Lessons learnt and good practice from APEC-economy fossil-fuel subsidy peer reviews

POLICY PERSPECTIVES

OECD ENVIRONMENT POLICY PAPER NO. 29

OECD
BETTER POLICIES FOR BETTER LIVES

Lessons learnt and good practice from APEC-economy fossil-fuel subsidy peer reviews

Contribution by the Organisation for Economic Co-operation and Development (OECD) to the APEC Energy Working Group (EWG), July 2021

Acknowledgements

This report has been prepared by the OECD Environment Directorate and the OECD Trade and Agriculture Directorate, in consultation with New Zealand on behalf of the Asia-Pacific Economic Cooperation (APEC). The report was developed at the request of New Zealand as a contribution to the APEC Energy Working Group on the 7 July 2021. The OECD gratefully acknowledges the financial support of the G20 to undertake this report.

The report was co-ordinated by Justine Garrett and written together with Amy Cano Prentice. Nathalie Girouard provided overall strategic guidance and direction. The drafting team is indebted to Wilson Chau and Kiran Parmar (APEC New Zealand, New Zealand Ministry of Foreign Affairs and Trade), who provided their valuable time and insights to the report. The drafting team gratefully acknowledges the comments and inputs provided by OECD colleagues on draft versions of the report, including from Sarah Miet, Mark Mateo, Nelly Petkova (ENV), Susan Stone, Evdokia Mosé, and Grégoire Garsous (TAD).

Authorised for publication by Rodolfo Lacy, Director, Environment Directorate

According to latest data from the OECD and the IEA, government support for the production and use of fossil fuels across 81 major economies totalled USD 351 billion in 2020, amounting to USD 183 billion across 50 OECD, G20, and Eastern Partnership economies. While the difficulty of reform is evident from the range and complexity of challenges confronting governments in the phasing-out of fossil-fuel subsidies, APEC economy-led fossil-fuel subsidy peer reviews play a key role in pointing out commonly faced challenges, and present options to tackle them more effectively. This report is the first comprehensive attempt to document “scalable” lessons and examples of good practice emerging from fossil-fuel subsidy peer reviews: taking stock of progress in their phase-out as reflected in the peer review reports, considering the role of the peer review process in promoting reform, and proposing potential ways to enhance the process. Eleven peer reviews are documented, seven of which were chaired by the OECD and four in which the IEA was a member of the review panel. Six of these peer reviews were conducted under the auspices of the G20, and four under APEC auspices, with the addition of the OECD-IEA review of the Netherlands, modelled on the G20 review process. The economies reviewed inventoried between three to thirty-nine measures, of an average self-declared value of USD 13 billion, for those reviews which quantified fossil fuel support measures. The “scalable” lessons drawn from the peer reviews can be used to further spur progress towards rationalising and phasing out fossil-fuel subsidies, thanks to the insights on the approaches and good practices for designing the reform process. These insights include the need to accommodate for differing contexts, objectives and definitions; to prioritise inter-ministerial co-ordination; to promote active government and stakeholder participation; and to engage a cross-sectional peer review panel.

Table of contents

Table

Executive summary

Since 2013, APEC economies have developed and implemented voluntary, economy-led peer reviews of fossil-fuel support, an important avenue for knowledge exchange, enhancing transparency and developing regional capacity for reform. This report is the first comprehensive attempt to document “scalable” lessons and examples of good practice emerging from these peer reviews, taking stock of progress in phasing out fossil-fuel subsidies as reflected in the peer review reports, considering the role of the peer review process in promoting reform, and proposing potential ways to enhance the process. Eleven peer reviews are documented, seven of which were chaired by the OECD and four in which the IEA was a member of the review panel. To broaden the scope of relevant experiences, non-APEC economy G20 reviews are also included in the analysis. Six of these peer reviews were conducted under the auspices of the G20, and four under APEC auspices, with the addition of the OECD-IEA review of the Netherlands, modelled on the G20 review process.

The “scalable” lessons drawn from the peer reviews can be used to further spur progress towards rationalising and phasing out fossil-fuel subsidies, thanks to the insights on the approaches and good practices for designing the reform process. These insights include the need to accommodate for differing contexts, objectives and definitions; to prioritise inter-ministerial co-ordination; to promote active government and stakeholder participation; and to engage a cross-sectional peer review panel.

Identifying subsidy measures, their intended objective and whether it is being met, and how measures are delivered (i.e. through direct transfers, tax incentives, transfers of risk to government, or induced transfers), are first steps to formulating a comprehensive and coherent reform effort. The process can be a challenging one, not least because of potential inter-ministerial differences on what might constitute a subsidy. Determining the quantitative value of support measures is also essential, ideally through a complete cost-benefit analysis or, if that is not feasible, through estimates or a qualitative discussion of budgetary costs, as well as impacts on households, firms, the environment and public health. The economies reviewed inventoried between three to thirty-nine measures, of an average self-declared value of USD 13 billion, for those reviews which quantified fossil fuel support measures.

The vulnerability of reform to the prevailing political environment calls for gaining clarity on potential winners and losers, better targeting support and communicating changes to all stakeholders. It is also important to anchor the reform in the broader policy context, pursuing consistency between climate, energy fiscal and social policies. According to latest data from the OECD and the IEA, government support for the production and use of fossil fuels across 81 major economies totalled USD 351 billion in 2020, amounting to USD 183 billion across 50 OECD, G20, and Eastern Partnership economies.

Once fossil-fuel support measures have been identified and quantified to the extent possible, measures for reform need to be prioritised. Eliminating all measures in a single “big bang” reform could have major economic and social impacts, and be technically and politically difficult. Good practice emerging from the peer reviews points at the need to reduce social inequalities through a just transition; move to market-based pricing to help limit challenges associated with price controls; strengthen the evidence base for reform with macroeconomic modelling exercises; and appropriately accompany industry transition.

While the difficulty of reform is evident from the range and complexity of challenges confronting governments in the phasing-out of fossil-fuel subsidies, the analysis in the peer reviews demonstrates their clear role in pointing out commonly faced challenges, and presenting options to tackle them more effectively. Reviews also serve to enhance transparency on the reviewed economy’s support policies, as the process encourages careful dissection of the rationale behind subsidy measures, assessment of whether the rationale still holds and reflection on whether policy aims might be better met by other means. It encourages economies to improve their ability to measure and track support policies and prompts reflection on the type of measures that governments might consider for reform. For example, the extensive discussion in peer reviews on what constitutes a subsidy for the purposes of reform suggests possible benefit to further dialogue between member economies on definitional issues; as well as a concerted focus on potential macroeconomic, firm and household impacts of reform. An appropriate forum for exchange must exist to support this introspective reform effort, bringing forward lessons emerging from peer reviews.

1 Introduction

APEC member economies first stated their commitment to "rationalise and phase out over the medium-term fossil-fuel subsidies that encourage wasteful consumption, while recognising the importance of providing those in need with essential energy services" in the APEC Leaders' Declaration of November 2009 (APEC, 2009[1]). Leaders reaffirmed that commitment in a number of subsequent Declarations, including in Yokohama (2010), Bali (2013), and Manila (2015). In 2012 in Saint Petersburg, APEC Energy Ministers instructed the APEC Energy Working Group (EWG) to "continue to build regional capacity for the reform of inefficient fossil-fuel subsidies that encourage wasteful consumption and to report annually on progress" on a voluntary basis (APEC, 2012[2]). APEC Energy Ministers reiterated commitment to make substantive progress towards the APEC reform goal over the medium term in Cebu in 2015. They encouraged the "exchange of best practices and capacity building efforts" to facilitate reform, commending completion of the first APEC voluntary peer reviews in this context following initiation of the mechanism in 2013 (APEC, 2015[3]). In their Joint Statement 2021, APEC Ministers Responsible for Trade recalled the commitment made by APEC Ministers in 2015 to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption. The Trade Ministers tasked officials "to explore options for (…) a potential voluntary standstill on inefficient fossil fuel subsidies" and reiterated economies' support for "capacity-building initiatives to advance progress towards the commitment, including further voluntary peer reviews".

Four economies have completed peer reviews under the APEC peer review process to date. They are Peru (2015), New Zealand (2015), the Philippines (2016), and Chinese Taipei (2017). An additional four APEC economies have undertaken paired peer reviews via the G20: the People's Republic of China (hereafter "China") and the United States (2016); Mexico (with Germany in 2017); and Indonesia (with Italy in 2019). In addition, Canada announced its intention at the June 2018 G20 Energy Transitions Ministerial Meeting in Bariloche, Argentina to undertake a reciprocal G20 peer review with Argentina.

In 2017, an APEC Fossil Fuel Subsidy Reform Capacity Building Workshop (EWG 12 2016A) held in Jakarta explored effective pricing mechanisms and mitigation strategies for implementing sustainable fossil-fuel subsidy reforms based on case studies from five APEC economies (Indonesia, the Philippines, Chinese Taipei, Thailand, and Viet Nam) and two non-APEC economies (Armenia and India) (Energy Working Group, 2017[4]). There has been less discussion or activity in APEC on the reform of fossil-fuel subsidies since 2017.

A priority of New Zealand's host year is to reignite APEC's discussions on fossil-fuel subsidy reform, fostering inclusion and a sustainable recovery, consistent with the commitment in the APEC Putrajaya Vision 2040 to "promote economic policies, cooperation and growth which supports global efforts to comprehensively address all environmental challenges" (APEC, 2020[5]). New Zealand has requested the OECD to provide an update on lessons learnt and good practice from the body of peer reviews conducted to date under the auspices of both APEC and the G20, with endorsement from the EWG. This report responds to that request. It takes stock of progress in phasing out fossil-fuel subsidies as reflected in the peer review reports, considers the role of the peer review process in promoting reform, and proposes potential ways to enhance the process.

The report builds on an analysis of lessons and experience of reforms from peer reviews presented to the Italian G20 Presidency as part of the OECD-IEA *Update on Recent Progress in Reform of Fossil-Fuel*

Subsidies report (OECD, 2020[6]), prepared in support of the G20 Environment and Energy Ministers' Meetings, and Climate and Energy Joint Ministerial Session held in Naples from 22-23 July 2021 (G20, 2021[7]). It incorporates insights from a virtual APEC workshop hosted by the New Zealand Government and the OECD on 7 July 2021 to facilitate the further sharing of information and best practices resulting from reviews. The report benefits from support from the Italian G20 Presidency, in the interest of spurring co-ordinated momentum on fossil-fuel subsidy reform across the G20 and APEC fora.

Section 2 of the report provides an overview of measures evaluated and principal suggestions made by peer review panels across APEC and G20-economy peer reviews conducted to date. Section 3 expands on that analysis to draw out lessons and examples of good practice in reform emerging from voluntary peer reviews. Section 4 focuses on the role of the peer review mechanism in driving reform and how that role might be strengthened to support fossil-fuel subsidy phase-out in APEC economies, in line with New Zealand's host year priorities.

2 Overview of measures evaluated and principal suggestions in peer reviews

Since 2013, APEC economies have developed and implemented voluntary, economy-led peer reviews of fossil-fuel support, an important avenue for knowledge exchange, enhancing transparency and developing regional capacity for reform. There has not yet been a comprehensive attempt to document “scalable” lessons and examples of good practice emerging from the experience of reviewed economies, reflected in said peer reviews. This Section gathers lessons emerging from APEC economy peer reviews, including the need to accommodate for differing contexts, objectives and definitions; to prioritise inter-ministerial co-ordination; to promote active government and stakeholder participation; and to engage a cross-sectional peer review panel. Non-APEC economy G20 reviews are also included in the analysis, to broaden the scope of relevant experiences, feeding into the discussion on “scalable’ lessons and good practice of reform in Section 3.

APEC economies have developed and implemented a method for conducting voluntary, economy-led peer reviews of fossil-fuel support as a valuable means to support exchange of good practice and enhance regional capacity for reform. The 46th meeting of APEC's Energy Working Group in Da Nang, Vietnam in November 2013 approved guidelines for the peer review process, modelled on the APEC Peer Reviews on Energy Efficiency process (Energy Working Group, 2013[8]).

Lessons and a degree of consensus on process have emerged from the four reviews conducted to date, which can improve the process to gain "efficiency and credibility among APEC member economies" (APEC Secretariat, 2015[9]) (APEC Secretariat, 2016[10]). Lessons include the flexibility of the process to accommodate different reviewed economy contexts, objectives, and definitions of the term subsidy. The need to allow sufficient lead-time ahead of the review panel visit for inter-ministerial co-ordination and preparation of briefing materials has emerged as an important factor for ensuring a successful process. So, too, has the active participation of the government of the economy under review (i.e. as opposed to possible outsourcing to third party consultants) and domestic stakeholders. The composition of the peer review panel has also emerged as vital to the process, particularly ensuring a cross-section of experience in energy, climate change, environmental regulation, and different energy market structures; some cross-over with previous APEC or other international review efforts, to aid transfer of knowledge; and balance across members.

