

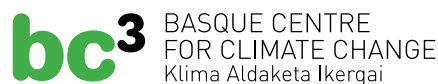
Shifting Public Financial Flows from Fossil Fuels to Clean Energy under the Paris Agreement

International Institute for Sustainable Development Energy Program Submission to the UNFCCC First Global Stocktake

Submission to the UNFCCC ahead of the third Technical Dialogue of the Global Stocktake



Submitted by observer organization IISD, with support from partners





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Shifting Public Financial Flows from Fossil Fuels to Clean Energy under the Paris Agreement: International Institute for Sustainable Development Energy Program Submission to the UNFCCC First Global Stocktake

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Executive Summary

Why Track Public Money Support to Fossil and Clean Energy Under Article 2.1(c)?

Under Article 2.1(c) of the Paris Agreement, parties agreed to make finance flows consistent with efforts to mitigate climate change. Further, at the 26th and 27th Conference of the Parties, in Glasgow and Sharm El Sheikh, parties committed to phase out inefficient fossil fuel subsidies while providing targeted support to the poorest and most vulnerable. This submission to the first formal United Nations Framework Convention on Climate Change Global Stocktake provides evidence of the extent to which parties have made progress on aligning public financial flows—such as subsidies and other forms of government support—with the need to reduce emissions within a pathway for a safe climate.

Public financial flows are particularly important. They must be the first to move because governments control them directly, and they can influence much larger private financial flows. They also risk being the last to move if public institutions become the “lenders of last resort” to fossil interests, leaving governments exposed to asset stranding and less able to meet their social and economic obligations. The submission is specifically focused on progress in shifting public financial flows away from fossil energy and toward clean energy: that is to say, the ways in which publicly controlled money has been spent on energy—including subsidies, investments by state-owned enterprises (SOEs), and lending from public financial institutions—and the extent to which this is in line with climate targets.

Shifting public support from fossil fuels to clean energy is one way to bridge the gap in financing for clean energy. It sends a clear signal to markets about the relative risks of different types of investments and can be crucial during the early years of technology deployment, particularly in emerging and developing markets. In the short term, it helps reduce risks for private investors, encouraging investments. In the medium term, it promotes learning by doing, helping to permanently reduce risk perceptions and leverage larger volumes of ongoing private financing.

Taking Stock: How has financial support for fossil fuels changed?

According to the Fossil Fuel Subsidy Tracker, fossil energy subsidies reached USD 732 billion in 2021, 35% higher than in 2015, the year of the Paris Agreement (USD 543 billion). On average, governments have allocated at least USD 643 billion per year for fossil fuel support from 2010 to 2021. Petroleum was the most heavily subsidized fuel: out of the 2021 total, subsidies to petroleum products were the largest, at USD 326 billion, followed by support for end-use electricity (USD 211 billion).

In the week before this Stocktake submission was completed, the International Energy Agency (IEA) published the first preliminary estimate of fossil fuel subsidies for 2022. This found that subsidies for fossil fuel consumption exceeded USD 1 trillion for the first time,



reaching a total value of USD 1.1 trillion. The IEA dataset does not cover all countries, and does not include production subsidies, so the final value of fossil fuel subsidies for 2022 will be still higher, as further data become available.

In contrast, the International Renewable Energy Agency estimates that subsidies for renewables constituted close to USD 167 billion in 2017 (including support for biofuels), with subsidies for renewable power generation of around USD 128 billion. The International Energy Agency's estimate of renewable power subsidies is slightly higher, at USD 146 billion. The authors preparing this submission were unable to identify more recent estimates of support levels for clean energy.

Commitments on shifting financial flows have not fared well during recent crises. During the COVID-19 crisis, many governments adopted “shovel-ready” fossil projects that were already in the pipeline as a quick fix against falling GDP growth. According to the Energy Policy Tracker, of the total quantified new public money commitments by 38 tracked major economies and eight multilateral development banks in 2020 and 2021, 41% (USD 515 billion) were for fossil-intensive sectors.

Over time, however, there was a gradual “greening” of recovery measures—of the total quantified new public money commitments in 2020 and 2021, 38% (USD 488 billion) were for clean energy. Some countries also announced fossil support with “green strings” attached—that is, some kind of conditionality linking the support to better performance on climate—but this made up only a small share of commitments. Good pre-existing plans for clean energy seemed to play an important role in influencing policy during the crisis. By and large, COVID-19 response packages reflected countries' previous climate efforts and patterns of fossil fuel support.

We identified three major knowledge gaps on public financial flows for energy. The first is investments by SOEs, which in many countries remain unquantified. According to one assessment, fossil fuel investments of SOEs accrued to USD 257 billion per year on average between 2017 and 2019. The second is public finance flowing to energy. Some strong data on this exist in the Public Finance for Energy Database, but they likely underestimate the full levels of support due to limitations on the degree of transparency on project-level finance delivered through financial intermediaries. Third, there are few systematic assessments of subsidies given to renewable energy by country.

Why Are Fossil Fuel Subsidies a Barrier to Paris Implementation?

Fossil fuel subsidies hinder implementation of the Paris Agreement because they create incentives to produce and consume more fossil fuels, increasing greenhouse gas emissions, and they skew the level playing field for investing in and deploying clean energy technologies. It is sometimes claimed that they are needed to support low-income households—in reality, however, research shows that the biggest benefits often accrue to the wealthiest groups. These subsidies are also often extremely costly, consuming public resources that could instead be used to support the poor more efficiently (such as health and education services) or to address climate change mitigation and adaptation.



Shifting support from fossil fuels to clean energy can accelerate transition. Kuehl et al. estimated the potential impacts of fossil fuel subsidy reform across 32 countries. On average, they found that subsidy reform alone would reduce greenhouse gas emissions by 6% by 2030, saving over USD 3 trillion from 2019 to 2030. Adding a modest fossil energy tax of 10% and recycling a share of revenues into sustainable energy would increase emissions reductions to 11.8% by 2030.

Why Is It a Challenge for Countries to Conduct Fossil Fuel Subsidy Reform?

Shifting public support away from fossil fuels can be a source of positive social and environmental changes, but in many cases, it needs to be carefully planned, or it can have negative socioeconomic impacts. On the side of consumer subsidies, typically, the main challenges are a lack of better social protection capacity, a lack of social consensus about the problematic nature of subsidizing fossil energy, and a lack of public trust in the reform process due to weak governance. On the side of producer subsidies, typically, the main challenges to subsidy reform are the strong political influence of vested interests, highly non-transparent reporting on support measures, and the lack of standard internal protocol for governments to assess the full costs and benefits of support measures.

Internationally, the absence of a binding framework on subsidy reform lowers the incentive for implementation for both consumer and producer subsidies. Loopholes in definitions create opportunities for governments to continue providing subsidies and public finance for fossil fuels, and other accountability mechanisms—such as a timeframe for implementation in line with climate science, and technical and other capacity-building support—are missing. Governments are not the only actors in need of assistance. Non-state actors also need capacity and a technical evidence basis to establish clear positions on how to shift financial flows in ways that are socially responsible.

How Can Countries Overcome Barriers and Challenges?

Research on the challenges of fossil fuel subsidy reform suggests a number of steps that can help overcome challenges to shifting public financial flows for energy. This includes:

- **Improving the state of transparency.** Governments should at the very least immediately adhere to reporting requirements on fossil fuel subsidies under Sustainable Development Goal Indicator 12.c.1. Going forward, government, the private sector, and civil society organizations should prioritize filling in knowledge gaps in all aspects of public financial support for energy, including investments by SOEs, lending by public financial institutions, and the development of better comparative data on clean energy.
- **Improving the accountability of global commitments on shifting public support from fossil fuels to clean energy.** This should include setting clear timelines, more narrowly defining exclusionary clauses like “inefficient,” and considering the establishment of financial and technical support for state and non-state



actors in implementation. Governments can more explicitly expand commitments on fossil fuel subsidies to all public financial flows, and seek to have commitments recognized in other fora, as well as integrating clear plans on financial flows into their nationally determined contributions (NDCs).

- **At a national level, good planning is essential.** This has been particularly clear from experiences during the COVID-19 pandemic, where the state of planning around energy transition appears to have been instrumental in determining the patterns of new public money commitments, as governments stepped in to stimulate economies. Planning is also essential around reform of support measures. Experiences from fossil fuel subsidy reform suggest at least three common steps:
 - **Getting the prices right:** This can include using price caps and floors or other automatic pricing features to implement a new regime without backsliding. For fuels linked to energy access, it may involve targeting subsidies to those most in need. It will also include increasing taxation to better reflect fossil energy externalities.
 - **Managing impacts:** This includes mapping out potential social and economic impacts and reallocating revenues into social protection and assistance for businesses to ensure a socially aspirational outcome from change. A just transition approach prioritizes decent work, social inclusion, and poverty eradication.
 - **Building support:** This includes meaningful stakeholder consultations on how to adjust prices and manage impacts, and robust evidence-based communications before, during, and after implementation.



