

Fossil Fuel Subsidy Reform: A View from the Trenches

Tim Groser, Former Ambassador to the United States of America, Embassy of New Zealand

Putting a price on carbon to reflect its full costs is central to any concerted program to tackle climate change.¹ That the 2018 Nobel Prize in Economics went to Professor William Nordhaus for his work on carbon pricing to internalize the externalities posed by greenhouse gas emissions offers one measure of how important such policies are. The international community has now made some progress to encourage pricing structures for carbon.² With this urgent policy priority in mind, the case for reform of fossil fuel subsidies becomes equally compelling. Simply put, it is completely incoherent to tax the release of carbon, while simultaneously subsidizing its consumption.

One would need to have inordinate faith in the rationality of any political process to believe that stating a logical principle suffices to drive political change. This paper is therefore deliberately cast from the perspective of a negotiator and political practitioner—who has struggled to advance the cause of carbon pricing and the elimination of fossil fuel subsidies. It reflects, in particular, on efforts to date to drive fossil fuel subsidy reform. Looking ahead, it draws potentially relevant political lessons from other international subsidy reform efforts.

The discussion moves in and out of climate change and trade policy. Not only do similar issues arise in both fields (e.g., the “free rider” problem), but fossil fuel subsidies *are* both a climate change and a trade problem. The paper concludes with suggestions on strengthening climate change and trade linkages, with a particular focus on the possibilities inherent in the “Comprehensive and Progressive Trans-Pacific Partnership Agreement”—and what became of the Trans-Pacific Partnership Agreement when the Trump Administration withdrew.

The Political Origins of International Action on Fossil Fuel Subsidy Reform

Climate change itself is frequently (and accurately) characterized as a classic “wicked problem”—a problem so full of conflicting interests, uncertainties, complexities, and different potential solution sets that it almost defies human attempts to grapple with it.³ However, as anyone even vaguely familiar with the overwhelming weight of scientific evidence can appreciate, we have no choice but to start. Unquestionably, we are indeed moving forward.

Fossil fuel subsidy reform has long been part of the climate change political equation. The 1997 Kyoto Protocol referenced the topic, although in such a muffled form that only professional climate change negotiators would have been aware of it.⁴ Further, because Kyoto in effect applied only to developed countries, it left unsaid the implications for developing countries—where, frankly, the greater part of the problem of consumption subsidies lies.⁵ It is, admittedly, a different picture with respect to production subsidies, but they are generally considered by far the smaller part of the problem.

In terms of forward momentum on fossil fuel subsidies, a decisive political shift occurred at the Pittsburgh G20 meeting in 2009—driven largely by the United States. The world’s 20 largest economies responsible for roughly 80 percent of global emissions agreed to “[p]hase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest. Inefficient fossil fuel subsidies encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change.”⁶

Building on the G20 Political Leadership

With the vast shift of wealth, power, and influence on the emerging economies, including China, India, and Brazil, the idea that the G7/G8 (the major developed countries) could any longer provide sufficient leadership to global issues had long passed. But it was equally clear that the G20 had no permanent secretariat to drive ongoing work. More broadly, as a very new body, the G20 lacked, by definition, an ingrained habit of sustained cooperation.⁷ To put matters in simple terms, we thought the large G20 countries might appreciate strong political support on the fossil fuel subsidy reform issue from a group of smaller, responsible non-G20 economies committed to effective international action on climate change.

Friends of Fossil Fuel Subsidy Reform

Gathering together a small group of like-minded countries committed to fossil fuel subsidy reform turned out to be pushing against an open door. New Zealand habitually works closely with such countries as Chile, Switzerland, Norway, Singapore, and Denmark. We referred to this core group fondly as “the usual suspects.” Despite the politics of G77 “solidarity,” we were able to bring several developing countries into our efforts. Our closest partner, Australia, would normally be our first port of call but we were putting together a non-G20 grouping, so Australia, being a G20 country, was ruled out.

We and the other *Friends Group* recognized that we were still at that relatively early stage of building the political case for reform. The process of reform—recall Machiavelli’s brutal warning about the difficulties of fomenting change “in the order of things”—has to deal first with the vast inertia in any existing system. Countering the inertia (and vested interests) required slowly building up political awareness of the huge environmental and economic costs of the existing system of subsidies. It is, therefore, time to recall in brief what the now considerable international literature tells us about the climate change, fiscal, and political costs of fossil fuel subsidies.

