

## Fossil Fuel Subsidy Reform

### Removing harmful incentives and appropriately pricing fossil fuel products

Policy Note – September 2024

---

#### Key Messages

- Ministries of Finance play a central role in determining the price of fossil fuel products through fiscal policy instruments like taxes and subsidies. As such, they are pivotal players in adequately pricing fossil fuels, phasing out inefficient subsidies and providing incentives to reduce emissions. The removal of fossil fuel subsidies will also help generate much needed fiscal space, including for green public investment, incentives to mobilize private investment in clean energy sources, and targeted social spending for vulnerable households.
- Reforms which seek to price fossil fuel products efficiently can be made as part of a comprehensive policy package that is socially equitable, politically acceptable and fiscally and environmentally sound.
- Country experiences highlight the need for a set of tailor-made transition policies, designed with regard to distributional impact, economic stability and energy security, phased in over time and effectively communicated to citizens, with public acceptability at their core.

#### Introduction

Fossil fuel consumption is the single largest contributor to global climate change, responsible for over 70 percent of greenhouse gas emissions.<sup>1</sup> Despite its clear negative environmental, fiscal and distributional impact, many countries around the world continue to subsidize fossil fuel consumption through generally applicable subsidies. In 2021, at the COP26 climate summit, countries agreed to phase out inefficient fossil fuel subsidies as soon as possible — a pledge which was reaffirmed in the subsequent COP27 and COP28 agreements.

Prompted in large part by surges in global energy prices driven by geopolitical tensions after the COVID-19 pandemic, the size of global fossil fuel subsidies has ballooned, and at substantial cost. The IMF estimates that between 2020 and 2022, total explicit fossil fuel subsidies (i.e., where the retail price is below the fuel's supply cost) across 170 countries more than doubled to USD 1.3 trillion (approximately 1.3 percent of global GDP).<sup>2</sup> In addition to their sizeable fiscal cost, since explicit subsidies in most countries are universally provided to all income groups, the benefits of such blanket subsidies tend to accrue disproportionately to higher income households, making them a highly regressive fiscal tool.

Implicit subsidies, on the other hand, occur when the retail price fails to include external costs of fossil fuel consumption. Implicit subsidies are significantly larger than explicit ones, as the costs of negative climate change impacts and local air pollution are often not reflected in the price of fossil fuels, especially for the most contaminating products such as coal and diesel.<sup>3</sup> Implicit subsidies were estimated by the IMF at USD 5.7 trillion in 2022 (or 5.7 percent of global GDP). Taken together, fossil fuel subsidies are estimated to account for USD 7 trillion, or 7 percent of global GDP.<sup>2</sup>

Getting the pricing of fossil fuel products right is critical to meeting countries' Nationally Determined Contributions' (NDC) targets and achieving global climate change goals set out in the Paris Agreement. The distortion of price signals resulting from both implicit and explicit subsidies can promote inefficient allocation of an economy's resources, encouraging the continued overconsumption of fossil fuels at artificially low prices, and discouraging investment in cleaner sources of energy, ultimately hindering sustainable longer-term growth and increasing global warming and air pollution.

Ministries of Finance (MoFs) play a central role in setting the right price for fossil fuel products, including consumption and corrective taxes, and other relevant levies. In setting fiscal policy,

countries are able to correct economic incentives through removal of inefficient explicit fossil fuel subsidies and the introduction of carbon pricing measures to address implicit subsidies. Removing explicit subsidies and internalizing negative externalities in the prices of fossil fuel products through carbon pricing measures can generate substantial budgetary savings, freeing up fiscal revenue to be redirected towards productive green public spending or incentives to boost private investment in cleaner sources of energy and technologies, as well as to reduce taxes on labor and investment. These reforms can also help to ease the transition to a lower carbon economy by addressing the short-run social and political pressures associated with the reform through well-targeted cash transfers to vulnerable households or support to energy-intensive and trade-exposed firms. In addition, for countries dependent on fossil fuel import for domestic energy consumption, the adoption of cleaner technologies can also reduce their exposure to international energy price volatility.

