

A large, intricate yellow wireframe graphic is positioned on the left side of the cover. It features a complex, overlapping grid of lines that form a series of concentric, circular patterns, resembling a stylized globe or a network structure. The background of the entire cover is a photograph of an industrial facility with several tall smokestacks emitting thick plumes of white and grey smoke. The sky is a mix of blue and orange, suggesting a sunrise or sunset. In the foreground, there are some multi-story residential buildings.

# Fossil Fuel Subsidy Reforms

LESSONS AND OPPORTUNITIES

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The production and use of energy is the leading cause of the climate crisis: it accounts for three-quarters of human-caused greenhouse gas emissions. Photo: Vasilkamilov/Shutterstock.com

# FOREWORD

We are no longer waiting for climate change to draw near. We are living through it. And it is now “widespread, rapid, and intensifying”. The production and use of energy from fossil fuels is the primary cause of the climate crisis, accounting for approximately three-quarters of global greenhouse gas emissions. Yet Governments across the globe are subsidizing fossil fuels to the tune of approximately \$423 billion every year. As a result, both people and planet are paying a heavy price as our climate changes. Our natural world is on track to lose one million plant and animal species, many within decades. People across the world are being forced from their homes as extreme weather increases in frequency, intensity and severity. And exposure to air pollution is estimated to cause seven million premature deaths annually.

To limit global warming to 1.5 degrees Celsius, global greenhouse gas emissions must be cut by 45 per cent by 2030 compared to 2010 levels. To get there, “we need to end fossil fuel subsidies, put a price on carbon and shift taxation from people to pollution” as the United Nations (UN) Secretary-General, António Guterres has put it.

*Fossil Fuel Subsidy Reform: Lessons and Opportunities*, outlines how Governments across the world can accelerate this clean energy revolution while recognising that reforming decades-old fossil fuels subsidies is a daunting task. Part of the *Future Investment* series, it provides macroeconomic and political insights on how to move public resources away from fossil fuels in a socially equitable and economically sustainable manner. It also outlines the factors that make energy pricing reforms successful, and why. It outlines case studies from countries including Indonesia, Chile, France, Iran -- and Ghana where a conditional cash transfer programme was introduced to link fuel subsidy reductions to the elimination of school fees for primary and secondary education. In doing so, it provides a comprehensive analysis of the critical political economy, distributional impacts and social elements that are sometimes overlooked by policymakers.

Removing fossil fuel subsidies is perhaps more vital than ever as countries across the globe aim to build forward better from the devastating socio-economic impacts of the COVID-19 pandemic. Crucially, Governments can redirect these finances towards green, sustainable development projects that advance the Global Goals.

As a result of the 2021 High-Level Dialogue on Energy (HLDE), the world has a renewed collective will to meet the targets for clean, affordable energy for all set out in Sustainable Development Goal (SDG) 7 -- towards net-zero emissions by 2050 in line with the Paris Agreement. The new Global Roadmap, agreed at the HLDE, calls on Governments, the private sector and civil society to close the energy access gap and accelerate the clean energy transition by tripling investments in clean energy and energy efficiency by 2030. It also calls for a phasing out of coal by 2030 for OECD countries and by 2040 for all others. Moreover, it urges for fossil fuel subsidies to be shifted towards renewable energy investments. This will help to ensure a just and inclusive transition with new green, decent and healthy jobs.

As the UN's development arm, the United Nations Development Programme (UNDP) is the heartbeat of these efforts in developing countries across the world. Because we won't manage to achieve the SDGs without achieving universal access to clean energy, we are stepping up our energy work to help countries accelerate their energy transition. That includes our ambitious commitment to collaborate with our partners to provide 500 million additional people with access to clean and affordable energy by 2025.

With the entire UN system and our partners on hand to support the clean energy revolution, we hope that this report will help Governments across the world to finally turn the page on fossil fuels.



**Achim Steiner**

Administrator, United Nations Development Programme (UNDP)  
Co-Chair, UN-Energy

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References

- IPCC, 2021
- IPBES Global Assessment Report on Biodiversity and Ecosystem Services, 2019
- World Meteorological Organization, 2021
- World Health Organization, 2021
- IPCC, 2018
- United Nations Secretary-General Statement, End Fossil Fuel Subsidies, Bolster Funding for Renewable Energy Particularly in Africa, Secretary-General Tells Round Table on Clean Power Transition, 2021
- UN-Energy, 2021

# KEY MESSAGES

Removing fossil fuel subsidies is a first step towards correctly pricing energy, reflecting the true and full cost of using fossil fuels to society and the environment. However, if poorly planned, fossil fuel subsidy reform can lead to price increases that could disproportionately impact the poorest households and trigger social unrest.

Ensuring social and political acceptability is a key enabler of successful energy pricing reform. Beyond being environmentally impactful, such reforms must be socially and economically fair. Such acceptability is influenced by broader social, economic and political trends, including the level of public trust in governmental institutions.

UNDP's research found that **four factors** are key for a successful fossil fuel subsidy reform.

- **A better understanding of the socio-economic contexts of communities likely to be affected by such reforms:** Undertaking successful fossil fuel subsidy reform requires a clear analysis of existing levels of subsidy support, the reasons for their existence in the first place, as well as the distributional impacts of withdrawing it. A key factor is stronger expenditure survey data and accompanying analysis, complemented by qualitative research into local vulnerability and the spill over effects of subsidies.
- **Timing and sequencing of reforms:** Governments should enact a gradual approach to price reform to enable households and firms to adjust wherever possible, while recognizing that windows of opportunity may warrant a step-change in pricing policies.
- **Compensation and wider expenditures, including capacity to deliver:** Fossil fuel subsidy reforms need to include compensatory measures that target the poorest and most affected households, including developing social safety nets. They should focus on reinforcing existing social welfare benefits, including cash transfer mechanisms and temporary basic incomes.
- **Communication strategies and stakeholder engagement:** Policymakers should conduct effective public communication, and deep stakeholder engagement to secure buy in across society and different sectors. Public support is fostered when the environmental effectiveness and/or progressive distributive impacts of reform are clearly explained and demonstrated. One pillar for success is building consensus around key approaches to implementing reforms, working closely with experts and opinion leaders.

# SUMMARY

Fossil fuel subsidy reforms risk lowering consumer welfare, particularly among the poorest and most marginalized households, if they do not incorporate targeted support for disproportionately affected groups. Such issues have been brought into sharp focus by a wave of social disturbances in response to price reforms and widening inequalities in countries such as Chile, France, Iran, Bolivia and Lebanon in 2018 and 2019. However, successfully removing energy subsidies is key to strengthening fiscal positions and improving human health in many developing countries, as well as reducing greenhouse gas emissions cost-effectively.

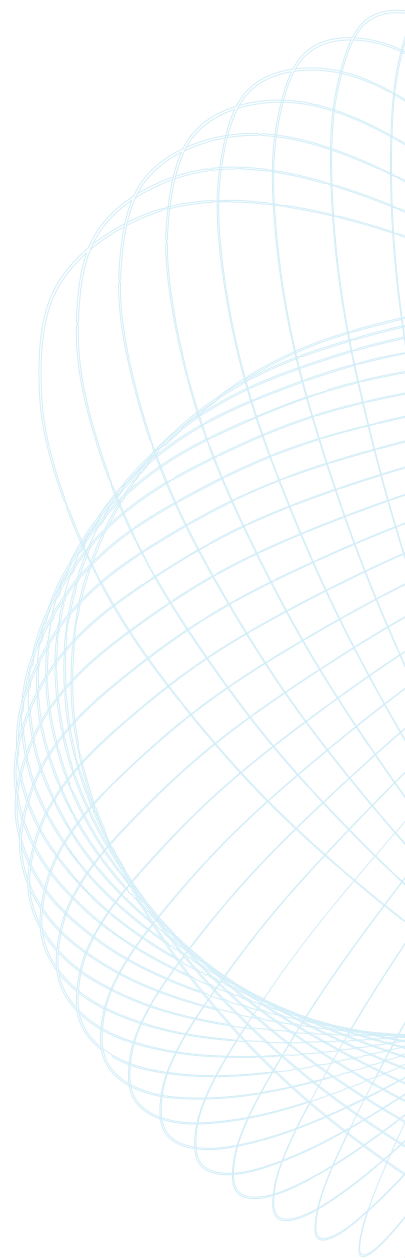
In this context, it is important to note that the emergence of the COVID-19 crisis has only bolstered the underlying rationale for such reforms. In particular, the significant deterioration of public finances in many countries caused by the downturn (and the policy responses to it) has increased the value of the fiscal space created by removing energy subsidies. Moreover, the associated decline in the market price of fossil fuels may help facilitate their timely removal because the impact of removing the subsidy will be felt less by consumers, particularly among fuel-importing countries.

This paper analyses experiences and best practices in energy pricing reform by comparing outcomes and drivers in five case-study countries that were selected to illustrate the impact of different implementation choices across divergent social, economic and political settings. It argues that ensuring the social and political acceptability of these choices is a critical enabler of successful reform. Broader social, economic and political trends also influence this acceptability, including the level of public trust in governmental institutions as part of a renewed social contract.

Such analysis requires a clear understanding of the existing levels of subsidy support and the distributional impacts of withdrawing it, considering specific vulnerabilities and adaptive responses, particularly among the poorest households. In addition, given the high degree of state participation in energy value chains, this study finds that measuring and tracking the removal of energy subsidies has broad and potentially complex institutional ramifications in the energy sector, including for improved accounting and financial management and broader governance reforms.

Political factors are shown to be an important driver shaping the timing and intensity of reform implementation. While gradual and predictable price increases are desirable from economic and social perspectives to limit disruptions to households and firms, political economy factors are key to successful implementation. Specifically, the ability to execute political leadership—which is often linked to the timing and outcome of election cycles—creates windows of opportunity that may justify a less gradualist approach to reform during opportune periods.

Developing social safety nets to protect and empower people is central to promoting more socially and politically acceptable outcomes. Such reforms should focus initially on extending and reinforcing existing social welfare benefits, including cash transfer mechanisms such as temporary basic incomes. Support should prioritize vulnerable populations like informal and low-wage workers, women and young people, refugees and migrants and people with disabilities, all of whom are disproportionately impacted. However, many of the case studies show that





technical and capacity constraints weaken the implementation of complementary measures. As such, reinforcing and extending social assistance programmes requires broader efforts to develop institutional and technical capacity as part of longer-term investment in social protection. This is an opportunity for transformative change, one that links the COVID response to an equalizing, resilient and sustainable post-COVID recovery.

Effective public communication strategies and deep stakeholder engagement are also key to successful subsidy reform. Achieving this requires clear, direct interaction with stakeholders: an emphasis on the underlying rationale for change is central to effective energy pricing reform. Communication strategies should reflect public priorities and clearly demonstrate the links between energy pricing reform and wider policy outcomes. Managing and coordinating internal governmental stakeholders is also critical for effective policy development and implementation.

Overall, this case study confirms the validity of a number of core conclusions on best policy practices found within the substantial body of knowledge on enabling energy subsidy reforms that has built up over many decades. However, it highlights the importance of achieving greater political and social acceptability in the context of what are often primarily economic policy guidelines. This requires an understanding of the political, social and policy drivers that led to the decision to implement subsidies in the first place and a focus on actively mitigating these influences as part of the reform process.

In light of a recent spate of failed reforms, renewed efforts are required to interpret and adapt policy best practices to evolving and heterogenous local circumstances. While a substantial body of existing knowledge can guide energy subsidy reforms, capacity and information deficits continue to impede progress. These include a need to better understand distributional and price impacts; the role of information in shaping household behaviours, attitudes and public spending priorities; and the impact of overlapping policy goals and instruments, including in relation to climate change.

In 2020, a new human development crisis unfolded, shifting the global context: COVID-19. The pandemic has plunged many countries into a deep economic downturn, which has bolstered the rationale for a reform of fossil fuel subsidies.

Oil prices dropped to historical lows in 2020, potentially facilitating reform, but have since mostly recovered to pre-crisis levels. On the other hand, COVID-19 threatens to unravel decades of development. For the first time in 30 years, poverty is rising. Like climate change, COVID-19 acts as a poverty multiplier, hitting the most vulnerable hardest. Public resources are sorely needed to bring humanitarian assistance to communities around the world and build stronger safety nets for them. Resources that can be gained by removing fossil fuel subsidies and carbon pricing can be channelled into social protection and expanding the opportunities for hundreds of millions of disproportionately vulnerable people who face the harshest realities if climate change goes unchecked.

As countries prepare for the post-COVID era by developing stimulus plans for economic recovery, governments face a choice: they can either postpone the transition from fossil fuels to renewables by a few years, at the cost of making the eventual transition far costlier and fraught with major risks stemming from escalating climate feedback loops and irreversible changes such as melting glaciers, vanishing polar ice cover and extinct species; or they can embark on the transition now—still at considerable cost, but one that is far lower over the decades and entails a much better chance of avoiding the worst risks.

# I. INTRODUCTION

**Energy subsidy reform is a critical development issue for many countries.**

**Fossil fuel subsidies sap governments of the funds they need to provide essential public services.** Energy subsidies to consumers alone cost around US\$425 billion in 2018 (IEA, 2018a). An additional \$70–\$100 billion per year in subsidies are allocated to fossil fuel producers globally (Runnalls, 2009). As such, addressing the current underpricing of energy may also create the much-needed fiscal space to attain the Sustainable Development Goals (SDGs).

**Given the recent significant deterioration in public finances, these resources are now needed more than ever.** Overall government debt rose by 16.3 percent of gross domestic product (GDP) in low-income and developing countries between 2012 and 2020 and by 23 percent among the subset of oil-producing nations over the same period (IMF, 2020). The COVID-19 crisis and policy responses to it only deepen the challenge, with the fiscal balance in these countries projected to worsen by 1.6 percent of GDP in 2020 compared to 2019, and by 6.6 percent among oil producers (IMF, 2020).

**Fossil fuel subsidies also contribute to wider social and environmental problems that are being felt acutely, particularly in developing countries.** Fossil fuel combustion exacerbates air and water pollution and contributes to wider social and economic issues, including urban congestion. Fossil fuel subsidy reforms would thus benefit human health and well-being: air pollution alone is currently estimated to cause 4.2 million premature deaths globally each year, 90 percent of which are in developing countries (Campbell-Lendrum and Prüss-Ustün, 2019; WHO, 2018).

**Removing fossil fuel subsidies is also an essential first step towards climate mitigation.**

**Energy subsidy reform is key to reducing emissions.** By lowering the final price to consumers, an energy subsidy may be viewed, somewhat simplistically, as a negative carbon price.<sup>1</sup> For example, in a study of 26 developing countries, removing fossil fuel subsidies was found to reduce emissions by an average of 6.4 percent by 2025 compared to business as usual (GSI, 2019a). Liberalizing energy prices, which is a significant undertaking in some cases, is thus an important first step towards climate change mitigation in many developing countries.

**Subsidy reform is also likely to be more cost-effective than alternative policies, such as subsidies for clean technologies.** As with broader carbon pricing, energy subsidy reform could be a highly cost-effective means of reducing greenhouse gases, in part because it creates stronger incentives to use energy more efficiently (IMF, 2019b; Stiglitz and Stern, 2017). For example, the Organisation for Economic Co-operation and Development (OECD) (2013) found that carbon pricing could reduce emissions in the electricity sector for less than one-fifth the cost, on average, of alternative policies such as feed-in tariffs or capital subsidies.<sup>2</sup>

<sup>1</sup> However, in some circumstances, energy subsidies may not reduce prices: for example, where a cross-subsidy exists between different consumer groups or between consumers and producers. In such instances, the net impact on emissions is ambiguous.

<sup>2</sup> Non-market-based policies, such as product regulations, have also proved expensive. Examples of these include mitigating emissions from the road transport sector (Jones and Keen, 2011).

**Current fossil fuel price signals convey incentives that directly contradict the objective underlying the nationally determined contributions (NDCs): to reduce emissions.** Policymakers are thus signalling contradictory objectives through their quantity and price signals. As a further argument, oil is a key feedstock for producing plastics: discontinuing the subsidy there would make plastics less “cheap” compared with sustainable alternatives in packaging, etc.

## **PROGRESS ON ENERGY SUBSIDY REFORM HAS BEEN MIXED, REFLECTING IMPLEMENTATION CHALLENGES**

**Progress on energy subsidy reform has been mixed to date.** More than 40 countries undertook some form of subsidy reform between 2015 and 2017 (Zinecker et al., 2018).<sup>3</sup> Global pre-tax energy subsidies fell by more than half between 2012 and 2016, supported by both declining market prices and policy measures (Coady et al., 2019). However, overall support levels remain stubbornly high and could rise further if fossil fuel prices recover, as they did in 2017 and 2018 (OECD, statistics). Despite the G20 commitment in 2009 to “rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption”, these governments continue to provide around \$150 billion per year in subsidy support across the entire value chain. This support is trending upward in countries such as Australia, Brazil and Italy (GSI, 2019b).

**This reflects a wide range of economic, political and social challenges associated with implementing energy subsidies.** Economists widely oppose energy subsidies because of their high fiscal costs, their distortionary impact on resource utilization and the tendency for benefits to accrue disproportionately to the highest income groups (Fedelino et al., 2017). However, despite this compelling logic, energy subsidy reforms entail ongoing challenges. At the macroeconomic level, removing them can result in inflationary pressures and other adjustment costs. This can also be highly contentious from both the social and political perspectives, given that access to cheap energy is critically important for household welfare, particularly among poorer families, among whom these costs account for a higher overall share of total expenditure.<sup>4</sup> Moreover, powerful interest groups among the subsidies’ beneficiaries can obstruct reforms (Olson, 1965; Stigler, 1971; Peltzman, 1989).<sup>5</sup>

**Associated technical, administrative and informational constraints are also factors.** Energy subsidies commonly evolve from efforts to insulate consumers from high prices, as subsidies are a relatively simple way of supporting household incomes. This reflects present and historical limitations on institutional capacity to implement alternative social protection measures (Inchauste and Victor, 2017; WBG, 2017; Victor, 2009). In addition, appropriate policy reforms must recognize a fundamental problem shaping political choices: the benefits of subsidies are often felt immediately, while the costs are often hidden in future public debt repayments or longer-term foregone development expenditures. This problem may be exacerbated by the incentives for corruption and organizational influence that arise from substantial financial flows to resource industries or subsidy administrators and the hidden nature of many of the costs of such policies and behaviours. Successful reform efforts often require both an understanding of the political forces shaping earlier decisions to implement subsidies and explicit efforts to mitigate those political and societal forces as part of the reform process (Victor, 2009; Inchauste and Victor, 2017).

