ENDING FOSSIL FUEL SUBSIDIES

The politics of saving the planet

Neil McCulloch

Ending Fossil Fuel Subsidies

Praise for this book

'Neil McCulloch's *Ending Fossil Fuel Subsidies* is well worth reading because it takes seriously the complexities of the problem. McCulloch recognises the importance of this topic for planetary protection, but his primary lens is the complex politics and ground realities that lead to political lock-in in fossil fuel subsidising countries. Instead of espousing an abstract global rationality to removing fossil fuel subsidies, he focuses on the need to understand country contexts – the consumption subsidies, the political campaign contributions, the lack of credibility of alternative support – that make fossil fuel removal political fraught. This is the right starting point. Only once he gets 'beneath the surface', as he puts it, does he offer practical, manageable, steps toward reform; steps that take seriously the real political economies of real places and the need to avoid impacts on the poorest. Written in crisp and accessible prose, and sprinkled with country examples, McCulloch's is the best and most accessible text I have seen on the thorny, yet essential challenge of removing fossil fuel subsidies.'

Professor Navroz Dubash, Centre for Policy Research; specialist in climate change, energy, air pollution, water policy, and the politics of regulation in the developing world

'The world faces overlapping climate, food and energy crises. Yet the governments of both rich and poor nations continue to spend billions of dollars subsidising fossil fuel subsidies. This book explains why. But it also shows how politicians and citizens together could end fossil fuel subsidies and use the resources to reduce poverty and inequality worldwide.'

Professor Melissa Leach, Director, Institute of Development Studies

'In a climate emergency why are fossil fuel subsidies still so high? The answer lies in the politics of their distribution and use. This excellent, accessible and timely overview of the topic shows why policymakers often feel trapped and fail to make the changes needed. But it also shows how engaged citizens can help to make change happen.'

Professor Peter Newell, University of Sussex, author of Power Shift

'Understanding the politics of why fossil fuel subsidies persist is essential to the design of effective reforms. 'Ending Fossil Fuel Subsidies' provides a treasure trove of insights about what can practically be done to tackle the problem – it should be read by policymakers everywhere.'

Vivien Foster, Chief Infrastructure Economist, World Bank

'This excellent short book tells you why ending fossil fuel subsidies matters, why it so hard to achieve, and offers a new, politically savvy approach to tackling the problem.'

Peter Wooders, former Head of Global Subsidies Initiative, International Institute for Sustainable Development

'Climate change is an existential challenge for the planet. Yet, astonishingly, governments still subsidise fossil fuels. Neil McCulloch's wonderful, short book explains why it is hard to end fossil fuel subsidies, but also charts a politically savvy way in which it could be done.'

Ban Ki-moon, former Secretary General of the United Nations

'As the world faces a food and nutrition crisis, governments everywhere are looking for resources to protect citizens. This wonderful little book provides an answer – ending fossil fuel subsidies could release billions of dollars to safeguard nutrition across the world. Better still, the book shows how to tackle the challenge of navigating the complex politics of reform.'

Lawrence Haddad, Executive Director, Global Alliance for Improved Nutrition

'Climate change is an existential challenge for the planet. That makes it all the more astonishing that some governments still subsidise fossil fuels. Neil McCulloch's wonderful, short book explains why ending fossil fuel subsidies has been challenging and charts a politically smart way in which it could be done.'

Rt Hon Helen Clark, former Prime Minister of New Zealand

'Subsidising fossil fuels is an abrogation of human rights. This book exposes the political factors that have perpetuated this injustice and how progressive political leadership could end these subsidies and promote climate justice for all.'

Mary Robinson, Former President of Ireland

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List of abbreviations and acronyms

APEC	Asia Pacific Economic Cooperation
ASCM	Agreement on Subsidies and Countervailing Measures
BRI	Belt and Road Initiative
CO_2	Carbon dioxide
COP26	26th Conference of Parties of the United Nations Framework Convention on Climate Change
CSO	Civil society organization
DISCOM	Distribution company
DPO	Development Policy Operation
ECA	Export credit agency
EdL	Electricité du Liban
ESMAP	Energy Sector Management Assistance Program
EXIM Bank	Export-Import Bank
FCDO	Foreign, Commonwealth & Development Office
FFFSR	Friends of Fossil Fuel Subsidy Reform
FLMN	Frente Farabundo Martí para la Liberación Nacional (Farabundo Martí National Liberation Front)
FOSTER	Facility for Oil Sector Transparency and Reform
G20	Group of Twenty
G7	Group of Seven
GDP	Gross domestic product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (the German Association for International Cooperation)
IDC	Intangible drilling costs
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
kcal	Kilo calories
kWh	Kilowatt-hour
LPG	Liquefied petroleum gas
MLP	Master limited partnership
NGO	Non-governmental organization
ODI	Overseas Development Institute
OECD	Organisation for Economic Cooperation and Development

