluating the economic, social and environmental impacts of subsidies; and, where necessary, advising on how inefficient and wasteful subsidies can best be reformed. GSI is headquartered in Geneva, Switzerland, and works with partners located around the world. For more information, see: www.iisd.org/gsi.



Executive Summary

Subsidies for the production and consumption of fossil fuels, estimated at USD 478 billion in 2019, strain the public purse, contribute to climate change by supporting the burning of fossil fuels and slowing the uptake of renewable energy, and lead to local air pollution and associated impacts on public health. Fossil fuel subsidy reform can, therefore, lead to a wide range of socioeconomic and environmental benefits.

As the only global institution with binding rules to regulate subsidies, the World Trade Organization (WTO) would seem well suited to addressing fossil fuel subsidies. In contrast with measures to support renewable energy, however, fossil fuel subsidies have, by and large, remained unchallenged under the organization's dispute settlement mechanism. Against this backdrop, this report explores whether WTO subsidy rules and practices are fit for purpose in addressing fossil fuel subsidies and supporting the clean energy transition, and how these rules and practices could be reformed to more effectively contribute to these important objectives. It also offers practical suggestions on what next steps could look like for WTO members and other stakeholders interested in moving this agenda forward.

Trade Impacts of Fossil Fuel Subsidies

The report shows that fossil fuel subsidies can lead to direct and indirect trade effects. The former means that the subsidy strengthens the competitiveness of the subsidized producer. The latter refers to pass-through trade effects that give downstream producers using subsidized inputs a competitive advantage, although they do not benefit directly from a subsidy. Relevant trade impacts include the reduction of a competitor's world market share, the displacement of imports, and the reduction of the competitiveness of alternatives. These trade impacts can affect upstream fossil fuel products, refined energy carriers, and downstream non-energy products that use fossil fuel products as inputs (e.g., as feedstock or to produce fossil fuel-generated electricity). Moreover, the trade impacts of fossil fuel subsidies can affect trade and investment in renewable energy products, a particular challenge from the perspective of the much-needed clean energy transition. The likelihood of such trade impacts materializing is high due to the competitive densities of relevant industries (particularly oil, gas, petroleum products, and energy-intensive industries), the magnitude of trade volumes, and their monetary value.

Fossil Fuel Subsidies Under the Agreement on Subsidies and Countervailing Measures

Fossil fuel subsidies may therefore lead to a host of trade impacts. Taking the desirability of reforming fossil fuel subsidies as a starting point, an essential legal question thus concerns the extent to which existing WTO subsidy rules – in particular under the organization's Agreement on Subsidies and Countervailing Measures (ASCM) – can effectively constrain the use of such support measures.

Subsidies under the ASCM are defined as a "financial contribution by a government or any public body" or "any form of income or price support" that confers a "benefit." The ASCM definition covers fossil fuel subsidies provided by governments, other public bodies vested with government authority, and private bodies entrusted/directed by a government, potentially including state-owned enterprises. Fossil fuel subsidies can fall under several categories of the ASCM subsidy definition, including a direct transfer of funds, government revenue foregone, provision of goods and services, and/or income or price support. While demonstrating the existence of a fossil fuel subsidy may be fairly straightforward in some cases, it may be more difficult in others. For example, establishing that government revenue has been foregone can be challenging, as it requires identifying the benchmark (tax) treatment against which the preferential treatment for fossil fuels would be compared. If it can be shown that a government has foregone revenue, however, a benefit will be deemed to have been conferred. If a fossil fuel subsidy consists of a financial contribution on terms more favourable than the market (e.g., a loan with low interest rates), a benefit will also likely have been conferred.

WTO subsidy rules contained in the ASCM only apply if measures are "prohibited" or "actionable". Prohibited subsidies include export subsidies and local content subsidies. Some fossil fuel production subsidies can be argued to constitute prohibited export subsidies if it can be established, among others, that the recipient is export-oriented and domestic markets are becoming saturated. Although the use of local content requirements is widespread in the fossil fuel sector, such measures should be considered investment measures rather than subsidies.

Subsidies are actionable if they are "specific", meaning that they are aimed at certain enterprises or industries. Although consumption subsidies, which benefit a wide range of energy consumers, are unlikely to meet the specificity requirement, fossil fuel production subsidies are more likely to be deemed "specific". Moreover, production subsidies benefiting several extractive industries (including fossil fuels) or certain enterprises within a specific geographical region could be argued to be "specific".

If actionable subsidies create "adverse effects" for another WTO member, they may be challenged. "Adverse effects" refers to injury to the domestic industry of another member, nullification or impairment of the benefits gained from tariff concessions under the General Agreement on Tariffs and Trade (GATT), or serious prejudice to the interests of another member. Demonstrating "serious prejudice" is generally more difficult than demonstrating injury, as the former needs to be causally linked to the subsidy itself, whereas the latter needs to be caused by the subsidized import. Establishing that pass-through trade effects are caused by a specific fossil fuel subsidy will therefore be particularly challenging. Moreover, the trade effects of fossil fuel subsidies on renewable energy products (e.g., solar cells, wind turbines) are only disciplined to a minimal extent by the WTO's current subsidy rules, which constitutes an important weakness in the context of the clean energy transition.

Information on fossil fuel subsidies can support a challenge under the ASCM. However, even though members have an obligation to notify all specific subsidies under the ASCM, notification rates have been low. Another way in which information on fossil fuel subsidies can be generated is through the WTO's Trade Policy Review Mechanism, but members have made only limited use of that option so far.

Overall, the ASCM offers some potential to challenge fossil fuel subsidies,

particularly production subsidies, but any such challenge faces strategic, political, and legal-evidentiary hurdles. If WTO subsidy rules are to play a role in supporting the transition to cleaner energy systems, however, the main limitation of the ASCM is that it focuses solely on (some of) the trade-distorting effects of subsidies. It does not take into account the social and environmental externalities of fossil fuel subsidies, including the effects on climate change. At a time when acting to tackle climate change is more important than ever, this shortcoming has led to growing interest within the multilateral trade policy community about possible ways in which it could be addressed.

Pathways to Reform

WTO members interested in changing the status quo could pursue several pathways to reform WTO rules and practices, acting alone, in a small coalition of members, or multilaterally.

Members could first explore the legal space offered by the ASCM to challenge fossil fuel subsidies. Although the outcome of any challenge is uncertain, members that experience adverse effects can initiate an investigation and – if the evidence suggests that a subsidy exists that leads to injury – impose countervailing duties. Alternatively, a member can challenge prohibited or actionable subsidies through the WTO's dispute settlement mechanism. While challenging actionable subsidies requires a member to demonstrate adverse effects, prohibited fossil fuel subsidies could, in principle, be challenged by *any* member.

With a ministerial statement on fossil fuel subsidy reform, some WTO members have already sought to move the issue up on the multilateral agenda. Efforts to ensure that WTO rules and practices better address fossil fuel subsidies and support the clean energy transition could focus on strengthening transparency and/or developing new disciplines.

The transparency of fossil fuel subsidies is an important prerequisite for their phase-out. Efforts to improve transparency around such measures are already ongoing in various international forums, including through the United Nations Sustainable Development Goals (SDGs), under which countries can report subsidies following an internationally agreed methodology. These efforts could be complemented in the ASCM context by (1) members improving compliance with their notification obligations; (2) members making greater use of counter-notifications; or (3) making the notification of all fossil fuel subsidies mandatory. In addition, members could use the WTO's Trade Policy Review Mechanism to either report on their own fossil fuel subsidies or raise questions about other members' fossil fuel subsidies. Lastly, a group of WTO members could also, on a voluntary basis, pledge to undertake fossil fuel subsidy reform and review each other's progress. To garner political support for these various options, they could be linked to broader WTO transparency reforms.

WTO members could also seek to negotiate new rules under the WTO, either through an amendment of the ASCM or through negotiating a stand-alone agreement on fossil fuel subsidies. The latter would seem to be an attractive option in that it would allow negotiators to start from a blank slate. Both options could lead to new subsidy prohibitions, with a greater focus on the environmentally harmful impacts of fossil fuel subsidies. Doing so will require methods to distinguish

between (types of) fossil fuel subsidies, particularly with regard to their climate change effects. New disciplines could also specify possible exceptions to the rule, which could be temporary or permanent, for instance, for specific groups of countries and/or specific types of subsidies (e.g., subsidies aimed at providing energy access to low-income communities or that are not considered environmentally harmful). Moreover, a subsidy phase-out requirement could be linked to the provision of technical assistance and capacity building for some countries. Although a promising option from an ambition perspective, negotiating new rules will be challenging both technically and politically. Importantly, the successful adoption of new WTO disciplines on fisheries subsidies can help set the stage for such negotiations. The fisheries subsidies example also shows, however, that it can take a long time before any agreement is adopted.

In addition to reforming WTO rules to curtail fossil fuel subsidies, members could also provide further space for support to renewable energy. Fossil fuel subsidies can be considered market-distorting in that they cause environmental harm that is not reflected in the price of fossil fuels. Renewable energy subsidies, by contrast, can be viewed as correcting such a market distortion. To date, several renewable energy support measures have been deemed incompatible with WTO law, although this was mainly due to their use of local content requirements. Nevertheless, measures to support the production of (widely traded) renewable energy technologies, such as solar cells and wind turbines, may still be at risk. Several suggestions have been put forward to create more policy space under WTO rules, including (1) applying the environmental exceptions of Article XX GATT to the ASCM; (2) reviving the list of non-actionable subsidies under the ASCM so as to include renewable energy support measures; and (3) adopting a waiver to temporarily allow WTO members to subsidize renewable energy. However, for each of these options, a key challenge is to define what types of subsidy practices should be permissible, taking into consideration the local and global as well as short- and long-term environmental and economic effects of renewable energy subsidies.

At a time when the WTO is beset by broader challenges, including the Appellate Body crisis as well as persistent difficulties in progressing with negotiations, members could also negotiate plurilateral or regional trade agreements to address fossil fuel subsidies. One important forum in this regard is the recently launched negotiations for an Agreement on Climate Change, Trade and Sustainability (ACCTS), whose participants aim to develop rules based on the effects of fossil fuel subsidies on climate change. The negotiations could thus offer important lessons on how to design rules for fossil fuel subsidies that could work for the green economy, possibly encouraging broader efforts at the multilateral level at a later stage. Although some regional trade agreements include provisions on fossil fuel subsidies, they are limited in their level of detail and obligation.

Recommendations

Recommendation 1: WTO members should strengthen the transparency of fossil fuel subsidies, including through improved notification, the Trade Policy Review Mechanism, SDG reporting, voluntary peer reviews, and drawing on other sources.

There is an urgent need to strengthen the transparency of fossil fuel subsidies by governments, and WTO members can play a role in supporting this effort in various ways: (1) making use of the various WTO mechanisms, including the ASCM notification mechanism, counter-notifications, and Trade Policy Reviews; (2) voluntarily reporting fossil fuel subsidies under SDG 12.c following the methodology created for the indicator on fossil fuel subsidies; and (3) where relevant, undergoing a fossil fuel subsidy peer review through the G20 or Asia-Pacific Economic Cooperation or through a voluntary initiative to undertake a self- or peer-review. To improve the transparency of fossil fuel subsidies, WTO members can draw on external sources, including databases maintained by the Organisation for Economic Co-operation and Development and the International Energy Agency. These sources can be complemented by ongoing efforts by civil society organizations to shed light on members' fossil fuel subsidy practices.

Recommendation 2: WTO members should explore the available space to challenge fossil fuel subsidies under existing subsidy rules.

Existing rules provide space to challenge other members' fossil fuel subsidies before the WTO dispute settlement system, either as actionable subsidies or as prohibited subsidies. In some cases – where data availability is not a problem, where trade effects can be observed or are likely, and/or where an export subsidy is likely – fossil fuel subsidies may be deemed inconsistent with the ASCM. Although launching any such challenge will depend on broader political and strategic considerations, a dispute and the resulting jurisprudence could help shed light on the extent to which WTO disciplines can effectively address fossil fuel subsidies.

Recommendation 3: WTO members should launch an informal dialogue on the prospects and challenges of disciplining fossil fuel subsidies more effectively through the WTO at the next Ministerial Conference.

Creating new multilateral disciplines on fossil fuel subsidies will likely take a long time. Members interested in moving this idea forward therefore need to begin discussing the options for doing so as soon as possible. Efforts such as the ACCTS negotiations and the Fossil Fuel Subsidies Reform Ministerial Statement at the WTO should draw wider participation, at the very least from those countries and regions that have committed to phasing down fossil fuel subsidies, that have stated leadership aspirations in the area of climate change, and that have expressed their willingness to green trade agreements. In addition, it will be important to invite major subsidizing members to join the discussion so as to better understand the reservations and concerns that some may have with regard to the impact of any new disciplines on their economies. The next WTO Ministerial Conference, which was postponed due to the COVID-19 pandemic, offers a key opportunity for members to launch an informal dialogue to this end.

Recommendation 4: Further research should involve in-depth studies of the trade effects and legality of specific fossil fuel subsidies.

Further in-depth studies of particular fossil fuel subsidies could look into the trade effects of these subsidies and/or assess the legality of such subsidies in the context of the ASCM. Such research would contribute to further clarifying in which circumstances current WTO subsidy rules can really constrain the use of fossil fuel subsidies.

Recommendation 5: Practical analysis should be generated on the ways in which rules on fossil fuel subsidies could be crafted with a focus on their environmental impacts.

With a view to negotiating new, environmentally focused disciplines on fossil fuel subsidies, new analysis would be required to explore how such rules could best be crafted. Such analysis could help identify which (types of) fossil fuel subsidies should be subject to prohibitions based on their environmental harmfulness, what types of circumstances could warrant an exception, and how to apply rules to countries with different development priorities. Specifically, the analysis could point to potential trade-offs between the social and economic development priorities that countries may pursue through fossil fuel subsidies and the emissions associated with such subsidies. The analysis could further identify the prevailing types of subsidies that countries are struggling to reform.