<sup>3</sup> Some 96 of the 146 NDCs currently refer to carbon pricing as a policy option (WBG, 2019). Fossil fuel subsidy reforms have been explicitly integrated into these climate change policy packages by a number of countries, including Ghana (one of the countries studied in this paper).

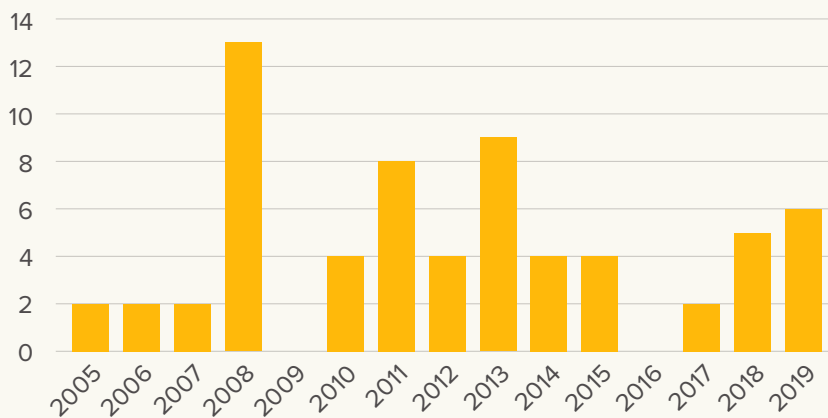
<sup>4</sup> Such political concerns among parliamentarians in Iran were instrumental in postponing a second phase of the subsidy reform in 2012 (Clements et al., 2013).

<sup>5</sup> The “populist paradox” highlights the higher propensity for less democratic governments to subsidize fuels, at least in part to confront threats to their perceived legitimacy.

## THE IMPORTANCE OF POLITICALLY AND SOCIALLY ACCEPTABLE ENERGY SUBSIDY REFORM IS INCREASING, AS ARE THE CHALLENGES AROUND THIS

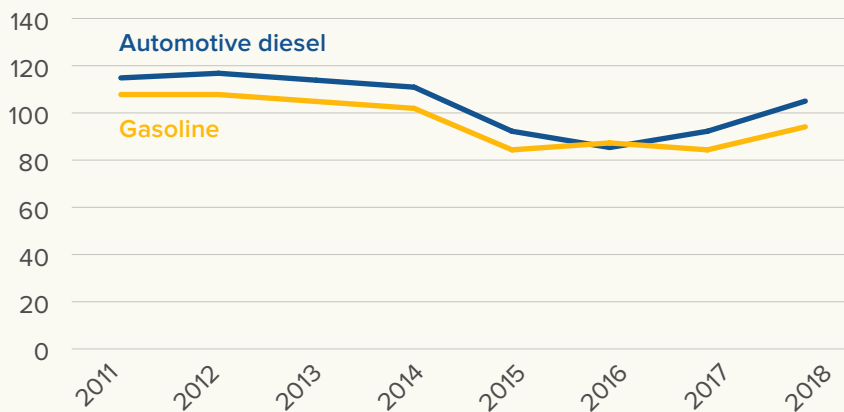
The waves of social unrest in 2018 and 2019 arose in response to price reforms in fuel and related energy services in countries that included France, Chile, Iran, Lebanon and Bolivia. These reforms were also spurred by a moderate recovery of global fossil energy prices between 2017 and 2019 (Natalini, Bravo and Newman, 2020). These trends are outlined in figures 1, 2 and 3. Weaker employment and lower household prosperity resulting from the COVID-19 crisis could also increase social and political sensitivities to future subsidy reform, despite lower energy prices in the shorter term.

Figure 1: Annual frequency of global fuel protests<sup>6</sup>



Source: Natalini (2016) and Natalini, Bravo and Newman (2020).

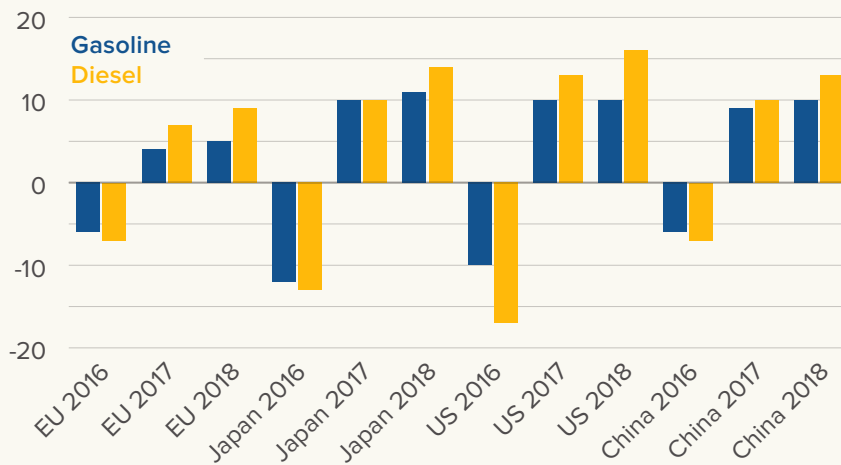
Figure 2: Transport fuel prices, annual world average, US cents/litre, 2011–2018



Source: IEA.

<sup>6</sup> This refers to a violent upheaval in response to the scarcity or prices of fuel or policies affecting fuel subsidies.

**Figure 3: Transport fuel price changes, annual regional average, percentages, 2016–2018**

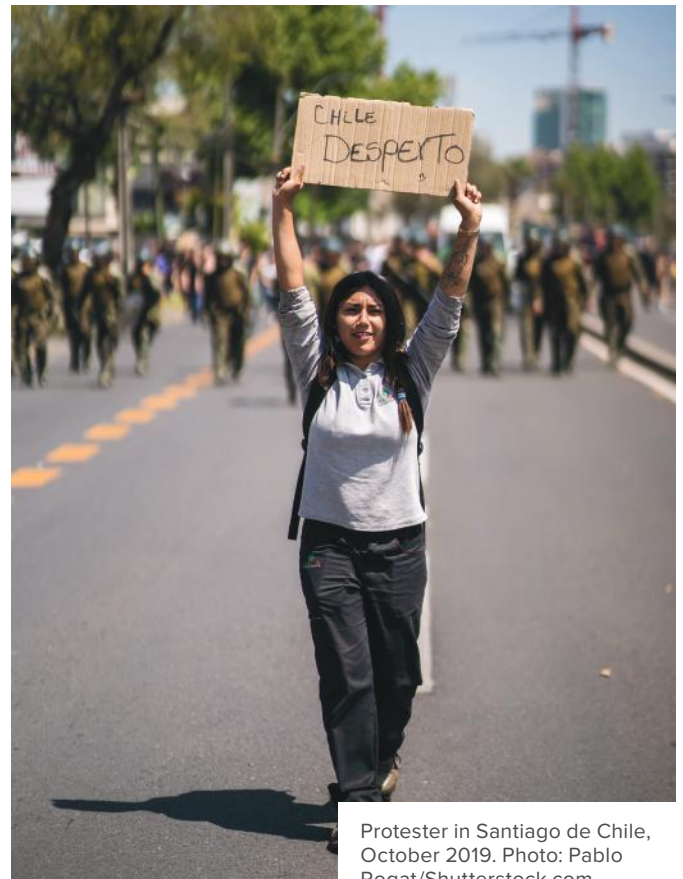


Source: IEA.

**These episodes of civil unrest have often decisively shaped outcomes by favouring the continued mispricing of energy services.** For example, the proposed carbon taxes on transportation fuels in France were abandoned following civil protest by the *gilets jaunes* (Yellow Vest Movement). The implementation of a new metro ticket pricing system in Santiago, Chile, triggered a wave of social protest that spread across the country and was subsequently reversed. It is thus key to understand the circumstances in which energy subsidy reforms become politicized and potential strategies for limiting such risks and impediments.

**Concerns over the fairness of price increases commonly underlie these protests.** Social opposition in Chile and France was initially concentrated among low-income workers, who were heavily impacted by increased commuting costs and who had limited capacity to adapt to the reforms, including because they lacked alternative public transportation services. Understanding the local issues, including the spillover effects of subsidies, such as poor service quality, are thus central to a broader understanding of the distributional implications of subsidy reform.<sup>7</sup> It is worth noting that the fiscal space created by the removal of subsidies is easily sufficient to address the plight of the poorest 60 percent. Put another way, the median and below would not feel worse off and the relative price signal would still be crystal clear.

**Protests also reflect wider societal trends, including multiple deprivations and growing inequalities evidenced by an increasingly unequal distribution of wealth and opportunity in many countries.** Recent civil unrest has revealed long-standing discontent with the distribution of wealth, income and power in countries such as Chile, France and Iran. Despite sustained increases in average prosper-



Protester in Santiago de Chile, October 2019. Photo: Pablo Rogat/Shutterstock.com

<sup>7</sup> In the case of producer subsidies, this is likely to require an assessment of the employment and wider economic impacts on coal mining communities and other energy-rich localities.

ity and unprecedented reductions in the number of people around the world in abject poverty, the United Nations Development Programme (UNDP) (2019) identifies this as a broader trend across many countries and regions (see box 1). The COVID-19 crisis has revealed and amplified a host of pre-existing inequalities and vulnerabilities, including gender inequalities. The pandemic is erasing human development gains and progress because it has disproportionately impacted poor and lower-skilled households. This could foster problematic and potentially unfounded political and social perceptions that climate and energy policy changes unduly serve a social elite with access to networks, education, employment and technologies that are, to a large degree, self-sustaining (UNDP, 2019). Successful energy subsidy reform may thus go hand-in-hand with wider economic, policy and political reforms.

#### **Box 1: Changing perspectives on inequality**

While substantial disparities continue to exist across countries, indicators of extreme poverty – ranging from health, education and access to technologies – are rapidly improving around the world. Life expectancy in countries ranking low and medium on the Human Development Index increased by five to six years between 2005 and 2015. The percentage of people with primary education increased by 5–10 percent over this period, and access to some new technologies, such as cellular phones, has also skyrocketed.

However, these figures provide only a partial view of trends in inequality across countries. As the international economy evolves, development opportunities are increasingly linked to access to a higher level of services, such as tertiary education and health care during pensionable years, and more advanced technologies, such as broadband internet. As these services and technologies become available, they are distributed more unequally, with wealthier countries acquiring them more rapidly.

Inequality within individual societies is also on the rise: the share of income and wealth controlled by the wealthiest 10 percent and, in particular, the wealthiest 1 percent is growing rapidly in many countries. This is increasingly apparent in labour markets, as the adoption of advanced technology, which is typically concentrated in urban areas, fuels more rapid wage growth in high-skilled jobs relative to low-skilled ones. This trend will continue as automation gathers momentum.

Source: UNDP (2019).

**The challenges of energy subsidy reform are exacerbated by low and declining levels of trust in public institutions in many countries.** Trends in public trust in government vary widely around the world. However, low and declining levels of trust could shape reform outcomes by undermining confidence in the underlying rationale for change or the government's capacity to implement the complementary measures needed to compensate vulnerable stakeholders and its commitment to doing so, including the strengthening of broader public services, such as infrastructure and social welfare benefits (Carratini, Carvalho and Fankhauser, 2018; Carratini, Kallbekken and Orlav, 2019; Drews and van den Bergh, 2016; Tvinnereim and Mehling, 2018; Inchauste and Victor, 2017; Zinecker et al., 2018). As such, the political feasibility of reform is closely linked to historical experience with past policy commitments. This paper uses case studies to better understand the challenges facing reforms and the potential outcomes of these to help adapt future policy advice. In view of this objective and the fact that overall levels of trust in government vary broadly, it is noteworthy that survey research evidence suggests that trust in government in countries such as Chile and France is low but is relatively high and on the rise in Indonesia (OECD, 2019).

## INEQUALITIES ASSOCIATED WITH CLIMATE INACTION ARE INCREASINGLY SHAPING THE SOCIOECONOMIC REFORM CONTEXT

Climate change is increasing fundamental social and intergenerational inequities. Rising concentrations of greenhouse gases are likely to disproportionately expose the world's poorest countries, communities and households to food and water shortages and the effects of coastal flooding (IPCC, 2018).<sup>8</sup> Younger generations are also likely to be more impacted by climate inaction: while severe climatic changes are already being observed—including rapid atmospheric and oceanic warming, massive polar ice melt and associated sea-level rise—the most adverse changes remain decades and, in some cases, perhaps even centuries into the future (IPCC, 2018).

These issues are increasingly shaping the context of social and political reform. Recent civil protests against the slow pace of action at COP25 has brought this into sharp focus. The Extinction Rebellion and broader youth movements that Greta Thunberg represents clearly signal a wave of discontent over the long-term environmental threat posed by climate change and inaction by a polluting global elite. Indeed, this perception is largely borne out by the data: the top 10 percent of emitters currently account for 45 percent of global CO<sub>2</sub> emissions, while the bottom 50 percent account for 13 percent (UNDP, 2019).



Flooded classroom in the Democratic Republic of the Congo. Photo: Sybille Desjardins/Climate Visuals Countdown

### Box 2: COVID-19 and the climate crisis

**COVID-19 and the climate crises are closely intertwined: both are planetary crises that hit the most vulnerable hardest and increase global inequalities.** The pandemic has laid bare severe systemic inequalities. Like climate change, the COVID-19 crisis acts as a poverty multiplier that poses an acute threat to vulnerable populations. It has led to millions of job losses, put billions of children out of school and is threatening food security across the world.

**Both crises are compounded by nature and biodiversity loss.** The better we manage the health of our ecosystems, the better we manage human health and the spread of zoonotic diseases. To prevent future outbreaks, countries need to conserve wild habitats, promote sustainable agriculture, strengthen food safety standards, monitor and regulate food markets, invest in technology to identify risks, and curb illegal wildlife trade. Conserving nature and healthy ecosystems is also essential to capturing carbon and mitigating climate change.

**Both crises call for a whole-of-society, whole-of-government and whole-of-the-world approach** driven by national unity and international solidarity. Public funds should invest in the future, not the past. The recovery must respect the rights of future generations, enhancing climate action aiming at carbon neutrality by 2050 and protecting biodiversity. Spending to revitalize economies should accelerate the decarbonization of our economy and privilege the creation of green jobs.

<sup>8</sup> Developing countries are expected to incur adaptation costs alone of \$140–\$300 billion per year by 2030 (Puig et al., 2016).

## **POLICY ADVICE MAY NEED TO BE ADAPTED TO THESE EVOLVING CIRCUMSTANCES**

**Energy subsidy reform is achievable, particularly where managing social and political obstacles are central to any implementation strategy.** This paper finds that adverse social and political reactions, which are often driven by concerns over distributional impacts, could stall even subsidy reforms that are urgently needed. If reforms are poorly implemented, they risk exacerbating social inequality. However, this need not be the case: wealthier segments of society tend to make heavier use of fuels, and governments have different levers they could use to allocate additional fiscal space to socially progressive spending. While progress on reforms has not been universally successful in political, social, environmental or fiscal terms, it is nonetheless important to recognize that important progress has been made in many countries in recent years. These include Morocco, Ghana, India, Bangladesh, China, Brazil and Argentina (Zinecker et al., 2018).

**Many countries and international institutions have developed a large body of experience in energy pricing reform.** Experienced practitioners generally highlight the importance of an informed, transparent, sequenced approach to reform based on three main steps: first, define and measure the scale of pre-reform subsidies; second, conduct a technical analysis of the impacts of energy price subsidies and their reform (considering appropriate options for the active deployment of additional fiscal space); and third, focus on ensuring a supportive political context and preparing appropriate communication strategies to help citizens and stakeholders understand and adapt to any changes (WBG, 2017). In terms of the desired timing of implementation, economists generally favour a gradual, sequenced approach that is adapted to the commodity price cycle. This enables households and firms to adjust their behaviours and patterns of energy use more smoothly (Fedelino et al., 2017). However, the politics of subsidy reform may demand a more sudden (and economically damaging) set of price adjustments (Inchauste and Victor, 2017; WBG, 2017)

**The increasing prioritization of successful energy subsidy reform and the challenges this entails warrant further in-depth consideration of best policy practices.** Renewed efforts to drive down energy subsidies are of paramount importance in alleviating local and global environmental issues, and strengthening SDG financing is a top priority. However, the wave of social unrest and upheavals across a range of countries in recent years, including in a number of hitherto stable and relatively prosperous societies, signals an urgent need for further reflection. Specifically, in-depth consideration must be given to how to implement sustained, fundamental energy pricing reform at the national and local levels in a way that is politically and socially acceptable. These issues are only reinforced by the adverse effects of the COVID-19 crisis on public finances and the welfare of the poorest households and communities. This calls for analysis of and reflection on the factors shaping these reform outcomes, including an understanding of the impacts and implications of an evolving political, social, economic and environmental context. This analysis is intended to help countries implement the institutional, informational and wider complementary reforms needed.