The peer reviews are also recognised as an important avenue for knowledge exchange and enhancing transparency on various economies' support policies (OECD, 2021[11]). APEC economy reviews explicitly refer to the value of the peer review mechanism in disseminating best practice, and complementing and strengthening voluntary reporting to leaders of APEC economies. The APEC reviews recognise the challenge of identifying and implementing fossil-fuel subsidy reform – despite the potential benefits to the reforming economy – and aim to respond to that challenge. Similarly, the terms of reference developed by peer reviewed economies in the context of the G20 have explicitly flagged sharing lessons and experiences of relevant reform as a main purpose of G20 peer reviews (OECD/IEA, 2019[12]), (OECD, 2018[13]). However, there has not yet been a concerted, comprehensive attempt to document "scalable" lessons and examples of good practice emerging from the experience of reviewed economies as reflected in the growing body of peer reviews across both APEC and the G20.

The *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2021* (OECD, 2021[11]) **provides an initial analysis of reform efforts associated with the G20 peer reviews only.** It concludes that more systematic tracking and sharing of lessons and experience of reform generated by the peer review process, through for example a compendium of good practice arising from the reviews, could help disseminate outcomes and build on progress to date. This Section expands on that analysis to incorporate information from APEC economy peer reviews. It retains information from non-APEC economy G20 reviews, to maintain a broad scope of relevant experiences to inform the discussion of lessons and good practice of reform in Section 3. Information from a peer review of the Netherlands' efforts to phase out support for fossil fuels, facilitated by the OECD and IEA in 2019 and modelled on the G20 review process is also included, to the same end.[1] This Section and the accompanying discussion in Section 3 mirror equivalent analysis requested by the Italian G20 Presidency as part of the OECD-IEA *Update on Recent Progress in Reform of Fossil-Fuel Subsidies* report (OECD, 2020[6]).

Together, the APEC, G20 and Netherlands' reviews evaluate over 140 government policies, with dozens of suggestions from peer review panels (Table 2.1). With the exception of New Zealand, which selected measures for review following the OECD Inventory approach to provide for a "broader selection of measures than just those affecting consumption", the APEC economy reviews assess solely consumer support measures.[2] These generally serve to hold domestic fuel process at levels below international reference prices. By contrast, around one-third of the measures evaluated in the G20 reviews and the Netherlands review benefit producers of fossil fuels. The measures are predominantly tax expenditures, but also include direct budgetary measures and risk-transfer mechanisms.

Table 2.1. Summary of APEC, G20 and Netherlands reviews

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
China	2016 (G20)	Germany, Indonesia, United States, International Monetary Fund, OECD (chair)	9 measures, USD 15.5 billion (2016)	Direct budgetary transfers (1 set), tax expenditures (8)	Measures span the fossil-fuel supply chain, from upstream exploration and development of fossil-fuel resources to refining and their use in power and heat generation, transport, and the residential sector.	Reform fossil-fuel subsidies as a necessary step towards the goal of more market-based prices and taxes that better reflect environmental damage from economic activities, thereby contributing to pollution reduction while removing one major source of price distortions in the economy. Continue efforts to ensure that the most vulnerable segments of society are not adversely affected by reform. To enhance transparency of fossil-fuel subsidies: • Enhance information on fossil-fuel subsidies, their environmental effects, and their beneficiaries to facilitate identification of necessary reforms and more efficient policies. • Encourage provinces to provide information and data on support measures (at least to the same degree as that available for central government level). • Improve and provide information on taxes applicable to energy producers and consumers, and relevant tax revenues, to enhance understanding of potential fiscal gains from reform. • Provide more information on rules used to set energy prices, where still regulated. Ensure price reform goes beyond eliminating the identified fossil-fuel subsidies, to capture environmental consequences of production and consumption of fossil fuels through efficient

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						pricing.
Germany	2017 (G20)	China, Indonesia, Mexico, Italy, New Zealand, United States, OECD (chair)	22 measures, EUR 15 billion (USD 17.9 billion) (2016)	Direct budgetary transfers (2), tax expenditures (20)	Bulk of measures are energy and electricity tax preferences for agriculture, manufacturing and transport sectors; 2 measures favour upstream activities (extraction of coal).	Assess the sensitivity of industry competitiveness and carbon leakage to reform (quantify effects on volumes of production, trade and price, and therefore GDP, and associated environmental and social costs), to test the assertion that tax benefits granted to industrial and agriculture sectors ensure the competitiveness of German industry and prevent carbon leakage (and are therefore not "inefficient"): • Carry out periodic quantitative assessments of competitiveness and carbon leakage effects of energy-tax preferences, including state-of-the-art empirical evidence. • Improve data on sectoral distribution of beneficiaries of support measures. • Publish more detailed information on energy efficiency performance of industries and distribution of tax benefits corresponding to performance. • Review support measures to ascertain role in energy transition. Consider alternative, less distortive measures, to help maintain industry competitiveness and prevent emissions relocation, lighten environmental and social costs incurred, and help ensure economic and climate policy objectives are aligned.
Indonesia	2019 (G20)	China, Germany, Italy, Mexico, New Zealand, German Corporation for International Co-operation	12 measures, USD 9 billion (2016)	Direct budgetary transfers (5), tax expenditures (7)	Two main categories of beneficiaries: end users of petroleum fuels and electricity, and oil and gas industry	Continue petroleum fuel and electricity pricing reform by harnessing socio-economic information in the unified poverty database (which gathers socioeconomic

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
		(GIZ), IEA, IISD, OECD (chair), World Bank			upstream and downstream segments (preferential tax treatment for exploration, development and extraction, and refining and processing).	information on the poorest households), to provide targeted support to poor households and establish a fiscally sustainable energy access policy. Enhance data collection to better understand the behavioural impacts of pricing reforms on consumption, health, and congestion. In addition to focusing on reducing the number of beneficiaries of subsidised electricity and LPG cylinders, decouple social support from fossil-fuel consumption as a longer-term goal (e.g. through means-tested cash transfers). Avoid the erosion of reform by political intervention (e.g. government deviation from automatic adjustments in fuel prices, maintenance of fixed fuel and electricity prices to the end of 2019 to shield citizens from increasing international oil prices/weakening rupiah), which increases the likelihood of potential losses by state-owned fuel and electricity companies and fiscal pressure on government, and appears incoherent with overall energy and climate policy. Develop a comprehensive inventory of fossil-fuel support measures and associated costs to government, including direct transfers, preferential tax treatment and government credit assistance. Systematically measure tax incentives that encourage national production of crude oil, natural gas and refined petroleum products (for which no reform plans exist) and planned expansion of tax incentives to

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						industrial users of fossil fuels (longer duration, increasing eligible sectors, simplified application procedures), to foster greater transparency and accountability, ensure measures achieve objectives in the most cost-effective way, and eventually facilitate reform. Assess how incentives to fossil-fuel producers might distort exploration, development and extraction decisions, and result in support for fossil fuels. Isolate data on transport and distribution costs for fuels by region to help indicate the extent of cross-subsidisation resulting from the "one price policy" harmonising energy prices across regions.
Italy	2019 (G20)	Argentina, Canada, Chile, China, France, Germany, Indonesia, Netherlands, New Zealand, Bocconi University, IEA, IISD, European Energy Retailers, Green Budget Europe, OECD (chair), University of Pavia, UN Environment	39 measures, EUR 13 billion (USD 15.5 billion) (2016)	Tax expenditures (35); direct budgetary spending (4) (and 1 risk transfer mechanism, Export Credit Guarantees for coal, gas-fired and nuclear power plants in third economies, not quantified)	Heterogeneous set of measures (e.g. targeting households, energy producers, public services), inventoried by main benefiting sector (energy, industry, transport, households and public services, and agriculture). Transport benefits from more than half of amounts estimated, and more than a quarter of measures (11).	The recommendations made by the peer review panel in the Italian peer review respond specifically to a request by the Italian authorities to offer suggestions for how to structure the economy's fossil-fuel subsidy reform process. Enhance the existing catalogue of environmentally harmful and environmentally friendly subsidies: • Indicate distributional impacts of inventoried measures. • Report available evidence on environmental and health impacts of fossil fuels and their relationship with subsidy levels, and potentially evaluate cost implications for the economy; add regional- and city-level surveys. • Analyse support mechanisms other than direct budgetary and tax expenditure

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						measures. • Describe the initially intended objective of support measures, details on delivery mechanisms, assess quantitative value and whether objectives are met. Publish and disseminate widely the results of novel inclusion of macroeconomic assessment of fossil-fuel support phase-out (CGE modelling) in self-review report, to inform public debate. Prioritise measures for reform (e.g. measures whose intended policy objective is defunct, or that are not efficiently meeting their objectives): • Eliminate direct subsidies and tax expenditures allocated to fossil-fuel producers or distributers that are not fulfilling any desired policy objectives efficiently. • Phase out longstanding subsidies targeted at particular industries and not aligned with current social needs and policy objectives (e.g. subsidies to taxis, magnesium production from seawater, public services). • Consider reducing or eliminating differences in the rates of excise taxation on diesel and gasoline. • Develop detailed plans for phasing out major tax expenditures on road freight transport, maritime transport, aviation and agriculture that are inefficient. Assess potential equity, poverty and competitiveness impacts, and possible transition measures. Accompany reform with a well-designed communication

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						strategy.
Mexico	2017 (G20)	China, Germany, Indonesia, Italy, New Zealand, United States, OECD (chair)	10 measures, USD 26 billion (2016)	Direct budgetary transfers (for fossil fuels used in transport. agricultural and fishing activities); tax expenditures	Producer support (1 measure); downstream support for fossil fuels used in transport; and farmers, fishing vessels, or public transport.	To finalise energy-sector reforms, fully liberalise diesel and gasoline prices, and further stimulate competition in the energy sector, ensuring a high-level of transparency and regulatory certainty. Consider using additional revenues raised from reformed taxes for social compensation measures to address any distributional impacts of changes to taxes or subsidies. Address the problem of high levels of tax avoidance and evasion associated with informal coal operations. Consider increasing the recently introduced carbon tax to better reflect the social costs of carbon and the different fuels' respective carbon contents (in view of coal being taxed at much lower rates than other fuels, and natural gas being fully exempted from the carbon tax). Consider the impact of support for electricity consumption (currently considered a different, although linked issue from fossil-fuel subsidies) on the demand for natural gas, petroleum products and coal, as likely indirectly increasing final consumption of fossil fuels. Review fuel-tax concessions (reduced energy excise tax for fishers and farmers; carbon tax exemptions and reductions) – not currently considered subsidies by Mexico – recognising that they could be leading to more consumption and pollution than would have otherwise been the case,

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						and perhaps causing other distortions. Look for alternative and less distortive ways of benefiting the targeted activities.
Netherlands	2020 (OECD/IEA review)	IEA, OECD (chair) Contributions from a stakeholder consultation held on 1 October 2019 with academics and representatives of civil society organisations and government (CE Delft, CIEP, IISD, the Netherlands Environmental Assessment Agency (PBL), Milieudefensie, UEF and VU Amsterdam) were taken into account in drafting the review	13 measures, estimate of EUR 4.48 billion (USD 5.02 billion) (2019) for 7 of 13 measures	Predominantly tax expenditures from reduced rates, refunds and exemptions from excise duties and energy taxes	Both producers (2 measures) and consumers of fossil fuels (11 measures, across energy-intensive industries and other energy-consumer groups [electricity generation, international flights and maritime transport, “other” end-users])	Maintain a broad scope for the inventory of fossil-fuel subsidies/ periodic policy evaluations, considering a full complement of subsidies for both production and consumption. Take into account the negative externalities of the use of fossil fuels when evaluating the energy taxation and public finance supporting the use and consumption of fossil fuels, including to ensure alignment of public financial flows with energy and climate objectives and international commitments (Paris Agreement, EU NECP, UN SDG process). Incorporate tax exemptions and refunds that are under the purview of the EU ETD (e.g. exemption to aviation and maritime transport, and fuels used in electricity) in tax expenditure reports/ periodic evaluation of tax expenditure/ subsidy programmes. Broaden the scope of periodic policy reviews to include other tax and non-tax measures that can influence the use and production of fossil fuels and help the economy achieve its climate targets. Include the impact of energy taxation, alternative measures and reforms in the [then pending] policy review of energy taxation to ascertain how the final burden is shared among consumer groups and interactions with other policy measures proposed in the Climate Agreement. Continue to assess the sectors that are