Table of Contents

Introduction	1
Part I: The Current State of Public Financial Flows for Energy	3
Why Track Public Money Support to Fossil and Clean Energy Under Article 2.1(c)?	3
Taking Stock: Financial support for fossil fuels since 2010.....	5
Part II: Challenges to Effective Paris Agreement Implementation	14
Why Are Fossil Fuel Subsidies a Barrier to Paris Implementation?.....	14
Why Is It a Challenge for Countries to Conduct Fossil Fuel Subsidy Reform?	18
Overcoming Barriers and Challenges.....	21
Conclusion and Recommendations	25
References	26

List of Figures

Figure 1. Global fossil fuel subsidy estimates and Brent crude prices (2010–2022).....	7
Figure 2. Cumulative new or amended public money commitments to fossil, clean, and other energy in 38 tracked major economies, 2020–2021.....	10
Figure 3. Share of new or amended public money commitments to clean energy (%) in 38 major economies in 2020–21, by sector.....	11
Figure 4. Core elements of FFSR planning	21

List of Boxes

Box 1. The Fossil Fuel Subsidy Tracker.....	8
Box 2. The Energy Policy Tracker	13
Box 3. Success story: reform of gasoline and diesel subsidies in Indonesia (2014–2015)	16
Box 4. Success story: FFSR and support for renewables in India	17
Box 5. What is fossil fuel subsidy reform?	20



List of Abbreviations

ACC	advanced chemistry cell
APEC	Asia-Pacific Economic Cooperation
BECCS	bioenergy and carbon capture storage
CCS	carbon capture and storage
COP	conference of the parties
DFI	development finance institutions
ECA	export credit agency
EPT	Energy Policy Tracker
EV	electric vehicle
FFSR	fossil fuel subsidy reform
FFST	Fossil Fuel Subsidy Tracker
GHG	greenhouse gas
GSI	Global Subsidy Initiative
GST	Global Stocktake
GW	gigawatt
GWh	gigawatt-hours
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
LPG	liquefied petroleum gas
MDB	multilateral development banks
OCI	Oil Change International
OECD	Organisation for Economic Cooperation and Development
PFED	Public Finance for Energy Database
PV	photovoltaic
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SDG	Sustainable Development Goal
SOE	state-owned enterprise
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organization



Introduction

In the Paris Agreement (United Nations Framework Convention on Climate Change [UNFCCC], 2015a, p. 3), under Article 2.1(c), parties agreed to “Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.” This pledge applies to both private and public financial flows. Further, at the 26th Conference of the Parties (COP 26) (UNFCCC, 2021) and COP 27 (UNFCCC, 2022, p. 3), parties committed to the “phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition.”

This submission to the first formal UNFCCC Global Stocktake (GST) provides evidence of the extent to which parties have made progress on aligning *public* financial flows, such as subsidies and other forms of government support, with the need to reduce emissions within a pathway for a safe climate. The submission is specifically focused on progress in shifting public financial flows away from fossil energy and towards clean energy: that is to say, the ways in which publicly controlled money has been spent on energy—including subsidies, investments by state-owned enterprises (SOEs) and lending from public financial institutions—and the extent to which this is in line with targets on GHG emissions.

The submission is specifically focused on progress in shifting public financial flows away from fossil energy and towards clean energy

The submission responds to questions set out in the revised non-paper by the chairs of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI)—specifically question 19, and how it relates to question 15 (Chairs of the SBSTA & SBI, 2021).

Question 19:

What is the state of current global climate finance flows, trends and data gaps? What information is available on efforts to make the financial flows consistent with the pathways towards low GHG emissions and climate-resilient development and what are the knowledge gaps (Article 2.1(c), para 36(d))?

Question 15:

What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries (para 36(f))?

The first part of the submission addresses question 19 based on three major international data sources on public support for fossil fuels and renewables: The Fossil Fuel Subsidy Tracker (FFST), the Public Finance for Energy Database (PFED), and the Energy Policy Tracker (EPT). It first focuses on the size of public financial flows to fossil fuel-based energy from 2010 to 2019. It then investigates the support that was introduced for fossil and clean energy in response to the COVID-19 pandemic in 2020-2021. It concludes that governments and



public institutions continue to commit high levels of financial support to fossil fuels, which is inconsistent with Article 2.1 (c) of the Paris Agreement.

The second part of this submission links the shifting of public financial flows to question 15, looking in particular at some of the barriers to the implementation of reform in developing and emerging economies. In this part of the submission, fossil fuel subsidies are presented as a major fiscal barrier to Paris Agreement implementation. The section discusses the challenges countries face in reforming subsidies and proposes specific solutions to facilitate reform.

The submission concludes with recommendations.



Part I: The Current State of Public Financial Flows for Energy

Why Track Public Money Support to Fossil and Clean Energy Under Article 2.1(c)?

Article 2.1 (c) of the Paris Agreement states that all financial flows should be aligned with climate targets. Specifically, it binds its parties to “making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development” (UNFCCC, 2015a, p. 3).

Public financial flows are particularly important. This is because (i) They must be the first to move, because they are under the direct influence of governments (O’Manique et al., 2022), and they can be used to leverage shifts in larger private financial flows (Lindenberg, 2014; Venugopal et al., 2012); and (ii) They risk being the last to move if public institutions become the “lenders of last resort” to fossil fuel interests, which could in turn compromise governments’ ability to deliver on broader social and economic obligations, if they disproportionately bear financial risks of transition, such as asset stranding (O’Manique et al., 2022).

Any public financial support for new fossil fuel projects is not aligned with climate targets.

Any public financial support for new fossil fuel projects is not aligned with climate targets. There is a longstanding consensus that there is no room for new coal, and a coal phasedown is required to mitigate climate change, as concluded by numerous expert studies (International Energy Agency [IEA], 2021; Rocha et al., 2016; Yanguas Parra et al., 2019). Both the Glasgow Pact and the Sharm el-Sheikh Implementation Plan now commit to a “phasedown of unabated coal” (UNFCCC, 2021, 2022). More recently, a similar consensus has emerged around oil and gas. An International Institute for Sustainable Development (IISD) synthesis of the latest research on climate and energy pathways¹ demonstrates that analysis by all credible expert institutions, including the Intergovernmental Panel on Climate Change (IPCC) and IEA, concludes that the exploration and extraction of oil and gas from new fields is not compatible with 1.5°C pathways and that oil and gas consumption and production must decrease at least 65% by 2050 (Picciariello et al., 2022). At UNFCCC COP 27 (2022), India proposed to extend to other fossil fuels the agreement to phase down coal. Although this proposal has not yet gained support from all parties, a broad coalition of more than 80 countries took up the call (Darby et al., 2022). Stopping financial flows for new fossil fuel projects should be the first priority for the parties to implement Article 2.1(c) of the Paris Agreement.

Public financial support for clean energy ought to be increasing, given the huge investment levels required over a short time to achieve 1.5°C pathways. According to IPCC, wind and

¹ Exclusion of bioenergy and carbon capture storage and carbon capture and storage pathways with more than 3 GtCO₂/year of each.



solar capacity additions need to reach 350 gigawatts (GW) and 660 GW, respectively, by 2030 to stay on course with 1.5°C pathways (Byers et al., 2022). To reach these levels of deployment, total annual investments in both wind and solar should amount to about USD 830 billion by 2030 (Picciariello et al., 2022).

Shifting public support from fossils to clean energy is one way to bridge the gap in financing for clean energy. Forecasted annual investment in new oil and gas exploration and development alone is estimated at USD 530 billion annually until 2030 (Picciariello et al., 2022). Public support sends a clear signal to markets about the relative risks of different types of investments, so shifting public resources can help redirect private resources. For clean energy, support can also be crucial during the early years of technology deployment, particularly in emerging and developing markets: in the short term, it helps reduce the risk for private investors, encouraging private investments, and in the medium term, it promotes learning by doing, helping permanently reduce risk perceptions and thereby leverage larger volumes of ongoing private financing (Lindenberg, 2014; Venugopal et al., 2012).

This dynamic has been recognized by numerous governments and public finance institutions in many initiatives beyond Article 2.1(c):

- In 2022, under Target 18 of the Global Biodiversity Framework (Convention on Biological Diversity, 2022), countries committed to
 - Identify by 2025, and eliminate, phase out or reform incentives, including subsidies harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.
- In 2021 and 2022, the Glasgow Pact and the Sharm el-Sheikh Implementation Plan committed to “phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition” (UNFCCC, 2021, 2022).
- In 2015, under Sustainable Development Goal (SDG) indicator 12.c.1, countries committed to (United Nations General Assembly, 2015).
 - Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.
- In 2009, G20 countries committed to (G20 Leaders Statement, 2009)
 - phase out and rationalize over the medium-term inefficient fossil fuel subsidies while providing targeted support for the poorest. Inefficient fossil fuel subsidies encourage wasteful consumption, reduce our energy security, impede



investment in clean energy sources and undermine efforts to deal with the threat of climate change.

- This was followed closely by a similar commitment from Asia-Pacific Economic Cooperation economies (APEC, 2009). It has since been repeated in numerous summit statements (Wooders et al., 2021). G7 governments, a subset of G20 countries, in 2016 adopted a deadline of phasing out “inefficient fossil fuel subsidies” by 2025 (G7 Ise-Shima Leaders’ Declaration, 2016).

These pledges have made it vital to track public financial flows. Since no holistic approaches to green budgeting exist, the tracking of public financial flows by intergovernmental organizations and civil society has proven essential in enhancing transparency and offering comparable information on countries’ progress (Eltokhy et al., 2021).

Taking Stock: Financial support for fossil fuels since 2010

There are at least three major recent international sources of data on public support for fossil fuels and renewables:

- **The Fossil Fuel Subsidy Tracker (FFST)** (<https://fossilfuelsubsidytracker.org/>): A collaboration between IISD and the Organisation for Economic Co-operation and Development (OECD) to consolidate global datasets on fossil fuel subsidies from the IEA, International Monetary Fund (IMF) and OECD, covering 192 economies. See Box 1 for further details (FFST, 2022).
- **The Public Finance for Energy Database (PFED)** (<https://energyfinance.org/>), a project of Oil Change International (OCI), with data on finance for fossil and clean energy from G20 governments’ export credit agencies and development finance institutions, as well as major multilateral development banks (MDBs) (OCI, 2022).
- **The Energy Policy Tracker (EPT)** (<https://www.energypolicytracker.org/>): A collaboration between 29 different civil society organizations to establish a database of “all public money committed to energy-producing and consuming activities” during the COVID-19 pandemic, including fossil and clean energy, covering 38 major economies and eight MDBs (EPT, 2022). See Box 2 for further details.