SDG	Sustainable Development Goal
SOE	State-owned enterprise
TWP	Thinking and working politically
UKEF	UK Export Finance
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
VAT	Value added tax
WTO	World Trade Organization

Acknowledgements

This book is my eldest brother's fault. Tired of hearing me bang on about fossil fuel subsidies for the umpteenth time, he told me to just write a book about it. I hastily drafted an early version of the text and sent it to a long list of friends and colleagues for their comments, confident that they would never reply so I could simply publish it as it was. To my astonishment and delight, several replied with detailed comments. Special thanks go to Ipek Gencsu, Emine Hanedar, Tara Laan, Nthabi Mohlakoana, Angela Picciariello, Jakob Skovgaard, Ron Steenblik, and Nate Vernon for their detailed and thoughtful comments. The book is immeasurably improved as a consequence. Several others provided encouragement and support, including David Amaglobeli, David Coady, Navroz Dubash, and Matthew Lockwood, as well as Kira Sharlin, who voluntarily provided brilliant research assistance.

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CHAPTER 1

Introduction

If you have picked up this book, there is a good chance that you care about climate change. Whether you are a politician, an activist, a scientist or, like most of us, just a concerned individual, you know that climate change is wreaking havoc on the world. As I started writing in the summer of 2021, it was almost 50°C in Canada. The west coast of North America was covered in megafires raging through forests and engulfing entire towns; much of Germany and some provinces in China were waist-deep in flood water. And 2022 was worse. For millions of people, climate change just got real.

The rapid heating of our planet is caused overwhelmingly by burning fossil fuels – coal, oil, diesel, petrol, kerosene, and gas – which releases carbon dioxide (CO_2) and many other pollutants into the atmosphere, trapping the heat from the sun. The reason why fossil fuels are so widely used, despite our knowledge of their detrimental effect on the climate, is that they contain an extraordinary amount of energy. Consider petrol: just one litre contains 7,800 kilocalories of energy. This is the same amount of energy as a tree absorbs from the sun in over a month; it is enough to drive an average car over 12 km. It is easy to see why people have been happy to exploit the immense energy packed into fossil fuels in the two centuries or so since we began to harness their power.

The entire world's energy system is heavily reliant on fossil fuels. Countries burn coal, oil, and gas to generate electricity; diesel to run the trucks and ships that transport goods around the world; kerosene to power the planes; petrol to fuel our cars; and gas to cook our food. Shifting from fossil fuels to renewable energy sources such as hydropower, solar, and wind is essential if the world is to have any chance of keeping global temperatures within a safe range. But transforming our fossil fuel-dependent economies is going to be an immense challenge.

This challenge is made much harder by one extraordinary fact: governments all around the world subsidize fossil fuels. Some governments put money in the budget explicitly to make fossil fuels cheaper for consumers than they would otherwise be; others provide special allowances and tax breaks for fossil fuel companies to boost their

profits; still others subsidize indirectly by providing cheap finance and government backing for fossil fuel extraction that would not be economical without it. Such subsidies are large: the Organisation for Economic Cooperation and Development (OECD) and the International Energy Agency (IEA) estimated that in 2019 fossil fuel subsidies globally amounted to US$468 billion.[1] To give a sense of scale, that is more than double all aid to poor countries.

The consequence of these subsidies is rather obvious: consumers faced with cheaper fossil fuel will consume more of it and producers – given the opportunity for higher profits – will produce more of it. The result is more production, more consumption, more pollution, and more climate change. So why do governments continue to do it? This book is an attempt to answer that question and consider what can be done to make them stop. Unfortunately, it turns out that ending fossil fuel subsidies is harder than one might think.

One reason for this is that there are different types of fossil fuel subsidies. Subsidies to producers are different from subsidies to consumers, and they involve different actors and different mechanisms. Similarly, subsidies for petrol are not the same as subsidies for liquified petroleum gas (LPG). These differences are manifest politically, economically, and socially. Those opposed to reforming the system claim that some subsidies make sense or that some of them are not even really subsidies at all. The UK government is a case in point. It claims not to have any fossil fuel subsidies, because it chooses to define fossil fuel subsidies in a way that effectively excludes all the subsidies that it does have. This allows it to declare it is strongly in favour of fossil fuel subsidy reform while leaving the business of enacting meaningful reforms to everybody else.