**This paper analyses best policy practices, focusing on the distributional and political economy considerations affecting the reform of fossil fuel subsidies and their impact on consumers.** Section II summarizes comparative insights from a sample of five in-depth fossil or energy service fuel pricing reform case studies drawn from both developed and developing countries. Section III summarizes the key conclusions regarding policy best practices and discusses the importance of applying these principles to ensure that energy pricing reforms are politically and socially acceptable, given evolving, heterogeneous local circumstances. It also highlights some of the key barriers and knowledge gaps hindering better policy-making in this area, with a particular focus on developing countries.





Children in coalfields, Jharkhand, India. Phasing out coal is the single most important step to take to mitigate the impacts of climate change. Photo: Joerg Boethling/Alamy Stock Photo

## II. LESSONS FROM SELECTED ENERGY SUBSIDY REFORMS

This section compares energy pricing reform experiences and outcomes across selected case study countries, namely Chile, France, Iran, Ghana and Indonesia. (These individual case studies may be found in the appendix.) These countries were selected to explore a broad range of policy goals and implementation choices across divergent social, economic and political contexts. This section compares these experiences against a number of previously established best practice principles for achieving socially equitable and politically acceptable energy reform outcomes. This includes specific advice in favour of an informed, transparent, sequenced approach based on:

- prior efforts to define and measure the scale of energy subsidies and the distributional impacts associated with their reform;
- reallocating a proportion of the resulting fiscal space to proactively compensate highly vulnerable stakeholders that are adversely impacted by such reform;
- a gradual approach to price reform so that households and firms can adjust wherever possible, while recognizing the potential existence of certain windows of opportunity, which may warrant a step-change in pricing policies; and
- active engagement with key stakeholders throughout the policy development and implementation process, supported by clear and compelling communication strategies.

Table 1 summarizes the findings of the case study research. (Further information may be found in the appendix.)

Table 1: Summary of case study findings

✓ = in line with best practice X = not in line with best practice ✓/X = mixed picture

	Incidence of measures	Timing and sequencing of reform	Compensation and wider expenditures	Communications & stakeholder engagement
<b>Indonesia</b>	<ul style="list-style-type: none"> <li>✓ Subsidies initially targeted at fuels consumed by wealthier households (e.g. early reform of aviation fuel pricing in 1999)</li> <li>✓ Clear understanding among policymakers that fuel subsidies provided minimal support to poor households, which consumed little of the products</li> <li>X Coal price cap introduced in 2018 to protect the finances of government-owned power distribution company</li> </ul>	<ul style="list-style-type: none"> <li>X Large ad hoc fuel price increases attempted without success (e.g. 2004)</li> <li>✓ Rising fuel prices stimulated price hikes in 2005/6 to avoid fiscal pressures</li> <li>✓/X Pricing formula initially introduced, then abandoned in 2003. Three monthly pricing reviews implemented in 2015</li> <li>X 2014/5 reforms implemented during fuel price downcycle</li> </ul>	<ul style="list-style-type: none"> <li>✓ 2015 reforms, in combination with low world oil prices, expected to yield budgetary savings of around \$15.6 billion</li> <li>✓ 2015 revised state budget increased provisions for infrastructure by \$7.9 billion</li> <li>✓ Smart cards used to direct income transfers in 2008, with an expanded approach from 2014</li> <li>✓ Adapted tariff thresholds in response to social sensitivities (e.g. in response to union protests in 2014)</li> </ul>	<ul style="list-style-type: none"> <li>X 2003 reforms poorly communicated (perceived as favouring powerful interest groups)</li> <li>✓ 2015 reforms included media campaign before (including during elections) and during the reform</li> <li>✓ Emphasis on positive implications for local development budgets and outcomes</li> <li>✓ Candid negotiation and compromise with protesting stakeholders, including public transport workers in 2014</li> <li>✓ Political backing for reforms engineered effectively, given weak opposition and carefully chosen political appointments</li> </ul>
<b>France</b>	<ul style="list-style-type: none"> <li>X Heavy incidence of carbon tax on rural and semi-urban working poor</li> <li>X Limited availability of alternative transportation modes among these groups</li> </ul>	<ul style="list-style-type: none"> <li>✓ Carbon-related charge embedded in excise tax in 2014</li> <li>✓ Use of automatic annual tax escalator to reinforce incentives over time</li> <li>X Tax interacted adversely with fuel price rebound in 2015</li> </ul>	<ul style="list-style-type: none"> <li>X No redistributive mechanism designed before the reform</li> <li>X EUR10 billion allocated in 2018 budget, including EUR100/month bonus scheme for workers receiving the minimum wage</li> </ul>	<ul style="list-style-type: none"> <li>X Policy rationale not communicated effectively, failed to resonate with electorate</li> <li>X Weak popular support for the political leadership prior to reform enactment</li> <li>X Policy goals expressed purely in terms of support for low-carbon transportation only</li> </ul>
<b>Iran</b>	<ul style="list-style-type: none"> <li>X 2019 price increases added to long-standing pressure on living standards of middle and lower classes</li> <li>X Weak data on consumption patterns undermined subsidy and cash management programmes</li> </ul>	<ul style="list-style-type: none"> <li>X Purely reactionary measure in response to macro-fiscal crisis</li> <li>X Large-scale overnight price increases</li> </ul>	<ul style="list-style-type: none"> <li>X No plan for compensation developed in advance</li> <li>X Limited transfer payments materialized belatedly</li> </ul>	<ul style="list-style-type: none"> <li>X Limited communication of policy rationale</li> <li>X Extremely negative social reaction channelled through social media (access subsequently restricted)</li> </ul>
<b>Chile</b>	<ul style="list-style-type: none"> <li>X Metro fare increases had high incidence on urban working poor</li> <li>X Pre-reform metro fares were high by broader regional standards</li> <li>X Highly unequal social and economic conditions</li> </ul>	<ul style="list-style-type: none"> <li>✓ Relatively modest increase in metro fares linked to input costs and public financing needs</li> <li>✓ Bus fares increased by 10 pesos and peak hour metro fares increased by 30 pesos</li> </ul>	<ul style="list-style-type: none"> <li>✓/X Fares increased to purchase a new fleet of electric buses (unclear whether this was a popular spending priority)</li> <li>✓/X Fares lowered by 30 pesos on off-peak metro tickets (designed to reduce congestion, but does not benefit workers with inflexible hours)</li> <li>X No redistributive mechanism, increases burden on the commuting workforce</li> </ul>	<ul style="list-style-type: none"> <li>X Price escalation mechanism is opaque to the public</li> <li>✓/X Government forced into a process of constitutional reform</li> </ul>
<b>Ghana</b>	<ul style="list-style-type: none"> <li>✓ Basic understanding that wealthiest segments of society consumed gasoline, drawing on living standards survey</li> <li>X Cross-subsidization between gasoline and other fuels complex to administer and caused wider policy distortions</li> </ul>	<ul style="list-style-type: none"> <li>✓/X Pricing formula introduced in 2001 but subsequently abandoned</li> <li>X A series of large ad hoc fuel price increases attempted unsuccessfully (e.g. 2000s)</li> </ul>	<ul style="list-style-type: none"> <li>X High levels of indebtedness limited opportunities for broader reallocation of expenditures</li> <li>✓ Increased funding for infrastructure and social welfare benefits over time (cash transfer scheme introduced in 2008, expanded to 110,000+ users by 2018)</li> </ul>	<ul style="list-style-type: none"> <li>✓/X Stakeholder engagement on fuel pricing generally intermittent. 2004 Poverty and Social Impact Analysis highlighted distributional outcomes and contributed to the success of renewed liberalization efforts</li> <li>X Subsidy reforms repeatedly allowed to become a highly politicized issue (e.g. 2005/8 elections)</li> <li>X Institutional reforms only partially implemented (e.g. no role for independent advisory committee on energy sector revenues)</li> <li>X Outstanding questions regarding missing revenues from domestic oil sector raised concerns over institutional quality and corruption</li> </ul>

## GETTING THE PRICE RIGHT REMAINS AN ESSENTIAL PRIORITY AND DEPENDS ON LOCAL CIRCUMSTANCES

**Accounting for local fiscal, environmental and social conditions is key to appropriate energy pricing.** Achieving this supports wider development objectives, including by raising fiscal revenues and limiting other social and environmental costs associated with fossil fuel use. However, desirable energy price levels will depend on a range of primarily national and local considerations. In general, target levels will be higher and the case for reform more urgent in countries that are highly indebted or in a weak fiscal position, are characterized by inefficient or fragile general tax systems, or face the most serious local environmental or social issues associated with fossil fuel combustion.

**Energy subsidies must be clearly defined and consistently evaluated so that reform outcomes can be tracked effectively.** Fossil fuel subsidies are defined differently and assessed using different methodologies. Some oil-producing countries, for example, use a narrow definition wherein a commodity is said to be subsidized if its sale price is below the average unit cost of production. This approach may reflect political, social and cultural perspectives of natural resources as a “national inheritance.” By contrast, the policymakers in the case studies included in this paper define a given fuel product as being subsidized if its final sale price is below an appropriate reference market price. Notably, according to the OECD, IEA and IMF, a subsidy exists when consumption taxes on fuels are lower than those applied more generally across goods and services. Box 3 analyses “tax-inclusive” fuel subsidies and associated reforms across the countries selected.

### Box 3: Comparing indirect taxes on fuel consumption across case study countries

There is a strong economic efficiency and fiscal argument to be made for applying standard consumption tax rates to energy products. Current practices in the countries studied differ widely:

- Indonesia and Chile apply standard VAT rates to all fuel products.
- Iran applies a 1 percent VAT premium on kerosene and gas oil, but a 4 percent premium on Mazut used for power generation.
- France imposes a reduced VAT of 5.5. on electricity and natural gas, compared to the standard 20 percent).
- Ghana introduced a special petroleum tax, equal to the standard VAT rate, in 2014.

Sources: WBG (2017); Government of Iran (2008); EU Commission (2020); KPMG (2020).

**Fundamental challenges to measuring fossil fuel subsidies should not be underestimated.** Various methodologies are commonly used to assess the magnitude of energy subsidies. Benchmarking subsidies against the price of internationally traded fuels, which is the basis of the price-gap approach, is attractive because of its conceptual and technical simplicity. However, this approach may be complicated when there is no clear international benchmark or where significant adjustments are required to better determine a proxy for the value of specific fuels in local markets. In the case of coal, for example, it is particularly important to adjust for freight costs and differences in energy density as well as sulphur and ash content. As the price gap cannot be calculated, the subsidy cannot be determined.<sup>9</sup> Local energy prices may also vary widely, as in both Indonesia and Ghana, due to weak infrastructure, poor distribution channels and low population densities. For example, gasoline and diesel prices varied by a factor of approximately

<sup>9</sup> Coal prices differ significantly based on mineral grade/quality (e.g. moisture, ash, sulfur content, and calorific value) and are highly sensitive to assumptions regarding freight and distribution costs.

10 between Papua Province and Java, leading to additional efforts to cross-subsidize prices across regions (Government of Indonesia, 2019). Moreover, reliance on price-gap data tends to understate the magnitude of fossil fuel subsidies by failing to capture those that do not affect fuel prices (such as contingent support for energy service providers, including state-owned utilities and refiners).

**Evaluating subsidies in networked energy sources, such as power, is particularly challenging**, given high capital costs and the importance of strong accounting and financial reporting for many state-owned entities within the energy value chain. Measuring the cost of networked service provision thus requires a good understanding of a range of service-related expenditures, including fuel, maintenance, depreciation and capital expenditure costs. These may be complex to assess given weak financial accounting practices, particularly among many state-owned utilities in developing countries. In Indonesia, for example, subsidy sizes are linked to changes in the financial health of Pertamina, the national energy company. However, the company experienced a series of accounting scandals that revealed significant revenue leakage extending back to the 1970s.

**Estimating the scale and fiscal impacts of energy subsidies thus has broad potential ramifications for public accounting and financial management.** Where financial information regarding the financial position of key state-owned corporations in the energy value is insufficient to support subsidy measurement, investment in improved balance sheet and financial performance accounting may be an essential precondition for reform. In some of the case studies, accounting of indirect costs is likely to be generally satisfactory, as in the case of the rapid transit system in Santiago, Chile. In others, such as Ghana, this accounting is a high priority, requiring a complex, interrelated mix of institutional governance and technical accounting and cash management reforms (discussed in box 4 below).

#### **Box 4: Measuring the size and fiscal implications of energy subsidies in Ghana**

Energy subsidies in Ghana are channelled through several public corporations, including the Electricity Company of Ghana, the Ghana Grid Company, the National Gas Company, the Ghana National Petroleum Corporation and the Tema Oil Refinery. Understanding these indirect (and often contingent) fiscal impacts is a critical issue: the largest six public energy corporations have liabilities of around 11–12 percent of GDP (IMF, 2019c).

Technical and institutional weaknesses have limited the capacity of the Government of Ghana to manage the complex impacts of energy subsidies on cashflow and balance sheets and the side effects of these. The oil refinery and state power company have been beset by financial difficulties, which have led to often highly reactive pricing reforms to cover urgent cashflow needs. A key lesson concerns the importance of robust and appropriate stress analyses of the impacts of variable exchange rates on cashflow and liabilities. Specifically, the Bank of Ghana's practice of using historical exchange rate quotes exposed the government to indirect financial risks from fuel imports during periods of currency depreciation, particularly before 2015 (WBG, 2017).

Public sector accounting reforms are under way, with public corporations now required to submit annual audited financial statements (IMF, 2019c). However, enhanced data and systems are also required to strengthen the quality of underlying balance sheet data. For example, the Tema Oil Refinery's failure to prepare and submit sufficiently frequent bank reconciliation sheets has contributed to substantial revenue leakage.

Sources: IMF (2019c), Government of Ghana (2016).

**Practical guidance is available for policymakers who want to broaden the definitions of subsidies for reform.** Environmental and social considerations may determine governments' energy pricing decisions (Jones, Keen and Strand, 2013). For example, a core issue of the 2018 policy reforms in France was the introduction of a fuel excise tax component related to the cost of carbon dioxide emissions, which increased as a function of rising emissions costs. In developing country contexts, in particular, improving air and water quality may be the a very important factor in determining prices. Likewise, limiting congestion and accident-related risks may motivate changes to transportation fuel prices (Jones, Keen and Strand, 2013).<sup>10</sup> Coady et al. (2019) provide guidance on optimal energy charges that takes into account this broader set of policy objectives. The authors find that depending on the country circumstances, charges of \$18/GJ over and above the market price of coal, and \$0.2-\$1/litre in the case of gasoline, may be appropriate.

## **UNDERSTANDING POLICY INCIDENCE IS A KEY FIRST STEP TO ACHIEVING SOCIALLY EQUITABLE AND POLITICALLY SUSTAINABLE SUBSIDY REFORMS**

**The distributional impacts of energy subsidies vary by national circumstances, warranting detailed study in each reform context.** Reported pre-reform energy expenditures among the lowest quintile of households are materially higher, on average, in Ghana and Indonesia than Iran (WBG, 2010). Moreover, consumption patterns also differ across individual fuels. For example, kerosene expenditure declines among richer households in Ghana and Iran but rises in Indonesia (WBG, 2010). This suggests the need for a detailed analysis of the distributional impacts of energy subsidies as an essential guide to any reform process. A relatively sound understanding of such distributional considerations is evidenced in a number of our case studies, with fuels such as gasoline initially targeted for subsidy reform in Indonesia and Ghana.<sup>11</sup>

**Understanding the local impacts of energy subsidies and the coping strategies of vulnerable and marginalized groups is key to creating well-designed policies.** Different households have specific vulnerability factors and will adopt divergent coping mechanisms and behavioural responses to higher energy prices, such as reducing other spending or substituting different energy sources (WBG, 2017). Knowing how people respond to price increases is key to informing policy choices. This may warrant a mix of quantitative and qualitative research to build a true picture of the impacts and implications of subsidy reform (see box 5 for more on the quantitative approach). The latter could be particularly helpful in providing insights into the extent to which local communities have access to alternative fuel sources, such as biomass. It would also shed light on the practical unintended consequences of subsidies, such as whether vested interests can gain access to low-price energy and resell it in higher-priced markets, or whether blackouts or fuel shortages result (Inchauste and Victor, 2017; WBG, 2017). Focus groups have proved useful for building evidence bases of this sort as part of reforms in Ukraine and Colombia (WBG, 2017; IMF, 2019).<sup>12</sup>

<sup>10</sup> This is a second-best approach. Advanced countries have begun to implement more targeted measures, such as time-of-day road pricing arrangements to control congestion. Developing countries lack the necessary financing and institutional capacity to implement such approaches to externality control.

<sup>11</sup> Similarly, the Ghana Living Standards Survey informed the decision to target petroleum as the basis for cross-subsidy support to kerosene and other fuels, which were found to be more widely used by low-income groups (WBG, 2017).

<sup>12</sup> In 2014, Lembaga Survei Indonesia held discussions in Jakarta, Yogyakarta and Makassar to identify public opinion trends and drivers regarding energy subsidies. These groups revealed the potential for engagement to build support for reform, as well as what seemed to be paradoxical views in support of rapid, rather than gradual, implementation (GSI, 2015).

### **Box 5: Quantitative estimates of the distributional impacts of energy pricing reform**

The net impacts of policy reforms also depend on the extent and incidence of benefits transferred as part of complementary policies. This requires mapping the incidence of these measures onto individual socioeconomic groups (including consideration of the side effects of subsidies being avoided, such as supply outages).

Technical assessments tend to suffer from data limitations and other weaknesses. The perennial issues include the underrepresentation of poor and remote communities and the increased tendency for the poorest households to live without networked or commercial energy sources. For instance, biomass expenditures are particularly difficult to measure quantitatively. Among the countries surveyed, Ghana and Indonesia reported data showing that these issues were particularly relevant.