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						most at risk of carbon leakage in order to better target subsidy programmes and identify alternative measures.
New Zealand	2015 (APEC)	China, Indonesia, OECD, Philippines, Thailand, USA (lead)	8 measures, partly quantified (e.g. NZD 103 million [2014] [USD 85.5 million], indemnity for mining land reclamation; fuel excise duty refunds – NZD 38.5 million [2014] [USD 31.9 million])	Tax expenditures (4 measures), direct budgetary spending (3), risk transfer mechanism (1)	Predominantly oil and gas upstream segments (5 measures, for off-shore drilling and seismic ship operators, petroleum exploration and development, natural gas production), with 1 general support measure (R&D funding for the petroleum industry) and 2 measures aimed at supporting consumers (off-road vehicle excise tax reduction, funding of international oil-stock obligations)	In view of an overarching finding that "none of the eight measures reviewed constituted 'inefficient subsidies that encourage wasteful consumption'", limited, measure-by-measure recommendations made: • Non-resident offshore drilling rig and seismic ship tax exemption and tax deduction for petroleum-mining expenditures: conduct reviews of the measure with a lead-time of at least a year prior to expiration of the exemption, to provide greater certainty to the petroleum industry • R&D funding for the oil industry: review effectiveness and usefulness in terms of the impacts on petroleum exploration and production on a regular basis; inventory non-petroleum industry data users to include impacts in programme evaluation; leverage funding with contestable funding (coordinating research programs at universities, research institutes, and industry) • Motor spirit excise duty refund: better target by reviewing eligible vehicle types and fuels on a regular basis/ placing a cap on each refund recipient; collect more data to enable an analysis of the impacts on consumption; review on a regular basis the effectiveness of the measure and the broader question of tax rates and incentives for fuel efficiency.
Peru	2015	Cambodia, Indonesia, New	3 measures	Direct transfer (1), tax	End-users in Amazon regions, of	General recommendation:

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
	(APEC)	Zealand, United States (lead); ICF, Nathan Associates (secretariat for the panel)		expenditure (1), direct transfer that would also constitute an induced transfer for the purposes of the IEA price gap methodology (1)	certain fuels (LPG for domestic purposes or packaged in 10 kg cylinders, diesel for vehicle use, and diesel and residual petroleum fuels used by isolated electricity generation systems) and of LPG for residential and transportation purposes (vulnerable or low-income segments of the population)	• Continue broader fossil-fuel subsidy reform efforts, using well-established mechanisms for inter-ministerial coordination to develop a coherent plan with specific implementation strategies. Measure-specific recommendations: • Preferential Value-Added Tax (VAT) Exemption (promulgated to promote economic development in Peru's Amazon Region): eliminate and replace the exemption by targeted social and regional development programmes (e.g. to improve schools, hospitals, transportation and other infrastructure), drawing on positive outreach and communication methods implemented for the Social Inclusion Fund (see below). • Fuel Price Stabilization Fund: depoliticise fuel pricing and continue to remove the fund in a phased manner, accompanied by appropriate offsetting measures targeted to vulnerable population segments. • Social Inclusion Fund (designed to protect Peru's most vulnerable populations and improve their access to commercial LPG fuels): continue current efforts to examine methods for improving the programme; expand to segments of the population not currently served; undertake full cost-benefit analysis to help identify economic cost of cross-subsidy.
Philippines	2016 (APEC)	IEA, Indonesia, New Zealand, United States; ICF, Nathan Associates (secretariat for the panel)	5 measures	Direct transfer (2), tax expenditure (2), direct transfer that would also constitute an induced transfer for the purposes of the IEA price gap	General (1) or more targeted measures (4) in support of fossil fuel consumers, including users of public transport, "socially sensitive" fuels, in remote areas	Measure-specific recommendations: • Oil Price Stabilization Fund: refrain from re-instating the fund (no longer active, but under consideration for re-instatement),

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
				methodology (1), including an oil price stabilisation fund, a mechanism for cash transfers to public transport operators to minimise fare increases and a cross-subsidy programme to support electricity access in remote areas	or with self-generating facilities.	regardless of oil price; consider alternate means to address fuel and transit price affordability concerns (e.g. efficiency improvements, fuel diversification). • Pantawid Pasada Public Transit Assistance Program: do not reintroduce the limited cash-transfer mechanism (that operated 2011-2013) for public transport operators to limit transit fare increases due to rise in oil prices; move towards deregulated fares in a phased manner; consider alternate means to address fuel and transit price affordability concerns. • Excise Tax Exemptions: reform differentiated excise tax regime (several “socially sensitive” fuels exempted from excise taxes – kerosene, diesel, LPG and fuel oil) to introduce taxes on all petroleum products, remove distortive preferential tax regimes among similar fuels and help address negative externalities from fuel consumption; develop a strategy on how to use the proceeds, including for poor and vulnerable populations. • Universal Charge for Missionary Electrification to support Small Power Utilities Group: undertake detailed cross-benefit analysis to evaluate the impacts of the cross-subsidy; structure the regulated tariffs closer to the deregulated price; expand electricity utility’s mandate to allow for capital investment to promote power plant efficiency; provide better-targeted support measures for those in need. • Universal Charge Exemption for Self-Generating Facilities (SGFs): undertake

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						detailed cross-benefit analysis to evaluate the impacts of the exemption; lift the exemption to remove inefficiencies and market distortions, compensating benefits from SGFs distinct from the universal charge and accompanied by complementary measures to ensure a smooth transition (e.g. a phased lifting, fostering alternative energy/ efficient generators).
Chinese Taipei	2017 (APEC)	International Institute for Sustainable Development (IISD), Institute for Global Environmental Strategies (Japan), Petroleum Institute of Thailand, United States (lead); ICF, Nathan Associates (secretariat for the panel)	5 measures	Direct transfer (2), tax expenditure (2), direct transfer that would also constitute an induced transfer for the purposes of the IEA price gap methodology (1)	End-users in the agricultural sector (3 "small-sized" measures), of transit fuels on offshore islands (1 measure), and by street light owners, to promote public safety (1 measure)	Consider a holistic approach to providing benefits (e.g. congruence with current sectoral strategies and green growth policies; whether other policies could better serve social and economic needs of target beneficiaries; undertake comprehensive cost-benefit analysis to assess economic impacts and possible opportunities to improve on existing approaches). Conduct a review of who is receiving current subsidies, their income, expenditure, and activities to determine whether subsidies are fulfilling their purposes or are adequately targeted To enable successful reform, consult stakeholders on needs and preferences; inform beneficiaries and the broader public of the rationale for reform. Cross-cutting recommendations for agricultural sector support: • Review costs (including administration costs, to enable assessment of operational costs and efficiencies, and improve efficiency) and benefits (including alignment with stakeholder preferences and needs; whether best method to deliver relief from fuel prices and promote farmer

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						productivity; whether most equitable way to deliver benefits to farmers; and distribution of benefits), and how to better communicate them. • Consider options for reform (e.g. conversion to cash transfer, agricultural input vouchers, rebates on new farming equipment) to provide more flexibility to target beneficiaries, discourage wasteful consumption, and remove most market distortions). • Fund any programmes through budgetary line items through the Council of Agriculture (rather than cross-subsidisation) to enable full assessment of costs and benefits and holistic planning of use of taxpayer resources. Measure-by-measure recommendations: • Sales Tax Exemption of agricultural machinery-related oil and electricity: consider enhancing targeting, conversion to cash benefit, complementary measures to promote efficiency and reduce market distortions. • Preferential Electricity Pricing for Agricultural Motors: consider reform to help level the playing field across rate-paying entities; consider converting to a cash benefit or energy efficiency incentives to reduce market distortions. • Petroleum Product Price Subsidy for Agricultural Machinery: consider converting to equivalent cash benefit, more efficient targeting; complementary measures to promote efficiency and reduce market distortions (e.g. technical assistance on fuel and electricity efficiency, rebates for purchase of clean and efficient agricultural

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						machinery). • Sea freight subsidy for oil products shipped to offshore islands: consider phase-out in favour of targeted investments to reduce demand for fossil fuels on offshore islands (e.g. energy efficiency, electric vehicles, public transportation), or conversion to cash transfers to local governments to fund higher-priority social objectives; assess design and cost efficiency. • Preferential electricity pricing for street light operators: consider removal/ reform to promote energy efficiency and budgetary savings (e.g. greater targeting; review of authorities' ability to pay full price; conversion to cash subsidy; replacement with energy efficiency incentives including LED installation, with a sufficient grace period).
United States	2016 (G20)	China, Germany, Mexico, OECD (chair)	17 measures, USD 8.2 billion (2016); value of liability cap on natural resource damage not quantified	Direct budgetary transfer (1), tax expenditures (15), risk transfer mechanism (1)	Upstream activities (exploration, development and extraction), grouped in the peer review report according to the branch of government responsible for reform. Focus on federal subsidies to hydrocarbons and coal (i.e. not all possible forms of fossil-fuel subsidies). 1 measure supporting fossil-fuel use in the residential sector.	Pursue reform of the 16 measures identified as "inefficient" in the US self-report on the grounds that their original purpose was found to be outdated or inappropriate. Improve the existing reporting process, make necessary reforms easier to identify and engender more efficient policies by: • encouraging states to provide at least the same degree of transparency and information that applies to federal measures • undertaking research on the beneficiaries of subsidies, improving data and understanding of environmental impacts of subsidies

Economy	Date of completion (forum)	Peer review panel	Number and self-declared value of measures reviewed (where quantified)	Transfer mechanisms	Beneficiaries	Main suggestions of the peer review panel
						• Encouraging further research into possible support not identified in the course of the review (e.g. preferential loan-guarantees, investment incentives, regulations favouring fossil-fuel producers or fossil-fuel-based power generators). Dedicate additional effort to convincing citizens of the need for fossil-fuel subsidy reform, to contribute to pollution reduction while removing an important source of price distortion, and facilitate the passage of reform measures through Congress. Take price reform beyond eliminating subsidies, to move towards internalising the environmental damage that arises from the production and consumption of fossil fuels through efficient energy taxation. Reassess the financing structure of inland waterways, in particular the levels of user fees and fuel excise taxes: the costs of constructing, operating and maintaining inland waterways are largely borne by the taxpayer, and more than half of the volume of freight transported concerns fossil fuels, but no subsidy for bulk transportation of fossil fuels by rail and barges was identified in the peer review.

Notes: (1) The panel suggestions reflected in Table 2.1 are abridged. Readers should refer to the relevant peer review reports for the full set and text of panel suggestions. (2) See the *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2018* for a full explanation of the IEA approach to estimating fossil fuel consumption subsidies (OECD, 2018[13]).
Source: G20 peer reviews, available at www.oecd.org/fossil-fuels/publication/; (APEC Secretariat, 2017[14]); (OECD/IEA, 2020[15]); (Elgouacem and Journeay-Kaler, 2020[16]); (APEC Secretariat, 2015[9]); (APEC Secretariat, 2015[17]); (APEC Secretariat, 2016[10]).

Notes

[1] The Netherlands is an Invited Guest Economy under G20 presidencies and sat on the peer review panel for the Italian review (2019). The peer review builds on an IEA In-Depth Review (IDR) of the Netherlands, which included a special focus on fossil-fuel subsidies.

[2] The OECD Inventory includes both direct budgetary transfers and tax expenditures providing a benefit or preference for fossil-fuel production or consumption relative to alternatives. See (OECD, 2015[66]) for a full discussion of the OECD Inventory methodology.

3 "Scalable" lessons and good practice from voluntary peer reviews

The wide range of measures and challenges addressed in peer reviews so far allowed to draw "scalable" lessons that can be used to further spur progress towards rationalizing and phasing out fossil-fuel subsidies. The reviews offered insights on the approaches for designing the reform process and good practices, including aiming to reduce social inequalities through a just transition, moving to market-based pricing to help limit challenges associated with price controls, strengthening the evidence base for reforms with macroeconomic modelling exercises and appropriately accompanying industry transition. They highlighted the challenge of defining fossil-fuel subsidies targeted for reform, and the vulnerability of reform to the prevailing political environment, calling for gaining clarity on potential winners and losers, better targeting support and communicating changes to all stakeholders. Finally, they underscored the need to anchor the reform in the broader policy context, pursuing consistency between climate, energy fiscal and social policies.

The suggestions and discussion in APEC and G20 peer reviews enable an assessment of lessons and good practice in reform, drawing on the wide range of measures and challenges addressed in peer reviews so far.

“Scalable” lessons are emerging from voluntary peer reviews

The challenge of defining fossil-fuel subsidies

of None of the three elements of the mandate to reform “inefficient fossil-fuel subsidies that encourage wasteful consumption” – (a) what constitutes a fossil-fuel subsidy, (b) what kind of measures might be deemed inefficient or (c) what can be considered wasteful consumption – has been formally defined, either in APEC or in G20 fora, despite their importance in determining the scope and ambition of reform.[1] Reviewed economies themselves identify which policies to review and which support measures to reform, consistent with a - process led by the reviewed economy.