A more important reason why subsidy reform is hard is because it affects lots of people. Agricultural workers in the French countryside, street children in Nigeria, housekeepers in Lebanon, and indigenous people in Ecuador are all affected by fossil fuel subsidy reforms. So, while study after study shows that fossil fuel subsidies cause great harm, not just by changing the climate but also by generating additional pollution, traffic congestion, and bleeding budgets of much needed resources, removing them can also cause real hardship. Badly designed subsidy reforms can mean that your bus fare to work doubles, your meagre electricity supply becomes unaffordable or the price of food rises beyond reach.

There are also darker reasons why subsidy reform does not happen. Where subsidies exist, there is money to be made. If a government is willing to pay fossil fuel subsidies, there are actors keen to ensure they capture a slice of the subsidies provided. If fuel is made cheap, there is

money to be made from smuggling it to neighbouring countries with higher prices. If fossil fuel projects will go bust without subsidies, then some companies will ensure that the relevant government minister receives a healthy bonus so the projects go ahead. Burning fossil fuels is a dirty business and fossil fuel subsidies are dirtier still.

Because fossil fuel subsidy reform affects everyone – including powerful vested interests – it is intensely political. Politicians love to give speeches about climate change, often standing beneath a giant wind turbine or a gleaming array of solar panels while talking about a bright low carbon future and trumpeting about all the initiatives they are taking to tackle the problem. But very few politicians like to talk about fossil fuel subsidies, because it means telling people the truth: that, if we are to have any chance of tackling the climate crisis or even delivering basic energy services to the people, prices for fossil fuels will have to rise drastically. This sort of messaging is deeply unpopular and can turn leaders into ex-leaders. The topic of fossil fuel subsidy reform is therefore considered taboo and politically toxic.

This is also the reason why international donors avoid the topic. Multilateral development banks such as the World Bank and bilateral donors such as the UK's Foreign, Commonwealth & Development Office (FCDO) pour billions into supporting green energy in developing countries, because it is popular with voters at home and with the government recipients of aid. But donor expenditure on trying to stop fossil fuel subsidies is miniscule in comparison, even though such subsidies are sometimes a key blockage to the wider development of renewable energy.

These issues illustrate why fossil fuel subsidy reform is hard, but it is still necessary. Eliminating fossil fuel subsidies would reduce CO_2 emissions significantly. While far from being a silver bullet to solve climate change, it is quite clear that the climate crisis cannot be solved without it. On 12 December 2015, 192 countries plus the EU adopted the Paris Agreement, a legally binding treaty on climate change. One of its central goals is 'holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels', where the latter threshold represents the level of warming above which the global scientific community predicts serious harm to humanity and the planet.[2] Yet there is no 2°C world with cheap fossil fuels, let alone a 1.5°C one.

Stopping fossil fuel subsidies also has numerous other benefits: it could halve deaths globally from outdoor air pollution, double the budgets available for universal health care, and contribute to creating more equitable societies and more liveable cities.

And it *can* be done. Several countries have bitten the bullet and pressed ahead with reforms (see Chapter 6): India abolished diesel subsidies; El Salvador removed subsidies on LPG; Indonesia undertook dramatic reforms of gasoline subsidies (although it sadly let them unravel later). While some have tried and failed – some spectacularly so, such as France in 2018, when well-intentioned but mishandled reforms led to the *Gilets Jaunes* movement and a rapid reversal of policy – governments that have treated their citizens with respect, engaged in dialogue, and understood the people's needs have managed to design subsidy reform programmes that have been accepted and successful.

Fossil fuel subsidies are deeply ingrained in the fabric of national politics around the globe. The central argument of this book is that ending fossil fuel subsidies requires us first to have a good understanding of the role that such subsidies play in the political economy of each country. This can help to explain why the current approach to fossil fuel subsidy reform is not working and how to design reforms that are effective, equitable, and politically feasible and that therefore might actually work.

But we are getting ahead of ourselves. Let's start at the beginning – what are fossil fuel subsidies? And how big are they?

CHAPTER 2

What are fossil fuel subsidies?

Types of fossil fuel subsidies

Fossil fuel subsidies are payments made by governments, either to fossil fuel and energy companies to reduce their costs (known as producer subsidies) or to consumers to reduce the price they pay for energy (known as consumer subsidies).