Abbreviations

ACCTS	Agreement on Climate Change, Trade and Sustainability
APEC	Asia–Pacific Economic Cooperation
ASCM	Agreement on Subsidies and Countervailing Measures
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
G20	Group of 20
GATT	General Agreement on Tariffs and Trade
IEA	International Energy Agency
ITC	International Trade Centre
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PTC	Production Tax Credit
SDG	Sustainable Development Goal
TRIMs Agreement	Agreement on Trade-Related Investment Measures
UNEP	United Nations Environment Programme
WTO	World Trade Organization

1. Introduction

Subsidies for the production and consumption of fossil fuels constitute a sizeable burden for public finances. They further contribute to climate change – directly, by providing financial support for the burning of fossil fuels, and indirectly, by slowing the uptake of renewable energy and hampering the clean energy transition – as well as to local air pollution and subsequent impacts on public health. Reforming fossil fuel subsidies therefore is an opportunity to address global and local environmental challenges while saving money for the public purse. Despite these widely agreed benefits, subsidies continue to be handed out in many countries, with the Organisation for Economic Co-operation and Development (OECD) and International Energy Agency (IEA) estimating them at USD 478 billion in 2019 (OECD, 2020). This support can take many forms, including setting prices above or below-market rates, offering tax exemptions, providing favourable loans, or building a railroad from a coal mine to a port (Steenblik, 2007). Consumer subsidies usually aim at reducing the costs of fossil fuel for users and tend to be found more in developing countries. Producer subsidies provide support to fossil fuel producers by increasing the price or lowering exploration, extraction, research and development, and production costs, and are often found in both developed and developing countries.

As fiscal instruments of energy policy that can have numerous social, economic, and environmental effects, it is not surprising that fossil fuel subsidies are governed by a range of energy, trade, and sustainable development institutions (Van de Graaf & van Asselt, 2017). Among these institutions, the World Trade Organization (WTO) would seem well suited to address fossil fuel subsidies for various reasons. Not only can fossil fuel subsidies have distorting impacts on trade and investment (Burniaux et al., 2011; Moerenhout & Irschlinger, 2020), the WTO also has a wide membership, plays a key role in regulating trade-distorting subsidies across economic sectors, and hosts a strong dispute settlement system (Wooders & Verkuil, 2017).¹ However, although the WTO's Agreement on Subsidies and Countervailing Measures (ASCM) does, in principle, also apply to fossil fuel support measures, fossil fuel subsidies have largely avoided challenges. This stands in stark contrast with renewable energy, with several high-profile WTO disputes revolving around the legality of renewable energy support measures (Espa & Marín Durán, 2018).

Against this backdrop, this report will explore the extent to which existing WTO subsidy rules are fit for purpose in addressing fossil fuel subsidies and supporting the clean energy transition, suggesting ways in which the multilateral trade body could more effectively contribute to these important goals. To do this, the report will start by highlighting how and the extent to which specific types of subsidies could have an impact on international trade (Section 2). Building on this, the report will assess the extent to which fossil fuel subsidies with a trade impact could be disciplined under current WTO subsidy rules, pointing to the potential as well as the shortcomings of

1. At the time of writing, the WTO dispute settlement system is under challenge due to the refusal by the United States to appoint new Appellate Body judges over concerns of judicial overreach. As a result, since December 2019, the Appellate Body no longer has the required minimum of three members to review appeals.

the existing legal framework (Section 3). The report will then identify options for strengthening international trade rules, in particular at the WTO, so as to more effectively contribute to fossil fuel subsidy reform and the associated transition to clean energy alternatives (Section 4). With a view to advancing this crucial objective, the report will conclude by offering concrete recommendations on a possible way forward for WTO members and other interested stakeholders (Section 5).

2. The Trade Impacts of Fossil Fuel Subsidies

2.1 Types and Pathways of Fossil Fuel Subsidy Trade Impacts

Subsidies to both the production and consumption of fossil fuels at different stages of the value chain can have an impact on international trade. These impacts can materialize through both direct effects and pass-through effects (Figure 1). Direct trade effects occur when a subsidy grants a financial contribution and benefit to the producer of a certain product and, as a result, increases its competitiveness vis-à-vis other producers of that specific product or producers of substitute products. Pass-through trade effects occur when a subsidy benefits the production and lowers the price of Product 1, which is then subsequently used as an input for the production of Product 2, thereby giving a competitive advantage to the producer of Product 2.

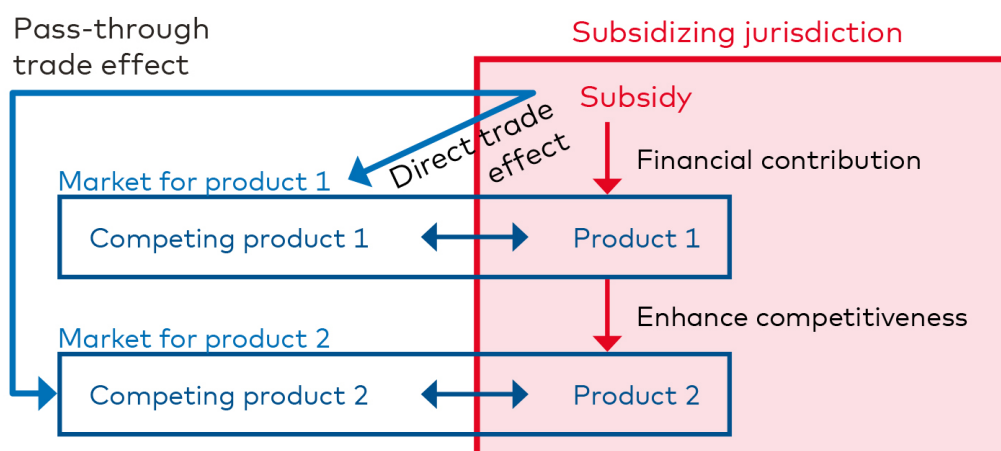


Figure 1. Direct and pass-through effects of fossil fuel subsidies

Source: Moerenhout & Irschlinger, 2020.

The key trade impacts that fossil fuel subsidies can have are in the reduction of a competitor's world market share, the displacement of imports from a competitor, and the reduction of the competitiveness of alternatives. These trade impacts can occur for upstream fossil fuel products, refined energy carriers, and downstream non-energy products that use fossil fuel products as inputs. The latter include both industries that directly use fossil fuels as feedstock for their products (e.g., fertilizers, plastics) and energy-intensive industries that use a lot of fossil fuels or fossil fuel-

generated electricity in their production process (e.g., steel, aluminum). Additionally, fossil fuel subsidies, in particular consumption subsidies, can also lead to the illicit smuggling of fuel products across borders.

The trade impacts generated by the direct effects of production subsidies can occur when subsidies provided to the producers of crude oil, natural gas, and coal affect upstream competition. In many countries, such production subsidies are often granted through mechanisms such as tax and royalty reductions. Generally, producer subsidies can affect upstream competition because of a price effect and an output effect. Fuel production subsidies can increase output and lower the price compared to competitors. That means that producing countries can cover more of domestic demand (i.e., import substitution) and export more (i.e., improve world market share), while the competitiveness of non-fossil fuel alternatives can also be reduced. Production subsidies can also be granted at the transformation stage to, for example, refineries and electricity producers.² Similarly, this can have an impact on the competitive positions of their outputs.

Consumption subsidies that directly lower the end-use price of fossil fuel products can also generate trade impacts through direct effects when subsidies provided to fossil fuel consumers give them a competitive edge over competitors whose fossil fuel inputs are not subsidized. Such “consumers”, of course, include companies that transform raw fossil fuels into energy carriers, such as gasoline, diesel, and electricity, but also companies that use raw fossil fuels for the production of non-energy products, such as iron, steel, aluminum, and plastics. The resulting impacts are similar, as in the case of production subsidies and can include import substitution, an improvement of world market share, and reduced competitiveness of non-fossil fuel alternatives. These types of consumption subsidies also heighten the incentives for smuggling subsidized energy products to neighbouring countries with higher prices.

Finally, both fossil fuel production and consumption subsidies can have pass-through effects leading to trade impacts. This occurs when subsidies provided upstream lower the price of a product that is then used by companies downstream, which then get a competitive benefit from having lower-cost inputs. One example is how upstream natural gas extraction and transportation subsidies would lead to lower-priced natural gas that is then used by fertilizer producers, which would gain a comparative advantage vis-à-vis producers abroad that have to source natural gas at market prices. Just like subsidy reform can cause inflation that negatively affects industries that rely on energy products, fossil fuel subsidies can create pass-through effects that benefit industries vis-à-vis their international competitors.

2. Subsidies provided to the production or consumption of electricity are generally considered fossil fuel subsidies for the share of electricity that is produced from coal, natural gas, and oil.

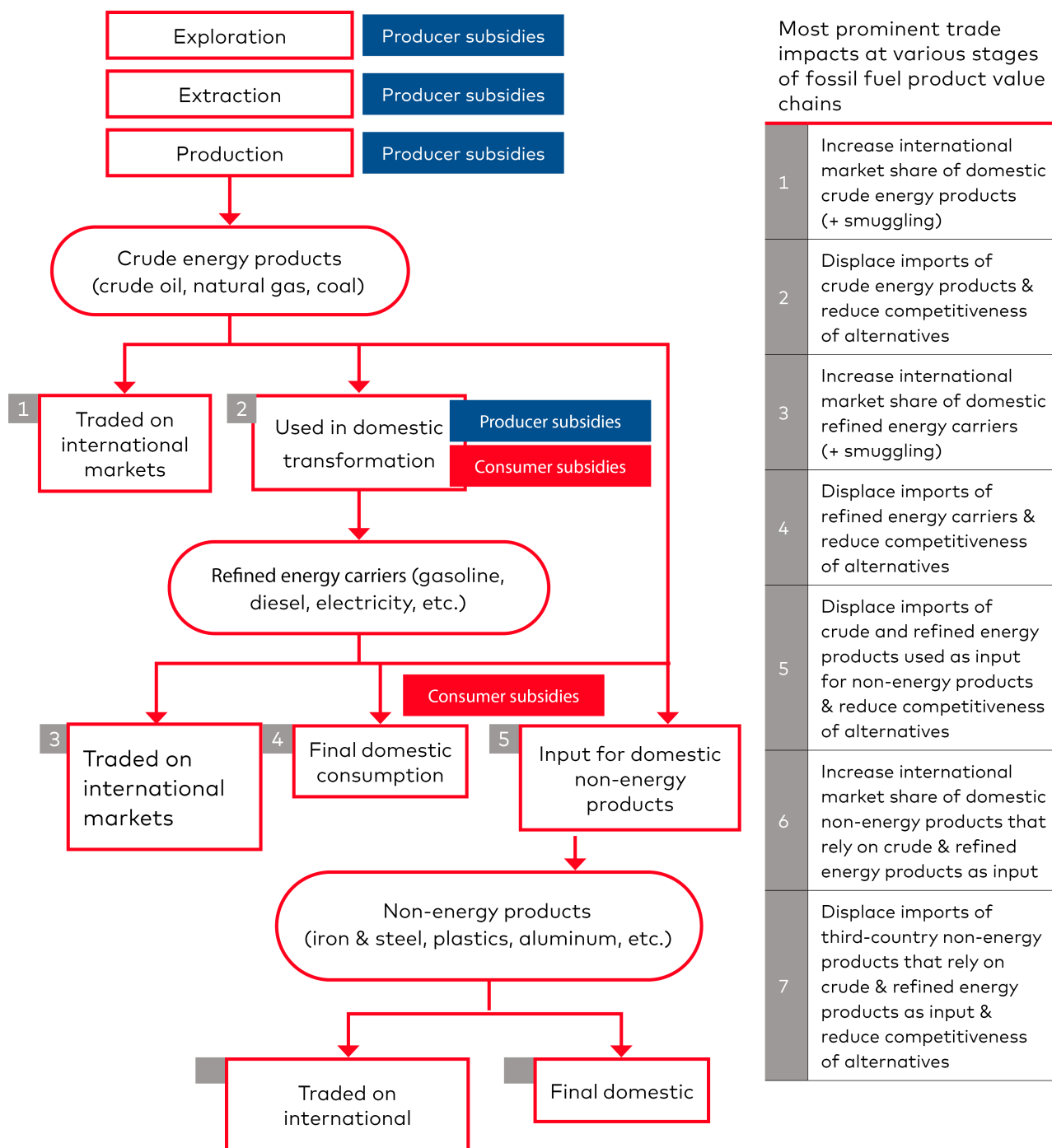


Figure 2. Trade impacts of fossil fuel subsidies at various stages of fossil fuel product value chains

Source: Moerenhout & Irschlinger, 2020.

2.2 Sense of Scale

The research on fossil fuel subsidy trade impacts is still in its infancy, but there are good reasons to believe that the scale of such impacts can be very large. Table 1 presents a summary of the main markets that can be affected and their trade exposure. In particular, it shows that the competitive densities of oil, gas, petroleum products, and energy-intensive industries are high. Such a competitive density indicates that there are a lot of suppliers and a lot of importers that use pricing to compete, which means that subsidies that help providers lower their market price can more easily have a decisive role in the battle for domestic and international market share. The competitive density of upstream coal is somewhat smaller but still open to significant competition among producers.

The trade volume of fossil fuel products and energy-intensive products is also very large. In 2018, 50% of crude oil, 25% of natural gas, 16% of coal, and 15% of petroleum products were exported before they were used (IEA, 2019a, 2019b, 2019c). Importantly, these trade volumes are associated with gigantic export values. In 2018, they represented a USD 2.3 trillion export market, which represented about 12% of the total value of all exported products worldwide or 3% of world GDP. Exports of crude oil alone were worth close to USD 1 trillion. Petroleum product exports were a close second, at about USD 800 billion.³ With such enormously valuable markets, the scale of trade impacts of fossil fuel subsidies is likely significant, even in the case of low oil prices.

Table 1. Affected markets and trade exposure

Affected market	Annual trade volume (% of global prod.)	Annual trade value (USD, 2018)	Competitive density	Key trade impact
Upstream oil	~ 50%	943 billion	High	Battle for market share
Upstream gas	~ 25%	299 billion	High	Battle for market share
Upstream coal	~ 16%	124 billion	Medium	Battle for market share
Electricity	Very small	35 billion	Small	Obstruction of trade
Petroleum products	~ 15%	779 billion	Very high	Battle for market share; smuggling of refined fuels
Energy-intensive industry	Industry-dependent	> 1 trillion	Very high for key industries	Battle for market share
Electricity-intensive industry	Industry-dependent	> 300 billion	Very high for key industries	Battle for market share

Source: Moerenhout & Irschlinger, 2020.

3. The export value of fossil fuels in 2018 are based on data from the International Trade Centre (ITC), which can be accessed through its Trade Map tool: <https://www.trademap.org/>.

Importantly, the trade impacts of fossil fuel subsidies are not only felt in fossil fuel markets but also in the markets for energy-intensive products that rely on fossil fuel products as an important input, such as fertilizers and plastics, as well as the markets for electricity-intensive products, like aluminum. The annual value of exports of energy-intensive industries is at the very least USD 1 trillion (based on four key energy-intensive industries). Electricity-intensive industries from their end are worth at least USD 300 billion.⁴ These conservative estimates show that fossil fuel subsidies have a sizeable potential impact on international trade because of their importance as an input for various industries.