Fossil Fuel Subsidy Reform: The Missing Piece of the Climate Change Puzzle

All the empirical work suggests a substantial reduction of inefficient fossil fuel subsidies would make a huge contribution to achieving the Paris Agreement's key objective—to limit the global temperature rise to “well below 2°C above pre-industrial levels.”⁸ One can find a wide range of estimates on the quantum of carbon that would not otherwise be emitted into the atmosphere over the period to 2050 if there were a substantial reduction in fossil fuel subsidies.⁹ The different estimates reflect no important disagreements amongst experts on the underlying issues and stochastic relationships, but simply different assumptions. (For those interested in the details, there is an excellent, comprehensive survey of the research available.¹⁰)

In any event, the benefits of fossil fuel subsidy reform would be very significant on a global scale. As New Zealand's Prime Minister, in introducing the “Friends of Fossil Fuel Subsidy Reform” observed, “Fossil fuel subsidy reform is the missing piece of the climate change puzzle. It is estimated that more than one third of global carbon emissions, between 1980 and 2010, were driven by fossil fuel subsidies. Their elimination would represent one seventh of the effort needed to achieve our target of ensuring global temperatures do not rise by more than 2 degrees.”¹¹

Other graphic illustrations of the benefits include a reduction of 37 gigatonnes of carbon dioxide emissions over 2017 to 2050.¹² This is roughly the equivalent of emissions that would be released by burning all proven oil reserves in the United States and Norway—or alternatively eliminating all of the estimated global emissions from the aviation sector over the same period.¹³

The Fiscal Dividend

For climate change activists, the metrics showing the carbon dioxide control dividend are more than enough to convince them to embrace the reform program. But others inhabit rather more complicated communities where climate change may not be at the top of the political set of priorities. For this reason, the *Friends Group* has consistently cited the enormous fiscal costs of the status quo—and the potential government budget gains from driving down fossil fuel subsidies.

A comprehensive survey by the Organization for Economic Cooperation and Development using various calculation methodologies estimates that fossil fuel subsidies cost governments between \$373 billion and \$617 billion globally per year over the period 2010 to 2015.¹⁴ Other think tanks have come out with far larger estimates of the scale of subsidy waste.¹⁵ Once again, the headline figure varies—based largely on whatever oil price is used but also on the non-trivial issue of how one defines *subsidy*.¹⁶

For some developing countries, more money comes out of their budgets for fossil fuel subsidies than for health and education combined—an extraordinary misallocation of scarce resources.¹⁷ One study found that there were six developing countries where fossil fuel subsidies amounted to more than 10 percent of gross domestic product.¹⁸ In 22 countries, these subsidies amounted to over 10 percent of total government revenue.¹⁹ For those countries with the political will, subsidy reform offers a huge fiscal dividend that can be better used for other social or economic objectives.

Other Environmental Benefits

Eliminating fossil fuel subsidies simultaneously offers an important co-benefit, namely reducing the scale of health consequences from outdoor air pollution. Premature deaths from air pollution inflict a terrible toll in many nations. The World Health Organization estimates the number of air pollution related deaths at 9 million each year.²⁰ Clearly, some fossil fuels

have far more severe effects (in terms of heavy particulates) than others, coal being far worse than natural gas.

We need to be careful to avoid making exaggerated claims about fossil fuel subsidy reform's potential health-related benefits.²¹ Putting the analytic complexities to one side, however, the bigger picture remains clear: fossil fuel subsidies increase, by definition, consumption of energy sources that contribute to major health problems. The elimination of all subsidies would simply reduce the scale of the problem. But some research suggests the benefits could be considerable.²²

The Equity Issues – Reflections on Other International Subsidy Reform Efforts

What about the impact of reduction or removal of fossil fuel subsidies on the poor? Fossil fuel subsidies do indeed shield the poor from soaring energy costs. And for many, particularly in Africa, the key issue turns out to be kerosene for cooking. But are fuel subsidies the best policy instrument to achieve this support? The literature is abundantly clear: fossil fuel subsidies are highly regressive. For example, in an analysis of 20 developing countries using such subsidies, on average only 7 percent of the subsidy went to the bottom quintile of income earners; around 40 percent ended up in the pockets of the top quintile of income earners.²³ Thus, those countries could target the same level of funding to the poor with other policy approaches.