The main reason why countries pour millions or sometimes even billions of dollars into subsidizing fossil fuels is simple: they want to keep the price of energy low.[1] And who can blame them? Politicians all around the world want to keep their voters happy and reducing the cost of energy is one way of doing so because it means cheap petrol, cheap gas and cheap electricity. It is a tactic that is visible and popular and easy to achieve. The most direct way of subsidizing fossil fuels is to fix a price for fuel. Lots of countries do this. Venezuela used to fix the price of petrol at $0.02 per litre – the cheapest in the world; petrol in Iran costs the equivalent of $0.07; and many other countries, from Angola to Bangladesh, Egypt to Iraq, Togo to Tunisia, fix prices. The problem is, if a government fixes the price of a fuel below its international price (that is, the price of importing it), the difference must somehow be paid. The same is true if a government subsidizes a fossil fuel industry, paying them to continue to use fossil fuels even when cheaper sources of energy might be available.

There are basically five ways in which fossil fuel subsidies can be provided:

1. Budgetary transfers
2. Debt
3. Tax breaks
4. Credit and credit guarantees
5. Foregone export revenue.

Budgetary transfers

The most obvious way to subsidize fossil fuels is to raid the national budget. In 2022, Indonesia is likely to spend 18 per cent of its

national budget funding energy subsidies – more than it will spend on health or education. Between 2006 and 2018, Nigeria spent more than $60 billion on fuel subsidies – more than its budget for universal basic education. In Saudi Arabia, fossil fuel subsidies in 2018 were worth more than 8 per cent of its entire gross domestic product (GDP).

However, putting large fossil fuel subsidies into the national budget has a serious downside. The one thing that politicians everywhere focus on is money. Everyone wants to see the budget, debate the budget, argue about the budget. If you are an autocrat, you can hide the budget and do as you please. But in most countries, even those that we may not consider democracies, citizens want to see the budget. As a result, when fossil fuel subsidies are large, they become a little bit … well, embarrassing. It is hard for a prime minister or a president to stand up and explain why cheap petrol matters more than education or your child's health. Of course, politicians may have reasonable concerns about the cost of energy, both for citizens and for industry. But when the gap between local prices and the cost of providing fuel to the people gets too large, the budget required balloons and political opponents have a field day.

Fortunately for politicians, they have a few options. The first is the oldest and most tried and trusted method in politics: lie. In countries that directly subsidize the prices of fuel or electricity, the amounts shown in their budget documents are often much less than the amounts that are actually needed to cover the difference between the price at which they are sold and the cost to the government. Consider Nigeria: the price at which petrol is sold is ₦165 (about $0.04) per litre; at the time of writing this in 2021, its cost on the international market was around $0.06. Multiplying the difference by the 60 million litres consumed every day in Nigeria suggests that you need a budget of over $4 billion each year to plug this gap. Yet the budget allocation was zero. Why? Because the budget allocation for the subsidy was getting really embarrassing and so, in 2016, President Buhari decided to 'abolish' the subsidy by simply removing it from the budget. He then ordered the state oil company, the Nigerian National Petroleum Corporation, to simply deduct the sum from oil and gas revenues before submitting them to the government. In this way, he hid fuel subsidies in the opaque operations of a state-owned enterprise (SOE) and avoided detailed public scrutiny.[2] The World Bank estimates that in 2021 more than a third of Nigeria's oil and gas revenue was spent on fuel subsidies.[3] Around the world we see similar games being played with the budget for fuel subsidies: budgetary allocations are large and at the same time much smaller than the reality.

Debt

If the budget does not fill the gap, then where is the money coming from? In Nigeria's case it is coming from oil and gas revenues that never reach the government. But many other countries subsidize fossil fuels via debt. If governments want to fix energy prices lower than their actual costs, but do not want to put the difference into the budget, they can write IOUs. Lots of them. Fossil fuel subsidies are one of the main reasons why some countries accumulate large debts.

Take Lebanon: its dysfunctional and inefficient electricity system sells power to consumers for £L130 per kilowatt-hour (kWh), which is worth about half a US cent at the time of writing in 2022. But it costs more than 30 times as much to generate it from its ageing, heavy-fuel-oil-powered generators. The difference is covered by vast payments to its state-owned electricity utility, Electricité du Liban, all paid out of debt. Lebanon's debt in 2020 stood at over 170 per cent of its GDP – higher than almost any country in the world. And more than half is due to subsidizing energy.[4]

Debt has three major advantages as a way of paying for fossil fuel subsidies over putting them in the budget. First, it attracts far less scrutiny. Parliaments like to debate how the money will be spent – the expenditure side of the budget. There is endless argument about whether money should be spent on this or that for the obvious reason that such choices determine which voters or communities will benefit and which will not. In contrast, unless debt gets completely out of hand, there is comparatively little focus on it. Debt is the residual – what the state accumulates when revenues do not match expenditures. If expenditures are a 'hill', then debt is a 'hole', and it is harder to see a hole than a hill.