Due to their different focuses and some methodological challenges, the three datasets have overlapping—but largely complementary—scopes. For the purposes of this submission to the Global Stocktake, the most important finding is that these three datasets all point in the same direction: They show that governments have not fulfilled their commitments to shift public financial flows away from fossil fuels and toward clean energy. In the period following the adoption of the Paris Agreement, trends in governments strongly backing fossil fuels have continued. These trends were also reinforced by external

These three datasets all point in the same direction: they show that governments have not fulfilled their commitments to shift public financial flows away from fossil fuels and toward clean energy.



events (FFST, 2022; OCI, 2022). In 2020–21, as a result of the COVID-19 pandemic and fragile recovery period, many governments significantly intervened in markets, with many of their commitments affecting energy production and consumption (EPT, 2022). In 2022, energy prices had already begun to rise again as the recovery continued, and then the war in Ukraine triggered a major energy price crisis and food crisis, which in turn stimulated a broader cost of living crisis. Once again, many governments intervened, increasing existing public support measures for energy or creating new ones (Sgaravatti et al., 2021).

Knowledge Gaps

The numbers on the levels of public finance flowing to fossil fuels presented here are conservative and likely underestimate the real levels of support provided to fossil energy. This is due to limited data availability and a lack of transparency in reporting on such numbers by governments and public finance institutions. In the PFED database, for instance, data on public finance delivered through financial intermediaries is limited due to a lack of transparency regarding project-level finance. Similarly, not all estimates provided in the FFST are based on an inventory approach, and they do not capture all types of subsidies that governments provide to fossil fuels.

To date, think tanks, research institutions, and international organizations have mostly focused on fossil fuel subsidy estimates. Although this is now beginning to change, there are few systematic assessments of subsidies given to renewable energy by country. Some estimates do exist, notably by the International Renewable Energy Agency (IRENA, 2022; Taylor, 2020) and IEA (2018). Although methodologies for assessing subsidies for fossil fuels versus renewable energy technologies vary, IRENA and IEA assessments are mentioned in this submission to illustrate the starkly different levels of support provided to fossil and clean energies.

Investments by SOEs were also identified as a major knowledge gap. Today, a lot of support policies via state-owned enterprise investments remain unquantified. This is a major data gap in the assessment of public financial flows for fossil fuels and clean energy, and global climate finance flows by extension. According to some assessments, fossil fuel investments of SOEs accrued to USD 257 billion per year on average between 2017 and 2019 (Geddes et al., 2020).

Subsidies for Fossil Fuels and Renewables

According to the FFST (2022), fossil energy subsidies reached USD 732 billion in 2021, 35% higher than in 2015, the year of the Paris Agreement (USD 543 billion), and 16% higher than in 2010 (USD 628 billion), the earliest year in the dataset.² On average, governments have allocated at least USD 643 billion per year for fossil fuel support from 2010 to 2021. Petroleum was the most heavily subsidized fuel: out of the 2021 total, subsidies to petroleum products were the largest at USD 326 billion, followed by support for end-use electricity (USD 211 billion), natural gas (USD 171 billion) and coal (USD 23 billion).

² All data from the Fossil Fuel Subsidy Tracker are reported in nominal terms, so these data do not take inflation into account. This is due to the challenges of calculating inflation-adjusted estimates for 192 countries, requiring annual inflation and foreign exchange rates.

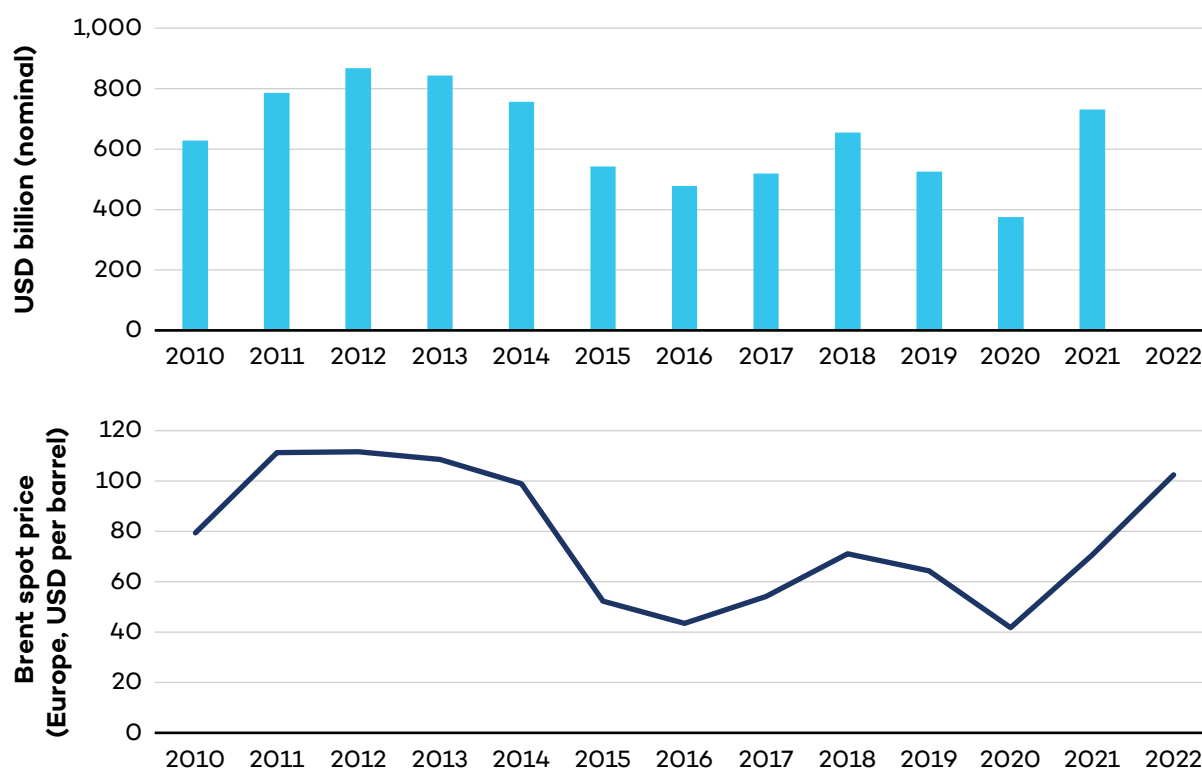


In contrast, IRENA estimates that subsidies for renewables constituted close to USD 167 billion in 2017 (including support for biofuels), with subsidies for renewable power generation of around USD 128 billion (Taylor, 2020). IEA’s estimate of renewable power subsidies is slightly higher, at USD 146 billion (IEA, 2018). The authors preparing this submission were unable to identify more recent estimates of support levels for clean energy.

Fossil energy subsidies have fluctuated significantly, and highs and lows have been closely correlated with world crude oil prices. According to the FFST (2022), the value peaked in 2012 at USD 868 billion, steadily declined to USD 477 billion in 2016, and rebounded to USD 654 billion in 2018 and USD 525 billion in 2019. The close correlation with world crude prices derives from the fact that oil and gas subsidies have made up the majority of all fossil energy subsidies, ranging from 65% to 76%. As oil prices rise, so do subsidies for oil and gas products because governments are trying to keep prices for them low in domestic markets.

Figure 1 illustrates this relationship, showing annual fluctuations in fossil energy subsidies, contrasted with changing world oil prices.

Figure 1. Global fossil fuel subsidy estimates and Brent crude prices (2010–2022)



Source: All fossil fuel subsidy data from the FFST (2022); all Brent crude price data from the United States Energy Information Administration (2022).

There is still no complete data set of the value of fossil fuel subsidies in 2022—but, based on the first preliminary estimates from the IEA, global subsidies for fossil fuel consumption exceeded USD 1 trillion for the first time, reaching a value of at least USD 1.1 trillion (IEA 2023). The final value of fossil fuel subsidies in 2022 will likely be higher, as the IEA’s dataset does not cover all countries, and does not cover subsidies for fossil fuel production. These



findings are consistent with other preliminary estimates published in 2022. For example, European think tank Bruegel estimated that EU and British governments alone committed almost USD 700 billion in household support, which included transfers to vulnerable groups and windfall taxes, but also energy price regulations, business support, and reduced energy taxes during the energy price crisis (Sgaravatti et al., 2021). According to FFST (2022) data, those same governments provided only USD 67.8 billion in fossil fuel subsidies in 2021. Furthermore, it is commonly recognized that the European energy crisis has triggered a “dash for gas.” This might imply an increase in producer subsidies as well, bringing the total value of fossil fuel subsidies in 2022 well beyond the IEA’s preliminary estimate of USD 1.1 trillion.

In some countries, there have been significant efforts to reduce public support for fossil fuels, albeit unevenly across fuel types. In India, for example, an independent national subsidy tracking initiative found that fossil fuel subsidies had fallen 72% from 2014 to 2021, largely driven by the complete phase-out of diesel and kerosene subsidies (Aggarwal et al., 2022). Indonesia reduced subsidy expenditure on gasoline and diesel by over USD 15 billion in a series of reforms in 2014, reinvesting savings in infrastructure and social programs (Pradiptyo et al., 2016)—though they have since re-emerged. Egypt introduced an ambitious series of multi-year reforms across almost all energy products and services, beginning in 2014 (Breisinger et al., 2019). Many such examples have been reported over the last decade. At a global level, an IEA analysis estimated that policy reforms were responsible for a USD 36 billion reduction in energy subsidies between 2015 to 2018 (Matsumura & Adam, 2019). From January 2015 to May 2020, at least 34 countries reformed consumer subsidies to fossil fuels, 14 countries increased fossil fuel taxation, and seven countries did both (Sanchez et al., 2020).