Such sampling, data quality and availability issues mean that quantitative analysis should be approached with due care; in particular, with respect to data cleaning, evaluation and the interpretation of results. Both the entire sample and households reporting positive expenditures on a particular fuel should be analysed because some fuel sources, such as liquefied petroleum gas (LPG), are purchased infrequently, so demand may be latent.

Moreover, impact analysis based on static assumptions regarding energy expenditure shares may overestimate policy impacts, as households are likely to respond to price signals by limiting wastage and, where possible, substituting low-carbon fuels (Banks, Blundell and Lewbel, 1997). Behavioural impact analyses have rarely been undertaken in a developing country setting (on such exception is Abramovsky and Phillips, 2015) and may require complementary qualitative analysis to validate any resultant insights.

Sources: Jones, Keen and Strand (2013); Banks, Blundell and Lewbel (1997) and Abramovsky and Phillips (2015).

**Information investments are particularly valuable where subsidies are hidden and adversely impacted groups lack influence and coordination.** Many subsidies, whether indirect or hidden, tend to persist because the parties bearing their burden are unaware of the cost they are paying (Victor, 2009). This was certainly the case for a range of spillovers arising from energy subsidies, including financial pressure and associated investment disincentives, in the energy sectors of Iran, Indonesia and Ghana. Such opacity makes it difficult to pursue an informed debate over the legitimate purposes of subsidies. Efforts to report on and analyse their impacts are thus particularly valuable. This is especially true where the costs of subsidies are disproportionately borne by low-income groups that may lack political influence and coordination and where powerful lobby groups enjoy the benefits.

**Providing stronger evidence of the incidence of energy subsidies can enable a transparent debate within civil society, increasing the political feasibility of subsidy reform,** in part by making it easier to mobilize interest groups. Robust discussion within civil society is particularly valuable where trust in public institutions is low. In Ghana, for example, key think tanks and commentators were influential in documenting the adverse impacts of government price controls on the poor, while powerful industrial entities, such as the oil refinery, received many of the benefits. This helped strengthen a coalition of reformers (Inchauste and Victor, 2017). In contrast, subsidy reforms were impeded by an apparently limited understanding of the disproportionate impacts that public transport pricing reforms would have

on low-income families in urban areas in Santiago and that oil tax increases would have in semi-urban and rural areas of France.<sup>13</sup>

## **BALANCING A RANGE OF PUBLIC FINANCING OBJECTIVES REQUIRES CAREFUL TARGETING OF COMPLEMENTARY MEASURES**

**Governments must balance expenditure priorities with broader concerns for fiscal and debt sustainability goals.** Energy subsidy reforms can create substantial fiscal space. Nevertheless, governments must balance spending and debt management priorities when reallocating this space, including financing the recent fiscal expansion, as a number of countries have done to counteract the economic crisis caused by COVID-19. These decisions will naturally rest on country-specific circumstances, including fiscal position, foreign exchange and reserve conditions, and broader political and social considerations (see the discussion below in the context of the case studies). The degree of trust between governments and civil society prior to energy pricing reform may impact the scale and timing of desirable complementary reforms. A significant proportion of fiscal space should be allocated to overcoming failures in past policy commitments (Inchauste and Victor, 2017).

**Well-targeted complementary measures can improve countries' fiscal position and achieve socially progressive outcomes.** In the longer term, adverse distributional impacts of energy pricing reform can generally be offset using a relatively moderate proportion of the resulting revenues or expenditures foregone (Flues and Dender, 2017). This is because better-off households often capture the benefits of energy subsidies at the expense of the average taxpayer. In practice, upfront investments in implementing the necessary complementary reforms may offset some of these early increases in fiscal space. More targeted complementary expenditure programmes are key to balancing these competing objectives. This involves avoiding general price subsidies wherever possible, as they are expensive and highly distortionary. Instead, measures should restrict eligibility and extend coverage to the most impacted socioeconomic groups.

## **DEVELOPING SOCIAL SAFETY NETS IS CENTRAL TO PROMOTING OUTCOMES THAT ARE MORE SOCIALLY AND POLITICALLY ACCEPTABLE**

**Many successful reform programmes dedicate additional fiscal space to supporting impacted households and communities.** Large cash transfers and other complementary measures were integral to building political and social support during the more successful phases of energy subsidy reform in Indonesia. (However, due to the weak financial health of the state-owned power utility, support for coal has increased in recent years.) By contrast, expenditure adjustments were initially lacking in the largely failed reforms in Chile, France and Iran (see box 6 below). These findings are broadly consistent with wider evidence that, despite the potentially material impacts of energy price shocks on poor households, subsidies are often removed without any offsetting measures. Moreover, active support to vulnerable stakeholder groups is associated with more politically and socially acceptable reform outcomes (Carratini, Carvalho and Fankhauser, 2018; Carratini, Kallbekken and Orlav, 2019; Clements et al., 2013; Drews and van den Bergh, 2016; Klenert et al., 2018; Inchauste and Victor, 2017; WBG, 2017).<sup>14</sup>

<sup>13</sup> This is also the case in Jordan where, according to opinion surveys, the public knew little about these policies and was wary of related reforms (WBG, 2017a).

<sup>14</sup> For example, Clements et al. (2013) find that social safety nets were used as part of energy subsidy reform efforts in only 9 of the 28 cases analysed.



### Box 6: Comparing expenditures across selected case study countries

A marked difference in the capacity and commitment to adjust expenditure patterns in conjunction with subsidy reform is observed both across the countries studied and within them (i.e. across different reform phases), impacting reform outcomes.

In Iran, for example, about 80 percent of the revenue from price increases was redistributed to households as cash transfers during the initial wave of reforms in 2010. However, a balance-of-payments crisis, which resulted in part from renewed US trade sanctions, subsequently limited the Iranian authorities' capacity to allocate fiscal space beyond the 2019 budget consolidation (fiscal and balance-of-payments constraints also decisively restricted expenditure choices at various points in the subsidy reform process in Ghana). In this case, no clear plan was presented to support household budgets, with the eventual payment arrangements lagging considerably. When France and Chile increased their oil excise taxes and metro ticket prices, respectively, they did not accompany them with wider compensation measures, at least initially. In each case, the authorities ultimately had to make large-scale political and economic concessions when faced with social backlash.

For many years, significant public resources in Ghana were allocated to cross-subsidize domestically consumed fuels, such as kerosene and fuel for local fishing boats, and repay debt, particularly to the national oil refiner. Over time, pricing reforms to reduce these subsidies created additional fiscal space, which has been allocated to growth and development goals, including health, education and transport infrastructure. In 2013, increases in LPG and kerosene prices were accompanied by increases in mining wages, and the number of beneficiaries of cash transfer programmes went from 100,000 to 150,000 households.

In Indonesia, approximately \$15 billion–\$17 billion in savings from energy subsidy reforms were spent as part of a major ramping-up of investment in basic services. This included assigning an additional \$2.5 billion in transfers to regions and villages and a \$4.5 billion capital injection into state-owned enterprises with a focus on infrastructure.

Source: Inchauste and Victor (2017), WBG (2017), Clements et al. (2013), and authors' research.

**Political imperatives may require targeting complementary reforms at politically influential interest groups, albeit at a cost to fiscal outcomes** (Klenert et al., 2018; Inchauste and Victor, 2017). In some cases, ensuring that reforms are politically acceptable may require addressing the concerns of special interest groups that are heavily impacted by reforms and well organized, such as freight operators and taxi drivers. In Ghana, for example, local commercial vehicle operators pressured the government to negotiate restrictions on fuel price increases as part of subsidy reforms in 2012.<sup>15</sup> However, choosing between supporting low-income groups, targeting politically influential interest groups and achieving fiscal consolidation or debt repayment goals may create tensions (Klenert et al., 2018).

## **SOCIAL SAFETY NETS SHOULD FOCUS INITIALLY ON EXTENDING AND STRENGTHENING EXISTING SOCIAL PROVISIONS**

**Regardless of their stage of development, most countries provide social safety nets to protect citizens from economic shocks.** Governments assume some responsibility for protecting the poor and vulnerable from contingencies such as

<sup>15</sup> In the Dominican Republic, general LPG subsidies replaced a targeted programme benefiting drivers of LPG-fueled taxicabs (WBG, 2017).

unemployment, price inflation, health problems and old age. This protection is provided through channels including basic services, conditional or unconditional cash transfers, social security programmes, and job creation and training programmes. Table 2 summarizes these choices and their key features and provides an overview of policy preferences across the countries studied.<sup>16</sup>

**A range of factors influences the appropriate choice of safety net, including the potential scalability and readiness of the delivery chain.** Complementary reforms should be channelled through programmes that can be scaled up sufficiently to ensure adequate compensation for the targeted cost-of-living change. The broad-based nature of energy subsidies and the degree of economic dependency among many vulnerable groups favour scalable programmes with well-established delivery chains.

**Reform of pre-existing safety nets to improve their coverage, adequacy, and efficiency is typically the optimal choice (UNDP, 2021).** Designing and implementing new, large-scale social safety nets requires substantial upfront investment in institutional and technical capacity. The inherent issues of institutional inertia and technical and capacity challenges associated with implementing robust delivery mechanisms at scale call for assessing the merits of available programmes before considering the feasibility of new measures (WBG, 2018).

**Table 2: Summary of complementary policy reform options and country choices**

Policy instrument	Pros	Cons	Case study
Improved provision of basic services	<ul style="list-style-type: none"> <li>• Strong potential development benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Takes time to deliver</li> <li>• Rarely only targets subsidy beneficiaries</li> </ul>	Ghana, Indonesia, Iran
Conditional cash transfers	<ul style="list-style-type: none"> <li>• Highly targeted/linked to behaviour change</li> <li>• Outcomes readily measurable</li> </ul>	<ul style="list-style-type: none"> <li>• Challenging and burdensome to administer</li> </ul>	Indonesia
Unconditional cash transfers	<ul style="list-style-type: none"> <li>• Less expensive/less burdensome to administer (relative to conditional programmes)</li> <li>• Highly targeted</li> </ul>	<ul style="list-style-type: none"> <li>• Outcomes less readily measurable (relative to conditional programmes)</li> </ul>	Indonesia, Iran
Social security payments/tax reforms	<ul style="list-style-type: none"> <li>• Highly targeted</li> <li>• Moderate operational costs</li> </ul>	<ul style="list-style-type: none"> <li>• Not widely available to less developed and middle-income countries</li> <li>• High upfront costs</li> </ul>	France, Iran
Employment programmes	<ul style="list-style-type: none"> <li>• Strong potential development benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Take time to deliver</li> <li>• Rarely only target subsidy beneficiaries (particularly in the case of consumption subsidies)</li> <li>• Risk of mismatch between skills provided and market needs</li> </ul>	Indonesia, France (increase in minimum wage), Ghana (minimum wage)

<sup>16</sup> Complementary policies may extend to broader efforts to promote competition and liberalize markets. In Ghana, price pressures from energy subsidy reform were partially offset by the introduction of competition in oil marketing (previously a government-sponsored monopoly), which compressed margins in downstream segments of the value chain (WBG, 2017).

**Targeted energy subsidies may be considered a form of complementary support, but cash-based measures generally perform better.** Iran and Ghana use lifeline tariffs, which provide low-cost energy services at low levels of overall consumption. In Ghana, for example, such tariffs are applied to the first 50 kilowatt-hours of power consumption. In Iran, escalating rate scales apply to electricity and natural gas consumption, but are highly differentiated by region, taking into account local disparities in the availability of different heating fuels. This includes setting more generous kerosene quotas and power tariffs in areas without access to natural gas (Clements et al., 2013). However, despite this relatively sophisticated and flexible use of energy service terms, such approaches do not perform as well as direct cash transfers to the poor in terms of cost-effectiveness and targeting (WBG, 2018).

## **TECHNICAL AND CAPACITY CONSTRAINTS WEAKEN THE IMPLEMENTATION OF COMPLEMENTARY MEASURES IN MANY COUNTRIES**

**Energy subsidies can be complex and costly, both to administer and to mitigate resulting policy distortions,** such as fuel smuggling and illegal fuel blending. Restricting eligibility for fossil fuel subsidies is often challenging for liquid fuels, although ensuring reliable metering and billing of networked energy supplies can also be problematic. In Ghana, for example, the decision to cross-subsidize domestically consumed fuels and those used by higher-income groups led to the adulteration of diesel with kerosene, a more favourably priced fuel, which worsened air quality. This required establishing a quality control programme to limit the resulting expenditure leakage. In Iran, a gasoline card scheme that based eligibility for reduced-cost fuel on self-reported data collapsed following a loss of public credibility.

Strengthening and extending social assistance programmes requires broader efforts to develop institutional and technical capacity. A number of our case study countries, including Indonesia, Iran and Ghana, reveal limited capacity to commit or deliver complex public goods in place of subsidies. This finding is consistent with wider studies (Strand, 2013; Inchauste and Victor, 2017; WBG, 2017). A range of barriers have constrained the implementation of reforms across countries and programmes. For example, a lack of available fiscal space was a key issue bearing on social safety net development, particularly in Ghana and Iran, which experienced recurring fiscal and balance-of-payments pressures resulting in small and, sometimes, intermittent cash payments.

**Cash transfer schemes pose technical challenges, particularly to determining eligibility and administering payments.** Weak local governance is a critical issue affecting the implementation of many complementary reforms, particularly in remote rural areas in Indonesia and Ghana. Cash transfer schemes in both countries used community-based targeting, which required local leaders to identify poor households in their communities. The Bantuan Langsung Tunai scheme was generally successful in limiting poverty and the associated political and social opposition to higher energy prices in Indonesia, not least given its remarkable scale. Without the BLT, it was estimated that poverty would have been 1.5 percent higher. In fact, poverty fell by 1.2 percent between March 2008 and March 2009 (World Bank, 2017a). However, protests did occur, including among households that were ineligible for the scheme, as less than half of the poorest 30 percent of households received payments, thereby increasing risks to the well-being of many of the most impacted social groups (Inchauste and Victor, 2017).

Digital technology innovations offer substantial opportunities to lower the cost, increase the scalability and improve the efficiency of cash payment schemes. Iran's lack of an efficient income/tax registration system undermined the country's efforts to target a massive cash transfer scheme to low-income households in 2010. Instead, eligibility for the scheme was based on a self-registration system.

Some 61 million people—80 percent of the population—registered within a short time, which made it impossible to screen recipients properly (Clements et al., 2013). Digital payment and registration systems that are integrated with official household income data or other semi- or fully automated systems for validating eligibility are thus critical to scaling up well-targeted schemes (see Box 7 for discussion).

The capacity to implement social assistance programmes is improving in many developing countries, but this is a long-term process. Investment in institutional capacity is integral to the development process in many countries. Overall capacity has improved over time in many countries; both Ghana and Indonesia were ultimately able to implement conditional cash transfer schemes that linked fuel subsidy reductions to expenditures supporting the country's development. In some cases, such as Iran and Indonesia, the demands of energy subsidy reforms have spurred the need to develop these systems (Inchauste and Victor, 2017). More generally, however, the capacity to adopt improved social assistance programmes is part of much broader efforts to develop governmental capacity and implement social safety nets (as in Ghana), such as funding for health care and/or education (Fedelino et al., 2017; Inchauste and Victor, 2017; Zinecker et al., 2018). Given the institutional inertia and extended lead times to improve public benefits in many countries, providing timely compensation that can prevent the living conditions of the poor from worsening will require an early and sustained focus on developing the necessary technical, institutional and human capacity to implement appropriate complementary reforms.

#### **Box 7: The role of new technology in targeted transfer payments**

Electronic payment systems have provided new platforms for implementing transfer payments. Smart cards have been an important mechanism for reallocating expenditures to low-income households to support energy pricing reform in Indonesia and help reduce the cost of administering large-scale cash payments. Mobile phone-based payment systems may be particularly attractive, given the widespread diffusion of these technologies, which are used, for example, for banking transactions in many developing countries (IISD, 2018; USAID, 2016). If such technologies are used to enable transfer payments, the choice of service provider must be well informed and the platform must be well resourced. In addition, training, marketing, system testing and scaled-up implementation planning will be required.

Source: IISD (2018); USAID (2016).

### **THE OPTIMAL APPROACH TO IMPLEMENTING ENERGY PRICE REFORMS MAY DIFFER BASED ON POLITICAL AND ECONOMIC CIRCUMSTANCES**

From both economic and social perspectives, a gradual and predictable approach to reform is preferable to limit disruptions to households and firms.<sup>17</sup> Forward-looking, predictable and transparent policy rules provide households with clear incentives to adapt behaviours and energy service use to change market incentives, helping to smooth any adjustments. For net fuel-importing countries, subsidy reform may be most feasible during commodity down cycles, when consumer prices are at their lowest. Indonesia, for example, enacted a series of subsidy reforms in the years following the 2015 fall in oil prices.

<sup>17</sup> Where a broader definition of energy subsidy is adopted, pricing reform sequencing is clearly desirable; for example, by initially liberalizing energy prices, which may be a significant undertaking in some cases, and then normalizing their indirect tax treatment to include a positive charge on carbon.

**Such policy prescriptions are weakly reflective of the circumstances across a number of the countries studied.** Ghana, Iran and Indonesia implemented multiple large, one-off price adjustments. In Indonesia and Iran, the balance-of-payments crises contributed to price hikes, for certain gasoline blends, of around 70 percent in 1998 and 50 percent in 2019, respectively. These rapid increases proved highly disruptive, stimulating opposition within civil society and leading to their partial reversal (Clements et al., 2013; Inchauste and Victor, 2017). Subsidy reforms in Ghana have also been considerably less predictable, with governments cutting or increasing subsidies by up to 50 percent or more many times over a one- or two-year period (Inchauste and Victor, 2017).