Against this background and in accordance with its mandate, the Coalition of Finance Ministers for Climate Action seeks to support its members on their efforts to better price fossil fuel products as part of its work under Helsinki Principle 3, to 'work towards measures that result in effective carbon pricing' and through the outcomes of the 11<sup>th</sup> Ministerial Meeting of the Coalition of Finance Ministers for Climate Action in April 2024. *Effective* carbon pricing means that countries adopt measures to achieve carbon price levels that are sufficient to incentivize the emission reductions needed to meet their own climate mitigation targets. These measures include reducing or eliminating inefficient fossil fuel subsidies and the introduction of taxes and tax-like measures, in particular carbon taxes but also including fuel excises, environmental duties, levies, charges, and emissions trading systems (ETs).<sup>4</sup> Such measures should be based on an impact assessment, considering the particularities of each country, and can be facilitated by international support.

## Defining and Measuring Subsidies

The first step to reforming fossil fuel subsidies is to understand the size of the problem and who benefits from the status quo. Establishing a robust methodology to accurately measure and estimate their fiscal cost is key. Presently, various institutions and governments employ differing approaches to measure subsidies, with some of the most relevant ones briefly summarized below. This diversity in methodologies highlights the need for a standardized framework to effectively identify and measure fossil fuel subsidies.

The International Monetary Fund's [fossil fuel subsidy database](#) estimates the size of subsidies by fuel and by country and is updated every two years, now covering a sample of 170 countries. The IMF estimates are based on the 'price-gap' method, defining a subsidy as the gap between efficient and current fuel prices. The estimated 'efficient' price reflects the full societal costs of fuel use—supply costs (e.g., labor, capital, raw materials); environmental costs, including carbon dioxide (CO<sub>2</sub>) emissions, local air pollution, and broader externalities associated with fuel use like road congestion; as well as general taxes applied to consumer goods. The IMF database distinguishes between explicit fossil fuel subsidies (i.e., where the retail price is below the fuel's supply cost) and implicit subsidies, which occur when the retail price fails to include external costs of fossil fuel consumption.<sup>5</sup>

The International Energy Agency (IEA) also publishes a [fossil fuel subsidy database](#) annually using the price gap approach, but measures only 'explicit' subsidies, comparing average end-user prices paid by consumers with reference prices that correspond to the cost of supply.<sup>6</sup> It estimates subsidies to fossil fuels that are consumed directly by end-users or consumed as inputs to electricity generation.

The price-gap approach reflects an estimate of the cost of policies that directly result in end-user prices below those that would occur in a competitive market. There are, however, a number of other government policies which indirectly encourage the production and consumption of fossil fuels. Indeed, a 'subsidy' is defined much more broadly by the World Trade Organization (WTO) as a "financial contribution" by a government which provides a benefit. The forms that a subsidy can take include: (1) a direct transfer of funds (e.g., a grant, loan, or infusion of equity); (2) a

potential transfer of funds or liabilities (e.g., a loan guarantee); (3) foregone government revenue (e.g., a tax exemption); or (4) the purchase of goods, or provision of goods or services (other than general infrastructure).<sup>7</sup>

Using this definition, the OECD measures the fiscal cost of support measures for fossil fuels using the 'inventory approach'. The [OECD Inventory](#), which covers 50 countries, provides a quantification of all budgetary transfers and tax expenditures that confer a benefit or preference for fossil fuel production or consumption relative to alternative energy sources, along with measures that create enabling conditions for the fossil fuel industry (e.g., through private or public services, institutions and infrastructure that may benefit the sector). In the case of tax expenditures, this requires defining a benchmark system against which to measure the value of the tax benefit provided. However, in taking this broader approach, it does not seek to measure the impact of such policies on prices. The OECD also then combines the inventory of support measures for fossil fuels and its database on effective carbon rates (reflecting carbon pricing measures) to produce a net Effective Carbon Rate indicator (see Garsous et al. (2023)).

The [Fossil Fuel Subsidy Tracker](#) is a database hosted by the OECD in collaboration with the International Institute for Sustainable Development (IISD). The estimates are gathered and reported separately from three international databases, adopting the OECD inventory approach for direct budgetary transfers and tax expenditures, and the IEA and IMF approach for price support measures or 'explicit subsidies' per IMF terminology.