The challenge of defining what constitutes an “inefficient fossil-fuel subsidy that encourages wasteful consumption” is therefore a common issue emerging from discussion in the peer reviews; they dedicate considerable space to this issue. Nevertheless, the discussion provides an important first step towards possible future common definitions by shedding light on differences in interpretation between reviewed economies.

Cross-economy differences extracted from the peer reviews include the following examples. The Peruvian government put forward three measures intended to support vulnerable segments of the population, picking up the acknowledgment in the overarching APEC mandate of the “importance of providing those in need with essential energy services”. , Noting that the term “inefficiency” has multiple meanings and that economists tend to view all subsidies as inefficient, Peru requested the panel to focus instead on the effectiveness of the subsidies in reaching their intended objectives. Meanwhile, Italy classed every subsidy to fossil-fuel production and consumption as inefficient, including 39 measures in its self-review.

The notion of “wasteful consumption” was the guiding criterion for New Zealand government’s selection of policy instruments for review. The government nominated multiple tax expenditure measures for review as subsidies potentially falling under this category. Similarly, China and the United States signalled their intent to phase out specified measures benefiting fossil-fuel production, recognising that the reduction in prices resulting from these measures encouraged “wasteful consumption”. Germany offered a similar motivation for their reform of measures propping up domestic hard-coal production.

Germany’s definition covered direct budgetary transfers and tax expenditures (OECD, 2017[18]), while Mexico’s referred only to direct budgetary transfers – although its self-report included discussion on tax expenditures, identifying five additional measures providing fiscal incentives for fossil-fuel producers and consumers in the aim of transparency (OECD, 2017[19]). China (OECD, 2016[20]), Germany and Italy (OECD, 2019[21]) considered as subsidies measures providing support to fossil fuel-based electric power production and consumption; Mexico and the United States did not.

Peer review panels have provided commentary and recommendations relating to member economies’ definitions of the terms. The panel for the Mexican review noted that Mexico did not consider any of its tax expenditures supporting production and consumption as inefficient (and therefore in need of reform), because they did not decrease prices below marginal costs. The panel pointed to the fact that the term “inefficient” as used by other economies under review covers such measures. China and the United States, for example, reported “mainly features of their tax codes that favoured fossil-fuel producers” as inefficient measures to be reformed. The panel noted that by taking into account solely the welfare loss related to the taxation of energy products, Mexico failed to take into account the welfare loss related to the environmental degradation associated with fossil-fuel consumption. The impact of the reductions or exemptions in question on the overall efficiency of the tax system, including administrative costs, was also relevant. While commending Mexico's transparency in including the measures in its self-report, panel members urged Mexico to assess whether its fuel-tax concessions were increasing consumption and pollution levels, and leading to other distortions. They also encouraged Mexico to include support for the use of fossil fuels for electricity generation when assessing electricity subsidy reform priorities, as likely indirectly increasing final consumption of fossil fuels.

The panel in the German review questioned Germany's assertion that industry support measures were efficient because they were aimed at maintaining the competitiveness of German industry and avoiding carbon leakage to economies with less-stringent environmental regulations. The panel noted that to properly distinguish subsidies that might enhance the well-being of an economy from inefficient subsidies, it would be necessary to weigh their social costs and benefits. This would imply assessing not only the design of relevant fuel-tax exemptions and reductions compared with alternatives, but also whether they were periodically adjusted to reflect changing priorities and circumstances. The panel recommended that Germany assess the sensitivity of industry competitiveness and carbon leakage to fossil-fuel subsidy reform and possible (potentially less distortive) alternatives, to test the assertion of the "efficiency" of these measures, and set out a number of potential steps to this end. The panel highlighted a lack of consensus in international literature on the impact of environmental regulation on firm and industry performance.

The panel in the Philippines review adopted a literal interpretation of the APEC commitment to phase out inefficient fossil-fuel subsidies that encourage wasteful consumption in defining subsidies as "policy instruments that lower the price paid by energy consumers". Taking the approach that differences in tax rates "may not be helpful for undertaking an [APEC] evaluation of fossil fuel subsidies", the panel determined that excise-tax exemptions for fuels deemed as socially sensitive were not subsidies, despite having been proposed for review by the government. Oil price deregulation efforts meant that fuel prices were closely tied to international oil price movements. Similarly, the panel did not consider a universal charge exemption for self-generating facilities a subsidy, because operators continued to bear full fuel and electricity costs as determined by the market. The review panel nevertheless acknowledged that the relevant APEC guidelines provided flexibility for volunteer economies in nominating policies for review and provided an assessment of the efficiency and effectiveness of the identified policies in meeting their intended objectives.

A different approach was adopted in the New Zealand review. The panel acknowledged a lack of consensus on how to define and value fossil-fuel subsidies and emphasised the need for a flexible approach to choosing methodologies for the purposes of the peer reviews – one taking into account the reform objectives and requirements of the economy under review. It saw the decision of which element of the overarching APEC commitment to emphasise for the purposes of a review as "the first critical task" for the relevant economy. Taking the New Zealand Government's focus on wasteful consumption as its cue, the panel deemed none of the economy's nominated policy measures as inefficient subsidies requiring reform. Tax deductions for expenditures related to petroleum exploration and development, for example, were considered unlikely to affect consumption through lower oil prices "since New Zealand is a price taker on world markets". Despite the potential for the measures to increase future production, the panel recommendation focused on ensuring certainty for industry, through sufficient lead-time for implementation of any changes to the concessions.

Despite the value of a flexible mechanism able to accommodate different views from member economies on what might constitute support for fossil fuels, the discussion of definitional issues in the peer reviews suggests that further dialogue on these issues would yield significant benefits in helping determine what might be considered an inefficient subsidy for the purposes of the collective reform commitments and advance reform.

Designing the reform process

Reviewed economies generally propose reform options in their self-reports to frame review panel discussions. This approach recognises that reform is under each member economy's responsibility and tied to their specific circumstances and priorities. Nevertheless, analysis in the peer reviews provides insight into how economies might go about the reform process. The peer review on Italy, for example, provided several suggestions for the structuring and sequencing of reform, and possible reform measures, after the Italian government requested help in identifying priorities for phasing out subsidies. The government had not specified any concrete plans for subsidy phase-out. The review panel canvassed literature on international experience with reform and noted that identifying subsidy measures, their intended objective and whether this is being met, and how measures are delivered (e.g. direct transfers, tax incentives, transfers of risk to government, induced transfers), are first steps to formulating a comprehensive and coherent reform effort. The process can be a challenging one, not least because of potential inter-ministerial differences on what might constitute a subsidy. The review panel noted in this regard lack of a consensus view within the Italian administration on whether VAT reductions or exemptions constitute support.

Determining the quantitative value of support measures is also essential, ideally through a complete cost-benefit analysis or, if that is not feasible, through estimates or qualitative discussion of budgetary cost, as well as impacts on households, firms, the environment and public health. The panel commended existing efforts by Italy to enhance transparency on environmentally related subsidies and their impact through a regularly updated Catalogue of Environmentally Harmful and Environmentally Friendly Subsidies (ICES). Reported for the first time in 2017, the ICES specifies budgetary cost and rationale for implementation of measures in most cases. The panel emphasised the ICES, which informed development of the Italian self-report, as an important tool for evidence-based reform. The reviewers nevertheless made several suggestions to enhance the value of the ICES, including by determining which types of households and firms benefit most from measures, how progressive or regressive they are, and expanding the categories of measures inventoried (Table 2.1).

Once fossil-fuel support measures have been identified and quantified to the extent possible, measures for reform need to be prioritised. Eliminating all measures in a single "big bang" reform could have major economic and social impacts, and be technically and politically difficult. The review panel suggested ways to set reform priorities, noting the framework provided by a 2014 delegation of power from the Italian Parliament enabling the Government to adopt norms "reducing, eliminating or reforming tax expenditures that appear, fully or partly, unjustified or obsolete in the light of social or economic needs". These ranged from removing measures that no longer serve a valid policy objective or efficiently meet their intended objective, including because better ways to reach them have become available, to searching for more effective, alternative measures to reach intended policy aims, and assessing and addressing possible impacts of reform on equity or poverty, as well as sectors or firms. It also highlighted careful design of a public communication strategy targeted towards key reform stakeholders, and ensuring consistency with the broader policy environment, as vital to building social support for reform. The review panel then tailored these approaches to the Italian context, to make specific recommendations on possible measures for reform.

The Italian example is exceptional as to its significant level of detail on reform options, but other peer review reports also touch on ways reviewed economies might enhance and accelerate reform processes. For example, the China review panel praised the notable transparency of the China self-review report as an "unprecedented, government-led look at policies supporting the production and consumption of fossil fuels in China". The report raised multiple policies, ranging from direct transfers to high fuel use end-users in the fishing, forestry and public transport industries, to tax expenditures to support use of petroleum products by refiners and upstream industry. China's openness in responding to questions from the panel, including on subsidies going beyond those listed in its self-report, meant that the peer review process itself served to advance transparency. The panel nevertheless highlighted several ways China could build on that progress to further improve reporting on subsidies, their effects and their beneficiaries, and thereby make it easier to identify needed reforms and enhance policy efficiency. Enhanced province-level information, information to support understanding of potential fiscal gains from reform, and clarity on rules used to set energy prices in residual, regulated markets were among potential ways to further promote transparency.

Similarly, the panel in the United States review (OECD, 2016[22]) made several suggestions about how the existing processes might be improved. It recommended the United States seek to enhance understanding of support measures not addressed in the peer review, and improve efforts to convince citizens of the need for reform as a means to help steer reform measures through Congress, given its track record of blocking fossil-fuel subsidy reform. It noted that the bulk of measures proposed for reform in the half-decade preceding the review were production support measures, and therefore “complex or obscure to the average citizen” when compared to consumption subsidy reform. An effective communication strategy could help clarify the rationale for reform and potential benefits (e.g. reallocation of funds to other priorities in infrastructure development, education or other more socially advantageous goals).

The panel in the review of Chinese Taipei flagged that the majority of the subsidies under consideration had been operational for several years. Moreover, their implementation aimed to control fuel and electricity prices without taking into account “whether this objective is the best way for the government to serve the social and economic needs of the target beneficiaries”. The review panel urged the authorities to adopt a holistic approach and consider congruence with current sectoral and overarching green growth objectives, as well as the kind of benefits the target beneficiaries actually need. Whether alternative support policies could address these needs more fully while avoiding the distortive impacts and negative externalities associated with subsidies was an equally pertinent question. The panel noted that comprehensive consultation of stakeholder needs and preferences in designing reform was a major factor in determining success.

The team reviewing Peru, for its part, acknowledged the long-standing, progressive reform efforts and well-established mechanisms for inter-ministerial coordination in recommending that Peru develop an implementation strategy for the panel’s recommendations, building off the mechanisms already in place. It urged the government to develop and put into place “a coherent plan with specific implementation strategies” through these mechanisms, flagging also linkages across the team’s measure-specific recommendations. The linkages meant that a “tandem consideration” of measure-specific reform strategies would best serve the panel’s recommendations. Chapter 2 of the *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2021* (OECD, 2021[11]) builds in part on the advice in peer reviews to set out in detail how OECD and G20 governments might adopt a robust sequential approach to designing fossil-fuel subsidy reforms. The intention is to help governments assess and address the effects of fossil-fuel support measures and their reform, and spur enduring change.

Vulnerability of reform to the prevailing political environment

Another lesson arising from G20 peer reviews is the potential fragility of reform processes to the prevailing political environment. The panel reviewing Indonesia, for example, commended the Indonesian government for the “remarkable accomplishment” of 2014-17 reforms to fuel and electricity subsidies. After several decades of heavy end-user subsidisation, the reforms brought Indonesia’s energy prices more into line with international oil price movements and generated significant savings for reallocation to other government priorities (e.g. social and infrastructure programmes) (OECD, 2019[23]). But the team also noted recent erosions to fuel pricing reform efforts, including a 2018 presidential order to hold prices stable despite rising international oil prices, with the stated objective of preserving purchasing power and sustaining growth. The review panel flagged the increased risk of losses by state-owned fuel and electricity companies stemming from the order, and potential implications for government expenditure.

It noted that the pending presidential election was “not inconsequential” to the policy revisions, and cautioned against possible renewed fiscal pressure, reinforced energy price distortions and further encouragement for wasteful consumption. A jump in energy subsidies for kerosene, LPG and electricity of almost IDR 50 trillion (USD 3.5 billion) had already occurred from 2016 to 2018 (IDR 106.8 trillion to IDR 153.5 trillion). The panel team observed that these developments underlined the political environment as a “major deciding factor for the resilience of reforms” and urged the government to avoid backtracking on its recent successes in reform.