In the search for a politically sustainable pathway for fossil fuel subsidy reform, it may be instructive to consider the political lessons that can be drawn from the long and bitter international debate over vast agriculture subsidies from the 1970s to the early 1990s.²⁴ The strategy behind those that sought to preserve this racket was to pick a group receiving the subsidies that was politically *untouchable* and then center the entire argument on defending these people's livelihoods and way of life. For the rich countries, *family farmers* or *isolated*

rural communities with no alternative forms of employment other than agriculture often played starring roles. Opponents of change thus argued that ending agricultural subsidies completely would cause rural communities to disappear. Such claims represent a wild exaggeration, yet an extremely politically potent argument to stop reform.

In reality, however, 80 percent of subsidies typically went to the richest, largest farmers or corporate agriculture. The political objective of supporting small or marginal farming might be completely legitimate, but the policy instrument used (subsidy payments coupled to production levels) proved to be hopelessly inefficient. The solution, at its core, lay in providing alternative methods of support targeted at the real problem.

Politically, one finds a very close parallel to fossil fuel subsidy reform, given that, as noted, the vast bulk of the subsidies do not go to the most vulnerable. But two larger lessons emerge. First, reformers should not seek to avoid the reality that any reform path will have *losers*. They must instead engage directly and positively to address the downside of the policy change—and respond with creative political strategies that deflect efforts to take the proposed reforms “off the table.” Second, one should not sweat the small stuff. In agriculture, this meant distinguishing between subsidies with huge adverse impacts and those with minimal ones.

With these lessons in mind, the *Friends Group* accepted at the outset that there would be losers from any subsidy reform program. The *Friends Group* focused on alternative delivery mechanisms of support for the poor that would undoubtedly be hurt by any *cold turkey* reform. They also recognized that too purist an approach would not work. Thus, the *Friends Group* did not target every conceivable policy that might be considered a *subsidy*. Rather, their reform initiative focused on the largest distortions with the greatest fiscal and climate change impact—the ones considered most inefficient.

Any domestic reform program requires a great deal of thought, including the timing of implementation of reforms, which are far better undertaken in times of low oil prices. As more and more countries have experimented with subsidy reforms, a large body of research has emerged within the World Bank, the International Energy Agency, the International Monetary Fund, and the Organization for Economic Cooperation and Development on lessons learned from past policy failures and successes.²⁵ Particular attention must be paid to alternative delivery mechanisms, with details varying across societies. India, for example, made huge cuts in its natural gas subsidies but offset the impact on the poor by issuing digitized identification cards to over a billion residents, which enabled direct transfers and other benefits to flow to eligible recipients.²⁶

As in the case of agriculture, subsidy reform will require a growing consensus that there are much better ways to support the poor than through subsidies. Policy creativity on how best to address the impact on the least advantaged segment of society in ways that meet local needs and circumstances thus emerges as a critical focus.

Implications for Renewable Energy

At the top of any rational climate change policy set has to be the switch from fossil fuel-based energy sources to renewable energy. While renewable energy electricity generation also receives subsidies, the International Energy Agency notes that they account for only about 20 to 30 percent of the amount used to subsidize fossil fuel production and consumption. Clearly, the policy goal needs to be centered on making renewable energy competitive with the fossil fuel status quo. Thus, subsidies provided to fossil fuel production or consumption slow down the necessary transformation.

Several governments in the Middle East have taken a series of bold measures to promote nuclear and renewable energy uptake. Historically, however, massive fossil fuel

production and consumption subsidies in many of these countries have had a huge negative impact on the competitive position of non-fossil fuel energy generation sources. The International Energy Agency concluded in 2010 that “were oil not subsidized in the Middle East, new oil-fired plants would not be able to compete with any of the main renewable energy technologies or with nuclear power.”²⁷

Some fossil fuel subsidy reformers go one step further. They advocate switching the funds now going to fossil fuels to subsidizing clean energy. Policies in this regard might include direct payments to households to promote the uptake of solar panels or regulatory interventions such as feed-in tariffs that privilege alternative energy supplies.