Box 1. The Fossil Fuel Subsidy Tracker

The FFST is a collaboration between the OECD and IISD. The Tracker incorporates annual estimates of subsidies and other support measures provided to fossil fuels in 192 economies, starting from 2010. The estimates are provided from three international databases: the OECD Inventory of Support Measures for Fossil Fuels, the IEA Fossil Fuel Subsidies Database and the IMF Fossil Fuel Subsidies Database.

FFST defines fossil fuel subsidies in line with the World Trade Organization’s 1994 Agreement on Subsidies and Countervailing Measures (World Trade Organization, 1994). Specifically, the database includes consumer as well as producer subsidies and general services that create enabling conditions for the fossil fuel sector. As support mechanisms vary, direct budgetary transfers, tax expenditures, and induced transfers are included in the database. Direct budgetary transfers refer to payments by governments or related bodies to individual recipients. Tax expenditures can appear in many forms, such as tax concessions, special treatment of income from SOEs, or tax-exempt bonds. Lastly, induced transfers estimate subsidies due to market regulation and price support which lower end-user prices relative to the full cost of supply.

Fuels covered by the Tracker include coal, natural gas, petroleum products, and electricity for end-user consumption of fossil fuel origin.



International Public Finance for Fossil Fuels and Renewables

[PFED](#) (OCI, 2022) also demonstrates continued high levels of fossil fuel financing from public finance institutions—on average USD 87 billion per year in the period 2016–2018. This represents international as well as domestic public finance from G20 export credit agencies, development finance institutions, and major MDBs.

Much lower levels of finance were provided for clean energy. For all energy, an average total of USD 144 billion in finance was tracked. From this, only 16.5% went to clean energy during the same period (OCI, 2022).

Support for Energy During the COVID-19 Crisis and Recovery

According to the EPT (2022), of the total quantified new public money commitments by 38 tracked major economies³ and eight MDBs⁴ in 2020 and 2021, 41% (USD 515 billion) were for fossil fuel-intensive sectors. These commitments were either explicitly intended to counterbalance the socioeconomic impacts of the crisis, or introduced during the crisis, and therefore significantly affected by the larger context of the pandemic.

Early responses to the COVID-19 crisis were rushed and fossil fuel intensive—many governments adopted “shovel-ready” fossil fuel projects that were already in the pipeline as a quick fix against falling GDP growth. For instance, in the first half of 2020, with COVID-19 lockdowns introduced in many countries, the airline industry took a hit. To salvage it, governments rushed to hand out loans, loan guarantees, equity infusions, and other support measures to bail out airlines, totalling USD 120 billion by the end of 2021 (EPT, 2022).

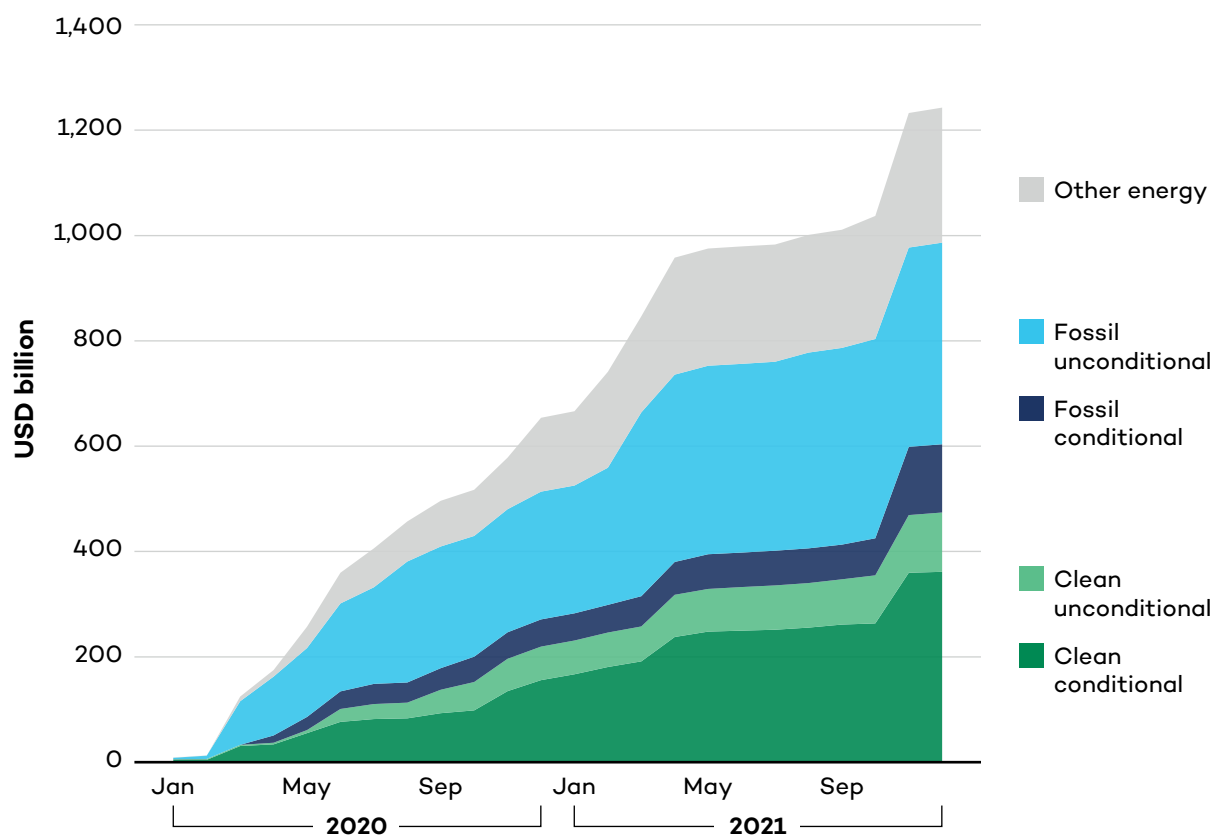
Over time, however, there was a gradual “greening” of recovery measures—of the total quantified new public money commitments in 2020 and 2021, 38% (USD 488 billion) were for clean energy. These trends of cumulative commitments to fossil and clean energy are illustrated in Figure 2. In particular, totals for clean energy were influenced by the governments of Canada, China, Japan, the United States, and the European Union, which approved sizable clean energy projects toward the end of 2020 and 2021 (EPT, 2022). There are some indications that this trend has continued in some jurisdictions beyond 2021. For instance, the European Union’s Recovery and Resilience Facility, adopted in December 2021, included a condition that none of the funds obtained through the Facility should harm the environment and at least 37% of committed funds should be earmarked for climate action (European Parliament and the Council of Ministers, 2021).

³ For a full list of tracked economies, see Box 2.

⁴ MDB data includes only 2020.



Figure 2. Cumulative new or amended public money commitments to fossil, clean, and other energy in 38 tracked major economies, 2020–2021



Source: Authors' diagram based on data from EPT (2022).

The EPT (2022) classified many of the clean energy commitments as “clean conditional”—that is, only able to support a clean transition if accompanied by appropriate environmental safeguards. This includes, for example, clean energy that can have significant externalities if not well designed and deployed, such as large hydropower; technologies that can run on both fossil and clean energy, such as public transport and rail; and technologies that require a clean electricity supply to deliver on their potential, such as electric vehicles. Measures that are clean in almost all circumstances were classified as “clean unconditional.” See Box 2 for more details.

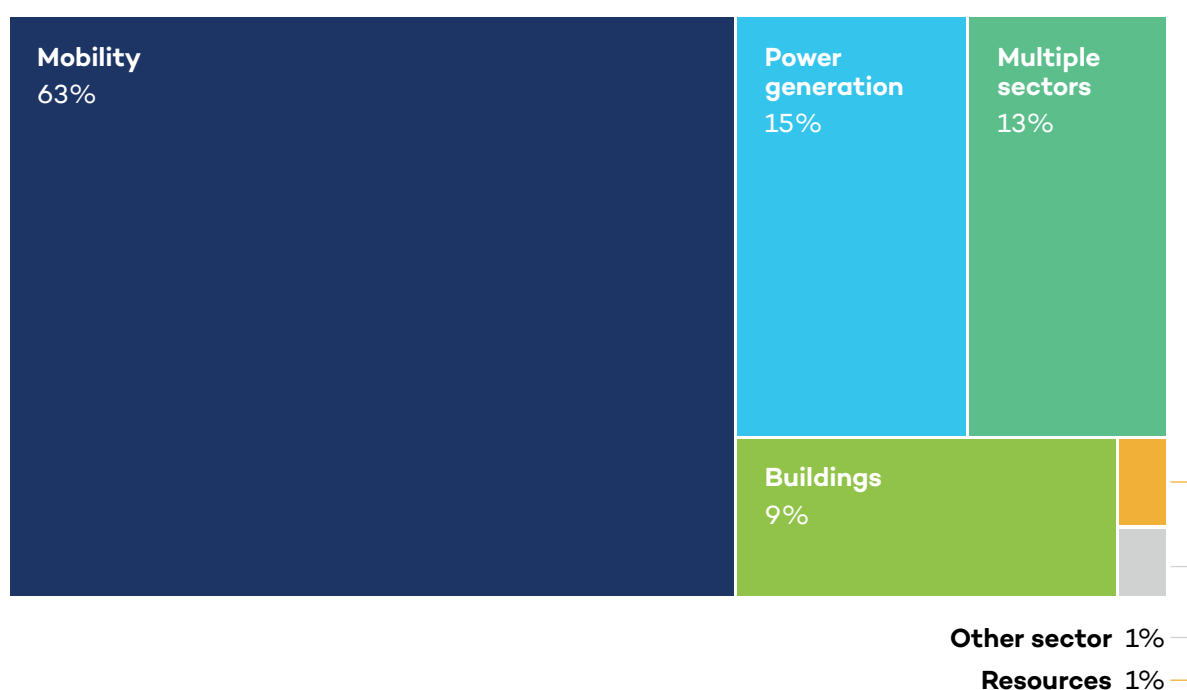
The biggest sectoral focus for clean energy was mobility, which received around 63% of quantified public money commitments to clean energy by 38 tracked economies (USD 297 billion), much of which was only “clean conditional.” Examples of clean energy policies for transport include relief packages to compensate public transit operators for losses during the lockdown and support for electric vehicles and related transport infrastructure. A summary of the sectoral breakdown of support for clean energy is provided in Figure 3 (EPT, 2022).