Finally, it is very important to note that fossil fuel subsidies affect trade and investment in products that are alternatives to those that rely heavily on fossil fuels, such as renewable energy technologies and electric vehicles, and associated products such as high-capacity batteries. This trade – and more generally, economic – impact might not always be that clear because it is more diffuse. Fuel subsidies can affect underlying market conditions that can block the emergence and dissemination of alternative, potentially non-like products and services. It is nonetheless extremely important in relation to the widely recognized need to transition to cleaner and less carbon-intensive energy systems.

2.3 Examples of Trade Impacts of Fossil Fuel Subsidies

The following examples are intended to make the debate about the trade impacts of fossil fuel subsidies more tangible. It must be emphasized, however, that these subsidies are largely generic in nature, meaning that competitors in various countries often also benefit from similar measures. Having subsidies from different jurisdictions affecting the same international markets is not uncommon. These examples are thus illustrative. They have merely been chosen to illustrate the potential trade impacts of fossil fuel subsidies with concrete cases, but other examples could have been picked.

Coal and Electricity Subsidies to the Aluminum Industry in China

China has various subsidies across the aluminum value chain. These subsidies include both financial subsidies and non-financial input subsidies that include energy subsidies. Energy subsidies are especially important to support smelting, of which electricity costs represent about 40% of total production costs (OECD, 2019a).

In China, many aluminum producers rely on subsidized coal to power their own captive electricity plants, which leads to a lower per kWh cost than if coal had not been subsidized. Other aluminum producers rely on general electricity subsidies provided in the form of low power tariffs (OECD, 2019a). According to the IEA, such electricity subsidies in China amounted to USD 25 billion in 2018 alone (IEA, 2020). A third category of aluminum companies is able to receive direct electricity subsidies that lower the electricity price even more compared to other consumers. Such subsidies are then mostly provided by provincial governments (OECD, 2019a). These

4. The export values of energy-intensive industries in 2018 are based on data from the ITC, accessible via Trade Map: <https://www.trademap.org/>. The category "energy-intensive industry" is constructed by the authors and includes iron and steel, plastics and products made thereof, paper and pulp, base metals and products made thereof. "Electricity-intensive industries" include aluminum and articles thereof.

support measures related to coal production and electricity consumption can significantly increase aluminum producers' competitiveness.

Work by the OECD strongly suggests that energy subsidies have spill-over effects on various segments of the aluminum value chain. In the last 15 years, China has become the leading producer of aluminum by far. China's increase in aluminum output has depressed the global prices of various aluminum products and undermined the position of exporters elsewhere. This in itself would be a normal market adjustment if it were not for the fact that China's aluminum prices are heavily influenced by these subsidies (OECD, 2019a).

One study estimated the trade impacts of China's electricity subsidies to the aluminum industry in U.S. firms in 2008. Albeit slightly outdated, the study shows that trade impacts are likely significant. Results indicated that removing these subsidies would lead to a decrease in China's exports and an increase in its imports. This would benefit the U.S. industry by increasing its own domestic market share, as well as picking up some of the global market share that China would no longer supply. This potential increase in U.S. exports was estimated at USD 100 million annually (Capital Trade Incorporated, 2009). As China's subsidization practices continued, such associated losses ultimately led the United States to file a complaint with the WTO against Chinese aluminum subsidies, including electricity subsidies (WTO, 2017a).

Royalty Subsidies to the Adani Coal Mine in Australia

Adani Mining is an Indian company based in Queensland, Australia, that holds the licence to construct the Carmichael thermal coal mine in the Galilee Basin. The goal of the Carmichael coal mine is to produce thermal coal and export it to India with the purpose of being used in coal-fired power plants. The Queensland Government has announced that it would sign a "Royalties Deferral Agreement" with Adani Mining. It has also been noted that it would finance road infrastructure worth AUD 100 million (Swann, 2019). These measures can be considered as subsidies and could even constitute export subsidies (see Section 3).

Normally, companies pay mining royalties to the Queensland Government according to a sliding percentage of the price per tonne of coal exported (Queensland Government, 2019). Under the state's "Resources Regional Development Framework", it is possible for companies to defer the payment of royalties for a certain time and then pay them back, including interest. This Royalties Deferral Agreement, however, can only be signed if mining companies allow third-party access to its infrastructure and open up undeveloped resource basins.

A key factor that may plausibly make the Adani Royalties Deferral Agreement a subsidy (and perhaps a prohibited subsidy) is that the interest rate at which deferred royalty payments would be paid would be set at the state bond rate (Queensland Government, 2017), which is lower than commercial rates. This issue is further explored in Section 3.

Even though the size of the potential subsidy will ultimately depend on coal prices, some studies have suggested the value of the royalty deferral could be between AUD 215 million and AUD 318 million (Swann, 2019), while others suggest it might be worth around AUD 900 million over seven years (Buckley, 2019). It remains unclear, however, whether these figures measure the value of the deferral in total or the

value based on the different interest rates. Regardless, it has been suggested that the potential subsidy may be very important for Adani Mining, given the difficulties it has had to finance the project and that, in fact, the royalty deferral may tip the balance between production and non-production (Smee, 2019).

Given that the clear and stated goal of the Carmichael project is exportation to India and other Asian countries (Adani Australia, 2019), the subsidy will automatically influence the international coal market. The exact production envisioned has been revised downward but would still be around 10 million tonnes per year (Smee, 2019), which is about 1% of current global thermal coal exports (IEA, 2019b). In Australia, thermal coal supply is saturated with demand, even decreasing (Cunningham et al., 2019). This is, among others, the result of various incentives given by Australia's federal and state governments for renewable energy uptake, which reduces the need for domestic coal even more. The subsidy thus appears to have exportation as the primary objective, as evidenced by the fact that royalties are calculated based on the export price.

Upstream Production Subsidies to Shale Oil in the United States

The shale oil industry in the United States is undergoing a transformative time. Even before record-low oil prices and a crashing demand because of the COVID-19 crisis, the high debt of these companies and an unsustainable business model resulted in the downgrading of their stocks. Heralded as the bedrock of the United States' "energy independence", independent shale oil and gas producers have been able to rely on a wide range of fossil fuel subsidies that put them in a more competitive position than they would have been in without this type of support. U.S. shale oil and gas subsidies are a prime example of how many different subsidies at both the federal and state levels can affect the market for two products (crude oil and natural gas).

At the federal level, oil producers have been able to rely on generous subsidies, such as the expensing of intangible drilling costs (USD 1.6 trillion), excess of percentage over cost depletion⁵ (USD 223 million in 2017), amortization of geological and geophysical expenditure (USD 60 million in 2017), and exception from passive loss limitation⁶ (USD 40 million in 2017). Natural gas producers are often able to rely on similar subsidies but also specific ones, such as the accelerated depreciation of natural gas distribution pipelines (USD 140 million in 2017) (China et al., 2016; OECD, 2020). These estimates are often contested, with some research institutions estimating a higher monetary value for each of these subsidies (Oil Change International, 2017).

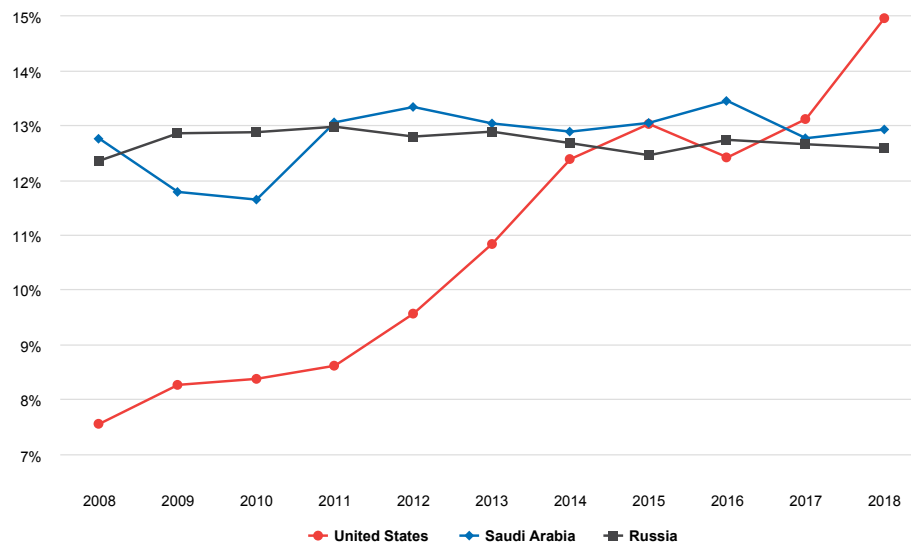
Fossil fuel companies are also allowed to undervalue their inventory and taxable income by "last-in, first-out" accounting, a scheme that is not unique to oil and gas producers but often used by them. This subsidy might have amounted to around

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5. Natural resource firms are allowed to deduct from their taxable income the capital costs related the acquisition or creation of an asset through cost depletion (i.e., deductions in proportion to how much of the reserve has been depleted to generate income in a given year). Oil and gas companies are allowed to use percentage depletion (i.e., deductions as a percentage of the gross income generated, possibly up to 100% of the net income produced by the asset). This can allow them to deduct from their taxable income total amounts that are in excess of their original investment. See <https://greenscissors.com/program/excess-percentage-cost-depletion-oil-gas/#:-:text=For%20natural%20resource%20assets%2C%20the,income%20in%20a%20given%20year.>
 6. Normally, taxpayers are allowed to deduct the losses they incur from passive activities but only to an amount equal to income generated from the activity. Oil and gas companies are allowed to deduct their excess passive losses against income generated from business activities in which they materially participate. See <https://greenscissors.com/program/passive-loss-limitations-exemption/>.

USD 1.7 billion in 2017 for the entire fossil fuel industry (Oil Change International, 2017). There are also subsidies through the provision of infrastructure, such as inland waterways for the transport of oil, for which construction, operation, and maintenance are not covered by user fees (China et al., 2016; OECD, 2020). The shale oil and gas industry in the United States also had several state-level subsidies that benefited them. These included, among many others, property tax exemptions for oil and gas, expensing of intangible drilling costs from taxable income, and more favourable public leasing rules for fossil fuels vis-à-vis renewables (OECD, 2020). It should be noted that these subsidies are in addition to the billions of dollars of grants and loans that have been given to oil and gas producers under other non-fossil fuel-specific federal and state programs.

The fact that U.S. shale oil and gas production has changed world oil and gas markets in less than a decade is uncontested. It made the U.S. the world's top oil producer and reduced the anticipated world market share of Russia and other members of the Organization of the Petroleum Exporting Countries (OPEC). This process started early on and accelerated strongly in the 2010s (Figure 3). In 2017 alone, exports from Saudi Arabia fell by 6.7%, from OPEC countries generally by 1.4% and from Russia by 0.8%. U.S. production, on the other hand, rose by nearly 16%, which made its imports fall compared to the years before and its exports rise, moving the country into the top 10 crude exporters, compared to 16th place in 2016 (IEA, 2019a).

Figure 3. Global oil production share of the United States, Saudi Arabia, and Russia (%)



Source: Author calculations based on BP, 2019.

The trade impact of shale oil production is thus crystal clear. The question is to what extent fossil fuel subsidies affected the level of production and therefore that trade

impact. One study estimates that nearly half of discovered but not yet producing oil in the United States (or about 20 billion out of 43 billion barrels) would need subsidies to reach a minimum return on investment if the oil price were USD 50 per barrel. This share would decrease to 10% if the oil price were at USD 80 per barrel (Erickson et al., 2017).⁷ Another study found that removing only the three largest tax subsidies would decrease U.S. oil and gas production by 4% to 5% (Metcalf, 2016). It has also been made clear by the industry itself that subsidies have played a big role in growth. In 2012, the CEO of Continental Resources (one of the largest independent shale oil producers in the United States) claimed before the House Committee on Energy and Commerce that oil and gas production could fall 40% if oil industry tax deductions were eliminated (Wertz, 2012).

From a more historical perspective, it should be noted that the shale oil industry was also assisted by more specific subsidies in its early years before shale oil became somewhat lucrative because of the development of hydraulic fracturing in combination with horizontal drilling (a "revolution" that started in the late 1990s). Most importantly, the U.S. government wrote out in 1980 a production tax credit (PTC) for unconventional fuels, often referred to as the Section 29 Unconventional Fuels PTC. This scheme ended in 1992 but covered production until 2002. Around 2000, support provided through the Unconventional Fuels PTC amounted to more than support through percentage depletion and expensing of intangible drilling costs together. In 1999, the cost of the other two subsidies amounted to USD 0.9 billion, whereas the Unconventional Fuels PTC cost USD 1.3 billion (Sherlock, 2011). During the subsidy period, shale gas production quadrupled and rose especially fast between the mid-1990s and 2002 (Burwen & Flegal, 2013). The subsidy also helped shale companies to cover the high costs of investing in shale and helped them survive frequent disappointments until the correct composition and pressure of slickwater were discovered.

Natural Gas Production and Consumption Subsidies and Fertilizer Prices in Russia

Natural gas is the most important raw material to produce any form of nitrogen fertilizer, as well as ammonia. The share of natural gas costs in the overall production costs of nitrogen fertilizers can go up to as much as 60%–70% of total production costs (Jones, 2020). That means that if natural gas prices are low, then nitrogen fertilizer prices are low as well. This has been shown in historical trends of natural gas and fertilizer prices (Beckman & Riche, 2015).

Russia has both natural gas consumption and production subsidies, which both can increase the competitiveness of producers of nitrogen fertilizers compared to a no-subsidy scenario by lowering the price of a key input. The government has employed administrative controls for domestic natural gas prices for a long time. These could be considered as consumption subsidies as long as they are below the long-run marginal cost of production of natural gas. Such subsidies provide natural gas at a cheaper cost for Russian fertilizer producers in comparison with their foreign competitors. Currently, Russian gas exports are indeed cross-subsidizing low domestic energy prices (Mitrova & Yermakov, 2019). In the recent past, because of decreasing export earnings from natural gas, Russia has aimed at liberalizing natural

7. At the time of writing, the international oil price is around USD 40 per barrel, after a period of severe volatility.

gas prices in the long term (Orlov, 2015), even though the exact prospect for this plan and the extent of envisioned price increases remain very unclear. Currently, it seems clear that existing natural gas consumption subsidies are therefore beneficial for Russian fertilizer producers since their foreign competitors do not have access to cheaper gas prices.

Even if that price liberalization were to happen, upstream subsidies to natural gas production might still lower the price of natural gas and generate a pass-through effect on nitrogen fertilizer production. Russian upstream gas subsidies pale in comparison to those to oil but are nevertheless large. In total, upstream natural gas production subsidies in 2017 were around USD 83 million (OECD, 2020). This, however, does not include government investment in Gazprom. Gazprom is a state-owned company that controls about 70% of total domestic gas production and most of the gas transmission sector (OECD, 2019b). The Russian government invests heavily in the company and gas transport infrastructure generally (Ogarenko et al., 2015).