Such policies may well have a role to play in the clean energy transition, but political decision makers and regulators need to be conscious of the dangers of locking in place the attendant market distortions and fiscal costs. The history of production and consumption subsidies is both clear and disturbing: once subsidies are in place, as anyone familiar with the vast literature on rent-seeking behavior knows, they become notoriously difficult to remove. Many of us who work in the policy realm know—based not on ideology, but rather practical experience—that governments should be very careful about reaching into the subsidy bucket to solve any deep problem.

We should also bear in mind that, in the specific context of energy policies, we are moving so fast down the average cost curve for most types of renewable energy that the case for *subsidy switching* is getting weaker and weaker. In New Zealand, for example, when I was Climate Change Minister, I was advised that, save for small diesel generation in remote regions of the country, 99 percent of the new electricity generation projects were advanced renewable energy—wind, geothermal, along with some hydropower and biomass. In other words, certain countries, like New Zealand, have passed the clean energy investment tipping

point. Without subsidies, fossil fuels increasingly cannot compete with renewable power generation, at least not in the electricity generation sector.

Whether countries wish to subsidize renewable energy in the wake of these technological and cost changes remains a matter for their authorities to decide. It appears, however, that the best subsidy policy for promoting clean energy would be to remove the vast fossil fuel subsidies that are slowing down the transition.

Chronology of Recent Global Fossil Fuel Subsidy Reform Efforts

The pace of activity surrounding international and domestic fossil fuel subsidy reforms has quickened noticeably since the 2009 G20 commitment.

The subsidy reduction goal continues to be reaffirmed in many international settings, including G20 communiqués. A series of peer reviews for G20 countries has politically buttressed the momentum for change.²⁸ Multiple other fora have picked up the same themes, including the Organization for Economic Cooperation and Development, the Asia-Pacific Economic Cooperation forum, and other groupings. The United Nations-endorsed Sustainable Development Goals also reflect this aspiration. In the Asia-Pacific Economic Cooperation, for example, the commitment has been somewhat strengthened, and a complementary series of peer reviews is underway.²⁹

The Friends Group, in its collective sense, continues to be very active at international climate change gatherings. Its call for an end to fossil fuel subsidies at the 2015 Paris Climate Change Conference, for instance, won endorsement by numerous other countries, including some of the larger G20 economies (France, Germany, the United States, the United Kingdom) and important developing countries. The communiqué expanded the list of governments and organizations that actively support fossil fuel subsidy reform to include 40 nations and more than 100 businesses and international organizations.

More importantly, they have made measurable policy progress. Several developing countries (some taking advantage of periods of low oil prices) have taken substantial steps towards reducing fossil fuel subsidies. The case study literature continues to shed light on what seems to work administratively and politically.³⁰ So those who have not yet taken action have a growing set of models to follow and best practices to adopt.

Looking to the Future: Fossil Fuel Subsidies at the World Trade Organization (WTO)

New Zealand has taken the first steps towards introducing fossil fuel subsidy reform formally to the WTO. At the 2017 Ministerial Meeting in Buenos Aires, 12 WTO Members called on the organization to “achieve 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 programs.”³¹³²

A WTO movement to target specific environmentally damaging subsidies is less of a policy departure than it might seem. The very foundation of the WTO marked a shift of trade negotiators’ focus from the traditional General Agreement on Tariffs and Trade concerns over trade narrowly defined (e.g., border protection) to a wider set of trade-related matters, including intellectual property, investment, and the environment.

Also reflective of this broadened approach, New Zealand has been coordinating a similar group of countries on negotiations over fishery subsidies.³³ The effort reflects a widely shared view that, while the perilous condition of wild fish stocks globally has a variety of causes, certain fishery subsidies are a significant contributory factor.