Only 9% (USD 43 billion) of commitments in 38 tracked economies for clean energy were for energy efficiency and clean retrofits in buildings—a relatively low share, despite the fact that most of these measures are “clean unconditional.” This was a missed opportunity. Energy efficiency improvements are a “low-hanging fruit” for reducing GHG emissions; they also



create jobs, boost economic growth, and can help countries adapt to climate change if based on nature-based solutions. For example, Spain’s recovery efforts included an array of national and municipal-level measures that set higher energy efficiency and safety requirements for thermal installations in buildings, replaced oil boilers and changed the thermal envelopes of buildings while generally stimulating more energy-efficient heating, cooling, hot water production, and ventilation (EPT, 2022).

Figure 3. Share of new or amended public money commitments to clean energy (%) in 38 major economies in 2020–21, by sector



Source: Author’s diagram based on data from EPT (2022).

Good pre-existing plans for clean energy seemed to play an important role in influencing policy during the crisis. By and large, COVID-19 response packages reflected countries’ previous climate efforts and patterns of fossil fuel support. Those highly dependent on fossil fuels tended to continue subsidizing the production and consumption of oil, gas, and coal. Only a few governments, such as France and Germany, had blueprints for clean energy support that could be pivoted in response to the crisis. This suggests that better planning, roadmaps, and policy frameworks can lead to better outcomes during a crisis (Sanchez et al., 2021).

Some countries announced fossil support with “green strings” attached—that is, some kind of conditionality linking the support to better performance on climate—but this made up only a small share of commitments. For example, France provided an airline bailout on the condition that short-haul flights are closed down if they could be better served by rail (Corkal et al., 2020). According to EPT data, close to USD 130 billion, or around 10% of all new commitments for all forms of energy by 38 tracked economies, had some kind of green strings attached. Of the USD 284 billion in tracked country commitments linked to oil and gas,



almost USD 243 billion had no climate conditionality. Of the almost USD 80 billion for coal, at least USD 35 billion had no green strings.

Equity and Public Money Commitments to Energy

The importance of equity in all aspects of climate action is long-established but again growing in prominence. The decision to create a special fund to assist developing countries in coping with loss and damage from climate change taken at COP 27 in Sharm El Sheikh (UNFCCC, 2022) once again put the spotlight on the calls from developing countries for climate justice and equity in Paris Agreement implementation (United Nations, 2022). While the new loss and damage facility has been hailed as a step toward climate justice (Zardari, 2022), equity considerations are not new in climate negotiations. Indeed, they are an essential part of the Paris Agreement's (UNFCCC, 2015a) architecture, built around nationally determined contributions (NDCs). This bottom-up structure allows countries to pledge GHG emissions reductions according to their understanding of equity and fairness, in particular: 1) "in light of ... national circumstances" (UNFCCC, 2015a); 2) and, for many developing countries, conditionally upon receiving international support (finance, technology transfer, and/or capacity building) or means of implementation.

Countries have justified their levels of ambition in emissions reduction by pointing to their national circumstances. As noted in UNFCCC (2015b), these circumstances include

the need for poverty eradication and the improvement of living standards; ... economic development and the current industrial structure (e.g., share of energy-intensive or energy-efficient industries; or if it is a fossil fuel producing or exporting country); energy mix and related limitations; economic diversification processes; dependence on the global supply chain for food and energy security; etc.

It is thus clear that countries take into consideration the effects of mitigation measures on their socioeconomic development when submitting NDCs.

In light of this, understanding the impacts of policies and public money commitments for energy on inequality and poverty is paramount for equitable implementation of the Paris Agreement. Thus, policy-makers may find it useful to consider the findings of Dufour et al. (2022), who analyzed the social effects of public money commitments for energy in 30 tracked countries based on the EPT data (2022).

According to this EPT analysis, 60% of energy policies approved between January 2020 and November 2021 in 30 analyzed countries can contribute to the reduction of poverty, and only 11% are likely to decrease inequality (Dufour et al., 2022). Only 13% of all examined measures were win-win policies that had the potential to both advance the clean energy transition and promote positive social outcomes. Examples of such policies include government support for energy efficiency programs in social housing and measures to promote cycling.

In contrast, lose-lose policies provide support for fossil fuels and have detrimental impacts from a social standpoint, with benefits accruing mostly to wealthy elites (Oxfam, 2023). For instance, government support for the exploration, domestic production, and extraction of



fossil fuels leads to negative environmental impacts and locks fossil fuel-producing regions into high-carbon development pathways, jeopardizing future employment in the affected regions and thus increasing the risks of poverty as the world moves on from fossil fuels (Dufour et al., 2022).

Findings from Dufour et al. (2022) are an important first step in the analysis of the impacts of government support for climate mitigation on social outcomes. Like other mitigation measures, energy policies bear the risk of putting pressure on lower-income households that contribute very little to climate change and thus should not bear responsibility for its mitigation (Chancel et al., 2022). Avoiding the worst impacts on the poor is important for climate justice and necessary to ensure broad-based support for climate mitigation measures.

Further comprehensive research into this topic is needed, with insights that can be implemented by policy-makers to both address climate change and further economic development in their countries.

Box 2. The Energy Policy Tracker

The EPT is a data platform and research network of 29 expert organizations that has documented the new public money commitments for energy adopted in 2020–2021 during the COVID-19 crisis, covering 38 major economies (G20, Bangladesh, Colombia, Finland, the Netherlands, New Zealand, Norway, Poland, Spain, Sweden, Ukraine, Vietnam, Chile, Egypt, Estonia, Kenya, Nigeria, Peru, and the Philippines) and eight MDBs.

The EPT database covers only policies that affect energy production and consumption in the following sectors: resources (e.g., extraction, transportation, distribution of oil, gas, and coal), power, mobility, and buildings. The research follows a bottom-up approach, which involves collecting data on individual policies at the level of national, subnational, or municipal governments, central banks, majority state-owned public finance institutions, majority SOEs, or government-related bodies and then aggregating them.

One of the key criteria for policy classification is its environmental profile that depends on 1) which energy types it benefits, and 2) whether it has any environmental conditionality attached. Based on these criteria, policies are placed in either of these five categories: “fossil unconditional,” “fossil conditional,” “clean unconditional,” “clean conditional,” and “other energy.” Policies are classified as “fossil unconditional” if they support the production and consumption of fossil fuels (oil, gas, coal, “grey” hydrogen or fossil fuel-based electricity) without any climate targets or additional pollution-reduction requirements. Policies are categorized as “fossil conditional” if they support the production and consumption of fossil fuels, but with some climate targets attached, for example, airline bailouts conditional on reducing the airline’s emissions. The “clean unconditional” bucket includes energy policies that are both low-carbon and have negligible impacts on the environment if implemented with appropriate safeguards, like wind and solar. “Clean conditional” policies are aimed at supporting the transition away from fossil fuels but might have significant impacts on the environment without appropriate environmental safeguards: for instance, large hydropower and electric vehicles. Policies outside of these four buckets or in both of them (where disaggregation is difficult) are classified as “other energy.”



Part II: Challenges to Effective Paris Agreement Implementation

As outlined in Part I of this submission, governments commit hundreds of USD billions per year in support for fossil fuels. In this part of the submission:

- We establish in more detail the ways that fossil fuel subsidies are a significant financial barrier to Paris Agreement implementation.
- We highlight some of the reasons behind the slow implementation of efforts to shift financial flows, and provide recommendations on how countries could address them.

Why Are Fossil Fuel Subsidies a Barrier to Paris Implementation?

Fossil fuel subsidies hinder implementation of the Paris Agreement because of the way they influence the development of energy markets. First, by subsidizing production or consumption of fossil fuels, governments artificially lower their costs throughout the value chain from extraction to end use, which creates incentives to produce and consume more of those fuels and disincentivizes demand-management measures (e.g., energy efficiency improvements) (Gerasimchuk et al., 2017), thus increasing GHG emissions from energy (Coady et al., 2019).⁵ Second, government support for fossil fuels skews the level playing field for investing in and deploying clean energy technologies that increasingly out-compete fossil fuels and could be even more competitive if not for the market distortions created by the subsidies (IRENA, 2022; Lazard, 2021)—thereby harming our chances of developing resilient energy systems aligned with the 1.5°C pathways.

Ostensibly, one of the main government objectives for subsidizing fossil fuels is to help low-income households. But in reality, the biggest benefits often accrue to the wealthiest groups. This is commonly recognized as a problem for consumer subsidies, which are often “universal” (available for the full population) and typically function by artificially lowering prices for fossil fuels or derived energy services, such as electricity. According to Coady et al. (2015), for example, in a review of data on fuel subsidies from 32 countries, the top quintile of households benefits, on average, at least six times more than the bottom quintile. Gasoline subsidies are especially regressive, with more than 80% of total subsidy benefits going to households in the top two quintiles of the population (Coady et al., 2015). Consumer subsidies also often indirectly hinder energy access by exacerbating deficits in SOEs (Nguyen et al., 2014), which disincentivizes efforts to improve and extend power infrastructure or fuel distribution (Zinecker et al., 2018).