The peer review report on China also flags the risk of subsidy reinstatement spurred by fuel-price increases (or conversely that of enhanced support for producers in times when crude-oil prices slump), noting the need for continued monitoring by the G20 and other organisations, and ongoing efforts to improve transparency of support. Similarly, in noting that officials had signalled intent to reform 16 of the 17 policy measures identified in the United States’ self-report, the peer review panel nevertheless cautioned that reform was subject to complementary intention and action by the US Congress. Of 11 proposals to Congress for fossil-fuel subsidy reform from 2010 to development of the report in 2013, Congress had failed to pass enabling legislation on any. Enhancing clarity on potential winners and losers from reform

The peer reviews demonstrate that gaining clarity on potential winners and losers from reform remains an ongoing challenge and – often – an impediment to fossil-fuel subsidy phase-out. Enhancing awareness of potential winners and losers from reform was of particular concern in the Peruvian review, given the government’s focus on the effectiveness of the selected subsidies in providing for those in need. The team reviewing Peru determined that the government should work towards removing two of the three subsidies nominated for review, in no small part because the measures tended to benefit richer population groups rather than the poor. The blanket VAT exemption intended to promote economic development in the Amazon region had primarily benefited heavy users of fuel, and hence higher income population groups. Targeted programmes would better meet the government’s social, in addition to developmental goals for the region. The Fuel Stabilisation Fund was similarly poorly targeted, with no mechanism to funnel support for transport diesel and packaged LPG to most vulnerable segments of the population. The panel recommended the government implement targeted offsetting measures for these population segments in conjunction with phasing out the fund.

The discussion in the German review on the merits of maintaining tax benefits in favour of industrial and agricultural sectors as a means to ensure international competitiveness and avoid carbon leakage, raised above, is an additional example. The question of the need to move beyond “taking stock” of the support measures in question to assess likely impacts of reform on competitiveness and leakage, and less-distortive alternative means to pursue the government’s policy objectives, became a central point of discussion between Germany and the review panel. The government recognised that many of these measures promoted the consumption of fossil fuels, but did not have comprehensive quantitative evidence on sensitivity of industry competitiveness or carbon migration to reform. The panel had multiple suggestions for how the government might improve the existing reporting process to assess the magnitude of competitiveness and leakage concerns, including by developing state-of-the-art empirical evidence on the impacts of energy-tax preferences and enhancing data on the sectoral distribution of benefits from fossil-fuel subsidies, including links with the energy efficiency performance of industries.

The OECD/IEA review of the Netherlands flagged the “very degressive tax structure” and tax exemptions and reductions for energy-intensive industry, maintained “to provide an international level playing field” for domestic industry and reduce the risk of carbon leakage. The panel recognised the role of the EU Energy Tax Directive (EU ETD) in driving some of the Netherland’s tax exemptions or reductions, but flagged that industrial users in the Netherlands were subject to lower natural gas prices than those in many other IEA economies, including fellow EU member states. The low tax rates and benefits also meant cross-subsidisation from domestic to industrial end-users. The review panel recommended the government undertake further assessment of sectors subject to competitiveness and carbon leakage concerns “to better target its subsidy programmes and identify alternative measures”, highlighting that no clear view on the impacts of energy prices on competiveness and carbon leakage emerges from the international literature. In addition, it flagged that because the government did not consider lower tax rates on natural gas for energy-intensive consumers to be a tax expenditure, there was no accounting for fiscal cost and a lack of established benchmark tax rate to assess revenue forgone. This meant that there was also no way to determine the distributional impact of the household to industry cross-subsidisation under the energy tax structure. The panel considered the inclusion of the tax structure in the self-report of the Netherlands as a "first step towards assessing the effectiveness and efficiency of this policy in alleviating the tax burden on energy-intensive industries while placing a heavier one on households".

Anchoring reform in the broader policy context

Ensuring discussions on fossil-fuel subsidies and potential reform are anchored in the broader policy context is a final challenge that peer reviews illuminate, including the need to heed complementarities, redundancies and consistency with climate, energy and fiscal policies. The Chinese and United States reviews address the question of alignment with the broader fiscal environment. The United States review panel flagged the potential for reform of fossil-fuel policy "in a broader sense" to go beyond the ambition of subsidy phase-out, to encompass enhanced environmental taxation. It noted the gradual tightening of emissions controls via regulation in the United States across several decades, but considered the efficiency of the measures challenging to assess, particularly as likely resulting in heterogeneous prices on emissions across sectors and even programmes. Complementing regulation with environmental taxes on fossil fuels would strengthen pricing signals for all economic players, increasing cost-effectiveness and efficiency.

The China review panel noted complementarity between subsidy reform and China's plans to strengthen both its shift towards market-based energy prices and environmental taxation, as "contributing to pollution reduction while removing one major source of price distortions in the economy". It urged the government to take price reform beyond the subsidies identified in the review, to capture environmental consequences of production and consumption of fossil fuels.

The team reviewing Chinese Taipei urged the authorities to consider accompanying the phase-out of its sea freight subsidy for oil products shipped to offshore islands with demand-side management policies and investment on the islands, particularly in renewable energy, energy efficiency, electric vehicles, energy storage and public transport to support reduced fossil demand.

Both the German review and the review of the Netherlands raised the issue of alignment with national climate and energy-transition objectives. The tax benefits for German industrial and agricultural consumers brought the question of misalignment between climate and economic policy objectives to the fore, leading the panel to recommend that Germany review these support measures to "ascertain their role in energy transition". The team reviewing the Netherlands noted failure to include assessment of fossil-fuel subsidies in their then most recent review of energy policies (2014) as a missed opportunity to assess the cumulative effect of government policies relevant to energy pricing on carbon price signals facing energy-intensive industries. It recommended that the government expand the envisaged scope of a then forthcoming energy taxation review to include "all those support measures that confer a benefit to the use and production of fossil fuels", to enable a more complete overview of alignment of fiscal policy with energy transition and climate ambitions.

Examples of good practice in reform

In addition to setting out several "scalable" lessons emerging from the experience of reviewed economies, the peer review reports highlight examples of good practice that could inform efforts to phase out fossil-fuel support in other economies. Reflecting diversity in economy-specific circumstances, the examples set out noteworthy responses across multiple challenges in reform. These include just transition to help reduce social inequalities, fuel price liberalisation, communicating change to all stakeholders, transitioning industry, engaging in ongoing monitoring and adjustment of support measures, and assessing the potential impacts of subsidy phase-outs.

Just transition to help reduce social inequalities

The panel reviewing Indonesia unanimously praised efforts to better target electricity subsidies and reform petroleum fuel pricing as a good example of just transition, and standing out as the main successful reforms in the Indonesian context. The government had been subsidising electricity prices for a majority of its consumers as a means to help alleviate poverty, address inequality and enhance energy access, with support reaching a high of USD 9 billion in 2013-14. The rising costs of the electricity subsidy scheme and an acknowledgement of its poor targeting led the government to begin reform in 2013, to try to focus support on low-income households. As a first step, the government phased out support for 12 consumer classes across industry, business, government and residential groups between 2013 and 2016, focusing on consumers with the largest power connections. The government then sought to better target support for the two most vulnerable residential classes at the end of 2016, to isolate “poor” 450 volt-ampere (VA) and 900 VA households (the bottom 40% of households) from “non-poor”, by using a new unified poverty database (UDP) of socioeconomic information on vulnerable households. The number of supported 900 VA consumers dropped dramatically, from 23 million to 4 million, yielding significant savings for government. The cost of electricity subsidies fell to USD 3.4 billion in 2017, from USD 8.6 billion in 2014. The government also increased the price of gasoline and diesel by 30% and 36% in 2014, ceased subsidising premium gasoline, and introduced a new fuel-pricing mechanism to tie fuel prices more closely to international oil price movements.

The review panel praised Indonesia’s accomplishment in reducing electricity and fuel subsidy expenditures and developing the tools needed to better target subsidies, in the form of the UDP and a planned smart card system for both electricity and LPG subsidies. The electricity and fuel pricing reform measures had enabled the government to increase funding for social assistance programmes as well as infrastructure projects, and resulted in an increased proportion of health and education spending in overall government expenditure. It nevertheless pointed out that Indonesia could further improve the targeting of support and remedy distributional problems raised by universal subsidies by decoupling subsidies from consumption, for example by favouring means-tested cash transfers. Such transfers would more efficiently and effectively serve Indonesia’s poverty alleviation and energy access goals, and avoid subsidy-related distortions.

Moving to market-based pricing to help limit challenges associated with price controls

The team reviewing Mexico praised the economy’s achievement in fuel pricing and taxation reform as “remarkable” and among the most ambitious recent, global reform efforts holding “valuable lessons for other emerging economies wishing to carry out a broad-based reform of the energy sector” (Steenblik, 2017[24]). The review panel noted the fundamental shift in fuel pricing policies starting in 2013, from heavy support for gasoline, diesel and LPG to net positive taxes through reform of the IEPS, a floating excise tax (*Impuesto Especial sobre Producción y Servicios por Enajenación de Gasolina y Diese*l). 2016 gasoline and diesel prices were held at within 3% (+/-) of 2015 prices, while a 2017 reform enabled a maximum price shift of up to 20% for gasoline. The market for LPG became fully liberalised at the beginning of 2017. Regions with “sufficiently competitive” gasoline and diesel markets were also allowed to fully liberalise end-user prices for these fuels and were anticipated to have market prices by 2018. The panel urged Mexico to build on the success of transport fuels more fully reflecting their costs by continuing on its path towards full liberalisation of diesel and gasoline prices.

The panel reviewing fossil-fuel subsidy reforms in the Philippines similarly emphasised the lengthy experience with energy price liberalisation, noting parallel efforts to help buffer the economy and protect Filipino consumers from international oil price hikes. The Philippines' Oil Price Stabilization Fund (OPSF), which either provided subsidies or collected levies from oil companies based on fluctuations of international oil prices above or below fixed domestic crude oil and petroleum fuel prices, was phased out in 1998. The *Downstream Oil Industry Deregulation Act* came into effect that year to liberalise the downstream oil industry, promote market competition and abolish the OPSF. International price hikes had caused the fund to run a large deficit over time. Despite being inactive, the OPSF was included as a measure for review by the panel, as continuing to be "an option weighed by policy makers in the Philippines to smooth out petroleum product price volatility on the domestic market".

The panel recommended that the government not re-instate the OPSF, irrespective of oil prices, as doing so would promote wasteful consumption and result in fiscal imbalances. It noted that assessments of the *Downstream Oil Industry Deregulation Act* had emphasised its positive role in levelling the market playing field, lowering prices and helping stabilise electricity supply. The liberalised petroleum market was firmly established, with little support for reinstatement of the OPSF. It also highlighted the development of the National Energy Efficiency and Conservation Program, targeting domestic, industry and transport end-use, as part of government efforts to protect the economy from international oil price volatility. The panel encouraged the government to build on these policies by considering additional energy policy measures that might help guard against shifts in international oil prices, including measures to encourage fuel switching, modal shift and energy efficiency (e.g. standards or labelling programmes), and creating a strategic petroleum reserve. It highlighted several examples of international good practice in doing so.

Likewise, in urging Peru to "depoliticise fuel pricing completely" and eventually close down its fuel stabilisation fund, the review panel noted the success of prior, incremental reform efforts to the fund. Earlier removal of a number of fuels (gasoline, bulk LPG, kerosene, aviation fuel, and fuel oil) had "significantly reduced the fiscal exposure of Peru". Introduction of automatic price band adjustments every second month had served to buffer fuel price changes from political pressure: previously, increases had failed to keep up with international oil price shifts for significant periods, aggravating the fiscal cost to Peru.

Communicating changes to all stakeholders

The reviewing panel in the peer review of New Zealand similarly commended the commitment to transparency (APEC Secretariat, 2015[9]). New Zealand explicitly stated promoting ambition for reform through free and frank dialogue, building political awareness on challenges and promoting transparency on a broad set of support measures as goals for the peer review process. New Zealand's approach of ongoing monitoring and adjustment of support measures, active participation in international efforts to promote fossil-fuel subsidy reform, tracking of international best practice and transparent policy environment resulted in "an efficient and effective" peer review process. The panel cautioned, however, on the need for a holistic approach in tackling ongoing reform, pointing to linkages between the review panel's recommendations across the identified policy measures and with the broader policy and legal environment. It recommended New Zealand use its well-established tools for inter-ministerial coordination to consider and address the review's recommendations, to "remain at the forefront of good energy policy formulation".