The WTO faces a series of major challenges. I believe that the formula will emerge to reenergize the multilateral trading system and move forward on a new trade agenda that will include subsidies reform. The Committee on Subsidies and Countervailing Measures could

be the home for an initiative encouraging WTO Members to include fossil fuel subsidies in their subsidies notifications—a formal trade regime process that highlights obstacles to open markets. The likely counterargument is obvious: there is no agreed definition of a fossil fuel subsidy. The G20 reference to *inefficient* subsidies offers a political, rather than juridical, perspective on the issue. But lack of a fully accepted subsidy definition need not be an impediment to action. The General Agreement on Tariffs and Trade had disciplines on *subsidies* for decades before the definitions developed in the Uruguay Round subsidy negotiations were incorporated into the WTO rules.³⁴ History would suggest, therefore, that a negotiated definition is more likely to *follow* intensive scrutiny of a range of what might be considered subsidies than precede it.

Another option is for the Trade Policy Review Mechanism to look at fossil fuel subsidies in the context of taking an economy-wide view of every WTO Member's policies that impact trade. As with the peer reviews underway in the G20 and the Asia-Pacific Economic Cooperation, one possible way would be for the Trade Policy Review Mechanism to start looking at this issue on a voluntary basis.

One rather obvious way of ramping up the attention on fossil fuel subsidies from a trade policy lens would be to put the issue into regional trade agreements. This approach would supplement, rather than compete with, the WTO. Not only are regional trade agreements, by default, where the action currently is, but it is also common for such agreements to be, in effect, the trade policy canary in the coal mine for the multilateral trade system. They develop innovative procedures and standards regionally and then, when the wider political opportunity arises, seed these ideas into the wider multilateral system backed up by the added confidence of practical political experience. And, with respect to fossil fuel subsidies, the new regional kid on the (trade) block, the Comprehensive and Progressive Trans-Pacific Partnership Agreement seems a rather obvious place to start.³⁵

Strengthening Climate Change Provisions in the Trans-Pacific Trade Context

Perhaps a future iteration of the Pacific Partnership’s Environment Chapter could include fossil fuel subsidy provisions. But I must note that all trade agreements are political nightmares to negotiate. Professional trade negotiators generally begin with a subset of issues to avoid biting off more than they can chew (politically). They settle on first steps and, in most cases, install a formal review clause to build further steps forward.

The Comprehensive and Progressive Trans-Pacific Partnership, as with its foundation document, the original Trans-Pacific Partnership, is explicitly intended to be a living agreement in that sense. Thus, there is every reason to believe that, in due course, additional procedures and disciplines on fossil fuel subsidies could be built into a future iteration of the Agreement’s Environment Chapter.

A Look at the Environment Chapter

The Comprehensive and Progressive Trans-Pacific Partnership Environment Chapter is fairly robust. Among other things it commits the parties to the Agreement to:

- effectively enforce environmental laws;
- not to waive or otherwise derogate from “environmental laws in a manner that weakens or reduces the protection afforded in those laws in order to encourage trade or investment” (i.e., a political response to the anti-trade charge that trade agreements encourage a “race to the bottom”);³⁶
- recognize the trade link to multilateral environmental agreements, some specifically, some more generally;
- create formal structures to advance a work program in its environment-related aspects.

Whether these provisions could form a basis for cooperation on fossil fuel subsidy reform could be explored.

The Trans-Pacific Provisions on Climate Change

The provisions relating to climate change in particular are, to be diplomatic, muted. The relevant article even avoids the words *climate change*, talking instead of a “*Transition to a Low Emissions and Resilient Economy*.”³⁷ Further, the provisions that elaborate areas of cooperation are markedly less precise than the Agreement’s corresponding provisions on, say, illegal fishing.

This approach was the consequence of a carefully considered political judgment—not a casual drafting preference for political euphemisms. The Trans-Pacific Partnership was itself highly controversial in the United States, as was everything to do with climate change. Too forward-leaning a Trans-Pacific Partnership text on climate change might have not only complicated the delicate task of finessing ongoing negotiations of the Paris Agreement, but might have also scuttled the Trans-Pacific Partnership in the U.S. Congress. Today, of course, the political landscape that formed the backdrop to these negotiating judgments is entirely different. The United States walked away from the Trans-Pacific Partnership and intends to withdraw from the Paris Agreement.