**However, political factors may justify a less gradualist approach to reform during windows of opportunity.** Political factors determine the feasibility of reform across all the cases studied in this paper. Overall, reform is more achievable following an election and where a clear political majority in favour of reforms exists or can be created. Indonesia's newly-elected President Yudhoyono was able to increase prices by broadening his governing coalition, thereby overwhelming a politically weakened opposition. By contrast, he failed to increase prices after his re-election in 2012, partly because he could not consolidate the necessary political support (WBG, 2019a). This is part of a broader body of evidence suggesting that subsidy reform is less feasible where political leadership is weak and, particularly, in the run-up to elections, where the leadership is seeking re-election. For example, subsidy reforms were either delayed or reversed before the 2004 and 2012 elections in Ghana (WBG, 2019a). In France, President Macron's unpopularity likely fuelled social discontent and a willingness to reverse tax hikes in 2018. Overall, this suggests that reformers may need to accelerate the pace of implementation during political windows of opportunity, albeit at a potential economic cost.

## **INCREASING THE PREDICTABILITY AND INDEPENDENCE OF PRICING DECISIONS CAN LIMIT THE POLITICIZATION OF SUBSIDY REFORM**

**Pricing formulas can help to incrementally eliminate any gap between domestic regulated and market prices.** Under this approach, the price gap is gradually reduced periodically by a pre-determined percentage that reflects the preferred length of the adjustment process. The process continues until the national price equals the reference price, full liberalization can be adopted and the next stage of reform, such as normalizing indirect tax treatment,<sup>18</sup> can begin. \*\*This permits a finance ministry to adopt, review and communicate the price adjustment pathway, reflecting a country's political and economic circumstances (Fedelino et al., 2017).

**However, strong political and social support is required to sustain these formulas.** Automatic price adjustment formulas have been introduced in most of the countries studied in this paper, including Chile, France, Indonesia and Ghana. Both Ghana and Indonesia implemented fuel pricing formulas and subsequently cancelled them several times in the face of political or social opposition (this was also the case in France and Chile for attempts to increase fuel tax and metro ticket prices in 2018 and 2019).

**Implementing credible, predictable and flexible reform requires striking a delicate balance.** In France, for example, an increase in diesel prices exacerbated the impacts of a tax escalator, leading to a (relatively modest) step change in consumer prices in 2018. Civil revolts ensued. Indonesia, however, addressed the impacts of rising prices with greater flexibility: tariff ceilings on public transportation were raised following opposition to energy price reforms at a time of cyclically high fossil fuel prices. By contrast, France did not adapt its implementation of the diesel

<sup>18</sup> In Ghana, a 17.5 percent value-added tax on petroleum products was implemented in 2014 following an extended transition to price liberalization (WBG, 2017).

fuel tax escalator, despite the approximately 20 percent price increases in the prior two years, due in part to rebounding oil prices. More generally, this balance is influenced by the degree of trust between governments and civil society before energy pricing reform. In some cases, there may be trade-offs among these policy objectives. For example, heavily earmarked, large-scale and upfront-financed social programmes can promote societal support for pricing reform but may undermine the flexibility of resource allocation (Jones, Keen and Strand, 2013). This is likely to be a particular consideration where improvements in infrastructure and other public services with extended delivery lead times are a core component of any complementary policy adjustments.

**Broader institutional reforms are required to strengthen and depoliticize governance and decision-making in the energy sector.** The politicization of energy pricing decisions could lead to a proliferation of subsidies and derail their reform. Indonesia has implemented governance reforms in the upstream segment of the energy sector, including the 2001 transfer of regulatory functions from Pertamina to a separate agency.<sup>19</sup> Since becoming an oil-exporting nation, Ghana has implemented many reforms to promote transparency in and good governance of petroleum revenues and fund management. However, considerable progress remains to be made in instituting best practices in sector governance, given, for example, that the country's Investment Advisory Committee, whose role is to advise the government on the use of oil-related revenues, has not met since 2016. Perhaps more significantly, as of September 2018, only approximately 50 percent of the government account that is funded by oil revenues had been spent. However, the Ministry of Finance could not account for the unspent funds, which are not reported in the official budget (Imani, 2019).

## EFFECTIVE PUBLIC COMMUNICATION AND DEEP STAKEHOLDER ENGAGEMENT ARE KEY TO SUCCESS

Strong communication with key stakeholders, emphasizing the underlying rationale for change, is central to effective energy pricing reform. One pillar for success is building consensus around the case for reform and key approaches to implementing this, working closely with experts and opinion leaders.<sup>20</sup> Policy communication, engagement and, in some cases, expenditure adjustments may need to precede energy pricing reform to mitigate the risk of adverse reactions and distributional outcomes, particularly where government credibility is weak even though fiscal constraints may predominate. In Ghana, for example, the unsustainable nature of the subsidy regime led the government to launch a Poverty and Social Impact Analysis of petroleum products in 2004. This study, which involved universities, the government and the national oil company, showed that petroleum subsidies benefited better-off citizens. It contributed to renewed efforts to liberalize prices and redirect savings to social protection programmes for the disadvantaged. Although trade unions opposed the policy, it was generally accepted and there were no large-scale demonstrations against the price increase (Bacon and Kojima, 2006; Inchauste and Victor, 2017).

**Communication strategies should reflect public priorities.** Public priorities will differ across countries and social groups, reflecting circumstances such as energy access and affordability, the quality of wider infrastructure and public services and access to these, and local environmental conditions. Wherever possible, these priorities should shape policy design and communication decisions at all levels of government. For example, focus group research undertaken as part of

<sup>19</sup> Other countries, such as Brazil, have gone further by creating an arm's-length national oil company, Petrobras. Its independence was maintained and subsequently reinforced under democratic governments, including through privatization. Such reforms limit the long-term risk that the domestic upstream sector will subsidize domestic consumers (unlike ethanol, oil is not subsidized for domestic Brazilian consumers). However, they are not a panacea, as the Car Wash scandal made clear.

<sup>20</sup> Dedicated independent bodies, including green tax commissions made up of government, industry, academia and civil society representatives, have proved influential catalysts for energy pricing reform across a range of OECD and non-OECD countries (OECD, 2001; Fedelino et al., 2017).

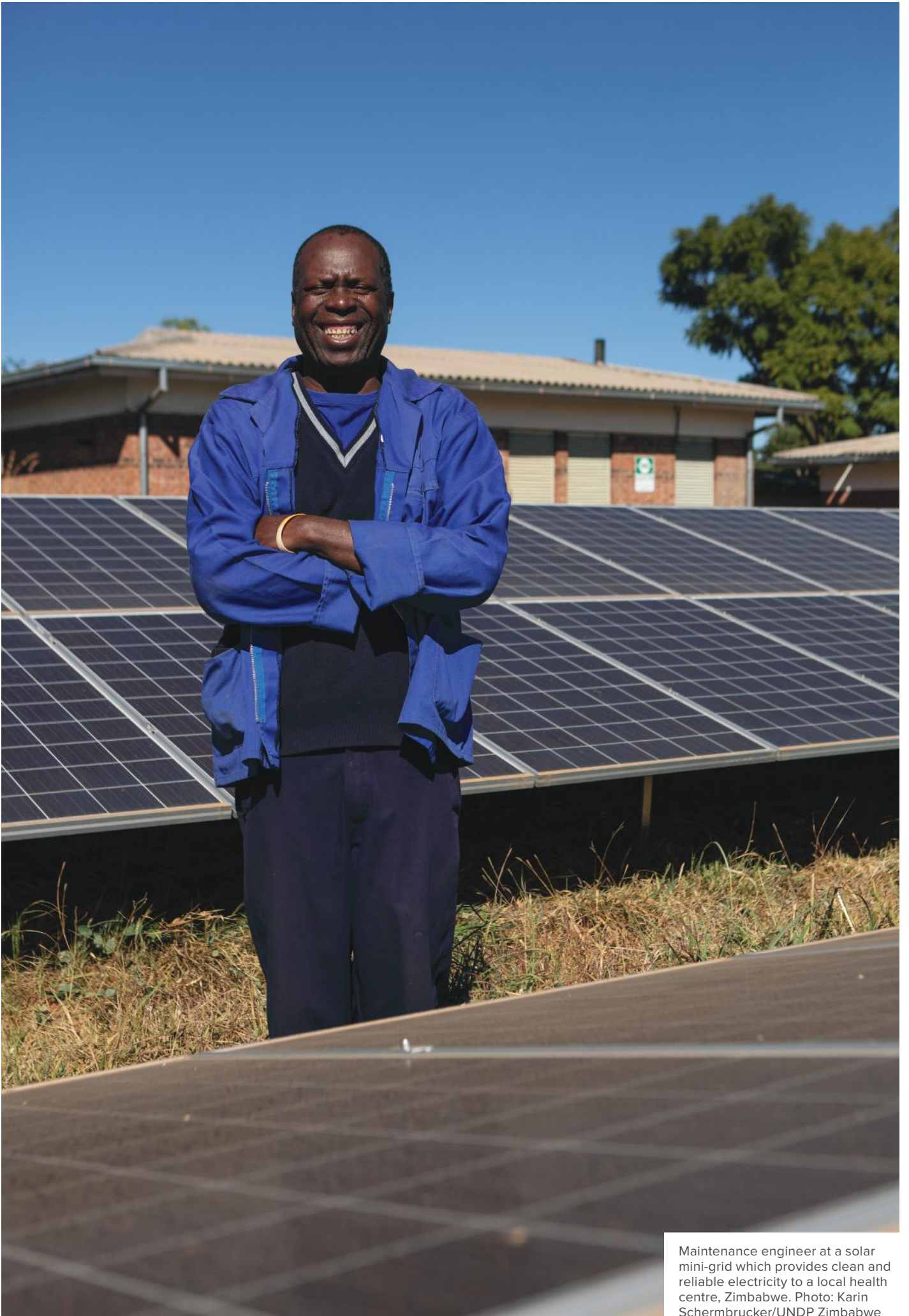
subsidy reforms in Indonesia in 2015 found that popular support was high for improved social welfare benefits and low for subsidies. In general, however, limited research has been conducted in developing countries. Research in advanced country settings suggests public preferences for reducing both energy costs and local air pollution (Ansolabehere and Konisky, 2014; Stokes and Warshaw, 2017).

**Communication strategies should also demonstrate the links between energy pricing reform and broader policy outcomes.** There is a risk of the public perceiving energy price reform as resulting in unfair, government-imposed charges that fail to deliver benefits to households. Even where expenditures are reallocated to help address these concerns, citizens may not see a clear connection between energy subsidy reform and cash dividends (Anderson, Marinescu and Shor, 2019; Levin et al., 2012). Public support is fostered when the environmental effectiveness and/or progressive distributive impacts of such programmes are clearly explained and demonstrated (Carrattini et al., 2017).

#### **Box 8: Overview of policy communications in selected countries**

As part of subsidy reform in Indonesia, the president and other senior officials made frequent speeches about the reforms' contribution to wider public expenditures, including health care and education. In Ghana, the post-2015 subsidy reforms were accompanied by efforts to communicate the impact of subsidies, including their role in generating indebtedness, smuggling and the adulteration of petroleum products. The IMF strongly opposed continuing Ghana's subsidies. By contrast, the recent pricing reforms in France, Iran and Chile were poorly communicated and explained. In France, the fuel tax increase was justified as a way to incentivize low-carbon transportation, although no substantive efforts were made to justify this objective, understand its relevance to affected communities or provide support to ease the policy's impacts.

**Managing and coordinating internal governmental stakeholders is critical to effective policy development and implementation.** Energy pricing reform often has far-reaching policy implications, from finance and infrastructure to social welfare benefits. Ensuring that stakeholder interests are represented in policy development, implementation and external engagement is key to policies that are designed, coordinated and communicated effectively. In Indonesia and Ghana, coordination failures led to the simultaneous implementation of energy and wider service price increases, including for water, which contributed to the reforms' failure (Beaton, Christensen and Lontoh, 2015; Inchauste and Victor, 2017). Coordinated policies across line ministries and wider parastatal entities are generally best served if an executive agency, such as the planning or finance ministry, is actively engaged, ideally as part of a cross-governmental working group. Many Asia-Pacific countries, including Thailand and Indonesia, pioneered voluntary and peer-based reporting approaches to identify, define and measure fossil fuel subsidies, evaluate their impacts and determine next steps (Government of Indonesia, 2019). These helped promote closer interaction across government agencies and also served as a basis for an international exchange of experiences (Gerasimchuk et al., 2017).



Maintenance engineer at a solar mini-grid which provides clean and reliable electricity to a local health centre, Zimbabwe. Photo: Karin Schermbrucker/UNDP Zimbabwe





# III. BUILDING REFORM MOMENTUM AND CAPACITY IN DEVELOPING COUNTRIES

**This section gathers key insights from the analysis of the case studies and the implications of these for strengthening policymaking in developing countries.** It summarizes the role and importance of key aspects of best practices in energy subsidy reform; discusses the importance of adapting reform implementation to evolving and heterogenous local circumstances to improve the political and social acceptability of reform and the key considerations influencing this process; and highlights some of the knowledge gaps and key barriers to improved policymaking in this area, with a particular focus on developing countries.

## OUR CASE STUDIES CONFIRM THE GENERAL VALIDITY OF THE CORE ECONOMIC PRINCIPLES OF SOUND ENERGY PRICING POLICY REFORM

**Energy pricing reform is achievable,** particularly when there is a broad-based understanding of policy goals and support for these, and/or where a decisive coalition of key political and civil society stakeholders supports changes to energy subsidies (Inchauste and Victor, 2017). Despite recent high-profile episodes of civil unrest in countries including France, Chile, Iran, Lebanon and Bolivia in response to changes in energy pricing, the momentum around international reform is growing. Indeed, over 40 countries undertook some form of subsidy reform between 2015 and 2017, while 50 national and subnational governments have implemented positive carbon pricing policies (WBG, 2019a; Zinecker et al., 2018).

**This study finds that despite some notable failed energy pricing reforms, certain well-established best practice principles still hold.** Unsuccessful reforms fail to satisfy one or several of the desirable conditions outlined above. This case study research thus finds that positive pricing reform outcomes are likelier when a phased approach is adopted and the following factors are contemplated:

- Prior efforts are made to define and measure the scale of energy subsidies and the distributional impacts associated with their reform, with a particular focus on the poorest and most vulnerable households.
- There is a planned, sequenced reallocation of a share of the resulting fiscal space to proactively compensate highly vulnerable stakeholders who are adversely impacted by the reform.
- A gradual approach to price reform is implemented to enable households and firms to adjust wherever possible, while recognizing that windows of opportunity may warrant a step-change in pricing policies. The recent decline in fossil fuel prices following the COVID-19 crisis, for example, renews the case for

initiating reforms, particularly among fuel-importing countries, but reforms may require careful sequencing.<sup>21</sup>

- Positive communication strategies are implemented and there is proactive stakeholder engagement in policy design and implementation.

## EXPERIENCE HIGHLIGHTS THE IMPORTANCE OF INTERPRETING THESE GUIDELINES TO FOCUS ON GREATER POLITICAL FEASIBILITY

The case studies included in this paper emphasize the critical importance of managing the political economy of reform, particularly considering that:

- **Subsidies are both a political and an economic tool.** The feasibility of eliminating them is impacted by factors that include the strength of political or popular support for the government, as well as the degree of influence and organization among key interest groups.
- **Providing information can shape the politics of reform by empowering decision makers and making it easier to mobilize interest groups and civil society to focus on the reform.** This is particularly valuable where subsidies are hidden and groups that are adversely affected by them lack influence and coordination. Another key factor is stronger expenditure survey data and accompanying analysis, complemented by qualitative research into local vulnerability and the spillover effects of subsidies. The case studies in this paper also highlight the critical importance of improved accounting and financial reporting by state-owned corporations in the energy value chain. This is key to measuring and tracking progress on subsidy reform in many developing countries.
- **Subsidies are prone to becoming politicized, which can ultimately derail reform programmes.** Tailored efforts to compensate particular interest groups may thus be called for, along with broader institutional reforms to depoliticize policy and, potentially, expenditure decisions. Broader reform of the governance and regulation of the energy value chain is a useful complement to such efforts to ensure that state-owned entities can be held accountable and have no incentive to delay or obstruct energy subsidy reform efforts.
- **The use of subsidies often reflects weak institutional capacity,** although subsidies themselves pose administrative complexity, which underscores the importance of sustained, long-term investment in capacity to implement social assistance programmes and wider alternative expenditure measures.

## THE FOCUS ON POLITICAL FEASIBILITY REQUIRES A MORE TAILORED AND FLEXIBLE APPROACH TO REFORM IMPLEMENTATION THAT TAKES POLITICAL, ECONOMIC AND SOCIAL CONDITIONS INTO ACCOUNT

**Ensuring that energy reforms are accepted, socially and politically, requires adapting them to prevailing national and local circumstances.** A one-size-fits-all approach to energy and carbon pricing reform is unlikely to succeed. Factors that may be relevant to the task of adapting policy strategies to such circumstances are outlined below.

- **The risk of social disturbances resulting from energy pricing reform is likely to be higher in developing countries, particularly those with weaker institutions and lower levels of public trust.** Despite considerable heterogeneity, the risks of fuel-related social protests are likely to be greater in countries characterized by weak governance and institutions (Natalini, Bravo and Newman, 2020). Moreover, political, economic and social disenfranchisement raises the risk of energy pricing and wider structural reforms being perceived as fundamentally unjust. This exacerbates the risk of policy mismanagement. The degree of

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<sup>21</sup> The COVID-19 crisis has prompted the need for a broad range of policies in many developing countries, which may overwhelm institutional capacity and require careful prioritization. Where subsidy reform is pursued simultaneously, the implications for household incomes when determining the size and structure of any fiscal stimulus may need to be considered, particularly when large-scale subsidy reform is involved.

trust between the government and civil society prior to energy pricing reform may impact the scale and timing of desirable complementary reforms. A high proportion of fiscal space should be allocated to overcoming failed past policy commitments (Inchauste and Victor, 2017).