Fossil fuel subsidies are often extremely costly, so they eat up scarce government resources that could support Paris Agreement implementation, especially when global oil and gas

⁵ The IMF estimates that pricing and taxing fossil fuels and electricity correctly (based on their externalities, including air pollution, carbon emissions, and accidents) would have resulted in emissions reductions of 28% in 2015.



prices rise. Over time, societies that rely on subsidies can grow dependent on them. Budget deficits may grow larger, with no or limited fiscal space left for investing in clean energy transition and other climate mitigation measures. Subsidies, therefore, pose a significant opportunity cost and financial barrier for governments in both developing and developed countries to the implementation of climate mitigation and adaptation measures (Braithwaite & Gerasimchuk, 2019).

As outlined in Part I of this submission, numerous developing countries have highlighted equity considerations in their NDC submissions, arguing that their GHG emissions reductions pledges must be just and fair in light of poverty reduction objectives and economic development goals (UNFCCC, 2015b)—but by wasting scarce public resources, fossil fuel subsidies reduce capacity to support the poor more efficiently, such as health and education services, and reduce capacity to address climate change mitigation and adaptation.

Concerns regarding the socioeconomic impacts of climate mitigation measures can be justified, particularly for consumer subsidies, and the most vulnerable should not suffer the consequences of climate change and its mitigation (Chancel et al., 2022). We also need to recognize the different roles of countries and populations given the principle of common but differentiated responsibilities, and developed countries' commitments to provide climate finance. But fossil fuel subsidy reform is a beneficial step toward Paris Agreement implementation that can also contribute to countries' development objectives. In cases where fiscal space is tight, the shift from subsidizing to taxing fossil fuels can save public money, earn budget revenues, and free up financial resources for climate change mitigation and adaptation measures. In developed countries, it could in principle also create fiscal space for contributions to climate finance. Indonesia's experiences (see Box 3) demonstrate some of the ways in which subsidy reform can enable investments in more valuable public goods.

For these same reasons, it is important to tax fossil fuels at a level that captures their full costs and to use those revenues for strategic investments, given the need to avoid fiscal reliance on fossil revenues in the medium term (Laan & Maino, 2022). This includes accounting for external negative effects (externalities) on public health as a result of pollution, climate, land, water and biodiversity (Zinecker et al., 2018).



Box 3. Success story: reform of gasoline and diesel subsidies in Indonesia (2014–2015)

Indonesia's removal of gasoline and diesel subsidies at the end of 2014 is a successful case of fossil fuel subsidy reform (FFSR) that allowed the country to save over 10% of its annual state expenditure (USD 15.6 billion) in 2015 (Pradiptyo et al., 2016).

Prior to the reform, critics often pointed out the regressive nature of gasoline and diesel subsidies: in 2014, over 50% of fuel was bought by the richest 20% of the country's population. The subsidies were also criticized for creating an enormous burden on the state budget and wasting the country's scarce resources to promote short-term consumption instead of long-term investments in infrastructure and social assistance (Pradiptyo et al., 2016): in 2013 the subsidies for gasoline and diesel were budgeted at USD 9.6 billion and USD 7.0 billion, respectively (Lontoh et al., 2015). Historically, the subsidies were a relic from Indonesia's oil-exporting past and became unaffordable when the country became a net oil importer from 2004 on.

There were other attempts to change the situation before 2014. This time around, the reform coincided with a sharp drop in oil prices, which helped push for a broader shift to a new regulated fuel pricing system. The government removed subsidies to gasoline, except for distribution costs outside of the islands of Java, Bali, and Madura, and introduced a "fixed" subsidy of IDR 1,000 (USD 0.08) per litre for diesel (Beaton et al., 2017; Pradiptyo et al., 2016). Coupled with low oil prices, subsidy removals led to significant fiscal savings, estimated at IDR 211 trillion or USD 15.6 billion in 2015 (Pradiptyo et al., 2016).

There is evidence to suggest that these fiscal savings allowed for increased spending in improved and expanded social protection, among other measures benefiting the most vulnerable. A comparative analysis of the budget before and after the reform demonstrates increased spending in the following areas: (1) USD 1.6 billion in transfers to regional governments and villages; (2) USD 12 billion in additional funding for special programs in health insurance, housing for low-income groups, and clean water access; and (3) an additional USD 4.1 billion for SOEs for investments in infrastructure (Pradiptyo et al., 2016).

In recent years, subsidies have re-emerged, with state oil and gas firm PT Pertamina selling a range of fuels, including brands of gasoline, diesel, LPG, and kerosene, at below-market prices (Suharsono et al., 2022). This has been reimbursed through annual transfers that amounted to USD 7.1 billion in FY 2019 and USD 4.7 billion in FY 2020 (Suharsono et al., 2022). The value of these subsidies ballooned with the growth in world oil prices, and it was estimated that they would have grown to as much as USD 46.6 billion in 2022 if the government had not introduced sharp price increases for gasoline and diesel (Lontoh et al., 2022). Despite Indonesia's earlier successes, these experiences also highlight the importance of consolidating reforms to prevent backsliding.

Shifting support for fossil fuels to clean energy can accelerate Paris Agreement implementation. This swap of resources does not need to take up all subsidy savings, nor does it need to explicitly earmark (or "hypothecate") funds. But some shift of public financial support—where fossil support declines, and clean energy support increases—can accelerate the replacement of fossil fuels with clean energy (Bridle et al., 2019).



Box 4. Success story: FFSR and support for renewables in India

Over the past decade, India has achieved important milestones in its clean energy transition and improvements in energy access for lower-income households. One such milestone was the gradual phase-out of gasoline and diesel subsidies (Garg et al., 2020).

At the same time, support for renewable energy sources rose substantially between 2015 and 2017, peaking in 2017 due to accelerated depreciation of levelized costs of renewable energy, low goods and services tax and customs duty, and viability gap funding. These policies led to an addition of, on average, 13 GW of renewable energy capacity in 2017 and 2018 (Garg et al., 2020).

Although the level of subsidies for renewables has fallen since 2017, the Indian government continues to support clean energy with different policy instruments, with support for clean energy doubling from FY 2021 to FY 2022 (Raizada et al., 2022). The Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahaabhiyan scheme on solar irrigation and Phase II of the Grid Connected Rooftop Solar Programme were approved in 2019, with a combined budget of INR 58,000 crore (USD 7.8 billion) over 3 years (Garg et al., 2020). The Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahaabhiyan scheme facilitates the deployment of stand-alone solar pumps and decentralized solar power plants in rural areas. At its inception, it aimed to install by 2022 0.75 million off-grid solar-powered irrigation pumps and 1 million grid-connected solar pumps, along with 10 GW of solar power plant capacity in rural areas (Garg et al., 2020). The Grid Connected Rooftop Solar Programme, on the other hand, focuses on the residential sector, allowing households to receive financial assistance covering up to 40% of the cost of rooftop solar systems of 3 kW (Garg et al., 2020).

Most recently, in 2021 the Indian government also announced schemes aimed at supporting domestic manufacturing: two production-linked incentive schemes, one on high-efficiency solar photovoltaic (PV) modules and another on advanced chemistry cell (ACC) battery storage (Aggarwal et al., 2022). The new schemes intend to build capacity of 10 GW for integrated solar PV manufacturing plants, 50 gigawatt-hours (GWh) for ACC batteries, and 5 GWh for niche ACC batteries (Press Information Bureau, 2021a, 2021b). In 2022, it announced a one-time capital infusion of USD 0.3 billion for two government enterprises to increase their operations in financing renewable energy (Raizada et al., 2022).

Financial flows can be reallocated to protect the most vulnerable from the impacts of reform (Bridle et al. 2019) and to “supercharge” climate benefits. A 2015 modelling study on FFSR processes in 20 countries found that swapping subsidies from fossils to clean energy and energy efficiency would significantly increase emissions reductions compared to subsidy reform alone. If countries phased out fossil fuel subsidies by 2020 and shifted just 30% of the fiscal savings into energy efficiency and renewable energy, their combined GHG emissions would have dropped by 18%, in contrast to 11% without the swap (Merrill et al., 2015). More recently, Kuehl et al. (2021) updated this analysis, examining subsidy reform across 32 countries. On average, they found that subsidy reform alone would reduce greenhouse gas emissions by 6% by 2030, saving over USD 3 trillion from 2019 to 2030. Adding a



modest fossil energy tax of 10% and recycling a share of revenues into sustainable energy saw average emissions reductions rise to 11.8% by 2030. India's experiences (see Box 4) are one demonstration of how a country can significantly reduce support for fossil fuels while increasing strategic support policies for clean energy, intended to increase the cost competitiveness of new technologies and crowd in private investment flows, given the short timelines for climate action.

Why Is It a Challenge for Countries to Conduct Fossil Fuel Subsidy Reform?

Shifting public support away from fossil fuels can be a source of positive social and environmental changes—but in many cases, it needs to be carefully planned, or it can have negative socioeconomic impacts. “Reforming” a support measure can mean many different things, and the most meaningful policy change will address the underlying drivers that caused subsidies to be created in the first place (see Box 5). The impacts will vary significantly depending upon the type of support measure: for example, it will be hard for low-income households to cope with a policy change that triggers a sudden price hike in a consumer energy product, while there may be no such concerns if a tax exemption is removed for a major fossil fuel producer. The context of any individual country can also significantly affect impacts, including the extent of poverty, the availability of non-fossil alternatives, and the degree of economic reliance on fossil fuels. Without strong planning and strategies, backsliding is common. While no country is the same, and reform challenges are highly context-specific, there are common political and technical roadblocks faced by many countries.