In any event, despite the slight text, there is no shortage of negotiating hooks on which a robust set of cooperative actions on climate change could be developed—including on Fossil Fuel Subsidy Reform—assuming the requisite political will. The original G20 framework, as subsequently developed, reminds us that we have a relatively sophisticated political platform in place to find negotiating solutions to a variety of legitimate concerns about the reform path.

Conclusion

Coordinated international reform of any contentious matter is a deeply complicated and protracted process. Fossil fuel subsidy reform, like the climate change challenge more generally, will be no exception. But there has been a sea change in both attitudes and policy since the 2009 G20 communiqué lifted the issue out of obscurity. In addition to its fiscal and clean energy benefits, subsidy reform remains a climate change imperative—with all the metrics indicating how large a contribution it would make toward the global temperature goal of the Paris Agreement.

Notes

¹ Commonly referred to as “externalities”—i.e. the full social costs (to the environment) that will not be captured in the market price of whatever we produce or consume and which emits carbon.

² By “tax”, this is an approximation for all the various cap and trade, emissions trading schemes and like measures that have been either tried or mooted.

³ Kelly Levin, Benjamin Cashore, Steven Bernstein, and Graeme Auld, “Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change,” *Policy Sciences* 45, no. 2 (2012): 123-152.

⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change, December 11, 1997, United Nations Treaty Series Online, registration no. I- 30822, art. 2.a.v, <https://unfccc.int/resource/docs/convkp/kpeng.pdf>.

⁵ To be more technically correct, “Annex I” countries.

⁶ U.S. Department of the Treasury, “G20 Leaders Statement: The Pittsburgh Summit,” September 24-25, 2009, Preamble, para. 24, https://www.treasury.gov/resource-center/international/g7-g20/Documents/pittsburgh_summit_leaders_statement_250909.pdf.

⁷ We of course understood that the G20 outsourced the Secretariat function to other established institutions.

⁸ Paris Agreement, December 12, 2015. United Nations Treaty Series Online, registration no. I-54113, art, 2.1.a., https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english.pdf.

⁹ At the technical level, climate change experts generally measure proposals against the counter-factual of the BAU, or “Business as Usual” curve.

¹⁰ Laura Merrill, Richard Bridle, Markus Klimeschek, Paula Tommila, Lucky Lontoh, Shruti Sharma, Yanick Touchette, Phil Gass, Frédéric Gagnon-Lebrun, Lourdes Sanchez, and Ivetta Gerasimchuk, *Making the Switch: From Fossil Fuel Subsidies to Sustainable Energy* (Denmark: TemaNord, Nordic Council of Ministers, 2017), 28-29.

¹¹ John Key, “Fossil Fuel Subsidy Reform Communiqué,” speech, Paris, November 30, 2015, The Price of Wales’s Corporate Leaders Group, <https://www.corporateleadersgroup.com/reports-evidence-and-insights/news-items/paris-climate-change-conference-opens-unprecedented-call-governments-businesses-end-fossil-fuel-subsidies>.

¹² Merrill et al., *Making the Switch*, 80.

¹³ Merrill et al., *Making the Switch*, 34.

¹⁴ Organization for Economic Cooperation and Development, *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2018* (Paris: OECD Publishing, 2018), 10, <https://doi.org/10.1787/9789264286061-en>.

¹⁵ In one case, up to \$5 trillion! See, Sébastien Postic, Igor Shishlov, Lindsay Ellis, Johannes Florian Kerst, and Adithya Pradeep Kumar, “Fossil fuel subsidy reforms,” in *Climate Brief No 50* (Paris: Institute for Climate Change Economics, October 2017), 1, https://www.i4ce.org/wp-core/wp-content/uploads/2017/10/2017-10-20-PC50_Fossil_subsidy_reform-3.pdf.

¹⁶ There is scope for vast disagreement on what constitutes a “subsidy.” Given the author’s background in trade policy, we have here in mind as a guide the classic General Agreement on Tariffs and Trade/WTO literature and jurisprudence. Even there, the definition is not a settled matter. A more discursive analysis of subsidy definition methodologies can be found in International Energy Agency, “The Scope of Fossil Fuel Subsidies in 2009: a

Roadmap for phasing out Fossil Fuel Subsidies,” *IEA, OECD & World Bank Report for the G20 Summit*, Seoul, 2010, Box 9, 316. See in particular section 1.1.2.