The importance of measuring fossil fuel subsidies has also been recognized in the UN Sustainable Development Goals (SDG) process which created a dedicated indicator of measuring fossil fuel subsidies, 12.c.1 – "Amount of fossil fuel subsidies per unit of GDP". As custodian agency for the SDG indicator 12.c.1, the UN Environment Programme (UNEP) has developed a methodology to measure fossil fuel subsidies so as to provide guidance to UN member countries reporting on this indicator. The definitions of the IEA Statistical Manual (IEA, 2005) and the Agreement on Subsidies and Countervailing Measures (ASCM) under the World Trade Organization (WTO) (WTO, 1994) are used to define fossil fuel subsidies. To account for differing capacities in Member States, and with the intention to follow a phased approach to move from international datasets to national ones, the methodology for the SDG 12.c.1 indicator proposed a modular approach combining the 'inventory' approach for direct transfers and tax expenditures (as the OECD) and the 'price gap' approach for induced transfers and under-pricing (as the IEA or the IMF) in order to provide an aggregate indicator for each country.<sup>8</sup>

The wide range of available approaches to measuring subsidies suggests that greater communication and disclosure around the methodologies used across countries would be very informative for policymakers and the public alike. Recent research suggests that countries do not face a binary choice between approaches. For example, the inventory approach can be helpful in identifying policies that directly or indirectly support the use of fossil fuels, while the price gap approach is very useful in complementing the inventory approach by assessing which policies are most important from a climate damage and carbon pricing perspective (see, for example, Brink et al. (2023)).

## Role of Ministries of Finance

The extent of the Ministry of Finance's role in determining fossil fuel prices varies by country. In most cases, the MoF will propose tax instruments (as well as possible exemptions) on fossil fuel products, which are then enacted into law by the country's legislative branch. However, in the case of non-tax carbon pricing instruments, such as an emissions trading system, these would typically be designed and administered by Ministries of Environment, with enabling legislation requiring legislative approval.

If the government directly subsidizes the consumption or production of fuel or electricity, then the level of these explicit subsidies is typically established by the Ministry of Finance, in consultation with other ministries, and financed through the budget, which itself will require approval from the parliament or legislature. The same applies for tax rebates or credits.

In countries where there is some more active government intervention in the fossil fuel market, this can take a number of forms. Where fossil fuel (and electricity) prices are managed or fixed, this is usually done by an independent regulator (or sometimes the Ministry of Energy). In this case, the Ministry of Finance can have an oversight role, for example on a governing body overseeing the operations of the regulator, and in doing so can have some influence in the direction of regulated prices. In other cases, such as in Chile, retail prices vary by formula (to cushion domestic prices from international volatility), providing a more systematic basis for price variation, and thus limiting the need for regular discretionary intervention by the MoF in fossil fuel price markets (see Box 1 on the Colombian and Chilean cases).

In designing tax and expenditure policy, the MoF is a key policymaking institution with the tools to influence price signals and thus correct economic incentives in relation to fossil fuel consumption. This may be through consumption taxes such as fuel excises, or corrective carbon taxes and other relevant levies, or through fossil fuel subsidies. Removing explicit subsidies can generate substantial budgetary savings and additional corrective taxes can generate additional revenue. These resources can be directed towards productive green public spending or fiscal incentives to boost private investment in cleaner sources of energy and technologies, so as to spur the development of low-carbon alternatives. The MoF is also the key institution with the tools to mitigate the initial impact of increased fuel prices for households and firms. Fiscal space generated through the removal of explicit and implicit subsidies can help to ease the transition, for example, through support to vulnerable households or energy-intensive and trade-exposed firms. This fiscal space can also be used to incentivize investment in lower cost clean energy technologies, thus improving the investment climate and reducing costs over the medium term.