The team reviewing Peru commended the outreach and communication methods used to implement the national Energy Fund for Social Inclusion (FISE), as integral to its successful rollout and ability to identify and capture vulnerable segments of the population. The FISE programme comprised multiple elements, including a website, and the use of text messaging and other "fast communication" methods to facilitate contact with eligible groups. Use of digital vouchers and cellular banking enabled real-time transactions, eliminating delays and reducing administrative costs. Citing international literature on the importance of a proactive, holistic communications strategy and strong public support for successful reform, the panel recommended that Peru adopt the FISE methods to support implementation targeted social and development programmes to accompany the panel's proposed phase-out of tax exemptions for fossil fuels in the Amazon region. The experience could help tailor social programmes to the specific context of the region, identify and connect with targeted beneficiaries, and erode any resistance to reform.

Accompanying industrial transition

The team reviewing Germany highlighted the notable experience in phasing out subsidies to the hard-coal mining industry over several decades. It pointed to several elements of the German process, designed to enhance the social and regional acceptability of the phase-out process that could be of interest to other economies seeking to pursue similar reform. Consolidation of industry under a single umbrella company (the RAG Foundation) to manage the phase-out process, the closing of the sector, legacy debts and liabilities, and restoration efforts, was an important first step. A series of industry stakeholder meetings conducted over several years to plan the scale-back of industry also played an important role, particularly in engendering industry acceptance of capacity adjustment. The meetings determined the schedule and sequencing for mine closures, along with worker benefits, ultimately overseeing formal adoption of the phase-out process into law as a way to promote certainty and foresight on proposed outlays.

The review considered the workforce retraining and relocation efforts that accompanied production wind-down to be of particular interest. A strong emphasis on retraining younger workers for relocation meant that no lay-offs resulted from mine closures, despite the greater risk of unemployment stemming from the very specific nature of the skill set of underground manual labourers. The absence of lay-offs resulting from mine closures greatly assisted the social acceptability of reform, although it stretched out the mine closures over a longer period than in neighbouring economies. The review panel noted that further analysis on the impact of the retraining efforts on employment prospects could help illuminate their role in enhancing the social acceptability of the transition, to the benefit of other economies pursuing similar industrial reform efforts.

Using spending reviews to improve expenditure prioritisation

The review of the Netherlands' effort to phase out and rationalise its fossil-fuel subsidies highlights the role of periodic policy evaluations of tax expenditures and subsidy programmes – undertaken as part of the government's general budgetary planning process – in casting light on the state of fossil-fuel subsidies and their interaction with the broader energy, climate and fiscal landscape (OECD/IEA, 2020[15]). Many OECD members use spending reviews as a budgeting tool to ensure expenditures are effectively aligned with government policy and fiscal objectives. The Netherlands employed them as an "essential practice of transparency and good policy design" and an important tool to drive fossil-fuel subsidy reform. Government spending schemes are to be evaluated every four to seven years, either through review of specific policy areas – through impact assessment or cost-benefit analysis of individual measures – or forward-looking interdepartmental policy reviews (*interdepartementale beleidsonderzoeken* or IBOs), which suggest options for policy adjustment and can look across policy areas as defined in the budget law. Given that IBOs are not constrained to specific policy areas, they can address broader social problems than the targeted policy reviews. The evaluation process identifies factors for success, reasons for insufficient effectiveness and efficiency and the unintended consequences, negative or positive, of government policy, to inform policy reform.

Policy reviews have led to the elimination of multiple tax expenditures providing support for fossil fuels, in particular targeted to specific users, as deemed ineffective in reaching their policy objectives. For example, a 2018 evaluation of a partial refund scheme for LNG excise duty intended to promote the use of LNG over diesel found that the scheme was only partially effective. LNG truck and infrastructure supply challenges were dampening the uptake of LNG for trucks. In addition, the cost-benefit analysis determined that the social cost of these measures – including the cost of the reduced excise duty, approximately EUR 5 million from 2014-18 – outweighed their environmental benefit.

A 2008 evaluation of all excise tax related measures assessed fuel tax exemptions in favour of the refinery sector, aircraft, shipping, LPG used in public transport and garbage trucks, and "red diesel" used by tractors and stationary equipment. The evaluation determined that the LPG tax refund scheme for public transport and garbage trucks was ineffective to reach the goal of reducing emissions in view of alternative energy sources with better outcomes (e.g. natural gas, biogas and biodiesel). The government subsequently phased it out. The tax differential in favour of diesel used by tractors and stationary equipment ("red diesel") relative to "white diesel" used by road vehicles was proving increasingly ineffective, due to monitoring challenges and abuse. The government proposed a tax plan to gradually close the gap, for environmental in addition to fiscal ineffectiveness reasons.

Despite lauding the role of the Netherlands' periodic evaluation practice in driving fossil-fuel subsidy reform, the review suggested ways that the government might strengthen this role. Broadening the tax and non-tax measures addressed in policy reviews would help the Netherlands achieve its climate targets, by facilitating a more coherent assessment of support measures and how they may hinder overarching climate goals. The scope of a planned 2020 evaluation of energy taxation, for example, excluded several measures related to the upstream oil and gas sector including measures falling under the purview of the EU Energy Taxation Directive, tax expenditures related to fuel excise duties, and compensation to certain companies for the indirect costs arising from the EU Emissions Trading System. While some measures were to be subject to review in separate evaluation rounds, the review recommended the government expand the proposed scope of the evaluation to cover all relevant support measures.

Strengthening the evidence base for reform with macroeconomic modelling exercises

The panel in the Italian review praised Italy's efforts to promote transparency through the use of model-based macroeconomic assessment to analyse the possible impact of a phase-out of support measures on economic activity, in addition to the publication of its catalogue of environmentally related subsidies (the *Catalogo dei Sussidi Ambitalmente Favorevoli e dei Sussidi Ambientalmente Dannosi* or ICES) (OECD, 2019[21]). Inclusion of a macro-economic assessment of the reform of listed subsidies, the panel noted – a first among economy self-reviews – can support phase-out efforts by anticipating their potential impact. Based on a dynamic computable general equilibrium (CGE) model of the Italian economy, the assessment modelled sectoral, GDP and GHG emission impacts of reform using different revenue-recycling scenarios. It indicated decline in GHG emissions following reform, with any decline in GDP offset or reversed by recycling the revenue gain from eliminating subsidies. The panel highlighted the great value of the assessment in helping gauge net benefits and broad patterns of incidence of reform, and in demonstrating how revenue recycling might contribute to stronger economic performance. It also pointed to the potential for macro-economic assessment to help build support for reform options across government and inform public debate on fossil-fuel subsidy phase out. The panel recommended that the government publish and disseminate widely the results of the modelling exercise to this end.

Note

[1] The medium time horizon for the commitment, relevant to ambition on the pace of reform, similarly remains undefined.

4 The role of peer reviews in driving reform

While the difficulty of reform is evident from the range and complexity of challenges confronting governments phasing-out of fossil-fuel subsidies, the analysis in the peer reviews, taken as a whole, demonstrates their clear role in pointing out commonly faced challenges, and presenting options to tackle them more effectively, including as implemented in other economies. Reviews also serve to enhance transparency on the reviewed economy's support policies, as the process encourages careful dissection of the rationale behind subsidy measures, assessment of whether the rationale still holds and reflection on whether policy aims might be better met by other means. It encourages economies to improve their ability to measure and track support policies and prompts reflection on the type of measures that governments might consider for reform. For example, the extensive discussion in peer reviews on what constitutes a subsidy for the purposes of reform suggests possible benefit to further dialogue between member economies on definitional issues; as well as a concerted focus on potential macroeconomic, firm and household impacts of reform. An appropriate forum for exchange must exist to support this introspective reform effort, bringing forward lessons emerging from peer reviews.

Despite recognition of the significant potential for peer reviews of fossil-fuel subsidies to promote reform, it is difficult to identify concrete examples of reform initiatives spurred by the reviews conducted to date. It is unclear whether this is because there has not been systematic tracking and sharing of lessons and experience of reform generated by the APEC and G20 peer review mechanisms, because governments have limited appetite or capacity to pursue reform despite its benefits, or whether governments are meeting major roadblocks in seeking to implement suggestions made by peer review panels.

Indonesia and the Netherlands are examples of economies where clear follow-up has resulted from the peer review process. The panel reviewing Indonesia flagged that tax incentives afforded to fossil-fuel producers were not systematically measured, despite representing – like consumption subsidies – an important cost to the government. It called on the authorities to systematically measure tax incentives that encourage national production of crude oil, natural gas and refined petroleum products, to foster greater transparency and accountability and eventually facilitate reform. It noted in this context the publication of an inaugural tax expenditure report, covering some energy sector and upstream oil and gas activities as part of a cross-sectoral reporting exercise, during the peer review process (August 2018). The government now issues the report annually (Ministry of Finance Indonesia, 2019[25]).

The panel in the review of the Netherlands' fossil-fuel subsidies noted that the government had not identified any subsidies for reform in its self-report. Rather, the intention was to "inform the government's response to questions from Parliament concerning fossil-fuel subsidies and the potential need for reforms" as part of broader efforts to align the tax system with climate and energy transition goals. The Ministry of Economic Affairs and Climate Policy duly submitted a letter to Parliament articulating its position on fossil-fuel subsidies and their reform on 15 September 2020, drawing on the conclusions of the peer review to propose next steps. The peer review also informed an expanded scope of fossil-fuel subsidies reported by the Dutch government to the European Commission in its National Climate and Energy Plan (NCEP) end-2019, explicitly referring to the peer review report as input for formulating Dutch policy on fossil-fuel subsidies.

The reviews helped highlight the additional drivers for change in both economies, including budgetary in addition to the fundamental environmental and efficiency motivations for reform. In Indonesia, consumption subsidies alone amounted to around 30% of government expenditure in 2014, equivalent to 4% of GDP, representing a major fiscal impetus for reform of support not only for fossil-fuel consumers, but also producers – also estimated to be considerable (OECD, 2019[26]). The Netherlands' peer review supported the Dutch government response to the European Commission recommendation for listing of energy subsidies in EU Member State NCEPs, "in particular for fossil fuels, and actions undertaken as well as plans to phase them out". This suggests that there may be greater imperatives for active follow-up of peer review processes as climate ambition mounts, or as governments seek to relieve fiscal pressure or "build back better" from the COVID-19 crisis. During the interactive discussion a question was raised about the increased challenges of collecting accurate fossil fuel subsidies data, given the exceptional nature of the emergency relief measures and recovery packages and the delays in some economies worldwide in finalising and reporting on extra-budgetary funds and extra-budgetary reserves. In this vein, Professor Aldo Ravazzi Douvan, from the University of Rome provided his commentary on the previous interventions based on his experience from the peer review of Italy and his involvement in the peer review of Indonesia, suggesting reframing the reviews in the light of the Paris Agreement and the Sustainable Development Goals, while emphasising the role of fossil fuel subsidy reform as a potential public finance contribution to the recovery and resilience plans post-COVID-19.

The analysis in the peer reviews to date, taken as a whole, demonstrates that there are aspects of peer reviews that work well. The difficulty of reform is evident from the range and complexity of challenges confronting governments as they seek to pursue a phase-out of fossil-fuel subsidies. There is a clear role for peer reviews in highlighting that the challenges facing governments are often common across economies, and in pointing to options to tackle issue in reform more effectively, including as implemented in other economies. That the reviews serve to enhance transparency on the reviewed economy's support policies is also clear. The process encourages careful dissection of the rationale behind subsidy measures, assessment of whether the rationale still holds and reflection on whether policy aims might be better met by other means. It encourages economies to improve their ability to measure and track support policies and prompts reflection on the type of measures that governments might consider for reform. For instance, Maria del Pilar Ocampo, Economic Advisor in the Ministry of Energy and Mines of Peru described how Peru's peer review helped better tailor the economy's support measures and adjust them to the needs of the most vulnerable communities. The review targeted three policy instruments, spurring reform efforts that are still ongoing in Peru. Among them, the review contributed to accelerating the roll-out of the Social Energy Inclusion Fund (FISE); to reviewing its eligibility criteria so as to better target vulnerable populations; and to expanding existing LPG distribution networks so as to improve economy-wide accessibility of natural gas, especially among very low income groups.

The outcomes of peer review processes also point to ways to enhance the mechanism. If the peer reviews have the potential to serve as an important avenue for knowledge exchange and pointing to good practice in reform, for example, that potential depends on the existence of an appropriate forum for exchange. There is scope for APEC and G20 economies to track and share more systematically the lessons and experience of reform generated by the peer review process and more broadly through a more regular, structured platform to disseminate outcomes and monitor follow-up. More systematic follow-up of peer review processes would support reform efforts not only within APEC but also beyond, as would a more structured and frequent approach to self-reporting. It would enhance understanding of the apparent inertia on the part of governments following peer review process, including whether lack of follow-up relates to political challenges associated with implementing reform. Ronald Steenblik, Senior Fellow at IISD and former OECD counsellor, under which capacity he chaired the G20's peer reviews of fossil-fuel subsidy reform, delivered a presentation on the lessons learned from the process and conduct of past reviews, their institutional structure and how they fit within the overarching goal of energy transition. He encouraged accelerating the pace of reviews to respond to civil society expectations about reform. This could be achieved by harnessing the experience recently gained from holding virtual meetings in terms of lifting momentum and reducing costs, and by limiting the number of individuals required to be involved, so as to make the reviews more manageable. A periodic follow-up could also enhance their relevance for fossil-fuel subsidy reform.