The fact that low natural gas prices impact the cost of production and the price of fertilizers goes uncontested. The potential trade impact also appears to be large. Russia exports over 80% of most of its domestically produced fertilizers (Urea, NPK, and MOP). Knowing that Russia is one of the top five suppliers to the international market (Argus 2018), it is safe to say that their domestic production definitely influences world markets for fertilizers. At the same time, the rapid growth in Russia's domestic agricultural production has increased domestic demand for fertilizers as well (Ram, 2018). That means that cheap Russian fertilizer could gain world market share but also displace potential imports from competitors. A more concrete example of the trade impact can be found in the EU market. The EU is dependent on imports of nitrogen-based fertilizers. In total, it imports over 3 million tonnes annually. It imports from only a handful of countries, with the main ones being Russia, Egypt, and Algeria (European Commission, 2019). As a result of generous input subsidies, Russia is thus likely to cover more European Union demand compared to other producers, such as Egypt and Algeria, now than it could have without subsidies. That being said, it is important to recognize that certain markets have several competitors that benefit from domestic subsidies themselves, so the level of analysis should not only focus on the differentiation between subsidizing and non-subsidizing countries but also on the levels of subsidization, as fossil fuel subsidies are both pervasive and widespread.

3. Fossil Fuel Subsidies Under WTO Subsidy Rules

Fossil fuel subsidies, like other subsidies, are, in principle, covered by the WTO ASCM and could also be governed by relevant provisions of the 1994 General Agreement on Tariffs and Trade (GATT) and the Agreement on Trade-Related Investment Measures (TRIMs Agreement). GATT provisions may be invoked to challenge fossil fuel subsidies, for instance, because a subsidy may amount to an illegal quantitative export restriction. Moreover, the GATT contains several relevant provisions that are elaborated upon in the ASCM, notably Articles VI on anti-dumping and countervailing duties and Article XVI on subsidies. The TRIMs Agreement addresses investment measures related to the trade in goods that are inconsistent with the GATT's obligations of national treatment and elimination of quantitative restrictions (Article 2.1 TRIMs Agreement). One of those measures, included in an Illustrative List in an Annex to the TRIMs Agreement, is the requirement to use local content. Together with the GATT's national treatment obligation, these provisions have been relevant in the context of renewable energy disputes, with several renewable energy support measures – in Canada,⁸ India,⁹ and the United States¹⁰ – deemed incompatible with the GATT and TRIMs Agreement, though importantly not with the ASCM (see, e.g., Cosbey & Mavroidis, 2014; Espa & Marín Durán, 2018; Kulovesi, 2014; Rubini, 2015). Other agreements, such as the Agreement on Agriculture and the General Agreement on Trade in Services, may also assume relevance in the context of fossil fuel subsidies. However, the focus of this section will be on the most comprehensive set of subsidy disciplines, as contained in the ASCM.

Notwithstanding the potential impacts on international trade discussed in the previous section and the fact that several renewable energy subsidies have been successfully challenged in trade disputes, fossil fuel subsidies have remained largely unchallenged before the WTO dispute settlement system. Before discussing the reasons for this “undercapture” (Verkuijl et al., 2019, p. 335) that are related to the legal requirements under the ASCM, it is important to understand that the lack of challenges of fossil fuel subsidies under WTO law may also be due to strategic and political considerations. First, fossil fuel subsidies have arguably not been challenged because WTO members have been unwilling to do so for fear of, for instance, jeopardizing diplomatic relationships or possible retaliatory action (Asmelash, 2015), particularly if members have fossil fuel subsidies of their own (i.e., the “glasshouse” syndrome). Second, and related to the first explanation, domestic interest groups have largely refrained from putting pressure on their governments to launch a dispute against fossil fuel subsidies, possibly because long-standing fossil fuel subsidies—as compared to relatively new support measures for renewable energy—are already integrated into investment expectations (Meyer, 2017). Third, disputes are more likely if a country has a diversified economy, as this allows a complainant to

8. *Canada – Certain Measures Affecting the Renewable Energy Generation Sector (Canada – Renewable Energy)*, Appellate Body Report, WT/DS412, 426 (24 May 2003).

9. *India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)*, Appellate Body Report, WT/DS456 (14 October 2016).

10. *United States – Certain Measures Relating to the Renewable Energy Sector (US – Renewable Energy)*, Panel Report, WT/DS510 (not yet adopted).

retaliate against a broader set of products. This excludes some key fossil fuel-producing and exporting countries, such as Saudi Arabia (Meyer, 2017). Lastly, consumer subsidies may be viewed as trade facilitating (rather than trade distorting), as they also increase imports from third countries. Accordingly, this may lower the incentives for them to challenge such measures (Steenblik et al., 2018).

Although these considerations may help explain why fossil fuel subsidies have not yet attracted any challenges under the WTO, this explanation is incomplete without a discussion of the legal and evidentiary challenges posed by the ASCM (De Bièvre et al., 2017). Under the ASCM, a subsidy is defined as a "financial contribution by a government or any public body" or "any form of income or price support" that confers a benefit (Article 1.1 ASCM). WTO rules only apply if measures can be demonstrated to be either "prohibited" or "actionable" subsidies under the agreement.¹¹ Prohibited subsidies are those contingent upon export performance or upon the use of domestic over imported goods (Article 3 ASCM). Subsidies are actionable if they are "specific" (aimed at certain enterprises or industries, Article 2 ASCM; prohibited subsidies are deemed to be specific, Article 2.3 ASCM). If actionable subsidies create "adverse effects" for another WTO member, they may be challenged. "Adverse effects" refers to injury to the domestic industry of another member; nullification or impairment of the benefits accrued by another member under the tariff concessions of the GATT; or, most relevantly, serious prejudice to the interests of another member (Article 5 ASCM). If a subsidy is not specific, it is not actionable. As this section will explain, the evidentiary challenges for complainants under the ASCM can be significant.

Figure 4 presents the key questions for testing whether a (fossil fuel) subsidy is consistent with the ASCM and what a dispute settlement panel might recommend depending on the outcome of the analysis. Accordingly, the remainder of this section will discuss the extent to which fossil fuel subsidies are captured by the subsidy definition of the ASCM (Section 3.1), as well as under which circumstances fossil fuel subsidies could constitute a "prohibited" subsidy (Section 3.2) or could be determined to be "actionable" and successfully challenged (Section 3.3). Lastly, it will briefly discuss relevant subsidy notification requirements under the ASCM (Section 3.4).

11. While not all subsidies may be subject to a challenge pursuant to the ASCM, it is important to note that the terms of the ASCM can still be used to identify subsidies for other purposes, for example, to develop fossil fuel subsidy inventories to report under SDG Indicator 12.c.1 or other uses (see United Nations Environment Programme [UNEP] et al., 2019). Here, whether subsidies are trade distorting and either prohibited or actionable under the WTO may not be one of the purposes, for example, the analysis may be based on identifying subsidies that increase greenhouse gas emissions or that contribute to local air pollution.

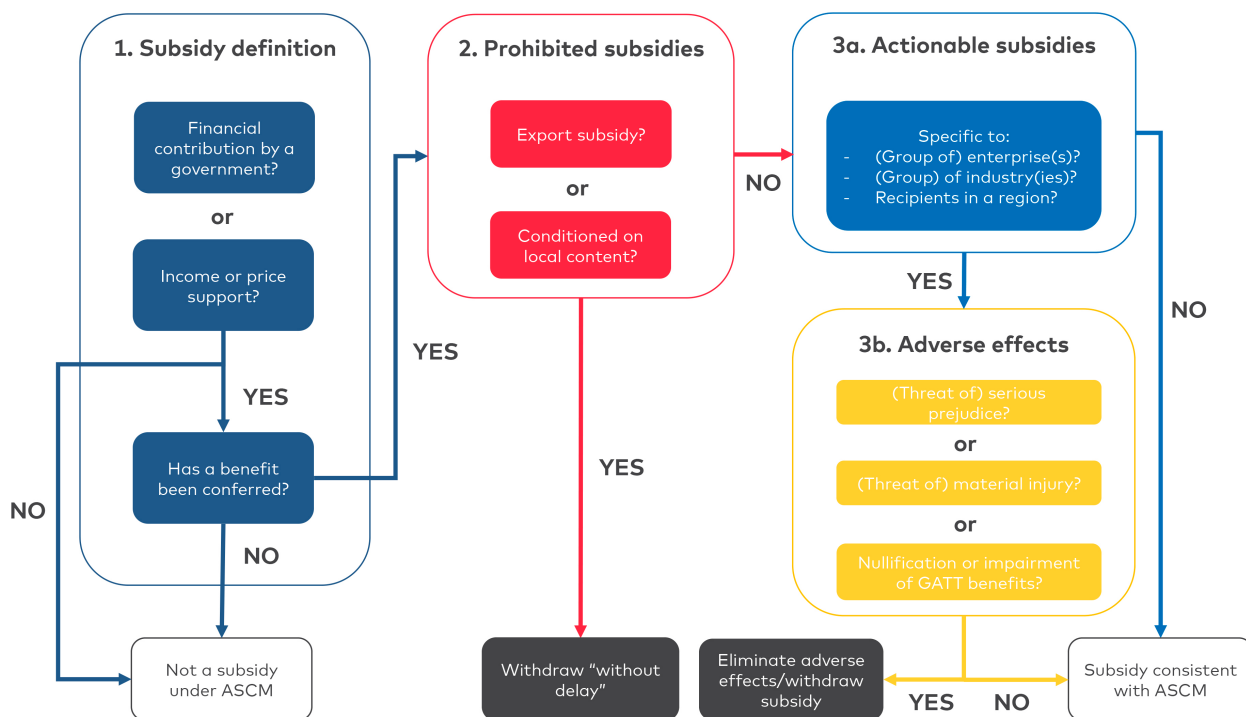


Figure 4. Decision chart for the ASCM in WTO dispute settlement

Source: Adapted from Verkuijl et al., 2017.

3.1 Subsidy Definition

The first key question is whether a given support measure constitutes a "subsidy" under the ASCM. To determine this, it needs to be established that a subsidy is either a "financial contribution" by a government or "income or price support" under Article 1.1 of the ASCM and that this leads to the conferral of a "benefit".

The definition of a **financial contribution**, according to Article 1.1(a)(1) of the ASCM, includes:

(i) a government practice involves a direct transfer of funds ..., potential direct transfers of funds or liabilities; (ii) government revenue that is otherwise due is foregone or not collected ...; (iii) a government provides goods or services other than general infrastructure, or purchases goods; (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above."

A first question is whether a financial contribution is **granted by a government**, which includes the "government or any public body within the territory of a Member" (ASCM, Article 1.1(a)(1)). This clearly includes any government at the national (e.g., the Russian government) or subnational (e.g., the Queensland Government) level. In addition, other bodies "that [possess, exercise or are] vested with government authority"¹² are also included. This means that financial support for fossil fuels provided through state-owned enterprises (see Bast et al., 2015; Gensçü et al., 2020) or state-owned commercial banks are also covered by the ASCM if these bodies are

12. *US – Definitive Anti-Dumping and Countervailing Duties on Certain Products from China*, Appellate Body Report, WT/DS379/AB/R (11 March 2011), para. 317.

vested with government authority. Moreover, indirect financial contributions made by private bodies that are “entrusted” or “directed” by a government are also covered. Instances of such entrustment or direction can be inferred from the facts, for instance, if a private body acts against its own commercial interests or if the government is a major shareholder. If a state-owned enterprise or another company would be charged with supplying fuels at below-market prices (a common example of a consumer subsidy), this would therefore likely be covered.

In some cases, it will be quite straightforward to establish whether a financial contribution exists. For example, direct financial support to a fossil fuel company in the form of a grant or a loan would fall within the ASCM category of a direct transfer of funds. In this regard, the Adani Royalties Deferral Agreement in Australia (see Section 2) can be classified as a direct transfer of funds (i.e., a loan) in that it obliges Adani to repay and interest is charged.¹³ The interest rate reduction granted to Adani could also be characterized as government revenue foregone to the extent that commercial rates can be taken as the benchmark. Another clear example of a subsidy is government funding for a railroad that is solely aimed at transporting coal from a mine to a port, which would be captured by the ASCM category of the provision of goods or services. Likewise, the leasing of federal lands that grants companies the right to extract fossil fuels can be considered the provision of a good (Erpenbach, 2020, p. 516).

In addition to a financial contribution by a government, fossil fuel subsidies may also constitute another category of subsidy, namely **income or price support** (ASCM, Article 1.1(a)(2)). A common type of consumption support measure – governments setting regulated prices for the sale of fuels (e.g., diesel) or directing others to do so, such as regulated prices of natural gas in Russia (see Section 2) – can be considered income or price support, as such support “includes direct government intervention in the market with the design to fix the price of a good at a particular level.”¹⁴

In other cases, it will be more difficult to determine whether specific fossil fuel subsidies fall under these categories. For instance, the expensing of intangible drilling costs from taxable income in the United States discussed in Section 2 could be qualified as government revenue foregone. However, to make such a finding under WTO law, it is necessary to compare the (preferential) tax treatment against a benchmark tax treatment (Coppens, 2014, pp. 46ff; Müller, 2017, pp. 92ff.). Although Verkuijl et al. (2019, p. 341) suggest that the treatment of oil and gas producers “appears to deviate from the norm and would therefore constitute the relevant challenged tax treatment,” they also indicate that any firm conclusion would need to be based on a detailed analysis of the U.S. tax regime.

In addition to finding whether the support can be deemed a “financial contribution” or “income or price support,” Article 1 of the ASCM requires the **conferral of a benefit**, shifting the focus to the recipient of support (Coppens, 2014, p. 60). To determine whether a benefit has been conferred, the WTO Appellate Body developed a “private market test” that specifies that a benefit is conferred when “the recipient has received a financial contribution on terms more favourable than

13. *Japan – Countervailing Duties on Dynamic Random Access Memories from Korea*, Appellate Body Report, WT/DS336/AB/R (17 December 2007), para. 251.