- **The distributional impacts of energy pricing reform cannot be viewed in isolation from broader questions of political, social and economic equality.** Many key stakeholders involved in the climate change debate and policy responses to it are chronically underrepresented. This poses a challenge to democracy and communications. For example, underlying social concerns regarding equitable access to economic opportunity, political influence, and social, cultural and ethnic recognition and status contributed to the civil unrest that followed recent price increases in Iran, Chile and France, as reflected in the massive response to relatively marginal policy-induced price changes, at least in the latter two countries. Effective energy pricing reform thus requires renewed efforts to address the political, economic, social and cultural underrepresentation of some impacted groups. In some cases, it also needs to include longer-term perspectives on the levels and drivers of aspects of inequality.
- **The availability of substitutes, including an economy's capacity to adjust to policy incentives, impacts the choice of approach to reform.** In the absence of clear substitutes, consumers are more likely to be sensitive to reforms. Adverse social reactions to motor fuel tax increases in France, for example, were most evident among households in rural, semi-urban and peripheral urban areas, where public transport alternatives are relatively more limited. Similarly, poor urban households impacted by higher metro prices in Santiago, Chile may be unable to afford alternative forms of private transport. This suggests that more gradual, supportive reforms should be adopted. These should adjust the balance between “carrots” and “sticks” at the margin, where public services are limited; technological alternatives are narrower, more expensive or are being adopted slowly; or where the wider economy is less adaptable to structural change, as may be the case in many developing countries (Tvinnereim and Mehling, 2018).<sup>22</sup>
- **Rising levels of social connectivity increase the importance of effectively communicating compelling policy goals based on proactive stakeholder engagement.** Social media, the internet and other communications channels are increasing connectivity and the speed of popular discourse and reaction, particularly within more urbanized societies. This lowers the cost of collective action among groups that were previously often socially, economically and geographically fragmented. As a result, even sound policies to support sustainable development may be viewed negatively, almost instantaneously, through wider lenses of social, economic or political discontent. This increases the importance of communicating policy goals and implementation steps, finding new ways to engage often chronically underrepresented stakeholders in reform planning, and addressing the challenges associated with public policy communications in the digital media age.
- **Communities may be more receptive to policy communications targeting local development benefits rather than long-term climate change outcomes.** The importance of combating climate change has received considerable attention from European politicians and policymakers. However, in the case of the gilets jaunes in France, the argument in favour of higher motor fuel taxes to boost the transition to a lower-carbon transportation sector gained limited traction. In Indonesia, in contrast, the president and other senior officials frequently explained that energy subsidy reforms would contribute to greater public expenditures, including for health care and education. It may be important for communication strategies to focus on the ways in which energy pricing reform can help sustain public services when public finances deteriorate in the aftermath of the COVID-19 crisis and policy responses to it.

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<sup>22</sup> Creating a modernization fund to help regulated entities invest in emissions reduction projects and technologies has emerged as part of the implementation of Phase IV of the EU Emissions Trading Scheme, for example. This will likely be required to support adjustments in capital-intensive, highly-competitive industries, such as aluminium and steel.

## LARGE KNOWLEDGE GAPS IMPEDE EFFORTS TO BUILD APPROPRIATE REFORM CAPACITY

**Improved understanding of the political economy of energy subsidy reform in developing countries is a priority.** A substantial body of international experience and expertise can enable energy subsidy reforms, including within developing countries. However, capacity and information deficits prevail, impeding successful reform efforts. **International agencies, including UNDP, can thus play an important role in facilitating energy subsidy reform in developing countries,** including by:

- **Measuring the distributional impacts of energy pricing reform policy packages.** Household expenditure surveys are a key tool for understanding the distributional implications of energy pricing reforms. However, they do not provide adequate representation of poor and marginalized groups, particularly given the large informal sectors in many developing countries.<sup>23</sup> Moreover, a fuller picture of the net implications entails understanding the impact of both behavioural and policy responses on reform outcomes. Building a true picture of the local impacts and implications of subsidy reform may involve using benefit transfer models under well-specified structural representations of demand that simulate the impacts of price and expenditure changes, supported by broader qualitative research. Formal quantitative methodologies have only rarely been applied in developing countries (see, for example, Abramovsky and Phillips, 2015; Jara and Varela, 2017; Osei et al., 2019).
- **Understanding the impact of subsidy reform on final prices.** It is commonly assumed that the costs of energy subsidies are passed on fully to consumers in the long term. However, many factors may shape these pass-through effects, including imperfect market structures, choices of broader compensation and complementary policy reforms, and the broader system of financial incentives available to corporate entities across the energy value chain. These factors and policy interactions have important implications, including for the sequencing of complementary reforms, such as wider market liberalization and institutional governance reform, and the design and ongoing management of compensation policies. Such issues are likely to be particularly relevant for developing countries: wider economic and policy distortions are large and more prevalent in these but have not been studied extensively to date (see, for example, Inchauste and Victor, 2017).
- **Recognizing that the visibility of energy pricing policy (including to customers and consumers of energy services) is a determinant of societal acceptability and environmental effectiveness.** Energy pricing reform may be more or less visible to consumers based on how it is imposed on end-users (e.g. whether it targets industrial versus consumer segments) or how it is implemented (e.g. regulations imposed upstream versus downstream).<sup>24</sup> Increasing the transparency of policy impacts is a maxim of policy guidance in this space, but it is important to recognize the potential impact of such factors in shaping both the social acceptability of particular reform choices and the resulting household behavioural responses. Such issues are significantly under-researched, particularly with reference to developing countries.
- **Conducting empirical assessments of public priorities for expenditure reallocation.** Relatively little research has shown how these priorities may differ within and across societies in the developing world, impeding informed choices for resource allocation. Public preferences in developed countries generally focus on reducing energy costs and local air pollution (Ansolabehere and Konisky, 2014; Stokes and Warshaw, 2017). However, these preferences may change over time and vary by jurisdiction in response to different social and physical infrastruc-

<sup>23</sup> The pros and cons of these and wider resources for measuring inequality—including household survey, tax and national income data—are reviewed in UNDP (2019, 107–8).

<sup>24</sup> A lack of transparency may contribute to a preference for command and control (e.g. fuel efficiency standards) over explicit carbon-pricing measures in many countries (Keohane, Revesz and Stavins, 1998; Aldy, 2017). Chetty (2009) posits that the way in which taxes are displayed can affect how they influence the economy. Charges on single-use plastic bags, for example, are highly visible and behavioural responses have generally been large.

al conditions. More tailored insights that are relevant to energy subsidy reform in the developing world would thus be valuable.<sup>25</sup>

- **Measuring and communicating the links between energy pricing and wider policy outcomes.** The links among energy pricing reform, environmental conditions and goals (including on climate change) and wider public services are poorly understood, even in advanced countries. For example, Harrison (2012) indicates that the public struggled initially to link income tax reductions to the introduction of British Columbia's carbon tax. Raymond (2016) emphasizes the importance of reforms delivering significant direct public benefits. These challenges are exacerbated by the lower levels of trust that civil society places in governments in developing countries. This highlights the importance of improved measurement and communication as part of wider efforts to build policy credibility, which is related to expenditure reallocation associated with energy pricing reform. These issues thus constitute a capacity-building priority.
- **Managing overlapping policy instruments, agencies and jurisdictions.** This is likely to be required for effective energy pricing reform. In particular, a whole-of-government approach has been effective in managing far-reaching energy pricing reforms in developed countries, with implementation coordinated by an executive agency such as the planning or finance ministry (PMR and ICAP, 2016). However, adapting such reform approaches to weaker institutional contexts in many developing countries is a priority. This will likely require focusing on developing and coordinating policy levers that affect, for example, the supply, quality and affordability of basic energy services across multiple entities (including central and local governments, city administrations and state-owned utilities and other industrial enterprises).



<sup>25</sup> In the case of a carbon tax in British Columbia, public support for the measure and associated tax cuts has risen over time (Murray and Rivers, 2015; Mildemberger et al., 2016).

## REFERENCES

- Abramovsky L., and Philips, D. 2015. A Tax Micro-Simulator for Mexico (MEXTAX) and its Application to the 2010 Tax Reforms, IFS Working Paper W15/23, Institute for Fiscal Studies.
- Aldy, J.E. 2017. The Political Economy of Carbon Pricing Policy Design. Harvard Project on Climate Agreements Discussion Paper ES 17-7, Harvard Kennedy School.
- Anderson, S.T., Marinescu, I., and Shor, B. 2019. Can Pigou at the Polls Stop US Melting the Poles? NBER Working Paper no. w26146, <https://doi.org/10.2139/ssrn.3400772>.
- Ansolabehere, S., Konisky, D. 2014. Cheap and Clean: How Americans Think about Energy in the Age of Global Warming. MIT University Press.
- Bacon, R., and Kojima, M. 2006. Phasing Out Subsidies: Recent Experiences with Fuel in Developing Countries, Public Policy for the Private Sector Note 310, World Bank.
- Banks, J., Blundell, R., and Lewbel, A. 1997. Quadratic Engel Curves and Consumer Demand. *Review of Economics and Statistics* 79: 527–539.
- Beaton, C., Christensen, L., and Lontoh L. 2015. An Input to Indonesian Fuel Price System Reforms: A Review of International Experiences with Fuel Pricing Systems. Report of the Global Subsidies Initiative of the International Institute for Sustainable Development.
- Campbell-Lendrum, D., and Prüss-Ustün, A. 2019. Climate Change, Air Pollution and Noncommunicable Diseases. *Bulletin of the World Health Organization* 97: 160–161.
- Carratini, S., Baranzini, A., Thalmann, P., Varone, F., and Vohringer, F. 2017. Green Taxes in a Post-Paris World: are Millions of Nays Inevitable? *Environmental and Resource Economics* 68: 97–128.
- Carratini, S., Carvalho, M., Fankhauser, S. 2018. Overcoming Public Resistance to Carbon Taxes. *Wiley Interdisciplinary Reviews: Climate Change*, 9(5): e531, <https://doi.org/10.1002/wcc.531>.
- Carratini, S., Kallbekken, S., Orlav, A. 2019. How to Win Public Support for a Global Carbon Tax. *Nature* 565: 289–291.
- Chetty, R. 2009. Salience and Taxation: Theory and Evidence. *American Economic Review*, 99(4): 1145–77.
- Clements, B., Coady, D., Fabrizio, S., Gupta, S., Alleyne, T., Sdravovich, C. 2019. Energy Subsidy Reform: Lessons and Implications. International Monetary Fund.
- Coady, D., Parry, I., Le, N.-P., and Shang, B. 2019. Global Fossil Fuel Subsidies Remain Large: An Update Based on Country-Level Estimates. International Monetary Fund.
- Draws, S., van den Bergh, J. 2016. What Explains Public Support for Climate Policies? a Review of Empirical and Experimental Studies. *Climate Policy* 16(7): 855–876.
- EU. 2019. Excise Duty on Energy. Available: [https://ec.europa.eu/taxation\\_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-energy\\_en](https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-energy_en) (accessed 24 July 2019).
- Fedelino, A., Basdevant, O., Basile, G., and Tchaidze, R., 2017. If Not Now, When? Energy Price Reform in Arab Countries. IMF Policy Papers. International Monetary Fund.
- Feng, K., Hubacek, K., Liu, Y., Marchán, E., and Adrien, V.-S. 2018. Managing the Distributional Effects of Energy Taxes and Subsidy Removal in Latin America and the Caribbean. *Applied Energy* 225: 424–436.
- Flues, F., and Dender, K.V. 2017. The Impact of Energy Taxes on the Affordability of Domestic Energy.

Gerasimchuk, I., Wooders, P., Merrill, L., Sanchez, L., and Kitson, L. 2017. A Guidebook to Reviews of Fossil Fuel Subsidies: From Self-Reports to Peer Learning. IISD.

Government of Ghana. 2016. Public Financial Management Act, 2016 (Act 921).

Government of Indonesia. 2019. Indonesia's Effort to Phase Out and Rationalise Its Fossil Fuel Subsidies: A Self Report on the G-20 Peer Review of Inefficient Fossil Fuel Subsidies that Encourage Wasteful Consumption in Indonesia, [www.oecd.org/fossil-fuels/publication/Indonesia%20G20%20Self-Report%20iffs.pdf](http://www.oecd.org/fossil-fuels/publication/Indonesia%20G20%20Self-Report%20iffs.pdf).

Government of Iran. 2008. Value-Added Tax Law, <http://en.intamedia.ir/pages/default.aspx?mode=show&lan=en&id=vat#:~:text=The%20standard%20rate%20of%20the,Public%20Budget%20Law%20of%201394>).

GSI. 2015. Indonesia Energy Subsidy Review: A Biannual Survey of Energy Subsidy Policies. International Institute for Sustainable Development, [https://www.iisd.org/gsi/sites/default/files/ffs\\_indonesia\\_reviewi2v1\\_english.pdf](https://www.iisd.org/gsi/sites/default/files/ffs_indonesia_reviewi2v1_english.pdf).

GSI. 2019a. Raising Ambition Through Fossil Fuel Subsidy Reform: Greenhouse Gas Emissions Results Modelling from 26 Countries, International Institute for Sustainable Development, <https://www.iisd.org/system/files/publications/raising-ambition-through-fossil-fuel-subsidy-reform.pdf>

GSI. 2019b. All Change and No Change: G20 Commitment on Fossil Fuel Subsidy Reform, Ten Years On. IISD SDG Knowledge Hub, October 3, <https://sdg.iisd.org/commentary/guest-articles/all-change-and-no-change-g20-commitment-on-fossil-fuel-subsidy-reform-ten-years-on/>.

Harrison, K., 2012. A Tale of Two Taxes: the Fate of Environmental Tax Reform in Canada. *Review of Policy Research*, 29(3): 383–407.

IEA, 2018b. Energy Policies Beyond IEA Countries: Chile 2018 Review. IEA Publications, <https://www.iea.org/reports/energy-policies-beyond-iea-countries-chile-2018-review>.

IEA. 2009. Energy Policy Review 2009: Chile. IEA Publications, <https://www.iea.org/reports/energy-policy-review-2009-chile>.

IEA. 2018. World Energy Outlook 2018. IEA Publications, <https://www.iea.org/reports/world-energy-outlook-2018>.

IISD. 2018. Support for Clean Cooking in India, Tracking The Latest Developments in LPG Subsidies. IISD Global Subsidies Initiative, <https://iisd.org/story/cooking-with-gas-in-india/>.

IMANI. 2019. IMANI Research: 2019 Budget Analysis on the Energy Sector in Ghana. African Liberty, <https://www.africanliberty.org/2018/11/16/research-2019-budget-analysis-on-the-energy-sector-in-ghana/>

IMF. 2019a. Colombia: Technical Assistance Report—Reforming Energy Pricing. IMF Country Report No. 19/344, November 18, <https://www.imf.org/en/Publications/CR/Issues/2019/11/18/Colombia-Technical-Assistance-Report-Reforming-Energy-Pricing-48819>.

IMF. 2019b. Fiscal Policies for Paris Climate Strategies—From Principle to Practice. IMF Policy Paper No. 19/010, May 1, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/05/01/Fiscal-Policies-for-Paris-Climate-Strategies-from-Principle-to-Practice-46826>.

IMF. 2019c. Ghana: Selected Issues Paper. IMF Country Report no. 19.368, December 18, <https://www.elibrary.imf.org/view/journals/002/2019/368/article-A001-en.xml?language=en>.

IMF. 2020. Fiscal Monitor: April, <https://www.imf.org/en/Publications/FM/Issues/2020/04/06/fiscal-monitor-april-2020>

Inchauste, G., and Victor, D.G. eds. 2017. The Political Economy of Energy Subsidy Reform. World Bank Publications.

- IPCC. 2018. Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. IPCC.
- Jara, H., and Varela, M. 2017. Tax-Benefit Microsimulation And Income Redistribution In Ecuador. *International Journal of Microsimulation*, 12(1): 52–82.
- Jones, B., and Keen, M. 2011. Climate Policy in Crisis and Recovery. *Journal of International Commerce, Economics and Policy* 2: 103–119.
- Jones, B., Keen, M., and Strand, J. 2013. Fiscal Implications of Climate Change. *International Tax and Public Finance* 20: 29–70.
- Keohane, N, Revesz R., and Stavins R. 1998. The Choice of Regulatory Instrument in Environmental Policy. *Harvard Law Review*, 22: 313–368.
- Klenert D., Mattauch, L., Combet, E., Edenhofer, O., Hepburn, C. Rafaty, R., and Stern N. 2018. Making Carbon Pricing Work for Citizens. *Nature Climate Change* 8(8): 669–677.
- KPMG. 2020. Chile—Indirect Tax Guide. <https://home.kpmg/xx/en/home/insights/2018/10/chile-indirect-tax-guide.html>
- Levin, K., Cashore, B., Bernstein, S., and Auld, G. 2012. Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change. *Policy Science* 45(2): 123–152.
- Mildenberger, M., Howe, P., Lachapelle, E., Stokes, L., Marlon, J., and Gravelle, T. 2016. The Distribution of Climate Change Public Opinion in Canada. *PloS One* 11(8): e0159774.
- Murray, B., and Rivers, N. 2015. British Columbia’s Revenue-Neutral Carbon Tax: a Review of the Latest “Grand Experiment” in Environmental Policy. *Energy Policy* 86: 674–683.
- Natalini, D. 2016. Estimating the Role of Scarcity, Prices and Political Fragility in Food and Fuel Riots: A Quantitative and Agent-Based Modelling Approach. Doctoral dissertation, Anglia Ruskin University.
- Natalini, D., Bravo, G., and Newman, E. 2020. Fuel Riots: Definition, Evidence and Policy Implications for a New Type of Energy-Related Conflict. *Energy Policy* 147: 111–885.
- OECD. 2001. Environmentally Related Taxes in OECD Countries Issues and Strategies. OECD Publishing.
- OECD. 2009. The Economics of Climate Change Mitigation: Policies and Options for Global Action Beyond 2012
- OECD. 2019. Government at a Glance 2019. OECD Publishing, <https://doi.org/10.1787/8ccf5c38-en>.
- Olson, M. 1965. *The Logic of Collective Action*. Harvard University Press
- Osei, R., Pirtilla J., and Rattenhuber, P. 2019. Quantifying the Impacts of Expanding Social Protection on Efficiency and Equity: Evidence from a Behavioral Microsimulation Model for Ghana. *International Journal of Microsimulation* 12(1): 105–123.
- Peltzman, S. 1989. The Economic Theory of Regulation after a Decade of Deregulation. *Brookings Papers on Economic Activity*.
- PMR and ICAP. 2016. Emissions Trading in Practice: A Handbook on Design and Implementation. World Bank.
- Puig, D., Olhoff, A., Bee, S., Dickson, B., and Alverson, K. 2016. The Adaptation Finance Gap Report. UNEP, <https://unepdtu.org/publications/the-adaptation-finance-gap-report/>.