The extensive discussion in peer reviews on what constitutes a subsidy for the purposes of the overarching APEC and G20 reform mandates suggests a possible benefit to further dialogue between economies on definitional issues. APEC economies may also wish to consider the ongoing relevance of certain elements of the traditional formulation given mounting climate ambition and the aim – manifested by many economies – to "build back better" and relieve fiscal pressure in response to the COVID-19 crisis. During the APEC Energy Working Group Workshop, Ronald Steenblik argued that the peer reviews could warrant further dialogue on definitional issues, expanding on commonly provided support measures that are rarely included, and encouraging more participation from trade policy experts to account for the increased momentum on fossil fuel subsidy discussions in multilateral trade fora. Professor Aldo Ravazzi Douvan noted that the use of terms such as "inefficient" subsidies should not limit the scope of analysis or usher a defensive approach, as APEC and G20 peer reviews were not about criticising, but about mutual support, helping economies learn from each other and not repeat the same mistakes. Reviews could hopefully be accelerated under the impetus of the Italian and the Indonesian G20 Presidencies, and while drawing on the wealth of information included in international inventories such as the OECD's. Following an interactive discussion, the panel noted that trade expertise on subsidies, their measurement, operation and effects could be valuable in addressing such distortions that are increasingly the subject of discussions in international trade fora.

The peer reviews demonstrate the benefit of ongoing, tailored guidance to economies on how to design fossil-fuel subsidy reforms. The peer reviews illustrate that economies are uniformly yet to put in place fundamental building blocks for reform, including identification and quantification of subsidy measures, assessing priorities for reform, and developing the required evidence base to identify potential winners and losers of reform and determine alternative or complementary policies. This suggests that future peer reviews could usefully focus more strongly on the mechanics of reform: see, in this regard, (OECD, 2021[11]).

Professor An Qi, from the Energy Research Institute, National Development and Reform Commission of the People's Republic of China (PRC) described the PRC peer-review's role in providing a useful learning experience and invaluable drivers for domestic reform thanks to the close coordination between the numerous government departments involved and the high level of political leadership that guided the review process; the genuine engagement of stakeholders during the process, allowing to provide feedback and expertise, but also improving public understanding and acceptability of the proposed reforms; and the high level of engagement at the international level, which allowed the PRC to draw upon the expertise of other economies, international organisations and think tanks. Professor An offered five recommendations for future improvements, including: (i) to encourage more economies to undertake peer reviews, while keeping the latter voluntary and flexible in regards to definitions and methodology to take into account the differing circumstances of each economy; (ii) to adapt peer reviews to new energy transition challenges, such as carbon neutrality commitments, the green recovery post-pandemic, or the role of renewable sources of energy; (iii) to promote the design of transitional policies that take into account the social and economic impacts of reform; (iv) to monitor progress on the implementation of the reforms recommended by the review and encourage related knowledge exchange; and (v) to establish a "reform horizon", which will strengthen economies' motivation to engage in peer reviews.

The extensive discussion in peer reviews on political dimensions of reform similarly suggests there would potentially be a benefit to future peer reviews incorporating a concerted focus on potential macroeconomic, firm and household impacts of reform, along with effective transitional policy. The OECD-IEA *Update on Recent Progress in Reform of Fossil-Fuel Subsidies* report (OECD, 2020[6]) contributed in support of the Italian G20 Presidency includes a dedicated focus on how governments might anticipate and address possible impacts of reform of fossil-fuel subsidies. It sets out recent evidence from OECD and broader international literature on possible winners and losers of reform, including forward work priorities, and indicates considerable scope for further analysis at the level of individual economies on the politics of reform. Maria del Pilar Ocampo demonstrated during the Energy Working Group Workshop that the success of the review owes much to the active collaboration of the reviewed economy, which allowed to better grasp the socioeconomic reality and identifying realistic paths for implementing reform while drawing on other economies' experience. Professor Aldo Ravazzi Douvan also drew a focus on poor and vulnerable populations being at the centre of reviews and ensuing reform, which can be done without underpricing the environmental impacts of support policies, in particular by using direct and transparent support measures. He suggested the reviews harness all relevant communities of experts, including energy and industry, fiscal and finance, environment, climate and international trade, along the line of the useful example set by the Indonesian review.

5 Conclusions and potential next steps

The peer reviews of fossil-fuel subsidies undertaken by APEC economies to document their fossil-fuel support and reform efforts offer an array of “scalable” lessons and examples of good practice, highlighting their significant potential to promote reform. Although identifying concrete examples of reform initiatives spurred by the reviews conducted to date is not straightforward, examples of economies where clear follow-up has resulted from the peer review process include Indonesia and the Netherlands. Beyond the specific recommendations from the reviews taken up by the reviewed economies, the peer review process helped highlight the additional drivers for change in play in these economies, including budgetary drivers in addition to the fundamental environmental and efficiency motivations for reform.

The analysis in the peer reviews to date, taken as a whole, demonstrates that there are aspects of peer reviews that work well, including their role in highlighting the commonalities of challenges and the inspiration offered by other economies’ experience; and in prompting reflection on the type of measures to consider for reform by encouraging better measurement and tracking of support policies.

The outcomes of peer review processes also point to ways to enhance the mechanism. In particular, the availability of an appropriate forum or mechanism for promoting the exchange of knowledge and good practice would greatly maximise the outcomes of peer reviews. A suitable place for such a mechanism could be under the auspices of APEC’s Energy Working Group or Senior Finance Officials’ Meeting process. Ongoing, tailored guidance to economies on how to design fossil-fuel subsidy reforms is to be a central part of the peer reviews. Further, the extensive discussion in peer reviews on what constitutes a subsidy for the purposes of the overarching APEC and G20 reform mandates suggests significant benefits to further dialogue between economies on definitional issues. Finally, the discussion on social and political dimensions of reform similarly suggests there would be benefits to incorporating a more holistic focus on potential macroeconomic, business and household impacts of reform, along with a focus on what could constitute effective transitional policies.

References

APEC (2020), *APEC Putrajaya Vision 2040*, https://www.apec.org/Meeting-Papers/Leaders-Declarations/2020/2020_aelm/Annex-A (accessed on 21 May 2021). [5]

APEC (2015), *2015 APEC Energy Ministerial Meeting*, https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Energy/2015_energy (accessed on 21 May 2021). [3]

APEC (2012), *APEC Energy Ministers issue St Petersburg Declaration on energy security*, https://www.apec.org/Press/News-Releases/2012/0625_emm (accessed on 21 May 2021). [2]

APEC (2009), *2009 Leaders' Declaration*, https://www.apec.org/meeting-papers/leaders-declarations/2009/2009_aelm.aspx (accessed on 21 May 2021). [1]

APEC Secretariat (2017), *Peer Review on Fossil Fuel Subsidy Reforms in Chinese Taipei*, https://www.apec.org/Publications/2017/07/Peer-Review-on-Fossil-Fuel-Subsidy-Reforms-in-Chinese-Taipei (accessed on 21 May 2021). [14]

APEC Secretariat (2016), *Peer Review on Fossil Fuel Subsidy Reforms in the Philippines*, APEC, https://www.slideshare.net/andreweil/apec-ffsr-peer-review-report-philippines-july-2016-final71416 (accessed on 21 May 2021). [10]

APEC Secretariat (2015), *Peer Review on Fossil Fuel Subsidy Reforms in New Zealand*, APEC, https://www.mbie.govt.nz/assets/7250f5135f/peer-review-fossil-fuel-subsidy-reforms-nz.pdf (accessed on 21 May 2021). [9]

APEC Secretariat (2015), *Peer Review on Fossil Fuel Subsidy Reforms in Peru*, APEC, https://www.ewg.apec.org/documents/Peru__peer_review_of_fossil_fuel_subsidy_reforms_Nov102014_FINAL.pdf (accessed on 21 May 2021). [17]

Arlinghaus, J. (2015), "Impacts of Carbon Prices on Indicators of Competitiveness: A Review of Empirical Findings", *OECD Environment Working Papers*, No. 87, OECD Publishing, Paris, https://dx.doi.org/10.1787/5js37p21grzq-en. [43]

Botta, E. (2019), "A review of "Transition Management" strategies: Lessons for advancing the green low-carbon transition", *OECD Green Growth Papers*, No. 2019/04, OECD Publishing, Paris, https://dx.doi.org/10.1787/4617a02b-en. [47]

Brucal, A. and A. Dechezleprêtre (2021), "Assessing the impact of energy prices on plant-level environmental and economic performance: Evidence from Indonesian manufacturers", *OECD Environment Working Papers*, No. 170, OECD Publishing, Paris, https://dx.doi.org/10.1787/9ec54222-en. [36]

Chateau, J., R. Bibas and E. Lanzi (2018), "Impacts of Green Growth Policies on Labour Markets and Wage Income Distribution: A General Equilibrium Application to Climate and Energy Policies", *OECD Environment Working Papers*, No. 137, OECD Publishing, Paris, https://dx.doi.org/10.1787/ea3696f4-en. [52]

Dechezleprêtre, A. and T. Kruse (2018), "A review of the empirical literature combining economic and environmental performance data at the micro-level", *OECD Economics Department Working Papers*, No. 1514, OECD Publishing, Paris, https://dx.doi.org/10.1787/45d269b2-en. [45]

Dechezleprêtre, A., D. Nachtigall and F. Venmans (2018), "The joint impact of the European Union emissions trading system on carbon emissions and economic performance", *OECD Economics Department Working Papers*, No. 1515, OECD Publishing, Paris, https://dx.doi.org/10.1787/4819b016-en. [44]

Dechezleprêtre, A. and M. Sato (2018), *OECD GGSD Forum Issue Paper: Green policies and firms' competitiveness*, https://www.oecd.org/greengrowth/GGSD_2018_Competitiveness%20Issue%20Paper_WEB.pdf (accessed on 10 May 2021). [46]

Durand-Lasserve, O. et al. (2015), "Modelling of distributional impacts of energy subsidy reforms: an illustration with Indonesia", *OECD Environment Working Papers*, No. 86, OECD Publishing, Paris, https://dx.doi.org/10.1787/5js4k0scrqq5-en. [40]

Dussaux, D. (2020), "The joint effects of energy prices and carbon taxes on environmental and economic performance: Evidence from the French manufacturing sector", *OECD Environment Working Papers*, No. 154, OECD Publishing, Paris, https://dx.doi.org/10.1787/b84b1b7d-en. [38]

Elgouacem, A. (2020), "Designing fossil fuel subsidy reforms in OECD and G20 countries: A robust sequential approach methodology", *OECD Environment Working Papers*, No. 168, OECD Publishing, Paris, https://dx.doi.org/10.1787/d888f461-en. [30]

Elgouacem, A. and P. Journeay-Kaler (2020), *The Netherlands's Effort to Phase Out and Rationalise its Fossil-Fuel Subsidies*, OECD/IEA, http://www.oecd.org/fossil-fuels/publication/2020-OECD-IEA-review-of-fossil-fuel-subsidies-in-the-Netherlands.pdf (accessed on 14 January 2021). [16]

Enami, A. and N. Lustig (2018), "Inflation and the Erosion of the Poverty Reduction Impact of Iran's Universal Cash Transfer", *Commitment to Equity (CEQ) Working Paper Series*, https://ideas.repec.org/p/tul/ceqwps/68.html#download (accessed on 17 September 2018). [31]

Energy Working Group (2017), *APEC Fossil Fuel Subsidy Reform Capacity-Building Workshop Effective Pricing Mechanisms and Mitigation Strategies*, APEC, Jakarta, https://www.apec.org/Publications/2017/10/APEC-Fossil-Fuel-Subsidy-Reform--CapacityBuilding-Workshop-Effective-Pricing-Mechanisms-and--Mitigat (accessed on 21 May 2021). [4]

Energy Working Group (2013), *EWG46 Da Nang Vietnam*, APEC, Da Nang, https://www.ewg.apec.org/documents/EWG46%20Summary%20Record.EWG46.Website.pdf (accessed on 21 May 2021). [8]

Fabrizio, S., A. Goumilevski and K. Kpodar (2016), *A New Tool for Distributional Incidence Analysis: An Application to Fuel Subsidy Reform*, IMF, https://www.imf.org/external/pubs/ft/tnm/2016/tnm1607.pdf (accessed on 17 September 2018). [32]