#### **Box 1: Regulating Fossil Fuel Prices in Colombia and Chile**

Since 2007, Colombia has maintained a fuel price stabilization fund (known as FEPC) aimed at mitigating the volatility of fossil fuel and biofuel prices in the domestic market. Although FEPC was originally intended to be fiscally neutral over the long term, it has accrued significant deficits over the years due to a discretionary clause that permits deviations from the automatic price adjustment formula embedded in the stabilization mechanism. Initially, fossil fuel prices were determined by the Ministry of Energy and Mines, while the fiscal responsibility for the fund lay with the Ministry of Finance. This misalignment led to persistent deficits, prompting the 2018-2022 National Development Plan (Law 1955 of 2019) to mandate that the Ministry of Finance shares the responsibility of setting fossil fuel prices with the Ministry of Energy and Mines. From that year onward, both ministries have been jointly responsible for establishing the calculation methodology for fuel prices and related costs, such as transportation and distribution margins, within the regulated Colombian market. They are also jointly responsible for managing price stabilization and subsidies through the FEPC.

In contrast, in Chile, the Fuel Price Stabilization Mechanism (MEPCO) automatically limits domestic price fluctuations on gasoline and diesel despite changes in international fuel prices. Effectively, the taxation on diesel and gasoline changes depending on international oil prices and the exchange rate, and in some cases, it can turn into a negative tax (subsidy). Since 2014, the year when MEPCO started to operate in its current form, changes in retail gasoline and diesel prices have deviated from changes in international oil prices. On a weekly basis, the Macroeconomic Policy Division of the MoF determines the variable component, which is added to the Specific Excise Tax. The objective of this component is to increase or decrease the excise, affecting the wholesale price of gasoline and, as a result, reducing the volatility that these have due to the dependence on prices that are determined in international markets.

## Considerations for Reform

While the conceptual case for inefficient fossil fuel subsidy removal is very clear, governments often face multiple challenges to take on such reforms in practice. History has shown that removal of subsidies is socially and politically difficult, with a number of countries enacting and then reversing reforms, prompted by political backlash or social unrest. While some countries have found it more politically acceptable to enact expenditure measures such as public investment and renewable energy subsidies, or to use non-market based mechanisms such as regulations and standards, these measures by themselves do not generate the full technological and

behavioral responses needed, and overreliance on government spending will cause a significant increase in debt levels.<sup>9</sup> Therefore, achieving climate goals in a sustainable manner requires a careful mix of policies tailored to a country's circumstances, and will require appropriate fossil fuel pricing policies to take a central role.

Corrections to the pricing of fossil fuel products can be made as part of a comprehensive policy package that is socially equitable, politically acceptable and fiscally sound, while ensuring macroeconomic stability and energy security. Country experiences shared during the 2024 Coalition of Finance Ministers for Climate Action events during the WB/IMF Spring Meetings suggest the need for a set of measures designed with regard to distributional impacts, phased in over time, and effectively communicated to the public.

**Measurement:** A sound methodology for measuring subsidies provides the foundation for understanding the extent of the issue and the price adjustment that is needed. Quantification and publication of data on subsidy expenditure in budget documents also has the effect of raising public awareness of the size of the government subsidy bill.<sup>10</sup> Clarity on the measurement methodology and how the results should be interpreted is also important, as fossil fuel subsidy measurement methodologies between and within countries sometimes differ. The Netherlands, for example, carried out three measurements between 2018 and 2023, with some changes in assumptions and the policies that fell within the scope. These yielded figures that varied greatly between EUR 4bn and EUR 45bn annually. This shows the need for a well-thought-out approach to measurement. For the next budget, the Netherlands will use both the inventory and price-gap approach to measure subsidies, as both provide relevant insights in the extent of the issue.