14. *China – Countervailing and Anti-Dumping Duties on Grain Oriented Flat-Rolled Electrical Steel from the US*, Panel Report, WT/DS414/R (16 November 2012), para. 7.85. Moreover, if the regulated price leads to a cheaper input (i.e., fuels) being provided to a (subsidized) producer that uses this cheap product, it can be argued that the government has provided goods or services (i.e., that there is a “financial contribution”).

those available to [it] in the market.”¹⁵

In some cases, it may be straightforward to establish this, for instance, if a subsidy consists of a favourable loan to a fossil fuel producer or if a subsidy results in consumers not paying the market price for certain fuels (Verkuijl et al., 2019). However, in light of existing WTO case law, proving a consumption subsidy provides a benefit under the ASCM is different for energy-importing countries and energy-producing countries. For consumption subsidies in producing countries, “it is difficult to argue that a benefit is conferred if the producing country provides fuel at above production cost, but below the international market price” (Moerenhout, 2020, p. 124). However, for energy-importing countries, it should be easier to establish that a benefit has been conferred if the fuel price is set below the international market price. In the specific cases where it can be established that government revenue has been foregone, a benefit can be deemed to be conferred (Coppens, 2014, p. 61). For instance, if there are tax breaks – for example, an exemption from paying value-added tax – for fossil fuel producers that cannot be justified with reference to the internal principles of a country’s tax regime, it is also likely that the benefit test will be passed.

Key points

- The ASCM covers fossil fuel subsidies provided by governments, by other public bodies vested with government authority, and by private bodies entrusted/directed by a government. Such bodies could include state-owned enterprises.
- Fossil fuel subsidies can fall under several categories of the ASCM subsidy definition, including a direct transfer of funds, government revenue foregone, provision of goods and services, and/or income or price support. The evidentiary burdens for establishing that government revenue has been foregone may be high.
- If a fossil fuel subsidy consists of a financial contribution on terms more favourable than the market, a benefit will be deemed to have been conferred. A benefit will also have been conferred if the government has foregone revenue.

3.2 Prohibited Subsidies

Assuming that support for fossil fuels meets the definition of a “subsidy” under Article 1 of the ASCM, the next question is whether it can be considered a “prohibited” subsidy under Article 3, which covers “subsidies contingent, in law or in fact ... upon export performance” (export subsidies) and “subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods” (local content subsidies). These subsidies, according to Article 4.7 of the ASCM, must be withdrawn “without delay.”

For an **export subsidy** to be prohibited, it needs to be established that the subsidy is

15. *Canada – Measures Affecting the Export of Civilian Aircraft*, Appellate Body Report, WT/DS70/AB/R (20 August 1999), para. 158.

"contingent" on exportation. If any export conditionality is stated in a country's legislation, this will be easy to prove. In addition, the ASCM further includes a non-exhaustive "Illustrative List of Export Subsidies" in its Annex I. In the context of fossil fuel subsidies, a first question thus arises as to whether a subsidy is included in the Illustrative List, in which case it is automatically prohibited. The Illustrative List includes a range of measures, such as the provision of goods and services by governments on terms more favourable for exports (item d), tax or duty rebates upon export (items e–i), and export credit support, although with an exception for certain export credits consistent with the OECD Arrangement on Officially Supported Export Credits (items j–k).

If a measure is not included in the Illustrative List, and assuming that a subsidy's links to exportation are not provided for in law, it needs to be established that there has been (1) a granting of a subsidy that is (2) in fact tied to (3) actual or anticipated exportation or export earnings (ASCM, Article 3.1(a), footnote 4).¹⁶ The first criterion means that the focus should be on the granting authority and not the recipient. To determine whether the granting of a subsidy is "in fact tied," the claimant needs to demonstrate a "relationship of conditionality or dependence."¹⁷ To prove that the subsidy is tied to anticipated exportation, it further needs to be demonstrated that "the granting of the subsidy [is] geared to induce the promotion of future export performance by the recipient" in a way "that is not simply reflective of the conditions of supply and demand in the domestic and export markets undistorted by the granting of the subsidy."¹⁸ This can be shown if the ratio between exports and domestic sales following a subsidy is higher than historical or hypothetical levels (Coppens, 2014, p. 121). With regard to the third criterion of actual or anticipated exportation or export earnings, the former refers to exports when the subsidy is granted, whereas the latter concerns the expectations of future exports (i.e., after the subsidy has been granted). Although the (subjective) expectations of a government in terms of export performance may inform the overall determination of contingency, any finding of whether exportation or export earnings were anticipated needs to be based on (objective) evidence.¹⁹ For instance, if a company sells "much if not most of the production in export markets," this could help establish the case that there was "anticipated exportation."²⁰

While fossil fuel consumption subsidies in the form of universal low end-user prices are unlikely to be prohibited subsidies (Moerenhout, 2020), production subsidies could, in some cases, constitute prohibited export subsidies. Verkuijl et al. (2019) examine the expensing of intangible drilling costs in the United States (discussed in Section 2) in light of the test for prohibited export subsidies. They caution that increased exports as a result of a subsidy do not necessarily turn a measure into an export subsidy. This will only be the case if the intervention encourages exports over domestic sales (Verkuijl et al., 2019, p. 342). This may be easier to show in cases where the domestic market is saturated or declining, meaning that increasing production will likely have a stronger impact on exports than domestic sales. In an

16. See also *Canada – Measures Affecting the Export of Civilian Aircraft*, Appellate Body Report, WT/DS70/AB/R (20 August 1999), para. 170–172.

17. *Canada – Measures Affecting the Export of Civilian Aircraft*, Appellate Body Report, WT/DS70/AB/R (20 August 1999), para. 171.

18. *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Appellate Body Report, WT/DS316/AB/R (1 June 2011), para. 1044 and 1053.

19. *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Appellate Body Report, WT/DS316/AB/R (1 June 2011), para. 1050.

20. *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Appellate Body Report, WT/DS316/AB/R (1 June 2011), para. 1076 and 1080.

analysis of a potential loan by the Australian Government through its Northern Australia Infrastructure Facility to the Carmichael coal mine, Slattery (2019) concludes that *de facto* contingency can be established on the basis of the following set of facts: (1) the coal produced is not intended for domestic consumption, as the domestic market is already saturated; (2) the scale of exports is likely significant, with the coal mine increasing Australia's export capacity by a quarter; and (3) government officials and documents point to the export orientation of the financial support. To be clear, this measure is a different one than the Adani Royalties Deferral Agreement discussed in Section 2, and some – though not all – facts are likely to be different in that case. Moreover, neither the export orientation of the enterprise receiving the subsidy nor the saturation of domestic markets alone would necessarily lead to a finding of contingency. Nevertheless, along with other information (if available), these facts may help craft the argument that a measure potentially constitutes a prohibited export subsidy.

The other category of prohibited subsidies are **local content – or import substitution – subsidies**, which are production subsidies that – again, in law or in fact²¹ – aim to substitute the use of domestic over imported inputs in the production process. The use of local content requirements drew attention in the context of several WTO disputes on renewable energy support. Although no violation of Article 3 of the ASCM has so far been found in these disputes, the use of local content requirements in renewable energy support schemes has been deemed inconsistent with GATT Article III:4 and Article 2.1 of the TRIMs Agreement (see, e.g., Espa & Marín Durán, 2018). Demonstrating whether a local content requirement constitutes a violation of the TRIMs Agreement is generally easier than demonstrating that it is a prohibited subsidy under the ASCM, as the latter also requires establishing that the measure is a “subsidy” (Coppens, 2014, p. 142). Local content requirements are widely used in fossil fuel production, mainly in the context of granting concessions or licences related to fossil fuel production (Tordo et al., 2013). However, such measures should be considered investment measures rather than subsidies. The ASCM would only come into play if there were an element of financial support – for example, the concession agreement also includes an indication that financial support will be made available if local content is used by a fossil fuel-producing company.

Key points

- For some fossil fuel production subsidies where it can be established that the recipient is export-oriented and domestic markets are becoming saturated, the case can be made that they constitute a prohibited export subsidy under the ASCM.
- Although the use of local content requirements is widespread in the fossil fuel sector, such measures should be considered investment measures rather than subsidies, unless a measure is linked to financial support by the government.

21. *Canada – Certain Measures Affecting the Automotive Industry*, Appellate Body Report, WT/DS139/AB/R, WT/DS142/AB/R (31 May 2000), para. 139–143.

3.3 Actionable Subsidies

Specificity

If a subsidy is not prohibited, it may still be actionable. A precondition for this is that a subsidy can be considered "specific to an enterprise or industry or group of enterprises or industries ... within the jurisdiction of the granting authority" (ASCM, Article 2.1) or "limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority" (ASCM, Article 2.2). Prohibited subsidies are automatically deemed specific (ASCM, Article 2.3).

A subsidy can be specific by "explicitly limit[ing] access to a subsidy to certain enterprises" (**de jure specificity**, ASCM, Article 2.1.a–b). Establishing this requires the identification of a relevant subsidy scheme and a determination of whether this is limited to certain enterprises.²² In addition, and even if *de jure* specificity cannot be proven, a subsidy can also be limited to certain enterprises in practice (**de facto specificity**). This can be the case if, for instance, only a limited number of enterprises use a subsidy, the subsidy is used predominantly by certain enterprises, or a large amount of the subsidy benefits certain enterprises (ASCM, Article 2.1.c).

Generally, production subsidies are more likely to meet the specificity requirement than consumption subsidies. This is particularly the case for common consumption subsidies, such as the underpricing of fuels for the domestic market or dual pricing schemes, which benefit large and diffuse groups of consumers. Some have argued that some consumption subsidies can be *de facto* specific if they disproportionately benefit certain energy-intensive industries (Howse, 2010, p. 9; Marhold, 2017, p. 13). This could be the case for the subsidies benefiting the aluminum industry in China or those favouring fertilizer producers in Russia (see Section 2). However, the fact that these industries benefit from subsidized coal and natural gas, respectively, does not make the subsidies specific as such, as they may still provide important benefits to other energy consumers, including households and other industries (see also Moerenhout, 2020, pp. 127–128). Moreover, the Appellate Body has suggested that, to assess *de facto* specificity, a comparison must be made between the actual distribution of the subsidy scheme and the expected distribution based on its eligibility criteria.²³ In other words, if the eligibility criteria of a subsidy lead to an expected distribution that favours energy-intensive industries, it does not follow that a subsidy can be deemed *de facto* specific.

With regard to fossil fuel production subsidies, Verkuijl et al. (2019) examine whether the expensing of intangible drilling costs subsidy in the United States (see Section 2) can be considered specific. As the subsidy applies not just to fossil fuels but also other energy minerals such as uranium, the question arises whether these various industries represent "a group of industries." With reference to *US – Softwood Lumber IV* (in which a subsidy for several wood product industries was considered specific)²⁴ and *US – Upland Cotton* (concerning a subsidy for a limited set of agricultural products),²⁵ it can be argued that the measure benefiting several energy minerals industries is specific. Moreover, the measure *de facto* primarily benefits the

22. *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, Appellate Body Report, WT/DS353/AB/R (23 March 2012), para. 753.

23. *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint) – Recourse to Article 21.5 of the DSU by the European Union*, Appellate Body Report, WT/DS353/AB/RW (11 April 2019), para. 5.180.

24. *United States – Final Countervailing Duty Determination with Respect to Certain Softwood Lumber from Canada*, Panel Report, WT/DS257/R (17 February 2004), para.7.121.

25. *United States – Subsidies on Upland Cotton*, Panel Report, WT/DS267/R (21 March 2005), para. 7.1148.

oil and gas industry, even if other energy minerals are covered in law (Verkuijl et al., 2019, pp. 342–343). If a subsidy is limited to the extraction of a certain form of fossil fuel – as in the case of the leasing of federal lands for coal extraction in the United States – it will be even more likely that the specificity test will be met (Erpenbach, 2020, p. 522).

The last possibility for a subsidy to be determined as being specific is **regional specificity** (ASCM Article 2.2). A question is, for example, whether the Adani Royalties Deferral Agreement by the Queensland government (see Section 2) – which is limited to a specific region of Australia – can be considered to be “limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority” (ASCM, Article 2.2). A subsidy by a subnational government for its entire region would, in principle, not be deemed specific on the basis of Article 2.2 of the ASCM.²⁶ However, public statements by the government suggest that, *within* the State of Queensland, the subsidy is targeted particularly at greenfield projects in the Galilee and Surat basins and the North West Minerals Province, which would make the Royalties Deferral Agreement geographically specific.²⁷ Alternatively, as the Royalties Deferral Agreement specifically concerns Adani, it could be argued that the subsidy is limited to certain enterprises and not available to industries in the entire region. In other words, this particular subsidy would likely be considered “specific”.

Adverse Effects

The legal and evidentiary burdens of establishing that a certain measure is a subsidy (i.e., in that it is a financial contribution or income or price support conferring a benefit) and specific are compounded by the final test under the ASCM: to prove that an actionable subsidy leads to “adverse effects to the interests of other Members” (ASCM, Article 5). Adverse effects comprise the following: (1) injury to the domestic industry of another member, (2) nullification or impairment of benefits accruing directly or indirectly to other members under the GATT, and (3) serious prejudice to the interests of another member.

The first category of adverse effects, **injury to the domestic industry** of another member, takes place in the domestic market of a member importing a subsidized product. This category includes “material injury”, the “threat” thereof, as well as “material retardation of the establishment of such an industry” (ASCM, Article 15, footnote 45). As a first step, it needs to be established that there was an injury (e.g., in the form of a decline of output, sales, market share, profits, productivity, etc.; see ASCM, Article 15.4) over a certain period. Second, this injury needs to be caused by the subsidized imports,²⁸ not the subsidies as such, which makes determining this category of adverse effects easier to prove than the category of “serious prejudice” discussed below (Coppens, 2014, p. 145). A threat of material injury can be based on a range of factors, including the nature of the subsidy and its likely trade effects, a significant rate of increase of subsidized imports, and whether the price of imports will depress or suppress domestic prices and likely increase demand for further imports (ASCM, Article 15.7). To take the example of subsidies to the aluminum

26. *EC and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Panel Report, WT/DS316/R (30 June 2010), para. 7.1230–7.1231

27. See: <https://www.curtispitt.com.au/2017/05/27/queensland-jobs-investment-and-royalties-boost-from-new-resource-policy/>

28. *EC and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Panel Report, WT/DS316/R, para. 7.2059–7.2071.

industry in China from Section 2, demonstrating injury to its domestic industry would require the United States to document how aluminum firms in the country have lost domestic market share (or have declined against other indicators) and demonstrate that this was due to subsidized imports of aluminum coming from China.

The second category of adverse effects, **nullification or impairment of benefits**, refers to a situation in which a member negates the benefits provided to other members through the GATT (e.g., through tariff reductions) by simultaneously subsidizing an industry. Whereas the category of injury to the domestic industry concerns the effect of a subsidy in the domestic market of other WTO members, this category concerns effects in the subsidizing country (Coppens, 2014, p. 147). However, the utility of this category in challenging subsidies is limited by the requirement that the price effect of a tariff concession should be "systematically offset"²⁹ by a subsidy program.