Flues, F. and B. Lutz (2015), "Competitiveness Impacts of the German Electricity Tax", *OECD Environment Working Papers*, No. 88, OECD Publishing, Paris, https://dx.doi.org/10.1787/5js0752mkzmv-en. [42]

Flues, F. and A. Thomas (2015), "The distributional effects of energy taxes", *OECD Taxation Working Papers*, No. 23, OECD Publishing, Paris, https://dx.doi.org/10.1787/5js1qwkqqrbv-en. [39]

Flues, F. and K. van Dender (2017), "The impact of energy taxes on the affordability of domestic energy", *OECD Taxation Working Papers*, No. 30, OECD Publishing, Paris, https://dx.doi.org/10.1787/08705547-en. [55]

G20 (2021), *G20 Riunioni Ministeriali*, https://www.g20.org/en/riunioni-ministeriali.html (accessed on 9 June 2021). [7]

G20 (2020), *G20 Riyadh Leaders' Declaration*, http://www.g20.utoronto.ca/2020/2020-g20-leaders-declaration-1121.html (accessed on 31 March 2021). [28]

G20 (ed.) (2013), *G20 Leaders' Decalaration*, http://www.g20.utoronto.ca/2013/2013-0906-declaration.html (accessed on 2 April 2021). [29]

Mackie, A. and I. Haščič (2019), "The distributional aspects of environmental quality and environmental policies: Opportunities for individuals and households", *OECD Green Growth Papers*, No. 2019/02, OECD Publishing, Paris, https://dx.doi.org/10.1787/e0939b52-en. [54]

Metcalf, G. (2014), "Using the tax system to address competition issues with a carbon tax", *National Tax Journal*, Vol. 67/4, pp. 779-805, http://dx.doi.org/10.17310/ntj.2014.4.02. [63]

Ministry of Finance Indonesia (2019), *Tax Expenditure Report 2019*, https://fiskal.kemenkeu.go.id/publikasi/tax-expenditure-report (accessed on 21 May 2021). [25]

Morris, A., N. Kaufman and S. Doshi (2019), *The risk of fiscal collapse in coal-reliant communities*, Columbia University and Brooking, https://www.brookings.edu/wp-content/uploads/2019/07/RiskofFiscalCollapseinCoalReliantCommunities-CGEP_Report_080619.pdf (accessed on 30 August 2019). [35]

Nachtigall, D. et al. (2021), "The economic and environmental benefits from international co-ordination on carbon pricing: Insights from economic modelling studies", *OECD Environment Working Papers*, No. 173, OECD Publishing, Paris, https://dx.doi.org/10.1787/d4d3e59e-en. [41]

OECD (2021), *Effective Carbon Rates 2021: Pricing Carbon Emissions through Taxes and Emissions Trading*, OECD Publishing, Paris, https://dx.doi.org/10.1787/0e8e24f5-en. [59]

OECD (2021), *METRO trade model: The OECD's tool for analysing global markets*, OECD, https://www.oecd.org/trade/topics/metro-trade-model/ (accessed on 14 January 2021). [33]

OECD (2021), *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2021*, OECD Publishing, Paris, https://dx.doi.org/10.1787/e670c620-en. [11]

OECD (2021), “Taxing Energy Use for Sustainable Development: Opportunities for energy tax and subsidy reform in selected developing and emerging economies”, http://www.oecd.org/tax/tax-policy/taxing-energy-use-for-sustainable-development.pdf (accessed on 17 May 2021). [62]

OECD (2020), *Fossil fuels - Organisation for Economic Co-operation and Development*, https://www.oecd.org/fossil-fuels/ (accessed on 21 May 2021). [6]

OECD (2019), *Economic Policy Reforms 2019*, OECD Publishing, Paris, http://dx.doi.org/10.1787/aec5b059-en. [64]

OECD (2019), *Indonesia’s effort to phase out and rationalise its fossil-fuel subsidies: A report on the G20 peer-review of inefficient fossil-fuel subsidies that encourage wasteful consumption in Indonesia*, https://www.oecd.org/fossil-fuels/publication/G20%20peer%20review%20Indonesia_Final-v2.pdf (accessed on 11 January 2021). [23]

OECD (2019), *Italy’s Efforts to Phase out and Rationalise its Fossil Fuel Subsidies*, https://www.oecd.org/fossil-fuels/publicationsandfurtherreading/Italy%20G20%20Peer%20Review%20IFFS%20.pdf (accessed on 12 April 2021). [21]

OECD (2019), *OECD Green Growth Policy Review of Indonesia 2019*, OECD Publishing, Paris, http://dx.doi.org/10.1787/1eee39bc-en. [26]

OECD (2019), *Taxing Energy Use 2019: Using Taxes for Climate Action*, OECD Publishing, Paris, https://dx.doi.org/10.1787/058ca239-en. [60]

OECD (2018), *Inventory of Energy Subsidies in the EU’s Eastern Partnership Countries*, OECD, http://dx.doi.org/10.1787/9789264284319-en. [61]

OECD (2018), *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2018*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264286061-en. [13]

OECD (2017), *Environmental fiscal reforms: Progress, prospects and pitfalls: OECD report for the G7 Environment Ministers*, https://www.oecd.org/tax/environmental-fiscal-reform-progress-prospects-and-pitfalls.htm (accessed on 3 May 2021). [37]

OECD (2017), *Germany’s effort to phase out and rationalise its fossil-fuel subsidies*, https://www.oecd.org/fossil-fuels/Germany-Peer-Review.pdf (accessed on 13 April 2021). [18]

OECD (2017), “Mexico’s efforts to phase out and rationalise its fossilfuel subsidies: A report on the G20 peer-review of inefficient fossil-fuel subsidies that encourage wasteful consumption in Mexico”, *G20*, https://www.oecd.org/fossil-fuels/Mexico-Peer-Review.pdf (accessed on 14 January 2021). [19]

OECD (2016), “China’s efforts to phase out and rationalise its inefficient fossil-fuel subsidies: A report on the G20 peer review of inefficient fossil-fuel subsidies that encourage wasteful consumption in China”, *G20*, https://www.oecd.org/fossil-fuels/publication/G20%20China%20Peer%20Review_G20_FFS_Review_final_of_20160902.pdf (accessed on 14 January 2021). [20]

OECD (2016), "The United States' efforts to phase out and rationalise its inefficient fossil-fuel subsidies A report on the G20 peer review of inefficient fossil-fuel subsidies that encourage wasteful consumption in the United States", *G20*, http://www.oecd.org/fossil-fuels/publication/United%20States%20Peer%20review_G20_FFS_Review_final_of_20160902.pdf (accessed on 14 January 2021). [22]

OECD (2015), *OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264239616-en. [66]

OECD (2013), "Back to work: Re-employment, earnings and skill use after job displacement", in *OECD Employment Outlook 2013*, OECD Publishing, Paris, https://dx.doi.org/10.1787/empl_outlook-2013-8-en. [53]

OECD/IEA (2020), *The Netherlands' Effort to Phase Out and Rationalise its Fossil-Fuel Subsidies: An OECD/IEA Review of Fossil-Fuel Subsidies in the Netherlands*, https://www.oecd.org/fossil-fuels/publication/2020-OECD-IEA-review-of-fossil-fuel-subsidies-in-the-Netherlands.pdf (accessed on 6 April 2021). [15]

OECD/IEA (2019), *Update on recent progress in reform of inefficient fossil-fuel subsidies that encourage wasteful consumption*, https://www.oecd.org/fossil-fuels/publication/OECD-IEA-G20-Fossil-Fuel-Subsidies-Reform-Update-2019.pdf. [12]

OECD/IEA (2018), *Update on Recent Progress in Reform of Inefficient Fossil Fuel Subsidies that Encourage Wasteful Consumption*, https://www.oecd.org/fossil-fuels/publication/update-progress-reform-fossil-fuel-subsidies-g20.pdf (accessed on 2 April 2021). [65]

OECD/IEA (2017), *Update on recent progress in reform of inefficient fossil-fuel subsidies that encourage wasteful consumption*, https://iea.blob.core.windows.net/assets/60a84f57-c915-4a12-baac-b70be1d4e9a8/G20_SWG_FFSR_Update_March2017_IEAOECD.pdf. [27]

Rentschler, J. (2016), "Incidence and impact: The regional variation of poverty effects due to fossil fuel subsidy reform", *Energy Policy*, Vol. 96, pp. 491-503, http://dx.doi.org/10.1016/j.enpol.2016.06.025. [50]

Rentschler, J. and M. Bazilian (2016), "Reforming fossil fuel subsidies: drivers, barriers and the state of progress", *Climate Policy*, Vol. 17/7, pp. 891-914, http://dx.doi.org/10.1080/14693062.2016.1169393. [51]

Rentschler, J. and M. Kornejew (2017), "Energy price variation and competitiveness: Firm level evidence from Indonesia", *Energy Economics*, Vol. 67, pp. 242-254, http://dx.doi.org/10.1016/j.eneco.2017.08.015. [49]

Rentschler, J., M. Kornejew and M. Bazilian (2017), "Fossil fuel subsidy reforms and their impacts on firms", *Energy Policy*, Vol. 108, pp. 617-623, http://dx.doi.org/10.1016/j.enpol.2017.06.036. [48]

Steenblik, R. (2017), "Germany's effort to phase out and rationalise its fossil-fuel subsidies: A report on the G20 peer-review of inefficient fossil-fuel subsidies that encourage wasteful consumption in Germany", *G20*, https://www.oecd.org/fossil-fuels/Germany-Peer-Review.pdf (accessed on 14 January 2021). [58]

Steenblik, R. (2017), “Mexico’s efforts to phase out and rationalise its fossilfuel subsidies: A report on the G20 peer-review of inefficient fossil-fuel subsidies that encourage wasteful consumption in Mexico”, *G20*, https://www.oecd.org/fossil-fuels/Mexico-Peer-Review.pdf (accessed on 14 January 2021). [24]

UCL (2021), *Energy models at the UCL Energy Institute*, University College London, https://www.ucl.ac.uk/energy-models/ (accessed on 14 January 2021). [34]

Welsch, H. (1996), “Recycling of carbon/energy taxes and the labor market”, *Environmental & Resource Economics*, Vol. 8/2, pp. 141-155, http://dx.doi.org/10.1007/bf00357361. [57]

Yusuf, A. and B. Resosudarmo (2008), “Mitigating Distributional Impact of Fuel Pricing Reform: The Indonesian Experience”, *Asean Economic Bulletin*, Vol. 25/1, pp. 32-47, http://dx.doi.org/10.1355/ae25-1d. [56]

Lessons learnt and good practice from APEC-economy fossil-fuel subsidy peer reviews

According to latest data from the OECD and the IEA, government support for the production and use of fossil fuels across 81 major economies totalled USD 351 billion in 2020, amounting to USD 183 billion across 50 OECD, G20, and Eastern Partnership economies. While the difficulty of reform is evident from the range and complexity of challenges confronting governments in the phasing-out of fossil-fuel subsidies, APEC economy-led fossil-fuel subsidy peer reviews play a key role in pointing out commonly faced challenges, and present options to tackle them more effectively. This report is the first comprehensive attempt to document "scalable" lessons and examples of good practice emerging from fossil-fuel subsidy peer reviews: taking stock of progress in their phase-out as reflected in the peer review reports, considering the role of the peer review process in promoting reform, and proposing potential ways to enhance the process. Eleven peer reviews are documented, seven of which were chaired by the OECD and four in which the IEA was a member of the review panel. Six of these peer reviews were conducted under the auspices of the G20, and four under APEC auspices, with the addition of the OECD-IEA review of the Netherlands, modelled on the G20 review process. The economies reviewed inventoried between three to thirty-nine measures, of an average self-declared value of USD 13 billion, for those reviews which quantified fossil fuel support measures. The "scalable" lessons drawn from the peer reviews can be used to further spur progress towards rationalising and phasing out fossil-fuel subsidies, thanks to the insights on the approaches and good practices for designing the reform process. These insights include the need to accommodate for differing contexts, objectives and definitions; to prioritise inter-ministerial co-ordination; to promote active government and stakeholder participation; and to engage a cross-sectional peer

The *OECD Environment Policy Paper* series

Designed for a wide readership, the *OECD Environment Policy Papers* distil many of today's environment-related policy issues based on a wide range of OECD work. In the form of country case studies or thematic reviews across countries, the Papers highlight practical implementation experience.

Visit our website
www.oecd.org/fossil-fuels/

Join the discussion
@OECD_ENV

Contact: amy.canoprentice@oecd.org

BETTER POLICIES FOR BETTER LIVES

OECD Environment Directorate,
February 2022