¹⁷ Neil McCulloch, “Energy subsidies, international aid, and the politics of reform,” *UN University Working Paper* 2017/174, (October 2017), <https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2017-174.pdf>, 9.

¹⁸ McCulloch, “Energy subsidies,” 3-4.

¹⁹ McCulloch, “Energy subsidies,” 4.

²⁰ World Health Organization, “Air pollution,” Date accessed November 9, 2018, <https://www.who.int/airpollution/en>.

²¹ The author has a particular view on the serious political risks to any reform campaign from either making clearly exaggerated claims or relying on poorly constructed research. Either presents just too easy a target for those opposed to the broad sweep of the reform. The political reality is that would-be reforms need to apply a higher standard of care to their work than those opposing reform.

²² One study suggests that removing consumer subsidies plus what they call “appropriate taxation of fossil fuels” could cut premature deaths from outdoor pollution by around 50 percent. See Merrill et al., *Making the Switch*, 22.

²³ Jun Rentschler and Morgan Bazilian, “Principles for Designing Effective Fossil Fuel Subsidy Reforms,” *Review of Environmental Economics and Policy* 11, no. 1 (Winter 2017): 141.

²⁴ The path towards agriculture subsidy reform is not “over”, but when the agricultural results of the Uruguay Round multilateral trade negotiations were put into effect within in the new structure of the WTO in 1994, the international community had finally found a politically tenable path to reform.

²⁵ IEA, “The Scope of Fossil Fuel Subsidies in 2009,” table 9.1 provides a useful summary of a number of the more important reform efforts.

²⁶ Postic et al., *Fossil fuel subsidy reforms: state of play and ways forward*, 4.

²⁷ International Energy Agency, “The Scope of Fossil Fuel Subsidies in 2009,” 314.

²⁸ U.S. Department of the Treasury, “G20 Leaders Statement: The Pittsburgh Summit.”

²⁹ “*We reaffirm our commitment to rationalize and phase out inefficient fossil fuel subsidies, welcome ongoing peer review and capacity building activities, and encourage further efforts to facilitate subsidy reform,*” Asia-Pacific Economic Cooperation (APEC), “Leaders’ Declaration 2016,” accessed November 9, 2018, http://www.apec.org/Meeting-Papers/Leaders-Declarations/2016/2016_aelm.aspx.

³⁰ Shelagh Whitley and Laurie van der Burg, “Reforming Fossil Fuel Subsidies,” in *The Politics of Fossil Fuel Subsidies and Their Reform*, ed. Jakob Skovgaard and Harro van Asselt (Cambridge, United Kingdom: Cambridge University Press, 2018), 47-65.

³¹ It should be noted that many of the European Union countries which have been at the forefront of Fossil Fuel Subsidy Reform are not formal authors of this statement. This is simply because of the nature of all WTO meetings – the European Union Commission speaks collectively for all Member States.

³² World Trade Organization, “Fossil Fuel Subsidies Reform Ministerial Statement,” WTO Doc. WT/MIN(17)/54, December 12, 2017.

³³ For practical purposes, these negotiations are conducted as a subset of the Rules Negotiations, within the framework of the Doha Development Agenda.

³⁴ A good discussion on this topic can be found in World Trade Organization, “World Trade Report 2006: Exploring the links between subsidies, trade and the WTO,” 2006, https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf

³⁵ There are numerous other regional trade agreements under negotiation that might offer exactly the same opportunity of seeding fossil fuel subsidy commitments into the emerging agreements. With respect to those under way in which New Zealand is a party, two other obvious possibilities are the European Union/New Zealand free trade agreement (which will be strongly influenced by the “progressive and inclusive” trade agenda, to use the common nomenclature of both authorities) and possibly the intriguing negotiation involving the Pacific Alliance, Australia, Canada, New Zealand and Singapore (which may produce four somewhat separate sets of schedules of commitments).

³⁶ “Consolidated TPP Text,” Government of Canada, signed in 2016, <http://international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/tpp-tp/tp-texte/toc-tdm.aspx?lang=eng>, chapter 20, art. 20.3.6.

³⁷ “Consolidated TPP Text,” chapter 20, art. 20.15.