Second, debt usually becomes someone else's problem. By definition debt is a future liability, and politicians are here now and in many cases will not be around for long. So while politicians are happy to preach about fiscal responsibility, most have a strong incentive to kick the can down the road when it comes to large and unpleasant liabilities.

Third, you can hide debt in lots of places. In particular, not all fossil fuel subsidy debt has to be put on the national accounts, which, though dull, tend to attract at least some scrutiny. Many countries have large SOEs, particularly in the fossil fuel sector. These companies have their own accounts, which are typically not subject to the same level of public scrutiny as the budget. Politicians can instruct such companies to import expensive fossil fuels and then sell them cheaply to the public. Of course, this results in a large loss for the SOEs and the state will ultimately be responsible for bailing them out if insolvency strikes – but this does not need to be done immediately. Sometimes

losses can accumulate in the books of an SOE for years and then, when the company is on the brink of collapse, the government can approve a major rescue package.

Some countries have perfected this cycle. Most states in India, for example, have one or more electricity distribution companies (DISCOMs), often owned by the state. The financial challenges of India's DISCOMs have been a major concern for decades.[5] DISCOMs purchase power from generators and this is then sold to customers at tariffs set by the State Electricity Regulatory Commission. Many DISCOMs make significant losses each year and have done so for many years. This is because they have high costs (due to ageing and inefficient networks) and low revenues (due to theft of electricity, the failure to collect bills properly, and political reluctance to increase tariffs). Because they are broke, they cannot invest in improvements. Eventually the financial burden becomes too much and the state provides a rescue package, taking over a large share of the debt of the utility companies in return for a promise to try harder to reduce costs in future. In effect, selected electricity customers – notably farmers, a key political constituency – receive hugely subsidized electricity, with the costs eventually transferred to taxpayers. India has been through this cycle four times in the last 20 years. The last bailout scheme – called UDAY – was launched in November 2015 and had a predictably limited impact.[6] Accumulating debt followed by bailouts has enabled India to kick the subsidy can down the road again and again and again.

Sadly, budget allocations and accumulating debt are not the only ways of dishing out fossil fuel subsidies. Many wealthier nations have rules that constrain putting large subsidies in the budget, and for good reason. If countries that trade with one another are free to pour their budgets into supporting particular industries or firms, it undercuts competition from elsewhere. Governments would soon end up in a race to subsidize their own nation's firms, which would drain the budgets of all countries while giving no one a competitive advantage. As a result, countries agree to collective rules that limit 'state aid', i.e. subsidies that might give a country's firms an advantage over foreign firms.

One of the most controversial issues of the UK's negotiations with the EU over Brexit was the UK's desire to remove itself from the EU's state aid rules. The final deal makes it clear that, although the UK is in principle free to subsidize as it sees fit, it cannot do so in a way that undermines businesses in the EU and still retain access to the European Single Market. The same is true at the global level. The World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures attempts to place constraints on the extent to which trading partners can use their budgets to gain a competitive advantage.

Tax breaks

So if you cannot subsidize easily through your budget and you do not want to accumulate debt, what can you do? The answer is easy: tax breaks. Most fossil fuel subsidies in rich countries come from the special tax treatment of fossil fuels. These tax treatments can take the form of reduced rates or exemptions, or they can consist of accounting rules that allow certain expenses to be tax-deductible or that enable organizations to take those deductions sooner than otherwise would be the case. The array of tax breaks for fossil fuels is dizzying. Table 2.1 shows just a sample of the myriad tax breaks on fossil fuels in the US.

Tax breaks of this kind have a real impact. One study found that at an oil price of around $50 per barrel, tax preferences and other subsidies

Table 2.1 Fossil fuel production subsidies and tax breaks in the US

Subsidy type	*How it works*
Direct subsidies	
Intangible drilling costs deduction	Allows companies to deduct a majority of the costs of drilling new wells domestically. Worth $1.59 billion in 2017.
Percentage depletion	An accounting method that allows companies to make larger deductions from their taxable income than the standard method. Worth $1.3 billion per year in 2017.
Credit for clean coal investment	A series of tax credits for energy investments, particularly in coal.
Indirect subsidies	
Last-in first-out accounting	Allows oil and gas companies to sell the most expensive reserves first, reducing the value of their inventory for taxation purposes.
Foreign tax credit	Instead of claiming royalty payments as deductions like most firms, oil and gas companies are able to treat them as fully deductible foreign income tax. Worth over $1 billion per year in 2017.
Master limited partnerships (MLPs)	A legal structure that allows fossil fuel companies to combine the investment advantages of publicly traded corporations with the tax benefits of partnerships. This provision is not available to renewable energy companies.
Domestic manufacturing deduction	Allows oil producers to claim a tax break intended for US manufacturers to prevent job outsourcing.