The third category, **serious prejudice to the interests of another member** – or a threat thereof – requires a complainant to establish one or more of the following effects related to volume and/or prices:

- a. the effect of the subsidy is to displace or impede the imports of a like product of another Member into the market of the subsidizing Member;
- b. the effect of the subsidy is to displace or impede the exports of a like product of another Member from a third-country market;
- c. the effect of the subsidy is a significant price undercutting by the subsidized product as compared with the price of a like product of another Member in the same market or significant price suppression, price depression or lost sales in the same market; or
- d. the effect of the subsidy is an increase in the world market share of the subsidizing Member in a particular subsidized primary product or commodity as compared with the average share it had during the previous three years, and this increase follows a consistent trend over a period when subsidies have been granted (Article 6.3 ASCM).³⁰

It may be possible to establish that there has been serious prejudice in the context of some fossil fuel subsidies. Taking the example of Russian natural gas subsidies benefiting fertilizer exports from Section 2, other exporters to the European Union, such as Egypt, could argue that these subsidies displace their exports under paragraph (b). Likewise, in the context of the proposed subsidy for the Carmichael coal mine through the Northern Australia Infrastructure Facility, Slatery (2019, p. 126) argues that it is "highly likely" that there is serious prejudice, as the Australian exports to India likely to result from the mine are prone to displace other members' exports, notably Indonesia's. A similar argument can be made in the context of the Adani Royalties Deferral Agreement.

However, as noted above, an important hurdle will be to prove that the effect – in this case, of displacement – is due to the *subsidy itself*. It will be particularly difficult to establish that any pass-through effects are caused by the subsidy itself, as the

29. *United States – Continued Dumping and Subsidy Offset Act of 2000*, Panel Report, WT/DS217/R, WT/DS234/R (16 September 2002), para. 7.127.

30. As Coppens and Friedbacher (2017, p. 138) suggest, case law has yet to clarify whether subsidies provided by developing countries that lead to "serious prejudice" can be challenged by other countries, pursuant to Article 27.9 of the ASCM.

causal chain would become lengthy. Generally, determining causation is a "fact-intensive exercise, and one that inevitably involves extensive, case-specific evidence,"³¹ including both qualitative and quantitative analyses. Information on, for instance, the nature and duration of the subsidy, its magnitude, and prevailing competitive relationships can inform the analysis (Coppens, 2014, p. 170).

Under paragraphs (a), (b), and the first element of paragraph (c) – price undercutting – of ASCM Article 6.3, moreover, serious prejudice needs to be caused against "like products,"³² and this needs to happen in the relevant product market. It could, for instance, be argued that Australian coal and Indonesian coal are "like" (Slattery, 2019, p. 128), resulting in a potential threat of serious prejudice. However, the "like products" requirement may exclude consideration of one important type of trade effects identified in Section 2, namely the effects on trade in renewable energy products. Generally, it is rather doubtful that renewable energy products (e.g., solar panels) and fossil fuels would be considered "like" (Wold et al., 2012, p. 670). Nevertheless, it could be argued that fossil fuels are "like" biofuels blended with petrodiesels and that electricity from fossil fuels and renewable energy sources can also be considered "like" (Wold et al., 2012, p. 684).³³ In any case, the "like products" requirement does not apply to paragraph (d), as well as the price suppression/depression and lost sales elements of paragraph (c) of Article 6.3.³⁴ In those cases, a claimant needs to demonstrate that the effects occur in the "same market", where likeness is but one factor determining whether products belong to the same market.³⁵

31. *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, Appellate Body Report, WT/DS353/AB/R (23 March 2012), para. 915.

32. It is not the intention here to recapitulate the long-standing debate on "like products" in the WTO (see, e.g., Choi, 2003). Importantly, footnote 46 of the ASCM narrowly defines "like product" as a product "which is identical, i.e. alike in all respects to the product under consideration, or in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration."

33. The jury on both these points is still out. While the likeness of "green" and "grey" electricity may be assumed to have identical physical characteristics, end uses, and tariff classification, consumer preferences may differ vis-à-vis renewable and fossil fuel-generated electricity (Feng, 2019). Although the Appellate Body's analysis in *Canada – Renewable Energy* suggests that fossil fuel-based and renewable electricity compete in different markets for the "benefit" analysis, this does not exclude the possibility that these forms of electricity compete in the same market for the purpose of the analysis under Article 6.

34. *Korea – Measures Affecting Trade in Commercial Vessels*, Panel Report, WT/DS273/R (7 March 2005), para. 7.553.

35. *EC and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, Appellate Body Report, WT/DS316/AB/R (18 May 2011), para. 1117–1119.

Key points

- Production subsidies are more likely to meet the specificity requirement than consumption subsidies.
- Production subsidies benefiting several extractive industries (including fossil fuels) or certain enterprises within a specific geographical region can be argued to be "specific."
- Demonstrating "serious prejudice" is generally more difficult than demonstrating "material injury," as the former needs to be causally linked to the subsidy, whereas the latter needs to be caused by the subsidized import.
- Some types of trade effects need to be caused against "like products," which may exclude a consideration of impacts on renewable energy products.
- For pass-through trade effects, it will be especially hard to demonstrate causality between the subsidy and the effects.

3.4 Notification

Given the fact-intensive nature of challenging fossil fuel subsidies, details about such subsidies are particularly important for any claimant.³⁶ Transparency about subsidies in general underpins the ASCM's obligation for WTO members to notify other members about subsidies that are specific, providing sufficient details to allow other members to assess the impacts on trade (ASCM, Article 25). Subsidies that are notified are reviewed through a surveillance mechanism involving the Committee on Subsidies and Countervailing Measures (SCM Committee) every three years (ASCM, Article 26). However, notification rates of subsidies have generally been low,³⁷ due to a lack of commitment (possibly due to fear of starting a trade dispute), a lack of clarity about which subsidies need to be reported, and inherent difficulties in estimating them (Casier et al., 2014). Even if members do report subsidies, the surveillance mechanism rarely leads to the questioning of the subsidies (Collins-Williams & Wolfe, 2010; Steenblik & Simón, 2010).

Even if a member does not report its own subsidies, there are at least two other ways in which fossil fuel subsidies could be brought to the attention of other members. First, other members can engage in "counter-notification": inducing another member to notify and, if the member fails to do so, bringing the alleged subsidy to the attention of the SCM Committee (ASCM, Article 25.10). Second, fossil fuel subsidies can be – and have already been to some extent – raised and discussed in the context of members' Trade Policy Reviews (Verkuijl et al., 2019, p. 358).

36. In the course of a dispute, the so-called "Annex V procedure" under the ASCM enables a claimant to receive information from the (alleged) subsidizing country related to claims of "serious prejudice" (Coppens & Friedbacher, 2017, p. 141).

37. For the latest overview of notifications, see WTO (2020).

Key points

- Transparency is key for understanding the nature and extent of fossil fuel subsidies and for challenging them, but notification rates under the ASCM have been low.
- Information on fossil fuel subsidies can also be generated through other members' counter-notifications and the WTO's Trade Policy Review Mechanism.

3.5 Potential for and Limitations of Challenging Subsidies through the ASCM

This section has offered a systematic discussion of the key steps in determining whether a subsidy is compatible with the ASCM. The analysis suggests that a potential complainant will face various obstacles in successfully challenging fossil fuel subsidies. At the same time, the analysis suggests that it may be possible to argue that some fossil fuel subsidies amount to a prohibited export subsidy, whereas, for others, it may be possible to demonstrate that they are actionable. However, particularly for the latter, the evidentiary burden will be high.

The first challenge is establishing that some types of commonly used fossil fuel subsidies are captured by the subsidy definition of the ASCM. While establishing that there has been a financial contribution or income or price support can be straightforward in some cases (e.g., when a loan is given to a fossil fuel company), demonstrating that there has been a financial contribution can, for example, be more challenging when revenue has been foregone by a government, in which case the preferential treatment needs to be determined by comparing against a benchmark. For actionable subsidies, a second challenge is to prove that some types of subsidies are "specific." This holds true, in particular, for consumption subsidies, which tend to benefit a wide and diffuse set of recipients, but also for some producer subsidies, as it will not always be obvious if a certain treatment is specific to a limited set of enterprises or industries. Third, and perhaps most importantly, it can be challenging to demonstrate that the subsidy leads to adverse effects. Demonstrating causation, however, is easier for the category of "material injury", where the adverse effects need to be due to the subsidized import rather than the subsidy itself.

Overall, the categories of adverse effects in the ASCM do not capture well the diversity of trade effects outlined in Section 2. This includes the pass-through effects, where a longer causal chain between the subsidy and the ultimate trade effects can be difficult to demonstrate. Moreover, given that renewable energy products (e.g., solar cells, wind turbines) and fossil fuels are unlikely to be found to be "like" products or competing in the same market, the trade effects of fossil fuel subsidies on these products are not taken into account.³⁸ This is a particular challenge from the perspective of the need to transition to greener energy systems,

38. However, as noted above, the jury is still out on whether fossil fuel-generated electricity and renewable electricity could be considered "like products" or competing in the same market.

as these trade effects can negatively affect the competitiveness and slow the development of alternatives to carbon-intensive fossil fuels.

Even when the trade effects of fossil fuel subsidies are covered by ASCM rules, and it could be argued that a subsidy is prohibited or actionable, the outcome of a challenge is uncertain, and meeting the tests will require information that is often not provided by the subsidizing member (among others, due to the failure to notify the support measure) or that is otherwise costly and time-consuming to obtain. Together with the strategic and political considerations outlined at the beginning of this section, these evidentiary challenges help explain why fossil fuel subsidies have largely remained unchallenged.

From the perspective of supporting the clean energy transition, a crucial point is that it may be warranted to focus more on the environmental impacts of subsidies (e.g., in terms of greenhouse gas emissions) than WTO subsidy rules currently do. As this section has shown, the focus of the ASCM remains squarely on (some of) the trade effects subsidies can have, not on their broader environmental and societal effects, including on climate change. This points to a general shortcoming of the ASCM from an environmental perspective but also from a broader economic perspective: it does not address market-distorting subsidies that steer away from a socially optimal price of a product, that is to say, that it does not take into account the social and environmental externalities of a product. The ASCM, therefore, does not distinguish between, for instance, fossil fuel subsidies and renewable energy subsidies with regard to their impacts on climate change, air pollution, and, more broadly, sustainable development.

Keeping in mind the limitations of the existing legal framework for subsidies under the WTO, the following section will put forward several suggestions for how subsidies could be disciplined so as to better support the transition to a clean energy system.

4. Disciplining Subsidies to Support the Clean Energy Transition

Fossil fuel subsidies can have substantial impacts on international trade (Section 2). While addressing some of these impacts through existing WTO subsidy disciplines is possible, claimants face several evidentiary challenges (Section 3). Other trade impacts, in particular on renewable energy products, are not covered as well under current WTO rules. More importantly, the ASCM is limited to the trade impacts of fossil fuel subsidies and not their impacts on climate change and sustainable development. To address these shortcomings, this section explores various pathways that WTO members – either alone, acting in a small coalition of members, or multilaterally – may pursue to ensure WTO subsidy rules are supportive of a transition to greener energy systems globally. It begins by discussing the remedies available under the ASCM's current rules (Section 4.1). It then moves on to examine reform options under the WTO, including legal changes as well as changes in the practices of the organization related to fossil fuel subsidies (Section 4.2) and renewable energy subsidies (Section 4.3). Lastly, the section discusses options to address fossil fuel subsidies through plurilateral and regional trade agreements (Section 4.4).

4.1 ASCM Remedies

A first step toward disciplining fossil fuel subsidies more effectively at the WTO could be for members to use the available legal space to apply existing rules. WTO members that are concerned about other members' fossil fuel subsidies and their trade impacts have two options. First, they can initiate their own investigation following an application of their domestic industry. If the evidence suggests that a subsidy exists that leads to injury, countervailing duties may be imposed for as long as is necessary to counteract subsidization (the "unilateral track" of Articles 10–23 of the ASCM).³⁹ Second, the ASCM introduces a "multilateral track," under which a member can seek to challenge prohibited (ASCM, Article 4) or actionable (ASCM, Article 7) subsidies through the WTO's dispute settlement mechanism.

For both the unilateral track and challenging actionable subsidies under the multilateral track, it is necessary for the complainant to substantiate that a subsidy (or subsidized imports) is leading to adverse effects on its own industry. However, for prohibited subsidies, there is no such limitation: "Whenever a Member has reason to believe that a prohibited subsidy is being granted or maintained by another Member, such Member may request consultations with such other Member" (ASCM, Article 4.1). In other words, prohibited fossil fuel subsidies could, in principle, be challenged by *any* member, whether they are directly affected or not. To the extent it can be

39. While countervailing duties may lead to the subsidizing member phasing out its subsidy, this is not a given. As such, the environmental benefits of this track are not entirely clear. However, even if the subsidy remains in place, imposing countervailing duties offers a strong signal that fossil fuel subsidies should be removed.

proven that a prohibited subsidy exists, this lowers the bar for concerned WTO members to initiate proceedings.

However, aside from the issue-specific challenges of litigating fossil fuel subsidies before the WTO dispute settlement mechanism highlighted in Section 3, the feasibility of this route will depend on the ability of the WTO to overcome the ongoing Appellate Body crisis, as well as any reforms that may take place with regard to dispute settlement. Moreover, even if a member is successful in challenging a fossil fuel subsidy, obtaining a final ruling through dispute settlement can take several years. Nevertheless, a challenge could offer legal clarity about the circumstances under which a fossil fuel subsidy can be successfully challenged under existing WTO rules.

4.2 WTO Reform: Fossil fuel subsidies

Efforts by WTO members to tackle fossil fuel subsidies have been limited. Fossil fuel subsidies have received some attention in the WTO accession negotiations of a few countries (including Russia and Saudi Arabia) and in Doha Round proposals related to dual pricing (Lang et al., 2010, pp. 11–12, 17; Rive, 2019, pp. 145–148, 158–160). More recently, a Fossil Fuel Subsidies Reform Ministerial Statement was adopted at the 11th Ministerial Conference by a group of 12 WTO members calling for further WTO action on disciplining fossil fuel subsidies (WTO, 2017b).⁴⁰ The statement reaffirms the signatories' commitments related to sustainable development under the 2030 Agenda and recognizes that WTO members have made relevant pledges in the context of, among others, the G20, Asia–Pacific Economic Cooperation (APEC), and the Paris Agreement. It further seeks to build the case for action under the WTO, suggesting that “trade and investment distortions caused by fossil fuel subsidies reinforce the need for global action including at the World Trade Organization” and arguing that the WTO “can play a central role in achieving effective disciplines on inefficient fossil fuel subsidies.” As such, the countries adopting the statement “seek to advance discussion in the [WTO] aimed at achieving ambitious and effective disciplines on inefficient fossil fuel subsidies that encourage wasteful consumption, including through enhanced [WTO] transparency and reporting that will enable the evaluation of the trade and resource effects of fossil fuel subsidies programmes” (WTO, 2017b, para. 9–10).