- Raymond, L., 2016. Reclaiming the Atmospheric Commons: The Regional Greenhouse Gas Initiative and a New Model of Emissions Trading. MIT University Press.
- Runnalls, D. 2009. Achieving the G-20 Call to Phase Out Subsidies to Fossil Fuels. Policy Brief, October. IISD.
- Stigler, G.J. 1971. The Theory of Economic Regulation. *Bell Journal of Economics and Management Science* 2(1): 3–21.
- Stiglitz, J.E., and Stern, N. 2017. Report of the High-Level Commission on Carbon Prices. World Bank.
- Stokes, L., and Warshaw C. 2017. Renewable Energy Policy Design and Framing Influence Public Support in the United States. *Nature Energy* 2(8): 1–6.
- Strand, J. 2013. Political Economy Aspects of Fuel Subsidies: A Conceptual Framework. World Bank Policy Research Working Paper 6392.
- Tvinnereim, E., and Mehling, M. 2018. Carbon Pricing and Deep Decarbonisation. *Energy Policy* 121: 185–189.
- UNDP. 2019. Human Development Report 2019: Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century, <http://hdr.undp.org/en/content/human-development-report-2019>.
- UNDP. 2021. Social Protection Offer
- USAID. 2016. Making the Journey from Cash to Electronic Payments: A Toolkit for USAID Implementing Partners and Development Organizations, [https://www.usaid.gov/sites/default/files/documents/15396/USAID\\_NetHope\\_ePayment\\_Toolkit\\_2016.pdf](https://www.usaid.gov/sites/default/files/documents/15396/USAID_NetHope_ePayment_Toolkit_2016.pdf).
- Victor, D. 2009. The Politics of Fossil-Fuel Subsidies. IISD.
- WBG. 2017. The Energy Subsidy Reform Assessment Framework (ESRAF) Good Practice Notes Toward Evidence-Based Energy Subsidy Reforms, <https://openknowledge.worldbank.org/bitstream/handle/10986/28863/121266-WP-PUBLIC-10-11-2017-16-35-36-ESRAFReportOverviewNoteFINALdigital.pdf?sequence=4>.
- WBG. 2018. Energy Subsidy Reform Assessment Framework: Assessing the Readiness of Social Safety Nets to Mitigate the Impact of Reform. ESMAP Papers, <https://openknowledge.worldbank.org/handle/10986/17456>.
- WBG. 2019a. State and Trends of Carbon Pricing 2019. World Bank, <https://openknowledge.worldbank.org/handle/10986/31755>.
- WBG. 2019b. Subsidies in the Energy Sector: An Overview. Background Paper for the World Bank Group Energy Sector Strategy, [https://www.esmap.org/sites/esmap.org/files/DocumentLibrary/Subsidy\\_background\\_paper.pdf](https://www.esmap.org/sites/esmap.org/files/DocumentLibrary/Subsidy_background_paper.pdf).
- WHO. 2018. Air Pollution, [https://www.who.int/en/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health) (accessed 23 October 2019).
- Zinecker, A., Sanchez, L., Sharma, S., Beaton, C., and Merrill, L. 2018. Getting on Target: Accelerating Energy Access Through Fossil Fuel Subsidy Reform. IISD.

## APPENDIX: CASE STUDIES

This section summarizes energy pricing reform experiences and outcomes in Indonesia, Iran, Chile, France and Ghana. These have been selected to explore a broad span of policy goals, implementation choices, and implications amid different social, economic and political contexts. These experiences are considered in the light of previously established best practice principles for designing and implementing effective energy pricing reforms, with a particular focus on ensuring socially equitable and politically acceptable outcomes.



## CASE STUDY 1

# INDONESIA — A TURBULENT PATH TO FUEL RE-PRICING

To reduce the dependence on fuel subsidies and free resources for investments and growth, Indonesia's governments have adopted an approach that seeks to transfer the burden of reforms to less influential vested interests, which has garnered support from most of the population. This has not meant that only the poor have benefited from the reforms: powerful state-owned enterprises that historically opposed these gained access to public funds through them. Furthermore, public communication strategies have played a decisive role in the process, sometimes tipping the balance in favour of support for the reform and/or large-scale opposition to them.

Indonesia has traditionally relied on comprehensive energy subsidization plans. The goal of these was to provide affordable energy to the poor, which is one of the main tasks mandated to the government by the Constitution. Until the late 1990s, the government subsidized as many as seven types of fuels. However, the unprecedented jump in oil prices in the 2000s and the Indonesian population's increased access to energy and fuel meant that energy subsidies proved unsustainable for public finances. In 2000, subsidies reached unprecedented levels of over \$20 billion, or around 20 percent of the government budget, severely constraining the fiscal resources available for spending on other areas, such as education and health (OECD, 2019).

Early attempts at fossil fuel subsidy reform were induced by the Asian crisis of the late 1990s, and were among the conditions set by the IMF to access its Stand-By Arrangements. By May 1998, the government had increased the price of kerosene, diesel and gasoline by 25%, 60% and 71%, respectively (Chelminsky, 2008). These price hikes provoked large-scale protests across the country for three consecutive months, ultimately leading to the fall of President Suharto, who had been in office since the late 1960s. In 2001, the prices of five major fuel products were increased to 50 percent of their market values, and a pricing formula was introduced to gradually raise this benchmark to 75 percent. However, in 2003, these reforms were scaled back and the process of regular price adjustments was abandoned following widespread civil disturbances.

The particularly violent reaction to the reforms in question was not only due to the increase in fuel prices. The political-economic context in which the reforms took place also played a decisive role. For example, the adoption of austerity policies that envisaged lower government expenditure and the privatization of state-owned enterprises led to increasing inequality among what was already one of the world's poorest populations.

In addition, the existence of vested interests played a crucial role in supporting the protests. For example, the motorcyclist lobby is deemed very influential in Indonesia: motorcycles are used by more than 3 million people across various social groups. The car and motorcycle industries and Pertamina, the state-owned oil and gas company, have also advocated for keeping fuel subsidies. In fact, cheap fuel was what enabled the record historical growth in car and motorcycle sales in Indonesia. Low fuel prices were also essential for Pertamina to keep its advantage over foreign competitors in the downstream and refinement market (OECD, 2019).



The Indonesian government introduced effective compensation programmes for the population affected by fossil fuel subsidy reforms. Photo: UNDP Indonesia/ Fieni Aprilia

A turning point in the Indonesian approach to fuel subsidy reform occurred in 2004, when decisive steps were taken towards the permanent abandonment of most subsidies, coupled with effective compensation programmes for the population. The new policy approach was justified by the hike in international oil prices at a time when the country was transitioning from being an exporter of hydrocarbons to a net importer. In this context, keeping fuel subsidies was unsustainable for the government budget. By March 2005, the price of gasoline had increased by 33 percent, automotive diesel by 27 percent and kerosene by 22 percent. In October, gasoline prices increased again, this time by 88 percent, and automotive diesel by 105 percent (though kerosene prices were cut by 9 percent) (Beaton, Christensen and Lontoh, 2013).

Nevertheless, on this occasion, social unrest was prevented thanks to the introduction of innovative income redistribution mechanisms across the social groups that were mainly affected by the reforms. For example, a registry of low-income households was developed as a basis for targeting two unconditional cash transfer schemes to offset price increases. The Bantuan Langsung Tunai programme—a temporary unconditional cash transfer programme also known as Direct Cash Assistance—was developed specifically to help compensate for the fuel subsidy reform. It was first used alongside the October 2005 price increase, when approximately \$30 was transferred to poor households. Innovative technology such as smart cards was also used to support expenditure targeting (Chelminsky, 2008).

The above-mentioned compensation programmes were implemented thanks to the savings in the government budget as a result of the reforms. The overall reduction in government expenditure reached around \$17 billion, \$2.5 billion of which was allocated to social policies benefiting poor regions and villages. However, most of the savings (around \$15 billion) were reinvested in productive activities and infrastructure, a third of which amount consisted of capital injections into state-owned enterprises (Zinecker et al., 2018).

Fuel subsidies came under pressure again at the peak of the oil price boom in 2008, when monthly fuel price adjustments were implemented. A new round of subsidy reforms began in 2013 with a set of ad hoc price increases and bolstered expenditure on social provisioning. On this occasion, the reforms only resulted in protests by specific interest groups and did not involve large amounts of people. For example, the Indonesian Land Transport Operators Association opposed the provision that prevented transport operators from increasing ticket prices after the fuel price hikes. However, the lack of large-scale national support meant that these protests were not hard to address.

From 2015, the government implemented further reforms to reduce fuel and power subsidies. Petroleum product subsidies were gradually reduced, subject to a three-monthly price review. Fuels such as gasoline were initially targeted over kerosene, which is more heavily used by low-income groups. The proportion of subsidized electricity sales were also steadily reduced, with the number of beneficiaries declining from 24 to 6.5 million households between 2012 and 2017, saving the government IDR 22 trillion (GSI, 2015).

## CASE STUDY 2

# CHILE — RE-PRICING ENERGY SERVICES IN AN UNEQUAL, POLARIZED SOCIETY

In October 2019, the Panel of Public Transport Experts of Greater Santiago approved a 4 percent price increase to bus and metro fares at peak hours, which resulted in increases of CLP10 and CLP30, respectively.<sup>26</sup> This price increase was determined on the basis of a formula that takes into account price variations in major input indicators such as the cost of energy, cost of labour, exchange rate and inflation. Because these costs were borne disproportionately by the working poor in Santiago, who depend on the metro for peak-time local transportation, these fare increases triggered strong protests. Chile's extremely liberalized economy provides extensive benefits to major corporations and the income groups that are connected to them at the expense of the largest segment of Chilean society. The government has attempted to ease the problem and calm the turmoil by artificially decreasing transport fares. However, this is only likely to be effective in the short term, as the structure of the country's economy and the regulation of essential services remain unequal, and significant discontent is likely to re-emerge on other occasions.

Since liberalizing its electricity market, Chile has had no fuel subsidies or price caps. The refiner sets prices for petroleum-based fuels, which are reflected in the cost of fuels throughout the distribution chain. However, two funds were established to reduce the price volatility of imported fossil fuels. The Fuel Price Stabilization Fund (FEPC) addressed petroleum price volatility and the Petroleum Price Stabilization Fund (FEPP) covered LPG, LNG, gasoline, diesel and kerosene.

These funds maintained the price of fuel imports within a price band that matched recent average import price levels. This determined whether a credit or tax would be applied to end-user prices to keep these within 12.5 percent of the import parity price, in the case of FEPP, and within 5 percent, in that of FEPC (IEA, 2009). Neither fund was self-financing, and both required capital injections from the government. FEPC was replaced by the Fuel Price Variation Protection System (SIPCO) in 2011. This sought to reduce the fiscal burden of the previous schemes by broadening the permissible price range and establishing an insurance compensation mechanism financed by the variable component of the fuel tax (IEA, 2009).

In June 2005, Chile established an electricity subsidy for poor families. It applies only if the power tariff increases by 5 percent or more within six months or

<sup>26</sup> The measure entailed a decrease of CLP30 for non-peak hours within the Province of Santiago.

less (IEA, 2009). This measure was first applied between June 2005 and March 2006, when it targeted 40 percent of the total population (about 1,250,000 families). It has operated over several periods, including from February to March 2007 and between December 2007 and March 2008. Historically, rural electrification initiatives constituted the other major area of Chile's power subsidies. However, nearly universal coverage was attained in the early 2000s.

Other energy-related subsidy and rebate programmes are also offered. In the area of residential heating, for example, some regions offer lump-sum payments to lower-income households for all types of heating in autumn and winter (IEA, 2018b). In the Magallanes Region, however, gas prices for all households are subsidized.



A protester in Santiago de Chile, October 2019. Photo: Antillanca/Shutterstock.com

This is the result of a decision not to raise household gas prices, as the region has become reliant on more expensive unconventional gas supplies. In 2017, the cost subsidy amounted to CLP66.7 billion—around \$107 million or approximately \$1,945/customer, including households, industry, commercial and power generation (IEA, 2018b). Likewise, the Ministry of Transport is offering a CLP6.5-million subsidy for the replacement of taxis with higher-efficiency, electric vehicles, and has also established procurement quotas for electric buses in Santiago.

The Government of Chile takes a data-driven approach to determining eligibility for social programmes. It has developed a robust social database based on the extensive collection of household data through the Socioeconomic Characterization Index (Ficha de Caracterización Socioeconómica, CAS). This uses a two-

page form to collect detailed household information and allows the government to whether households are eligible for a wide range of government programmes based on a points system. These forms are updated every three years.

In October 2019, bus fares in Santiago were increased by CLP10 and metro fares by CLP30 at peak hours, an increase of about 4 percent. At the same time, fares were decreased by CLP30 for non-peak hours within the Province of Santiago. These price increases were determined by a formula based on a basket of input costs (e.g. diesel, tyres, labour), exchange rates and inflation, but are limited to upward price movements due to the existence of public subsidies.

These costs were borne disproportionately by the working poor in Santiago, who depend on the metro for peak-time local transportation. In Chile, 50 rush-hour trips—roughly the number of trips a commuter would make in one month—cost around CLP41,500, which is equivalent to 14 percent of the minimum wage in Chile and potentially represents a much higher percentage of low-income households' earnings. These rates are notably high by regional standards; in Brazil, for example, commuting expenses are capped at 6 percent of income.

The price reforms triggered massive protests, initially in the form of a coordinated fare evasion campaign in Santiago. However, this soon escalated into vandalism and violent conflict with the police and spread to other Chilean cities. President Sebastián Piñera declared a state of emergency on 18 October 2019 after more than 10 metro stations were burned down. The government then deployed the Armed Forces on the streets of Greater Santiago and imposed a curfew in other cities to prevent further unrest.

The protesters' grievances quickly expanded to include broader concerns, such as income inequality, the rising cost of living and perceived unfairness in economic outcomes arising from privatization. The distribution of wealth in Chile is among the most uneven in Latin America, with the wealthiest 10 percent holding two-thirds of the country's wealth in 2017, while the bottom half of households owns just 2.1 percent. Major Chilean cities, and particularly Santiago, face a severe housing crisis, with lower-income groups experiencing both supply shortages and low affordability. These socioeconomic factors are a defining feature of the price reforms and are ultimately likely to lead to broader constitutional reform.



### CASE STUDY 3

# IRAN — A LASTING DEPENDENCE ON FUEL SUBSIDIES AND THE TRAP OF INTERNATIONAL SANCTIONS

Iran is the world's largest provider of fuel subsidies. Attempts to reduce these were accompanied by redistributive measures that failed due to weak management of programme eligibility, which contributed to broader social unrest over time. The lower middle class has been hit hardest by Iranian economic policy, as is evident in their increasing activism in social protests. The country's rich have become richer from privatizations, while the poor have benefited from government poverty alleviation programmes. In this context, the lower middle class have been the main losers. Although the government has identified the long-term measures needed to escape the grip of the subsidy system, the problem remains as to how to allocate current scarce resources across strained social groups and maintain political stability. This is proving even more difficult under the current economic sanctions, which have led to a temporary interruption of the subsidy reform plan and an increase in fuel subsidies to restore social order.

Fuel subsidies in Iran cost 1.6 percent of GDP in 2017–2018. As a result, the country's fuel prices are the lowest in the region and it is the second-largest fuel consumer in the world after the US, a situation that critically undermines fiscal and export revenues. In 2010, the Iranian parliament ratified the Targeted Subsidies Reform Act, which called for a major increase in energy prices between 2010 and 2015. The retail prices of petrol, diesel, fuel oil, kerosene and LPG were required to increase to no less than (later adjusted to no more than) 90 percent of Persian Gulf free-on-board prices.

Government savings from subsidy reductions were to be redistributed as follows: 50 percent would target lower-income sectors; 20 percent would be retained by the government; and 30 percent would be invested to improve energy efficiency and increase public transport capacity and domestic refining output. The redistributive programmes included both cash and in-kind payments, taking into account each family's income level, and social security spending, including the introduction of national health insurance, job creation schemes and subsidized mortgage loans.

The implementation of cash subsidies and in-kind payments proved problematic due to a lack of political will and inadequate data, leading to weak management of programme eligibility. For example, a gasoline card was introduced that would charge a higher price to wealthier consumers, based on gas usage/car/month. However, the scheme collapsed because it lost public credibility as eligibility was calculated using self-reported survey data. Over time, fiscal constraints led to a series of restrictions on cash subsidy schemes.



A market stall in Isfahan, Iran.  
Photo: astudio/Shutterstock.com

In October 2012, the parliament voted to pause the subsidy reform because of high inflation. However, in 2014, Iran initiated the second phase of its targeted plan, which raised petrol prices by 75 percent, from IRR4,000 (\$0.16) to IRR7,000 (\$0.28) per litre.