**Design:** A comprehensive well-defined set of measures can be helpful.

- To protect vulnerable consumers, a portion of the revenues previously directed towards explicit subsidies could be used to compensate for higher energy prices through means-tested targeted cash transfers to low-income households, commensurate with the welfare loss associated with the reform. If needed, support could also initially be provided to energy-intensive firms to help ease the transition. In Ireland, carbon tax revenues are hypothecated and channeled towards farmers to address fuel poverty issues. Uruguay and recently Ecuador have sought to protect low-income households when adjusting fuel prices. However, rather than direct support, they have focused on public transport prices. Therefore, public transport services that run on gasoline have not increased tariffs, minimizing the potential impact on vulnerable households, reducing the secondary effect on the provision of other goods and services, and increasing the acceptability of the reform. In Uruguay, energy-intensive trade-exposed industries also benefit from a lower tax on fossil fuels. Regular monitoring of the impact of the reform on stakeholders would allow governments to assess its effectiveness and revise as needed.
- Institutional reforms that depoliticize energy pricing may also play a role when removing subsidies, for example, through the introduction of automatic pricing mechanisms. In Ireland, the carbon tax has been legislated to increase automatically as part of the budget process – this 'hardwiring' of policy reduces the risk of policy reversal and also allows the government to more confidently project the expected revenues from carbon taxes over the medium term. In both Norway and in Cyprus, which introduced a carbon tax in 2024, the authorities have set a clear medium-term path of the level of taxation and has communicated this clearly, with the aim of building this into public expectations. When Singapore introduced a carbon tax in 2019, it announced the carbon tax trajectory until 2030 to support the country's enhanced net zero target, with the carbon tax levels up to 2027 enacted in legislation. This approach also allows households and firms to build in future price increases when making investment decisions with longer pay back periods (e.g., when purchasing electric vehicles or investing in renewable energy generation).

**Pace and Timing:** A tailor-made, case by case approach to subsidy removal, combined with complementary measures to support vulnerable households and firms can also help to weather both the social and the macroeconomic impact of the reform. Uruguay credits its phased



approach as a key determinant of policy success, allowing the government to get buy-in from the public and from businesses. The sequencing of measures is also an important design consideration—ensuring the implementation of support measures prior to or at the same time as the fossil fuel subsidy removal can help households and businesses manage the impact of resulting price increases. The saliency of such support measures may also improve public acceptance of reform.

The overall macroeconomic climate also plays a clear role in the success of reforms – periods of steady economic growth and relatively low inflation have been shown to be most conducive to reform. Ideally subsidies can be phased out as international commodity prices fall. In Ecuador, following a series of subsidy reform attempts and reversals between 2018 and 2020, the decline in oil prices during the pandemic period opened up a window of opportunity that was seized by the government in order to minimize the impact of the reform on the economy.

**Availability of Substitutes:** Complementary policies and public investment to ensure the availability of cleaner and lower cost substitutes for consumers as fuel prices rise (e.g., renewable energy, improved public transport, or electric vehicles with lower variable input costs) can improve the social acceptability of subsidy reforms, as well as their impact on emissions reduction. Portugal's high-capacity public transport system has facilitated its reforms of fossil fuel subsidies. A number of countries (e.g., Norway and Ireland) have complemented their fuel pricing reforms with fiscal incentives to encourage the uptake of electric vehicles, along with investment in power charging stations to make the use of EVs practical as well as economical. In Norway, more than 90 percent of new cars purchased in 2023 were electric vehicles. Without the availability of cleaner substitutes, subsidy reform can often lead to unintended consequences. In Ecuador, the removal of a cooking gas subsidy led people to start cutting down and burning forest wood, with negative environmental consequences. International support can play an important role for developing economies to foster such investments in complementary policies while preserving debt sustainability.

**Communication:** Subsidy reforms are likely to come against significant resistance from those benefiting from the subsidies, especially if the rationale of the reform is not properly explained. Indeed, both advanced and developing countries (such as Australia and Ecuador) note the challenges associated with a lack of social and political support as a key barrier to reform. Indeed, Ecuador has experienced multiple episodes of social unrest following its attempts at subsidy removal in the past. Public acceptance of reforms can be increased through clear communication of the reform, a realistic indication of possible revenue gains from reform<sup>11</sup>, and of how the revenue will be spent (e.g., public investment, tax reductions, social transfers). However, this is a challenge since the benefits are perceived over longer-term horizons, but the costs are felt immediately. The political cycle and the increasing spread of misinformation has made this especially challenging.

**Political Will and Dialogue:** The willingness of leaders to resist pressure and defuse political tension is important. Transparent dialogue with special interest groups that may challenge reform is a key factor to reduce the likelihood of policy reversal due to political pressure. Subsidies that have been provided to particular sectors are hard to remove. Through careful communication and dialogue, Ecuador eliminated a diesel subsidy in 2022 going to large shrimp farms in an effort to better target subsidies to much smaller players and the poorer segments of the population.