WTO reform in this area can be undertaken in various ways, ranging from changes in practices by WTO members and the WTO Secretariat to legal changes subject to the provisions of the Marrakech Agreement establishing the WTO. Below, two broad types of reform are discussed: (1) strengthening transparency and (2) the creation of new disciplines – either through amending the ASCM or by negotiating a stand-alone agreement (see also Das et al., 2019; Verkuil et al., 2019).

Strengthening Transparency

An option for reform that is available to WTO members in the short term is to strengthen the transparency of fossil fuel subsidies in the WTO context. Shining a

40. Its signatories are 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, and Uruguay.

light on whether fossil fuel subsidies exist, as well as on their nature, size and scope, and possible trade and environmental impacts, is an important step toward their phase-out. International efforts to strengthen transparency are already undertaken in the context of various other international forums, including the G20 (with countries self-reporting their subsidies, which are subject to voluntary peer reviews), APEC (also employing voluntary peer reviews), the OECD, the IEA, the International Monetary Fund (all of which collect data on fossil fuel subsidies), and the United Nations (under the Sustainable Development Goals [SDGs], countries can report subsidies following an internationally agreed methodology; see UNEP et al., 2019). These efforts can help address the lack of information that often surrounds fossil fuel subsidies domestically (Aldy, 2017).

Members could further strengthen transparency in the WTO context in several ways. The first way is through the notification system under the ASCM. Members could start to improve their compliance with their obligation under Article 25 of the ASCM to notify any subsidy by including fossil fuel subsidies that meet the definition of Article 1 and are specific under Article 2. The information from such notifications could help other members (as well as other interested stakeholders) “to evaluate the trade effects and to understand the operation of notified subsidy programmes” (ASCM, Article 25.3). Improved notifications would require some members to take the lead, although there remains a risk that their notifications may lead to their measures being challenged (Das et al., 2019, p. 10574).

In addition, members could also make greater use of the system of counter-notification (ASCM, Article 25.10), under which one member can notify a measure by another member that should have been notified (Asmelash, 2017). However, so far, counter-notifications have been rarely used (Collins-Williams & Wolfe, 2010). Moreover, they may lead to scrutiny of the counter-notifying member’s own notifications (Das et al., 2019, p. 10574–10575). Going further than members improving their record of compliance with existing notification obligations, Bacchus (2016, p. 11) proposes to strengthen and further specify such notification requirements by “[m]andat[ing] full disclosure of fossil fuel subsidies under WTO rules.” The main concrete difference that this proposal would seem to make is an additional obligation for WTO members to also notify fossil fuel subsidies that are not specific. Implementing Bacchus’ suggestion, however, would likely require an amendment (see below), as Article 25 of the ASCM does not specify which types of subsidies should be notified.

Another option is to more consistently discuss fossil fuel subsidies in the context of WTO members’ Trade Policy Reviews (Verkuijl et al., 2019, p. 358–359). Through the Trade Policy Review Mechanism, WTO members submit reports that are reviewed by other members and supported by the WTO Secretariat, which produces its own report (Kende, 2018). In some cases, these reports and their reviews have started to address fossil fuel subsidies and their reform. Moving forward, WTO members could decide to consistently include information on fossil fuel subsidies in their reports submitted under the mechanism. Moreover, members could more systematically raise the issue of fossil fuel subsidies in the review process or ask the WTO Secretariat to scrutinize this issue in more detail (Verkuijl et al., 2019).

Lastly, mirroring the G20 process, a subset of WTO members could agree to voluntarily undertake to reform fossil fuel subsidies, with other members reviewing their efforts (Verkuijl et al., 2019, p. 359–360). However, while this option could be

pursued informally by a group of WTO members, it is not clear how this could be formally anchored in WTO rules or processes. Moreover, it would be important to avoid duplication with ongoing processes under the G20, APEC, and the SDGs (Das et al., 2019, p. 10575).

To garner political support for these various transparency-related options, a practical way forward may be to link them to or incorporate them in proposals by major trading nations for broader WTO transparency reforms, including for improving notifications in general (e.g., Argentina et al., 2019).

New Disciplines

Following the example of fisheries subsidies, members could also seek to negotiate new rules under the WTO to discipline fossil fuel subsidies, either through an amendment to the ASCM or through negotiating a stand-alone agreement on fossil fuel subsidies (Das et al., 2019, pp. 10576–10577; see also Bartels & Morgandi, 2017). Although the choice between these two legal forms would not necessarily have an impact on the substance of new disciplines, one could argue that a new stand-alone agreement focusing on fossil fuel subsidies may avoid the pitfalls of having to renegotiate existing disciplines, allowing negotiators to start from a blank slate.

An amendment of the ASCM (Horlick & Clarke, 2016, p. 14) or a new agreement on fossil fuel subsidies could provide for a new category of prohibited subsidies, perhaps limited to a subset of fossil fuel subsidies based on their trade and/or environmental effects. New disciplines could allow for the focus to shift from fossil fuel subsidies' trade effects to their environmentally harmful impacts. This, however, raises the pressing question of how to distinguish fossil fuel subsidies, particularly with regard to their impacts on climate change.

While it may be difficult to pinpoint the emissions effects of individual fossil fuel subsidies (for an exception, see Erickson et al., 2017), there are several ways to distinguish between broader types of subsidies with a view to identifying the "additional carbon emissions expected to be caused by the subsidy" (Trachtman, 2017, p. 10). For instance, subsidies could be distinguished according to the type of fuel (coal, oil, gas) with reference to their contributions to greenhouse gas emissions, with coal being the most carbon-intensive fuel (Energy Information Administration, n.d.). Another option is to initially focus on subsidies for new fossil fuel production or new fossil fuel-generated power plants, following the argument that any new capacity is already out of step with climate goals (Cui et al., 2019; Stockholm Environment Institute et al., 2019). Focusing on new fossil fuel infrastructure would acknowledge the long-term carbon lock-in effects of such infrastructure (Erickson et al., 2020). Yet another option would be to focus on subsidies for specific types of fossil fuel projects, following the example of multilateral development banks and other financial institutions (e.g., excluding Arctic drilling, oil sands, ultra-deepwater drilling, and coal mining).⁴¹

In addition to identifying which subsidies ought to be prohibited (or actionable), new rules should also consider possible exceptions to the rule, including potential special and differential treatment for developing countries. In other words, in which circumstances and under what conditions would fossil fuel subsidies still be allowed? Several options are conceivable. First, specific groups of countries could be exempted

41. See examples at <https://ieefa.org/finance-exiting-coal/#1596145653442-dcc5e5f3-9aef1269-34c9>.

from any prohibition, either temporarily (e.g., a five-year transition period) or permanently. This could include pre-identified groups of countries (e.g., least-developed countries) or groupings based on certain criteria (e.g., greenhouse gas emissions, national income, fossil fuel production levels, the carbon intensity of fossil fuels produced, etc.). Second, specific types of subsidies could be exempted, such as subsidies aimed at providing energy access to low-income communities or subsidies that are deemed not environmentally harmful (for possible examples, see Pereira, 2017, p. 15).⁴² Lastly, a subsidy phase-out requirement could be linked to the provision of technical assistance and capacity building to support reform in some countries. This could help governments to design and implement reform strategies that ensure a just transition for all communities, in particular the most vulnerable (Das et al., 2019, pp. 10576–10577; Pereira, 2017, pp. 17–18).

The feasibility of negotiating new WTO disciplines is constrained by the procedural rules and associated political hurdles of the Marrakech Agreement establishing the WTO. The very submission of an amendment to the WTO Agreement or its annexes – which would be necessary regardless of whether WTO members opt for an ASCM amendment or a stand-alone agreement – already requires a consensus among WTO members if a decision is to be taken within 90 days from the tabling of the amendment or a majority of at least two-thirds of the members thereafter (Marrakech Agreement, Article X.1). Moreover, to give it effect, it would need to be accepted by again a two-thirds majority, and it would take effect only for those members that have accepted it (Marrakech Agreement, Article X.3). From a more practical perspective, the WTO's long-held tradition of decision by consensus, which it inherited from the GATT, makes it difficult to envision how such a decision could be taken by voting. If new disciplines were adopted, the new instrument would still only bind those members that ratify it. Consequently, amendments to the WTO agreements have been rare (Das et al., 2019, p. 10560).

New disciplines on fossil fuel subsidies could benefit from the possible precedent of new multilateral rules on another type of environmentally harmful subsidies, namely fisheries subsidies (see Young, 2017).⁴³ However, the fisheries subsidies experience also highlights one of the challenges: it has now been more than two decades since the first time the issue was raised in the WTO's Committee on Trade and Environment, and negotiations have yet to conclude. Nevertheless, the successful adoption of new WTO disciplines on fisheries subsidies can set the stage for negotiating disciplines on fossil fuel subsidies.

42. This option could be implemented alongside the first option (i.e., only specific countries could make use of the exception).

43. Fisheries subsidies negotiations are relevant in one further respect: 22% of fisheries subsidies consist of fuel subsidies (Sumaila et al., 2019).

4.3 WTO Reform: Renewable energy subsidies

In addition to changing WTO rules and practices related to fossil fuel subsidies, the WTO can play a role in the transition to cleaner energy systems by providing space for countries to provide support to renewable energy. Whereas fossil fuel subsidies can be considered market-distorting in that they cause environmental harm that is not reflected in the price of fossil fuels, renewable energy subsidies, by contrast, can be viewed as correcting such a market distortion (Espa & Rolland, 2015). Although not the main focus of this report, renewable energy subsidies can play a key part in the broader energy transition, which is why this section briefly discusses options for reforming WTO subsidy disciplines on renewable energy.

To provide some context, the magnitude of renewable energy subsidies is lower than that of fossil fuel subsidies, with the International Renewable Energy Agency estimating them at USD 166 billion in 2017, distributed across renewable energy power generation (USD 128 billion) and the transport sector, including biofuels (USD 38 billion). The majority of these subsidies (54%) are handed out by the European Union, followed by the United States (14%), Japan (11%), and China (9%) (Taylor, 2020, p. 16). Renewable energy subsidies can be in the form of, among others, price support (e.g., feed-in tariffs promoting renewable electricity generation), fiscal measures (e.g., tax reductions to support investment in renewable energy technologies), and investment support measures (e.g., grants to support the deployment of renewable energy technologies) (Espa & Marín Durán, 2018, p. 624).

As noted in Section 3, while fossil fuel subsidies have yet to be challenged in the context of a WTO dispute, several renewable energy support measures have been deemed incompatible with the GATT and the TRIMs Agreement. Importantly, however, because none of these measures was considered to be captured by the subsidy definition of the ASCM, they were not deemed to violate the ASCM.⁴⁴ What was at stake largely was the use of discriminatory local content requirements (i.e., the support was conditional on the use of domestic rather than imported inputs). Nevertheless, renewable energy support measures – also those without local content requirements – may still be at risk. This may be less the case for price support mechanisms such as feed-in tariffs, for which policy space was created in *Canada – Renewable Energy*, as long as they are non-discriminatory, than for support to the production of (widely traded) renewable energy technologies (Espa & Marín Durán, 2018, p. 637–643).

Against this backdrop, several suggestions have been put forward to create more policy space for renewable energy subsidies under the WTO rules. First, some have suggested that the environmental exceptions of Article XX of the GATT – which, under current jurisprudence, is only deemed to apply to the GATT and the TRIMs Agreement – should apply to the ASCM (Farah & Cima, 2015; Green, 2006; Howse, 2010). This option, these scholars argue, would not require any legal reform but could be achieved through an interpretation by the WTO's dispute settlement bodies.

44. In *Canada – Renewable Energy*, the Appellate Body could not complete an analysis to determine that a benefit had been conferred, thus concluding that it could not be established whether the measure was a "subsidy" in the context of the ASCM (*Canada – Certain Measures Affecting the Renewable Energy Generation Sector (Canada – Renewable Energy)*, Appellate Body Report, WT/DS412, 426 (24 May 2003), paragraph 5.246). In *India – Solar*, the United States' request for establishing a panel did not refer to the ASCM (*India – Certain Measures Relating to Solar Cells and Solar Modules (India – Solar Cells)*, Panel Report, WT/DS456/R (24 February 2016), footnote 1). And in *US – Renewable Energy*, the Panel exercised "judicial economy" and decided not to look into India's claims under Article 3 of the ASCM (*United States – Certain Measures Relating to the Renewable Energy Sector (US – Renewable Energy)*, Panel Report, WT/DS510 (not yet adopted), para. 7.368).

However, aside from the questionable legal merits of this suggestion (Condon, 2017; Rubini, 2014), this proposal is limited in that it may not offer further protection to trade-distortive renewable energy subsidies (Espa & Marín Durán, 2018, p. 646). Moreover, the Article XX exception could only be applied in WTO dispute settlements and would therefore not be of any help in case other members pursue unilateral trade remedies (Espa, 2019, pp. 992–996).

Article 8 of the ASCM includes a list of non-actionable subsidies (i.e., immune to challenges as long as certain procedural requirements were followed), one of which is related to environmental requirements. However, this category of non-actionable subsidies expired in 2000 without ever being used. A second suggestion, therefore, has been to revive the category of non-actionable subsidies specifically for renewable energy support measures (Howse, 2010). Including a specific exemption for renewable energy subsidies would constitute an amendment of the ASCM and would thus be subject to the same limitations discussed above for new disciplines on fossil fuel subsidies.

A third suggestion has been to adopt a waiver to temporarily allow WTO members to subsidize renewable energy (Bacchus, 2018; Howse, 2010).⁴⁵ Under Article XI.3 of the Marrakech Agreement, a waiver can be adopted by a three-quarters majority of WTO members, though, in practice, consensus is the norm. Waivers have been regularly used in the WTO context, with the Kimberley Waiver allowing for trade restrictions on conflict diamonds perhaps being the most well-known one. Waivers are, however, explicitly time-bound and need to be reviewed annually (Das et al., 2019, p. 10560). Moreover, as Bacchus (2018, p. 11) notes: "The challenge in drafting the content of a WTO climate waiver will be to locate the right line legally that provides the waiver for only the right kind of green subsidies."