On the side of consumer subsidies, typically the main challenges to reform are a lack of better social protection capacity, a lack of social consensus about the problematic nature of subsidizing fossil energy, and a lack of public trust in the reform process due to weak governance (Beaton et al., 2017; Victor, 2009; Whitley & van der Burg, 2015). In many developing countries, subsidies are often seen as a convenient tool for achieving social objectives in the absence of institutional and administrative capacity to implement targeted policies (Beaton et al., 2013; Whitley & van der Burg, 2015). Changing this is a major challenge. Many countries lack good alternatives to subsidization and are concerned about how to manage the inflationary impacts of price increases. Subsidies are also used by governments to increase political support. Subsidies are a relatively easy way to provide visible benefits that are easily monitored by the public through energy prices (Victor, 2009; Whitley & van der Burg, 2015). Often, consumers are simply not aware of the scale, the costs, and the regressive nature of subsidies, leading to a belief that governments have an obligation to maintain them (Whitley & van der Burg, 2015). In such cases, the lack of transparency over energy pricing leads to a flawed understanding of subsidies, which prevents the formation of a social consensus about the regressive distribution of benefits, and creates the major political hurdle of the reform process: achieving public acceptance. The right administrative capacity and technical expertise are needed to manage impacts and establish politically viable strategies for change.

This not only highlights the need for better communication around energy pricing but also points to a larger need for more just energy policy-making, where citizens are given spaces



to articulate their views and influence policy formulation. For instance, Hossain et al. (2021, p. 4) recently examined in detail the relationship between protests and energy price changes, and found that much more could be done to address the essentially “undemocratic nature of energy policymaking.” This implies that global efforts to demand a “just transition” need to go beyond distributive and procedural justice for workers and communities affected by changing fossil production and include justice issues for energy consumers affected by changing fossil consumer pricing.

Another major roadblock to reform faced by countries is a lack of trust in the reform process and governments’ ability to redistribute reform savings responsibly and efficiently due to weak governance and high perceived corruption. In this case, some citizens believe that energy price controls and associated subsidies represent a safe way to provide social support (Whitley & van der Burg, 2015).

On the side of producer subsidies, typically the main challenges to subsidy reform are the strong political influence of vested interests, highly opaque reporting on support measures, and the lack of standard internal protocols for governments to assess the full costs and benefits of support measures. This includes the need to move beyond estimating the revenue benefits of new fossil energy projects and to more comprehensively account for the full social costs of local and global pollution, as well accounting for the public risks of asset stranding, given global projections on the need for fossil energy supply to enter a managed decline. A lack of administrative capacity often translates into a lack of knowledge about the extent of support provided to fossil fuel producers or how to obtain such information in a systematic way, given that subsidies are often not recognized as such in government documents and reporting (Whitley & van der Burg, 2015). Furthermore, reforming producer subsidies requires strong coordination across many ministries and responsible offices, which can be a challenge even at the initial stages of reform on subsidy estimates.

Internationally, the absence of a binding framework on FFSR lowers the motivation for countries to implement their commitments for both consumer and producer subsidies. The existing pledges and calls to phase out fossil fuel subsidies (see Part I) fall short of a full-fledged binding commitment to do so. Most of them, including the Glasgow Pact and the Sharm el-Sheikh Implementation Plan (UNFCCC, 2021, 2022) target “inefficient” subsidies—a vague formulation that allows for a loose interpretation of the term and hence, circumvention of the commitment to reform.

Loopholes in definitions also create opportunities for governments to continue providing subsidies and public finance for fossil fuels or technologies that are likely to prolong their use, such as fossil-based hydrogen. Rather than endorsing imprecise language like a commitment to phase out “inefficient” subsidies, governments, can identify a specific, restricted set of energy services where subsidies may have strong links with energy access, such as cooking and electricity. In such exceptional cases, subsidy targeting can be pursued as a medium-term effort to rationalize expenditure and improve social benefits (Zinecker et al., 2018), while other measures can be prioritized for complete removal.

A clearly agreed timeframe for implementation is also missing. Before the 2022 COP of the Convention on Biological Diversity (2022), there was no “deadline” to eliminate subsidies



for countries, outside the G7's commitment to reform subsidies by 2025,⁶ and the SDG 12.c deadline of 2030. Accountability can also be improved by countries doing more to adhere to their reporting requirements on energy subsidies, such as SDG indicator 12.c.1 and regular stocktaking. According to recent reporting by the United Nations Environment Programme, the official custodian of SDG indicator 12.c.1, as of late 2022 only 22 countries had responded to the formal questionnaire on subsidy reporting, and of this group only five reported data, with six claiming to have zero subsidies, five stating that data was unavailable and five asking for a time extension (IISD, 2022). More can and should be done to address this in the near future to encourage countries to reform fossil fuel subsidies.

Box 5. What is fossil fuel subsidy reform?

A “reform” is a broad concept that captures many kinds of changes to a fossil fuel subsidy policy, not just removal. While the end goal of FFSR is to phase out such subsidies completely, there may be stages of other “reforms” to achieve this, particularly when phase-out requires the creation of entirely new institutional capacity (for example, a new regulatory regime on pricing and support in monitoring and enforcement) or when an energy type is important for energy access (for example, targeting subsidies for LPG, while non-fossil cooking alternatives are incubated and become more competitive).

The list below captures some of the policy changes that can constitute a “reform” of fossil fuel subsidies, adapted closely from (Kitson et al., 2016; Zinecker et al., 2018). Generally, items toward the beginning of this list are more *ad hoc* in nature, and may not resolve underlying drivers of subsidies. As the list continues, these solutions are likely to be more permanent and sustained.

- *Ad hoc* price increases in a system of fixed prices (these are often only partial increases that do not fully close the gap to cost-covering prices and do not affect the underlying pricing system).
- Removal of tax breaks, such as exemptions, deductions, and deferrals, that benefit both production and consumption of fossil fuels.
- Full or partial removal of other measures benefiting production or consumption of fossil fuels (e.g., preferential access to land, water, and capital for producers, market obligations, and consumption mandates, etc.).
- Measures to redesign or “rationalize” subsidy policies (for example, improved targeting or reductions in smuggling and leakage).
- Institutional changes (such as dismantling oil price funds or liberalizing SOEs).
- Permanent structural changes in how fuel is priced and how the government assists households and businesses. On the fuel pricing side, this might include the introduction of automatic pricing mechanisms or full liberalization of fossil energy prices— that is removing all price controls and restricting regulation to competition. On the social assistance side, it might include introducing non-subsidy forms of benefit transfer and social assistance policies.

⁶ In 2016, G7 governments adopted a deadline of phasing out “inefficient fossil fuel subsidies” by 2025 (G7 Ise-Shima Leaders’ Declaration, 2016).



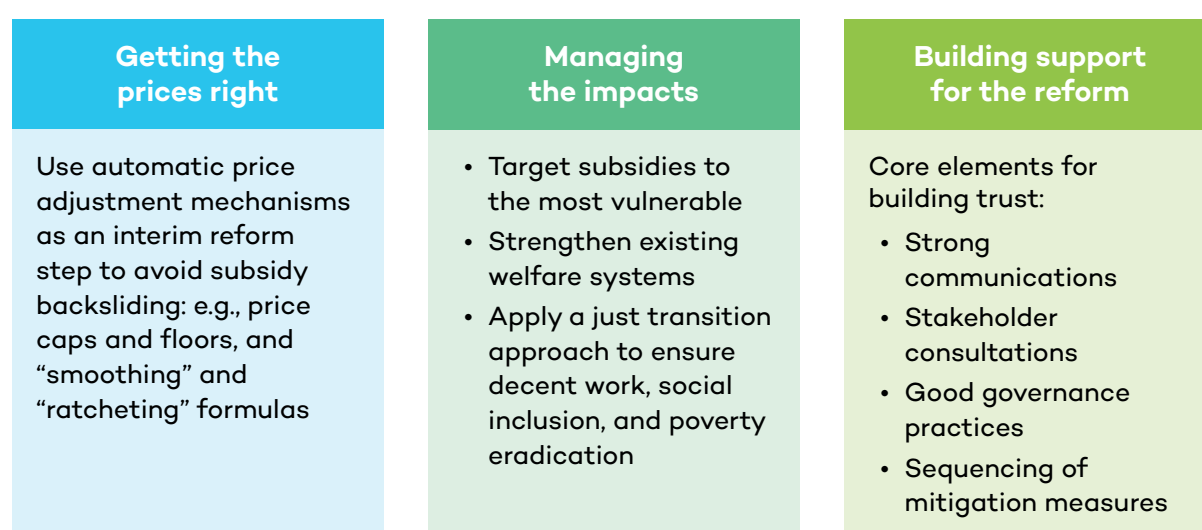
Another key measure to enable improved accountability is to provide technical and other capacity-building support to governments that are willing to reform subsidies but lack the institutions and tools to implement the reforms. Some degree of assistance is already provided by MDBs, but more can be done. First, much multilateral assistance is provided only through demand-based advisory services, but many governments do not ask for assistance on subsidy reform until they are in a fiscal crisis due to its inherently politically sensitive nature. Second, governments are not the only actors in need of assistance. Non-state actors also need the capacity and technical evidence basis to establish clear positions on how to shift financial flows in ways that are socially responsible. The world's civil society groups are key actors who are critical for making sure that change processes are just—and if they are not just, they will not be politically viable.

Overcoming Barriers and Challenges

To build technical and administrative capacity, there are well-recognized tools and strategies that governments and non-state actors can use to tackle the challenges of shifting financial flows. There is no one-size-fits-all solution, but there are three common elements in planning that can help implement reforms successfully:

- **Getting the prices right:** How to change pricing systems for fossil fuels.
- **Managing the impacts:** Estimating effects of reform and mitigating unwanted impacts—or even identifying ambitious, socially aspiration outcomes from reform, with subsidy resources allowing for major steps forward in the quality and coverage of social protection.
- **Building support:** Internal organization and external consultation and communication.

Figure 4. Core elements of FFSR planning



Source: Authors' interpretation based on Beaton et al. (2013).