Source: Adapted from EESI (2019).

pushed nearly half of new, yet-to-be-developed oil investments into profitability, potentially increasing US oil production by 17 billion barrels over the next few decades.[7]

The fossil fuel industry claims that these are not fossil fuel subsidies. It points out that some of these subsidies are available for all businesses, not just those in the fossil fuel sector. It argues that subsidies for innovation and investment are good for jobs and the economy more widely. On one point, it is right. Not all subsidies to business are bad. For example, imagine how the economy would benefit if companies trained more workers. However, companies do not want to waste money training workers who might then leave and join other firms, taking their knowledge with them. Companies therefore conduct less training than would be best for the economy as a whole. Subsidies for training can therefore make sense – they encourage companies to train more workers than they would otherwise, thereby helping the economy.

The same is true for research. Lots of companies spend on research, but if everyone benefits from it then individual companies won't want to spend too much on it. The patent system is one way in which policy tries to ensure that companies reap the benefits of their own research and therefore keep investing in it, but another way is providing direct subsidies for research. Not all subsidies are bad.

But a closer look at the tax breaks for fossil fuel companies shows that these subsidies are not primarily for the greater good. While there are some master limited partnerships (MLPs) outside the oil and gas sector, three-quarters of MLPs in the US are oil and gas companies, so the benefit accrues overwhelmingly to fossil fuel companies. Rebranding fossil fuel tax breaks as general subsidies is a smart lobbying strategy as it allows such subsidies to fly under the radar.

Tax breaks do not just apply to the production of fossil fuels – they also apply to consumers. As described above, many poor countries with weak tax systems try and fix fossil fuel prices for consumers below costs, which results in a big budgetary cost or growing debt. Rich countries do not need to take this approach. With comprehensive and sophisticated tax systems, they can subsidize consumers through tax breaks.

Consider electricity. It is both a vital commodity and an essential service. Because of this, many countries in the OECD tax electricity at a lower rate than other goods and services. In the UK the standard rate of value added tax (VAT) is 20 per cent, but for electricity it is 5 per cent. Greece's standard VAT rate is 24 per cent, but electricity is charged at 6 per cent. Reduced rates also apply in Iceland, Ireland, Italy, and many other countries.[8]

Quite right, many would say – electricity is a basic need and, like food or education, should attract a lower rate of tax. Reducing or removing taxes on basic needs is an essential part of tackling poverty, including energy poverty. Few would disagree with the need to tackle energy poverty, but it is important to recognize that tax breaks of this kind are also fossil fuel subsidies. Even in EU countries, where a growing share of electricity comes from renewable sources, 37 per cent is still derived from fossil fuels.[9] Making electricity cheap means encouraging burning more fossil fuels.

Interestingly, we all suffer from a mental block when it comes to tax breaks. Most of us support lower tax rates on electricity to support the poor. But imagine if it was the norm to tax electricity at the same rate as other goods and then a politician proposed to put in the budget several billion US dollars as a direct cash subsidy proportional to people's consumption of electricity, ensuring that the richest benefitted the most. Most people would be outraged and oppose such a measure. But the two things are identical. Politicians are well aware of this mental sleight of hand – this is why tax breaks are so popular with governments. Energy poverty would be far more effectively addressed by charging full tax rates on fossil fuel energy and then using the money raised to target assistance specifically to the poor. But that would be politically much less popular. A fossil fuel subsidy characterized as concern for the energy poor works much better at election time.