In November 2019, President Hassan Rouhani reduced fuel subsidies with a view to raising about \$2.5 billion. The decision was triggered by additional strains on the country's fiscal and foreign exchange positions following tighter US sanctions. Parliament initially opposed the move. However, Ayatollah Khamenei's support of the price hike effectively ended the challenge. As a result, fuel prices increased from IRR10,000 to IRR15,000 per litre (a per-unit increase of about \$0.20) for up to 60 litres and IRR30,000 (\$1.20) thereafter.

The 2019 reforms led to massive countrywide protests in both major cities and smaller towns. The protesters particularly included lower-income sectors and the middle classes and certain ethnic groups, who expressed their dissatisfaction with declining real incomes and employment opportunities as well as restrictions to civil, religious and political freedoms. At least 12 people were killed and hundreds were injured over three days of rioting, according to semi-official news agencies such as Fars News.

The government reacted fiercely, arresting over 1,000 people and sending the army and police onto the streets. Its strategy also included restricting internet connectivity to around 7 percent of normal levels and limiting mobile phone access. According to NetBlocks, this was the most severe disruption in Iran since President Rouhani came to power.

The resulting social disturbances cannot be dissociated from broader, longer-term social, ethnic, economic and political issues. Protests in Iran are extremely common, particularly among lower-income sectors, the middle classes and certain ethnic groups. However, poor government communication strategies and reform planning exacerbated reactions: senior officials announced that 60 million of the country's 82 million inhabitants would receive a monthly bonus to compensate for higher petrol prices but could not provide details at the time of implementation, saying only that first payments would be made within the next week or 10 days.

An abstract graphic consisting of a dense network of thin, light blue lines that form a complex, organic shape resembling a stylized flower or a web. The lines are more concentrated on the left side and spread out towards the right, creating a sense of depth and movement. The background is a solid dark blue.

## CASE STUDY 4

# THE INTRODUCTION OF CARBON TAXES IN FRANCE — SOCIAL UNREST IN ADVANCED ECONOMIES

The provisions on carbon taxes introduced by the French government in 2018 contributed to widespread, long-lasting social unrest because of their disproportionate effect on the country's lower-income sectors. The lack of compensation for these sectors was compounded by the fact that the tax was expected to increase sharply over a fairly short period. Besides these miscalculations, any evaluation of the French government's approach to carbon pricing on this occasion must also take into account the broader context of the political economy of energy and carbon pricing in this country.

In October 2018, large-scale protests erupted across France, led by the *Gilets Jaunes* (Yellow Vest Movement). The protest responded to a government decision to double the existing carbon tax by 2022. In 2018 alone, the price of diesel rose by 23% to an average of €1.51 per litre by 2018, and although this owed largely to a recovery in global oil prices, it increased negative perceptions of the effect of the reform on consumer interests.

The protest lasted for several months and entailed severe damage to buildings and public infrastructure. It generated significant losses for the French economy as cities were paralysed and roads and other infrastructure were blocked by the clashes between protesters and the police. Initially presented as a policy designed to promote a switch to low-carbon transportation, the measure was not implemented as part of a package of measures and no revenue recycling was proposed. To appease protesters, the French government withdrew its decision to increase the carbon tax, which has since remained at 2018 levels. In 2019, €10 billion were allocated to emergency tax relief for low-income workers and households, followed by further proposed income, overtime and property tax cuts in 2020. While ostensibly a reaction to fuel price reforms, the demands and grievances of the Yellow Vest Movement gradually evolved into a broader reaction to perceived inequalities (Natalini, Bravo and Newman, 2020).

The movement comprises a wide range of income groups and professional categories. Despite attracting political supporters from both the extreme right and extreme left, anarchists and anti-globalization protesters, the movement is mainly made up of blue-collar workers from lower-income sectors and the lower-middle classes. The rise in housing prices and the cost of living have forced these groups

to move out of cities into suburbs, smaller towns, and peri-urban areas, where they depend on private vehicles, especially for getting to work.

In recent decades, low-skilled workers in labour-intensive sectors that face tremendous competition from emerging economies have gradually seen their welfare decline. Although the French government has traditionally adopted a protectionist approach towards these sectors, pressure from the forces of globalization has often prevailed (Bauby and Varone, 2007). This has been particularly the case when the categories of workers affected by changes were not organized under the umbrella of France's powerful trade unions, which operates mainly in traditional industrial sectors such as the car industry, railways and shipping. As a consequence, jobs such as truck drivers, call centre operators and employees at multinational companies like Amazon were more vulnerable.



Gilet Jaunes (Yellow Vest) protest in France, 2019. Photo: Antoine Guibert

The French government's policies in both the recent and more distant past have also run counter to the interests of these social groups. The need to comply with EU provisions has led to the liberalization of several industrial sectors, which has accelerated the decline of non-competitive sectors and widened the inequality gap between white- and blue-collar workers. Similarly, the need to comply with the EU provisions on deficit and public debt has wiped out resources for the welfare state, to the detriment of lower-income groups (Bauby and Varone, 2007).

As noted above, the provisions on carbon taxes introduced by the French government had a disproportionate effect on France's lower-income sectors and the

middle classes. The €5 billion annual revenue generated by the carbon tax is mainly intended to be used to decrease the annual deficit and finance greenfield investment in renewable energy. Significantly, the measure does not contemplate compensation for the professional categories or income groups affected by the tax.

Another controversial aspect of the tax was how rapidly and sharply it was projected to increase. When it was introduced in 2014, CO<sub>2</sub> was taxed at €7 per tonne. Annual increases brought this rate to €44.60 in 2018, when the government proposed to raise it to €86.20 by 2022, one of the highest values in Europe, which triggered the protests described above (Rocamora, 2017).

Besides the miscalculations around compensations and timing, any evaluation of the approach to carbon pricing adopted by the French government must also take into account the broader context of the political economy of energy and carbon pricing in the country.

First of all, the policy of taxing carbon makes it possible for the French government to pursue wide-ranging policy objectives. Among other things, it enables investment in renewable energy. This helps achieve the government's environmental policy targets and contributes to replacing fast-declining energy production from ageing nuclear plants, which is crucial to France's energy security.

However, the political economy of carbon pricing in France reveals a more complex framework of industrial interests that goes beyond government policy objectives. For example, some sectors benefit from partial or total exemptions from the carbon tax. This is the case of the agriculture sector, which is well known for being a powerful lobby in France. In fact, in 2017, the sector received reimbursements up to €46 per tonne of CO<sub>2</sub>, resulting in a much-reduced carbon tax of only €2 per tonne of CO<sub>2</sub>.

Similar benefits are contemplated for the transport sector. While air and water transport are completely exempt, road transport receives partial reimbursements of €65–€129 per tonne of CO<sub>2</sub>, depending on the type of transport. However, the final carbon tax for road transport was still as high as €172 per tonne of CO<sub>2</sub>, probably due to the high CO<sub>2</sub> content of the fuels used by cars and trucks, primarily diesel, but also gasoline (Rocamora, 2017).

In this regard, it is not surprising that one of the protesters' main demands was the elimination of subsidies on kerosene for domestic flights, which account for €3 billion of the total €8.5 billion in subsidies. Although these subsidies make French airlines more internationally competitive, the measure highlights how the unequal treatment of different types of fuels, to the detriment of the fuels that are most widely used by vulnerable income groups lacking adequate forms of organization to protect their interests.

Since 2015, exemptions were also granted for all energy-intensive industries that are not among the sectors exempted by the EU ETS scheme. The rationale was the need to safeguard these industries' competitiveness due to their role in strategic production for the country.

However, the extent of these exemptions has led many to argue that carbon pricing in France will not be able to achieve its environmental objectives of cutting 3 million tonnes of CO<sub>2</sub> emissions (one million from the transport sector and two million from the housing sector) by 2022.<sup>22</sup> In contrast, the tax seems to have contributed to widening the inequality gap by hitting vulnerable income groups the hardest.

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<sup>22</sup> Despite this, the drop in international oil prices has played a considerable role in offsetting the tax's role as a deterrent to energy and fuel consumption.



## CASE STUDY 5

# GHANA — ENERGY REPRICING IN HIGH-PERFORMING EMERGING ECONOMIES

Since 2014, the pace of price liberalization has accelerated in Ghana, in part catalysed by the IMF's objections to energy subsidies. Despite facing significant fiscal constraints, the government of Ghana has shown an increasing willingness to harness energy pricing reform to finance broader development goals, including by implementing a road fund levy to finance road infrastructure maintenance and improvement and an energy fund levy. A conditional cash transfer programme was introduced in 2008 to link fuel subsidy reductions to the elimination of school fees for primary and secondary education (Zinecker et al., 2018). This scheme was then expanded and included over 110,000 households by 2018. It may be too soon to judge the political sustainability of these reforms, given that a sustained period of high international import prices has not occurred since. However, the reforms were accompanied by efforts to communicate the impact of subsidies, including their role in generating indebtedness and encouraging smuggling and the adulteration of petroleum products. The communication campaign also underlined the IMF's absolute objection to sustained subsidization and how the removal of subsidies would increase Ghana's capacity to implement alternative expenditure programmes.

Ghana has a long history of fuel subsidization and efforts at pricing. In 2001, the government established the objective of setting petroleum product prices at import parity to ensure full recovery of investment costs. This was motivated primarily by the tremendous fiscal strain that subsidization policies have placed on the government. An adjustment formula was introduced as part of an effort to deregulate petroleum product markets. It was to be activated by a 2.5 percent variance between a basket of domestic prices and their import parity values (Imani, 2019).

However, despite numerous efforts to establish and maintain a credible pricing formula, energy pricing decisions are highly politicized, capacity constraints affect the implementation of alternative expenditure programmes and institutional fragility is a concern. As a result, the rate and direction of subsidy reform have been unpredictable. In January 2003, prices were increased by 90 percent to achieve full cost recovery. However, these changes triggered widespread opposition and, following elections in 2004, the government revised them significantly in 2005. Further changes were made to the formula in 2007 and 2008 in response to sharply rising international oil prices but were reversed again with the renewed politicization of the reforms during the 2008 election.

Indebtedness, poor fiscal management and corporate governance in the energy sector have been persistent issues affecting Ghanaian fossil fuel subsidy

reform. Energy subsidies in Ghana are channelled through several public corporations, including the Electricity Company of Ghana, the Ghana Grid Company, the National Gas Company, the Ghana National Petroleum Corporation and the Tema Oil Refinery.<sup>28</sup> These face severe ongoing financial and maintenance challenges that have undermined their operations: the largest six public energy corporations have liabilities of around 11–12 percent of GDP (IMF, 2019c).



School children in Ho, Asogli, Ghana. Fossil fuel subsidy reforms were linked to compensation measures such as the elimination of school fees. Photo: James Dalrymple/Shutterstock.com

Weak fiscal accounting and poor forecasting and cash management systems have increased debt servicing needs, while the lack of transparency around the scale of energy subsidies has highlighted the importance of reforming these.<sup>29</sup> Public sector accounting reforms are under way, with public corporations now required to submit annual audited financial statements (IMF, 2019c). However, enhanced data and systems are also required to strengthen the quality of underlying balance sheet data. For example, the Tema Oil Refinery's failure to prepare and submit sufficiently frequent bank reconciliation sheets has contributed to substantial revenue leakage. The ability of state-owned enterprises like the national oil company to pass through the costs of fuel price changes has also been influenced by related structural reforms, such as the liberalization of retail gasoline markets (Imani, 2019).

<sup>28</sup> In 2007, Ghana discovered oil in commercial quantities within its territory and started full-scale production in 2011. However, the industry is relatively small and the country remains a net importer of petroleum products.

<sup>29</sup> The Bank of Ghana's practice of using historical exchange rate quotes exposed the government to indirect financial risks from fuel imports during periods of currency depreciation, particularly prior to 2015 (WBG, 2018).



Ghana was the first sub-Saharan African country to achieve the United Nations Millennium Development Goal 1 of halving extreme poverty by 2015. However, further poverty reduction remains an overwhelming development priority: Ghana remains a lower-middle-income country, with an average per-capita GDP of around \$2,200. Despite this, the country has become increasingly unequal. Its Gini coefficient<sup>30</sup> rose from 37.5 in 1991 to 40.8 in 2012, fuelled by pronounced regional income disparities. Poverty is concentrated in rural areas within the country's eastern, upper east, west and northern regions.

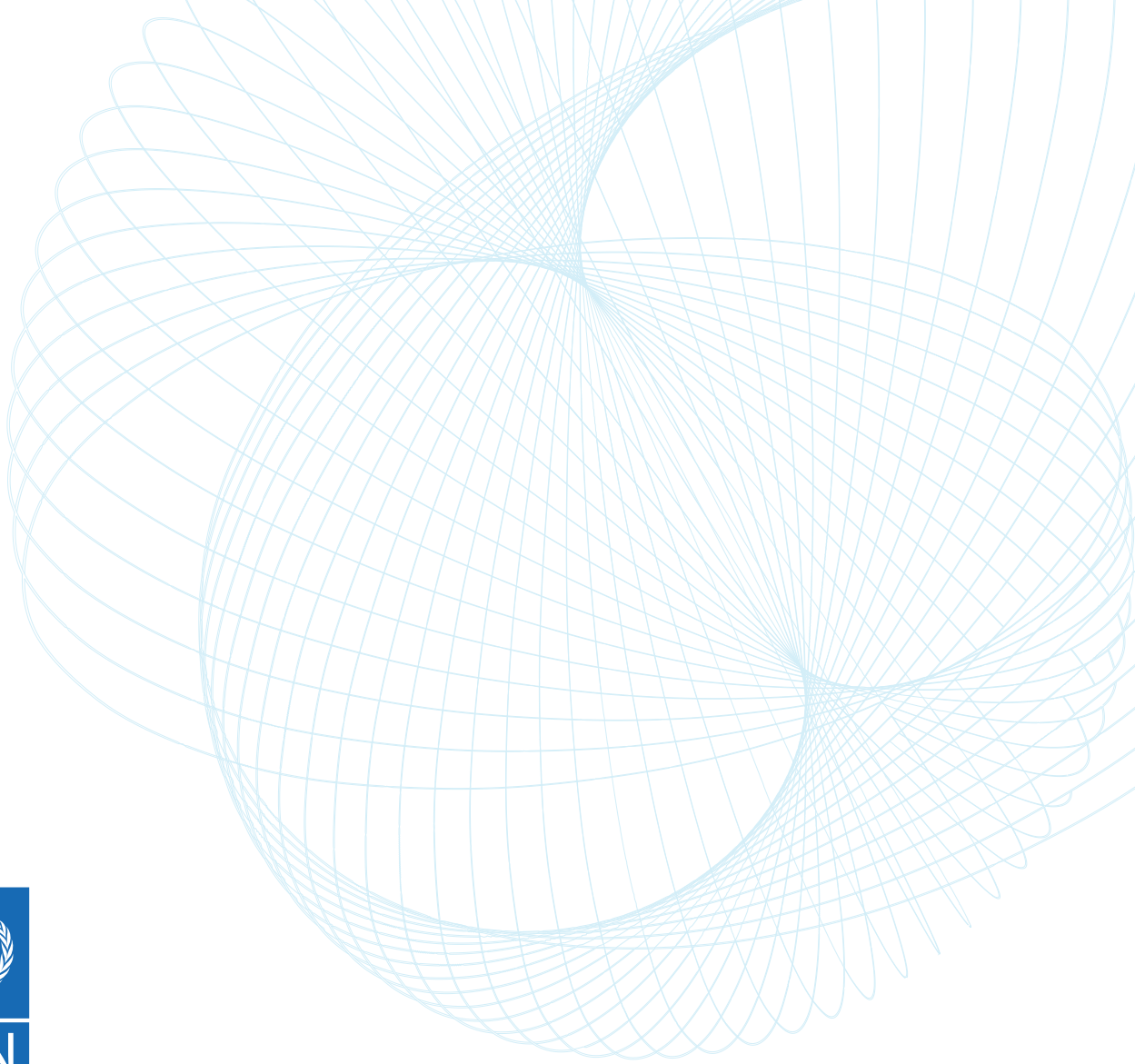
In this context, Ghana has actively sought to design energy subsidies to pursue redistributive goals. For example, it employed a system of cross-subsidization between fuels used by wealthier segments of society, such as gasoline, and those used by poorer groups, such as kerosene and fuel for local fishing boats (an approach which was informed by the Ghana Living Standards Survey). However, this approach contributed to significant policy distortions, including, for example, the tendency for diesel to be adulterated with kerosene, which receives more preferential price treatment. Over time, restrictions were imposed on the extent of the cross-subsidization between these products. A quality control programme, the Petroleum Products Marking Scheme, was established to limit the resulting revenue leakage.

Despite facing significant fiscal constraints, the Government of Ghana has been increasingly willing to harness energy pricing reform to finance broader development goals, including by implementing a road fund levy to finance road infrastructure maintenance and improvement and an energy fund levy. A conditional cash transfer programme was introduced in 2008 to link fuel subsidy reductions to the elimination of school fees for primary and secondary education (Zinecker et al., 2018). This scheme was then expanded and included over 110,000 households by 2018.

Stakeholder engagement in fuel pricing issues has generally been intermittent. In 2004, faced with a fiscally unsustainable subsidy regime, the government launched a Poverty and Social Impact Analysis for petroleum products. This in-depth study—involving universities, the government, and the national oil company—showed that petroleum subsidies benefited better-off citizens. The findings contributed to renewed efforts to liberalize prices and redirect savings to social protection programmes. Industry players were consulted and involved in the planning stage, and civil society, consumer groups, and the general public were educated extensively about price deregulation. Although trade unions opposed the policy, it was generally accepted and there were no large-scale demonstrations against the price increase.

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<sup>30</sup> The Gini index is a widely used measure of income inequality within a country: 0 represents perfect equality and 100 represents perfect inequality.



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