**International Coordination:** Spillover effects are evident in phases of fuel pricing reform. In Ecuador, fuel prices are up to ten times lower than in neighbouring countries, with the resulting smuggling of fuel to other countries further adding to the government's subsidy outlays. And such effects are not unique developing countries. When Sweden reduced their tax on diesel and biofuel requirements in 2024, this moved a significant amount of fuel demand from Denmark to Sweden. In addition to the fiscal impact, such cases can also result in carbon leakage (the environmental impact of the policy is reduced as consumption or production is shifted to another country). Regional and international coordination can be helpful in solving these collective action problems.

**Legal Barriers:** A number of fossil fuel subsidies are enshrined in international treaties, and as such cannot be phased out unilaterally by any individual country, for example, in air transportation. These are estimated to represent almost half of fossil fuel subsidies in the Netherlands in its latest fossil fuel subsidies measurement. For maritime transportation, while there are no legal restrictions on taxation of fuel, the tax base is highly mobile and without coordination among key countries involved in the sector, taxation in one country would simply encourage refueling in other lower cost locations. Coordination among key industry players is necessary to allow for appropriate taxation of emissions in these sectors.

#### **Box 2: Policy and technical support from Institutional Partners**

The **IMF** provides tailored climate-related policy advice through (1) in-depth coverage of macro-relevant climate issues (adaptation and mitigation policies, and energy transition management) in Article IV consultations; (2) comprehensive Climate Policy Diagnostics for countries receiving funding through the Resilience and Sustainability Facility; (3) tailored policy advice and capacity development on adaptation and mitigation policy, including the fossil fuel subsidy reform and carbon pricing; and (4) analytical and policy research covering different mitigation policy approaches. In addition, the IMF-WB Climate Policy Assessment Tool allows for modelling analysis of the fiscal, economic and climate impact of different mitigation tools, including the phase-out of subsidies and the introduction of carbon pricing and emissions trading schemes.

**The Council on Economic Policies (CEP)** has two workstreams that cover fossil fuel subsidies. Based on its work on “tax expenditures” – such as tax exemptions, tax deductions and tax credits – it can offer technical assistance in relation to the measurement, evaluation and reform of fossil fuel subsidies that are channelled through tax expenditures. Through its engagement on “fiscal policies and regulatory frameworks for sustainable energy” it can support countries in the consideration of fossil fuel subsidies reform in the context of broader policy mixes in support of affordable, secure and clean energy.

**UNEP**, with the **IISD** Global Subsidies Initiative (GSI) and **OECD** [published a methodology manual on measuring fossil fuels in the context of the SDGs](#), in its role as the custodian agency for SDG indicator 12.c.1. Fossil fuel subsidy reform is a key priority for the G7 and for UNEP. The manual was developed through an expert consultation and pilot testing in [Zambia](#), [Egypt](#) and [India](#). The process also involved the establishment and convening of an international expert group (IAEG) that provided advice on the methodology and on the operationalization of the methodology. The methodology recommends a phased approach, moving gradually from global to national datasets. This should build as much as possible on existing statistical systems. To facilitate the reporting by national governments and the harmonization with and integration into existing statistical systems, UNEP offers capacity development support to Member States and recommends developing practical guidance notes on how to measure and monitor specific types of subsidies in the existing statistical frameworks.

The **OECD's** [Inclusive Forum on Carbon Mitigation Approaches](#) (IFCMA) is in the process of systematically collating knowledge on the different types of measures, their effectiveness and more generally on countries' experiences with climate mitigation instruments.