Subsidized credit and credit guarantees

There are two more ways in which governments deliver fossil fuel subsidies. The first is cheap credit. The fundamental aim of fossil fuel subsidies is either to lower the costs for fossil fuel companies or to lower the prices paid for fuel and energy by consumers (or both). If governments do not want to fix prices or accumulate debt and have already maxed out on tax breaks, then the only other way of providing a subsidy is to reduce the capital costs faced by fossil fuel companies. The easiest way to do this is to supply subsidized credit or to reduce the risk of borrowing.[10] All governments do this to some extent and, as before, in some types of activity this is a good thing to do. Entrepreneurs who want to invest in climate change solutions, for example, require capital and if capital is cheaper, they will invest more and hopefully save the planet in the process. Quite often new ventures are risky – you never know if they are going to pay off, which means that commercial banks charge higher rates, making some good projects non-viable. Subsidizing interest rates or supplying guarantees to the banks of partial or full repayment encourages banks to take the

risk and lend to risky but potentially transformational projects. Yet none of these arguments apply to fossil fuel investment. Fossil fuel technologies are old and well understood, so fossil fuel companies should pay full commercial rates on their lending. But doing so would make some fossil fuel investments non-viable. Hence, fossil fuel companies use their lobbying muscle to persuade governments to subsidize their access to credit and credit guarantees.

The provision of cheap credit does not just apply to projects domestically – it particularly applies to exports through export credit agencies (ECAs). Almost all countries have these agencies. In the UK, it is UK Export Finance; in the US, it is Export-Import Bank (EXIM Bank). Their job is to help exporters achieve sales in foreign markets. The challenge that many exporters face – particularly those that are exporting to countries with weak legal and financial systems – is that the buyer may not pay even after you have delivered the goods. ECAs solve this problem by working with a bank to lend the money for the purchase to the foreign buyer, but the money goes direct to the exporter, thereby ensuring that they are paid. If the buyer fails to repay the bank, then the ECA will. It is a neat system and encourages more exports to markets that might otherwise be considered risky.

The problem is that in the energy sector the system has been overwhelmingly used for guaranteeing fossil fuel investments. The UK parliament's Environmental Audit Committee did an investigation into UK Export Finance and found that, between 2013/14 and 2017/18, 96 per cent of support for exports in the energy sector went to fossil fuel projects.[11] When this scandal broke, the UK government hurriedly announced that it was stopping financing for exports related to coal – which it was not providing finance for anyway. At the 26th Conference of Parties of the United Nations Framework Convention on Climate Change (COP26) climate conference in Glasgow in 2021, after much pressure from civil society organizations (CSOs), 39 signatories (including France, Germany, the UK, and the US) committed to 'end new direct public support for the international unabated fossil fuel energy sector by the end of 2022 except in limited and clearly defined circumstances'.[12] This was a major step forward, although the inclusion of the word 'unabated' suggested that some ECAs may continue to support fossil fuel investments as long as they capture and store the carbon that they produce, providing an ongoing mechanism for subsidizing fossil fuels.[13] It also remains to be seen what the 'limited and clearly defined circumstances' are. Many countries are already coming up with exemptions that would allow for business-as-usual financing for fossil fuels by ECAs.

When it comes to subsidizing fossil fuel investments using credit, one of the most egregious offenders has been China, whose Belt and Road Initiative (BRI) proactively combined geopolitical diplomacy with subsidized credit by state-owned banks to encourage a tsunami of investment in fossil fuel energy around the world, with a strong focus on coal. Between 2014 and 2017, 91 per cent of energy sector loans made by six major Chinese banks to BRI countries were for fossil fuel projects.[14] In 2016 alone, China was involved in 240 coal plants in BRI initiative countries.[15] Fortunately, this situation is changing rapidly. China has announced that it will no longer finance coal-fired power stations overseas. In 2020, 57 per cent of investments under the BRI went to renewable energy projects. Nonetheless, the BRI still includes substantial subsidized finance for fossil fuel production.

Foregone export revenue

The last way in which some governments subsidize fossil fuels is controversial, because the governments that do it do not consider it a subsidy at all. Imagine that you are a major oil producer like Saudi Arabia. The cost of producing a barrel of oil in Saudi Arabia is extraordinarily low – around $3 per barrel. This means that to make fuel cheap in Saudi Arabia, you do not need to provide a monetary subsidy; you just need to require the state-owned oil company to sell fuel at around its cost of production.

Is this a fossil fuel subsidy? In one sense, no. No monetary transfer is needed, whether through the budget, debt, credit, or tax breaks. But in another sense, the answer is yes. Every barrel of oil that Saudi Arabia refines and sells at production cost to its citizens is a barrel of oil that it could have sold on the world market at a much higher price. It could then have used the proceeds to pay for better health or education or myriad other things. Instead it gave its citizens cheap fuel. The international price is therefore still the right benchmark to use and the subsidy represents an opportunity cost – a measure of how much countries forego to ensure cheap prices for fuel.

So how much do these subsidies really matter? Well that depends on how big they are, to which we now turn.

How big are fossil fuel subsidies?