Getting the Prices Right: How to change pricing systems for fossil fuels

To avoid backsliding on previous reforms and prevent major shocks to the population, governments can introduce price adjustment mechanisms as an interim reform step to make fuel prices more predictable (Sanchez et al., 2020). In times of global fossil fuel price rise, it is not uncommon for governments to increase energy subsidies or reintroduce them after prior reforms. This quickly worsens their fiscal outlooks as growing budget deficits can put their financial sustainability at risk. This problem specifically poses a challenge to developing countries because they are more financially constrained than developed countries.

A price adjustment system reduces the government's role in energy price formation, limiting the space for future government interventions. Possible mechanisms include fuel pricing tools such as price caps and floors or “smoothing” and “ratcheting” formulas to calculate price adjustments in accordance with international prices (McCulloch et al., 2017). Such mechanisms allow governments to fill reserves when prices fall below the price floor (the fixed minimum), and support consumers when market prices rise above the cap (the fixed maximum), with some adjustments allowed in price floor and cap levels, depending on the situation. Smoothing out the peaks and dips in volatile energy prices helps maintain subsidy reform and fuel taxation and avoids the pressure on the most vulnerable (Sanchez et al., 2020).

Changes that can also prevent subsidy backsliding include measures targeted at improving the transparency of energy price composition, along with improved enforcement of energy price regulations, for instance, the creation of independent tariff regulators (Beaton et al., 2013).

Managing Impacts: Estimating effects of reform and mitigating unwanted impacts

One of the most pronounced barriers to the reform of consumer subsidies is concern about how price increases will affect lower-income households' finances and energy access. Most fossil fuel subsidies are considered “regressive,” in the sense that higher-income groups benefit more than low-income groups (Arze del Granado, 2012). But for the poor, the small share of subsidy benefits that they receive is still large in terms of their total resources, and the removal of the subsidy can affect them significantly. As recent history shows, higher fuel prices can significantly affect the cost of living. They can also lead to social discontent and political unrest. In particular, some subsidies can be crucial for energy access, especially in the case of support for modern cooking services and electricity (Zinecker et al., 2018). Rising energy prices also affect all social classes due to inflationary effects (Sanchez et al., 2021).

These considerations highlight the need to manage the impacts of reforming consumption subsidies so that welfare protections are expanded or introduced alongside reform. Planning and conducting a comprehensive analysis of impacts are essential. If coupled with subsidy targeting and social protection mechanisms, subsidy reform can be a tool for promoting the well-being of the poor, even if the benefits are not obvious at first sight.

In general, a gradual reform approach is recommended where possible, starting with the most regressive subsidies (Beaton et al., 2013). It is also important not to rush the reform process, given previously noted challenges with backsliding (IISD, 2019).



In many cases, reforms can be used to strengthen existing social welfare systems. FFSR can be an opportunity for governments to reconsider the mechanisms they use to protect the most vulnerable. It can be the impetus to transform welfare support systems, from one that is easy to administer but relies on cheap fossil fuels, to one that is more administratively complex but costs less and targets those in need better. In many cases, a considerable part of the subsidy savings can be directed to investments in social protection. There are many examples of governments successfully protecting lower-income groups through effective social programs after FFSR. In Ghana, the government started a targeted income support and health insurance program for poor households after FFSR (Sanchez et al., 2021). Similarly, the Moroccan government reformed subsidies at the same time as it implemented a health insurance scheme and increased funds for education while continuing some subsidies for LPG, electricity, and food support.

Subsidy targeting can be appropriate in specific circumstances where energy affordability is a key factor in enabling energy access. As noted earlier, this is typically only relevant for support for modern cooking and electricity. As the first step, governments need to determine which groups of the population require support for energy affordability based on household consumption data; and afterwards, they can develop strategies to provide benefits to specific groups of beneficiaries (Zinecker et al., 2018). This can use systems like conditional and unconditional cash transfers, geographic targeting, subsidy quotas, and other mechanisms. Examples of subsidy targeting include quotas on the number of LPG cylinders that households can purchase per year at a subsidized rate, provision of subsidized transport services, conditional cash transfer schemes aimed at particular outcomes (e.g., energy), and others (Zinecker et al., 2018). It is also possible to unite existing welfare systems with targeted subsidies for energy. For example, Brazil used the already implemented Bolsa Família as a way to deliver targeted cash transfers to support households in purchasing gas for cooking (Government of Brazil, 2023).

Governments can also reduce subsidies by supporting targeted energy demand-management, conservation, and diversification measures. Such policies can assist consumers in shifting to more efficient ways of using energy, which helps reduce bills as a result of energy savings. This can be done by providing clean cooking equipment or helping households with the upfront costs of connecting to the grid. As an example, Peru introduced an improved cook stove distribution scheme, coupled with expansions in the conditional cash transfer program (Merrill et al., 2016).

In general, governments should adopt just transition approaches to ensure that shifting financial flows are aligned with decent work, social inclusion, and poverty eradication. As fossil fuel production and consumption enter a managed decline, it is important to ensure that transition is just for the communities and workers involved. Just transition is a specific approach and a theory of change for planning a transition that maximizes positive social impacts while minimizing and addressing potential negative impacts. It ensures decent work, social inclusion, and poverty eradication in the shift to sustainable energy systems (Sanchez et al. 2021). While discourse on just transition has largely been associated with fossil fuel production, these same processes and dialogues can provide a space in which to consider consumer impacts of transition, including from shifting financial flows. The International Labour Organization's *Guidelines for Just Transition* (2015) provide a comprehensive list



of requirements for making transitions just, with an emphasis on policy development and social dialogue. Governments need to develop policies in many areas to mitigate the social, economic, and environmental risks of the transition, including industrial and sectoral policies, social protection, and active labour market policies, among others (International Labour Organization, 2015). Active employment and labour market policies (e.g., reskilling and retraining) coupled with social protection (e.g., early retirement, unemployment benefits) are an important part of a comprehensive and successful just transition (Sanchez et al. 2021). Industrial policies and development efforts will be necessary to diversify the economy and create job alternatives for fossil fuel workers, including outside the energy sector. This will also be important for diversifying government income streams, as they rely heavily on fossil fuels.

Building Support: Internal organization and external consultation and communication

Governments need to take measures aimed at building trust in the reform process from affected groups: not everyone stands to win from FFSRs, and there can thus be significant information asymmetries on how different groups are affected, and affected groups need to have a voice in how policy is formulated. For this, it is important to have effective transparency, consultation mechanisms, communication campaigns, good governance over reallocated savings, and accountability.

Clear communication messages on the reasons behind the reforms are essential. The messages can be both negative and positive in focus, preferably targeted at different stakeholder groups: the government needs to convey both the negative socioeconomic effects of fossil fuel subsidies and the potential benefits of the reform for the affected groups. This might include political announcements, television, newspapers, leaflets, debates, websites, and any other suitable media channels (Beaton et al., 2013).

Meaningful consultations with interested stakeholders can also help build trust throughout the reform process. This is especially relevant in light of just transition considerations. Consultations are “meaningful” when they are used to collect information and views that help shape a reform plan, such as deciding how best to use fiscal savings to better assist the most vulnerable. Awareness-raising campaigns and consultations should not come as an afterthought but should be integrated throughout the reform process (Beaton et al., 2013).

Good governance and transparency over reallocated savings can be crucial for public acceptance. A transparent system to monitor and report on the programs financed in place of subsidies can help both for building trust and for government accountability.

Finally, sequencing of mitigation measures—so that alternative benefits are implemented before a reform takes place—can be one way to build support in the process when public trust in governing institutions is low. By putting in place mitigation measures before the reforms kick in, the government provides evidence that it intends to compensate businesses and households for any negative impacts of the reform, boosting public confidence in FFSR (Beaton et al., 2013).



Conclusion and Recommendations

In this submission, we aimed to address two questions of the *Revised Non-Paper by the Chairs of the SBSTA and SBI*, Questions 19 and 15.

In answer to the first question, we conclude that, in spite of some increases in finance flowing toward clean energy, fossil fuels continue to receive extensive funding from governments and public finance institutions. This is inconsistent with Article 2.1 (c) of the Paris Agreement, and we urge all parties to redirect financial flows toward spending consistent with the 1.5°C pathways.

In answer to the second question, we identify research establishing that FFSR is an important step to assist Paris implementation and a number of steps that can help overcome challenges. These include:

- **Improving the state of transparency on public financial support for energy.** Governments should at the very least immediately adhere to reporting requirements on fossil fuel subsidies under SDG indicator 12.c.1. Going forward, government, the private sector, and civil society organizations should prioritize filling in knowledge gaps in all aspects of public financial support for energy, including investments by SOEs, lending by public financial institutions, and the development of better comparative data on clean energy.
- **Improving the accountability of global commitments on shifting public support from fossil fuels to clean energy.** This should include setting clear timelines, more narrowly defining exclusionary clauses like “inefficient” and considering the establishment of financial and technical support for state and non-state actors in implementation. Governments can explicitly expand commitments on fossil fuel subsidies to all public financial flows, and seek to have existing commitments recognized in other fora, as well as setting out clear plans for shifting public financial flows in their NDCs.
- **At a national level, good planning is essential.** This has been particularly clear from experiences during COVID-19, where the state of planning on energy transition appears to have been instrumental in determining patterns of new public money commitments for energy, as governments stepped in to stimulate economies. Planning is also essential for the reform of support measures. Experiences from fossil fuel subsidy reform suggest three common steps:
 - **Getting the prices right:** This can include using price caps and floors or other automatic pricing features to implement a new regime without backsliding. For fuels linked to energy access, it may involve targeting subsidies to those most in need. It will also include increasing taxation to better reflect fossil energy externalities.
 - **Managing impacts:** This includes mapping out potential social and economic impacts and reallocating revenues into social protection and assistance for businesses to ensure a socially aspirational outcome from change. A just transition approach prioritizes decent work, social inclusion, and poverty eradication.
 - **Building support:** This includes meaningful stakeholder consultations on how to adjust prices and manage impacts, and robust evidence-based communications before, during, and after implementation.



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