The challenge identified by Bacchus can be extended to most options for WTO reform in support of renewable energy subsidies: how to circumscribe what should be permissible. The real challenge is to ensure that any suggestion takes into account the complex realities of renewable energy subsidies, including local and global, as well as the short- and long-term environmental and economic effects of renewable energy subsidies. This challenge is compounded by the need – for at least some of the suggestions above – to obtain a consensus among all WTO members. As Espa & Marín Durán (2018, p. 650) note, "chances that WTO members may agree on a sufficiently clear and narrowly defined exemption clause for [renewable energy] subsidies, while at the same time committing not to act, either multilaterally or unilaterally, against potentially [sic] boundary cases are very low." Accordingly, creating policy space for renewable energy subsidies in the WTO remains fraught with challenges. Still, it should be remembered that such subsidies are allowed to the extent they do not distort trade.

45. A similar yet distinct option would be to agree on a "peace clause," meaning that WTO members would temporarily refrain from challenging each other's renewable energy subsidies (Das et al., 2019, p. 10562–10563).

4.4 Plurilateral and Regional Trade Agreements

At a time when the WTO is beset by broader challenges – including the Appellate Body crisis as well as persistent difficulties in progressing with negotiations – it may make sense to look at how trade agreements among a smaller set of countries can advance subsidy rules in support of a clean energy transition.

Plurilateral Trade Agreements

Specific rules for eliminating fossil fuel subsidies are currently under negotiation under the plurilateral Agreement on Climate Change, Trade and Sustainability (ACCTS), which involves Costa Rica, Fiji, Iceland, New Zealand, Norway, and Switzerland. These negotiations are significant in that they link subsidies not to their impacts on trade but rather their adverse effects on climate change (Steenblik & Droege, 2019). The negotiations could thus offer important lessons on how to design rules on fossil fuel subsidies that could work for the green economy. The proposed agreement will be open to other countries that may wish to accede by signing off on the same commitments. In the joint statement that announced the launch of these talks, ministers from participating countries stressed that their hope is that the agreement will provide a “pathway to multilateralism over time”.⁴⁶

Regional Trade Agreements

Regional trade agreements have been a place for experimentation and innovation, with provisions that seek to strengthen the environmental and climate change benefits of trade cooperation (see, generally, Morin et al., 2017; Morin & Jinnah, 2018; van Asselt, 2017). However, few regional trade agreements include specific rules to constrain the use of subsidies, as any subsidy reduction would also benefit third countries. Nevertheless, there is one regional trade agreement that includes a specific provision on fossil fuel subsidies, namely the 2015 EU-Singapore Free Trade Agreement (Article 12.11(3)). However, the wording of this provision is hortatory and does not include any legally binding language. Moreover, the provision is not subject to the agreement’s dispute settlement system (Rive, 2019, p. 151). Another regional trade agreement between the EU and Ukraine (the Deep and Comprehensive Free Trade Agreement) includes a specific chapter on trade-related energy and a stringent prohibition on dual pricing, obliging parties not to “adopt or maintain a measure resulting in a higher price for exports of energy goods to the other Party than the price charged for such goods when intended for domestic consumption” (Article 270.1; see Moerenhout, 2020). This agreement does move beyond clear-cut subsidies under ASCM law to include rules on pricing in an energy-producing country.⁴⁷

Draft text on fossil fuel subsidies referring to the APEC commitment on phasing out fossil fuel subsidies was also proposed in the negotiations on the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) (Steenblik et al., 2018, p. 134). Although this text was not incorporated into the final version of the

46. See <https://www.mfat.govt.nz/assets/Trade/ACCTS-FINAL-Joint-Statement.pdf>.

47. However, the EU–Ukraine agreement should be seen in the specific context in which it was concluded, namely the European Neighbourhood Policy (Espa & Marín Durán, 2020, p. 124).

agreement, the CPTPP does set a precedent by developing detailed rules on another form of environmentally harmful subsidies, namely fisheries subsidies (Young, 2017).

Specific provisions explicitly addressing renewable energy subsidies in regional trade agreements are rare (for a taxonomy of provisions in preferential trade agreements relevant to renewable energy, see Cima, 2018). The EU–Vietnam Free Trade Agreement is worth noting, however, as it explicitly creates policy space for “subsidies for environmental purposes” (Article 10.4(2)(d)).⁴⁸ Likewise, the EU–Ukraine trade agreement incorporates relevant EU law on state aid, which includes eligibility criteria for permissible renewable energy subsidies. Nevertheless, even if countries agree to grant each other policy space for renewable energy subsidies that goes beyond the ASCM, such subsidies may still be challenged through the WTO dispute settlement system (Espa & Marín Durán, 2020).

48. See also the footnote to Annex 11-A of the EU–Singapore Free Trade Agreement.

5. Conclusions and Recommendations

Through fossil fuel subsidies, governments across the world continue to support the production and consumption of one of the main drivers of climate change. Although international efforts to accelerate the phase-out of fossil fuel subsidies have emerged since the 2009 G20 commitment, international institutions can further support domestic reform efforts by setting voluntary commitments, strengthening transparency, facilitating learning, changing incentive structures, and, potentially, developing binding rules. With its large membership and an existing body of rules on subsidies supported by a strong dispute settlement system, the WTO is a clear candidate for addressing fossil fuel subsidies.

This report has shown that subsidies for fossil fuel production and consumption can have important trade and investment impacts, meaning that they should fall within the remit of the WTO's activities. These effects can be direct, strengthening the competitiveness of the subsidized producer, or indirect, with pass-through effects leading to downstream producers using subsidized inputs to gain a competitive advantage. They can affect competitors in international markets for fossil fuels but also reduce the competitiveness of products associated with alternative and greener energy sources, therefore slowing the much-needed clean energy transition. On fossil fuel markets, in particular, impacts are likely due to the competitive densities of relevant industries, the magnitude of trade volumes, and their monetary value. However, to properly assess the trade impacts of fossil fuel subsidies, a case-by-case approach is necessary. To that end, this report offers examples of the potential trade impact of fossil fuel consumption and production subsidies in some of the world's major fossil fuel producers. Although further examination of the details of the subsidies at play – often challenging due to limited publicly available information – is necessary to determine the actual or expected trade impacts on other countries, the cases serve to illustrate the various pathways through which fossil fuel subsidies can disrupt international trade flows.

While evidence of the trade impacts of fossil fuel subsidies may be mounting, the question of whether fossil fuel subsidies can be considered actionable or prohibited subsidies under the WTO's ASCM is a different one. As this report has discussed, a government wishing to challenge an actionable subsidy would need to overcome significant evidentiary hurdles to prove that (1) the financial support constitutes a "subsidy" in the context of the ASCM; (2) the subsidy is "specific" to certain industries or enterprises; and (3) that it leads to adverse effects on trade. Although the first hurdle may be overcome for a range of subsidies, proving specificity will be particularly challenging for consumption subsidies. The biggest obstacle, however, will be to convincingly demonstrate that a subsidy has an impact on trade flows. Although possible in some cases, successfully challenging fossil fuel subsidies that are actionable is thus not a simple task. Establishing that a subsidy is "prohibited" due to its export contingency can be somewhat easier, to the extent it can be shown that a subsidy is geared toward exporting fossil fuels. In any case, the legal and evidentiary hurdles are compounded by political and strategic reasons for why

governments may refrain from challenging each other's fossil fuel subsidies and a concerningly low rate of notifications under the WTO. Finally, some of the trade impacts of fossil fuel subsidies, in particular on non-like products such as renewable energy goods, are only disciplined to a minimal extent by the WTO's current subsidy rules.

The current WTO rules, combined with a dearth of information on fossil fuel subsidies, make it difficult to challenge fossil fuel subsidies based on their impacts on trade. The case for the WTO to act on fossil fuel subsidies can, however, also be based on their environmentally harmful effects. With the ongoing negotiations on rules to eliminate subsidies that contribute to unsustainable fishing practices, the WTO is setting a precedent to tackle subsidies not just for their trade impacts. Reforming WTO rules and practices to more effectively address fossil fuel subsidies – by strengthening transparency and/or developing new disciplines – and possibly to increase the legal space available for using renewable subsidies would be in line with the organization's original mandate to promote sustainable development. Moreover, it would overcome the seeming discrepancy of the existing system in which renewable energy subsidies have been subject to a series of challenges, but in which fossil fuel subsidies have largely gone unchallenged for political and legal-evidentiary reasons. If WTO members are serious about supporting the low-carbon energy transition, addressing fossil fuel subsidies is a good place to start.

Having said that, as this report has sought to make clear, reform under the WTO will be challenging. Putting the issue on the agenda of the organization is a necessary first step that has been taken by a small group of WTO members, but developing new disciplines for fossil fuel subsidies is likely to be a project for the long term. Changes to the WTO agreements, to the extent they have been successful at all, take a long time to negotiate, and the general principle of consensus in the WTO's decision-making means that countries with strong interests in fossil fuels also need to come on board. Moreover, an important aspect of any legal reform is to craft any provision to target the most egregious subsidies (i.e., clearly discriminatory policies with environmentally harmful effects) while at the same time providing for limited and carefully considered exceptions

In the interim, progressive members acting on a voluntary basis within the WTO or through regional or plurilateral trade agreements can push the agenda forward even in the absence of multilateral consensus. Within the WTO, members can help strengthen transparency through the ASCM's notification mechanism, counter-notifications, and the Trade Policy Review Mechanism. Outside of the WTO, the ACCTS negotiations can further help advance discussions by negotiating concrete disciplines. Even though such rules would at least initially only apply to a subset of WTO members, demonstrating how fossil fuel subsidies could be disciplined in a trade agreement can set an example for multilateral negotiations and would help pressure other countries to join that have made voluntary commitments to phase out fossil fuel subsidies.

The findings of the report point to several recommendations aimed primarily at WTO members (recommendations 1–3) but also at other interested stakeholders such as think tanks and research institutions (recommendations 4–5). These recommendations are outlined below.

Recommendation 1: WTO members should strengthen the transparency of fossil fuel subsidies, including through improved notification, the Trade Policy Review Mechanism, SDG reporting, voluntary peer reviews, and drawing on other sources.

Transparency underpins any effort to discipline fossil fuel subsidies. Although data collection efforts by organizations such as the OECD have helped to shed light on subsidization practices, there is an urgent need to strengthen the transparency of fossil fuel subsidies by governments, and WTO members can play a role in supporting this effort. The WTO has several mechanisms – including the ASCM's notification mechanism, counter-notifications, and the Trade Policy Reviews – through which members can strengthen transparency, acting alone or as a sub-set of members. A more ambitious but also more politically challenging option could consist of agreeing to new notification commitments with a specific focus on fossil fuel subsidies. At the same time, members should participate in other efforts to enhance transparency, notably voluntary reporting under SDG 12.c following the methodology created for the indicator on fossil fuel subsidies (UNEP et al., 2019). Where relevant, they should undergo a fossil fuel subsidy peer review through the G20 or APEC or through a voluntary initiative for self- or peer-review.⁴⁹ To improve the transparency of fossil fuel subsidies, WTO members can draw on external sources, including databases maintained by the OECD and IEA. These sources can be complemented by ongoing efforts by civil society organizations to shed light on members' fossil fuel subsidy practices.

Recommendation 2: WTO members should explore the available space to challenge fossil fuel subsidies under existing subsidy rules.

Challenging fossil fuel subsidies under the ASCM may be hard, but it is not impossible. WTO members should therefore begin to explore the space provided by existing subsidy rules to challenge other members' fossil fuel subsidies before the WTO dispute settlement system, either as actionable subsidies (in which case a member needs to experience or expect adverse trade effects to challenge a measure) or as prohibited subsidies (in which case any member suspecting that another member maintains export subsidies could challenge the measure). Although the outcome of any challenge is uncertain, this report has shown that, in some cases – where data availability is not a problem, where trade effects can be observed or are likely, and/or where an export subsidy is likely – fossil fuel subsidies may be deemed inconsistent with the ASCM. Of course, any such challenge will also depend on broader political and strategic considerations that any country considering a claim will need to determine on its own. Nevertheless, a dispute and the resulting jurisprudence could help shed light on the extent to and the circumstances in which WTO disciplines can effectively address fossil fuel subsidies.

49. Undergoing a peer review need not be limited to G20 or APEC members. For instance, in 2020, the Netherlands volunteered for a peer review of its fossil fuel subsidies by the IEA and OECD.

Recommendation 3: WTO members should launch an informal dialogue on the prospects and challenges of disciplining fossil fuel subsidies more effectively through the WTO at the next Ministerial Conference.

Although creating new disciplines for fossil fuel subsidies may be a distant prospect in the WTO, members should begin discussing the options for doing so as soon as possible. The countries negotiating the ACCTS have already decided to do so in a plurilateral fashion. A partly overlapping group of WTO members adopted the Fossil Fuel Subsidies Reform Ministerial Statement in 2017, stating their intention to discipline fossil fuel subsidies. These efforts should draw wider participation, at the very least from those countries and regions that have committed to phasing down fossil fuel subsidies (e.g., through the G20 or APEC), that have stated leadership aspirations in the area of climate change, and that have expressed their willingness to green trade agreements. In addition, it will be important to invite major subsidizing members to join the discussion – even if only informally and not with the expectation of immediate agreement – so as to better understand the reservations and concerns that some members may have with regard to the impact of any new disciplines on their economies. The next WTO Ministerial Conference, which was postponed from its original date of June 8–11, 2020 due to the COVID-19 pandemic, offers a key opportunity for members to launch an informal dialogue to discuss the prospects and challenges of disciplining fossil fuel subsidies through the WTO.

Recommendation 4: Further research should involve in-depth studies of the trade effects and legality of specific fossil fuel subsidies.

The report points to several areas where further research could help. This includes specifically in-depth analyses of particular fossil fuel subsidies. Such analyses could (1) further look into the trade effects of these subsidies, including through specific case studies and econometric modelling; (2) assess the legality of such subsidies in the context of the ASCM (and, if relevant, other WTO Agreements); or (3) combine the two. The focus of such analyses could be based on selection criteria derived from this report (e.g., the likely trade effects, based on Section 2 or the likelihood of being an export subsidy, based on Section 3) as well as other criteria (e.g., the likely impact on greenhouse gas emissions of the subsidy, coverage of producer versus consumer subsidies).

Recommendation 5: Practical analysis should be generated on the ways in which rules on fossil fuel subsidies could be crafted with a focus on their environmental impacts.

Another area where further research, and, in particular, practical analysis, would be especially useful concerns the design of disciplines on fossil fuel subsidies that focus on their environmental impacts rather than their trade impacts. Specifically, such

analysis could identify which (types of) fossil fuel subsidies should be subject to prohibitions based on their environmental harmfulness, what types of circumstances could warrant an exception, and how to apply rules to countries with different development priorities. Specifically, the analysis could point to potential trade-offs between the social and economic development priorities that countries may pursue through fossil fuel subsidies and the emissions associated with such subsidies. The analysis could further identify the prevailing types of subsidies that countries are struggling to reform.

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