## Further Resources for Finance Ministries

### Papers

- [Coalition of Finance Ministers for Climate Action: Explanatory Note to the Coalition Principles.](#)
- Flurim Aliu and Agustin Redonda (2023). '[Fossil Fuel Tax Expenditures, Data Gaps and Reporting Guidelines.](#)' Council on Economic Policies Discussion Note.
- Corjan Brink, Arjan Trinks, Herman Vollebergh, and Peter Zwaneveld (2023). '[Abolishing fossil fuel subsidies: a brain teaser rather than a no-brainer.](#)' PBL Netherlands Environmental Assessment Agency.
- Simon Black, Ian W. H. Parry, Nate Vernon, and Antung A. Liu. (2023). '[IMF Fossil Fuel Subsidies Data: 2023 Update.](#)' Working Paper No. 2023/169.
- Simon Black, Ian W. H. Parry, and Karlygash Zhunussova (2023). '[Is the Paris Agreement Working? A Stocktake of Global Climate Mitigation.](#)' IMF Staff Climate Note 2023/002.
- Grégoire Garsous, et al. (2023). '[Net effective carbon rates.](#)' OECD Taxation Working Papers, No. 61, OECD Publishing, Paris.
- International Monetary Fund (2023). '[Climate Crossroads: Fiscal Policies in a Warming World.](#)' Fiscal Monitor.
- Tara Laan and Ronald Steenblik (2023). '[Challenges and Opportunities for the Reform of Fossil Fuel Tax Expenditures in Developing and Emerging Economies.](#)'
- United Nations Environment Programme (2019). '[Measuring Fossil Fuel Subsidies in the Context of the Sustainable Development Goals.](#)'
- Richard Damania, et al. (2023). '[Detox Development: Repurposing Environmentally Harmful Subsidies.](#)' Washington, DC, World Bank.

### Fossil Fuel Subsidy Databases

- IEA Fossil Fuel Subsidy Database: <https://www.iea.org/data-and-statistics/data-product/fossil-fuel-subsidies-database>
- IMF Fossil Fuel Subsidy Database: <https://www.imf.org/en/Topics/climate-change/energy-subsidies>
- OECD Inventory: <https://www.oecd.org/fossil-fuels/>
- [OECD Taxing Energy Use Database: https://www.oecd-ilibrary.org/taxation/taxing-energy-use\\_efde7a25-en](https://www.oecd-ilibrary.org/taxation/taxing-energy-use_efde7a25-en)
- OECD-IISD Fossil Fuel Subsidy Tracker: <https://fossilfuelsubsidytracker.org/>
- UNEP Indicator 12.c.1: <https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-12-9>
- Global Tax Expenditures Database (GTED): <https://gted.taxexpenditures.org/>

### Other Fossil Fuel Subsidy Reform Initiatives

- Friends of Fossil Fuel Subsidy Form: <https://ffsr.org/>
- "The Coalition on Phasing Out Fossil Fuel Incentives including Subsidies" (COFFIS, preliminary name), led by the Netherlands, with IISD as Secretariat: [Joint statement on Fossil Fuel Subsidies | Diplomatic statement | Government.nl](#)

---

<sup>1</sup> Emissions Database for Global Atmospheric Research, 2023 Report, [GHG emissions of all world countries](#)

<sup>2</sup> Black, Simon, Ian W. H. Parry, Vernon Nate, and Antung A. Liu. 2023a. "IMF Fossil Fuel Subsidies Data: 2023 Update." Working Paper No. 2023/169, August. <https://www.imf.org/en/Publications/WP/Issues/2023/08/22/IMF-Fossil-Fuel-Subsidies-Data-2023-Update-537281>

<sup>3</sup> Implicit subsidies, per the IMF methodology also include externalities such as congestion, road damage and road accidents.

<sup>4</sup> [Coalition of Finance Ministers for Climate Action: Explanatory Note to the Coalition Principles](#)

<sup>5</sup> Black et al (2023a)

<sup>6</sup> <https://www.iea.org/data-and-statistics/data-product/fossil-fuel-subsidies-database#overview>

<sup>7</sup> WTO Subsidies Agreement.

<sup>8</sup> <https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-12-9>

<sup>9</sup> See International Monetary Fund (2023) for a discussion of the policy trilemma between achieving climate goals, fiscal sustainability, and political feasibility.

<sup>10</sup> See Brinks et al (2023) for a discussion of identification and measurement of policies that constitute either direct and indirect fossil fuel subsidies.

<sup>11</sup> For example, if a tax exemption on fossil fuel products is removed, changes in consumer behavior may result in smaller fiscal gains than expected.