There are two simple answers to the question of how big fossil fuel subsidies are. The first is $468 billion (in 2019).[16] This is a huge sum – more than twice the value of all international development assistance globally and larger than the GDP of each of the bottom 150 countries

in the world. This figure comes from the combined efforts of the OECD and the IEA to estimate the magnitude of subsidies, but by one approach, their estimate is far too small.

The second answer is $5.9 trillion (in 2020).[17] Yes, *trillion*. It does not take a genius at arithmetic to realize that these numbers are very different from one another: $468 billion is a lot, an awful lot; but $5.9 trillion is a mindbogglingly large number. In fact, it is 6.8 per cent of the entire global economy. Which fly-by-night economic quack of an organization came up with such an absurd number? The answer is the International Monetary Fund (IMF), arguably the most respected (and sometimes disliked) international financial institution in the world. So why is there a more than 10-fold difference in estimates for the size of fossil fuel subsidies? Well, it all depends on what you mean by fossil fuel subsidies.

When the OECD or the IEA talk about fossil fuel subsidies, they are referring to the policies described above that explicitly subsidize the consumption or production of energy derived from fossil fuels, i.e. that are designed either to reduce the cost of energy for consumers or to support the production of different types of energy. The two organizations have different ways of estimating the value of such measures. The IEA uses the price-gap method while the OECD uses the 'count-them-up' method (technically known by the more boring name of the 'inventory approach'). The IEA and the OECD have combined these two methods to provide their estimate of $468 billion. In contrast, the IMF uses what I have called the 'planetary-cost method'.[18] It is worth understanding a little bit about these methods to see how the different organizations come up with their estimates.

The price-gap method

The most obvious way to calculate the size of fossil fuel subsidies in any country is to take the price of a fossil fuel, e.g. petrol, and compare it to some international benchmark. All fossil fuels are internationally traded and so the benchmark is how much the fuel would cost in any country if you bought it on the international market.[19] If the country's domestic price for that fuel is lower than the international price, then the government is likely to be subsidizing it somehow. So, to work out the size of the subsidy, all you need to do is work out the price gap (the difference between the domestic price and the international price) and then multiply it by the amount consumed. If you do this for all fossil fuels used in the country (coal, diesel, petrol, LPG, natural gas etc.) and add up the amounts, you get the total subsidy to fossil fuels for that country.

One slight wrinkle with this approach is subsidies on electricity. Electricity can be produced in lots of ways, including hydroelectricity, nuclear, and renewables, and so it is not solely reliant on fossil fuels. Also, electricity is generally not internationally traded, so there is no obvious international benchmark for the price. To estimate the fossil fuel subsidies embedded in electricity subsidies, the IEA therefore calculates the cost of generating each kWh of electricity in that country and compares it with the price at which electricity is sold. This is the price gap for electricity, which they then multiply by the total amount of electricity consumed. Finally, they adjust for the share of electricity produced by fossil fuels to make sure that they are only counting fossil fuel subsidies.

Using the price-gap approach, it is possible to compare countries and see which have the largest subsidies. Figure 2.1 shows the IEA chart for 2019 for the 25 countries with the largest fossil fuel subsidies using this price-gap method.

The figure shows that the world's largest subsidizer of fossil fuels in 2019 was Iran. Iran's subsidies were enormous: keeping the cost of fuel, electricity, and gas far below their market values cost Iran over $80 billion, almost a fifth of the GDP of the country. Iran's position was exceptional – a result of the attempt by Iran's leadership to keep a hold on power in the face of external sanctions. Other countries, such as China, Saudi Arabia, Russia, India, Indonesia, Egypt, Venezuela, and Algeria also had very large subsidies.

The size of subsidies should not just be measured in absolute terms, but also relative to the size of the economy. Venezuela's subsidies cost over 16 per cent of its GDP; the same was true of Libya. Algeria, Uzbekistan, and Turkmenistan's subsidies cost around 8 per cent of their GDP. These sums dwarf allocations to social services such as health and education.

Figure 2.1 also shows the distribution of subsidies across different types of fuel. Of the $320 billion in subsidies, $150 billion were subsidies on oil products (mostly gasoline and diesel, but also kerosene and others); a further $115 billion were fossil fuel-related electricity subsidies, while around $50 billion were subsidies to natural gas. Coal subsidies were only $2.5 billion.

The price-gap method is simple and easy to use. But it has one important downside: it only measures subsidies if they show a difference between the domestic and the international price. As discussed above, in many rich countries, often subsidies will be given as tax breaks to fossil fuel companies or via credit guarantees. These do not necessarily affect the price to consumers, but rather they pad the bottom line of the companies and ensure ongoing production of fossil fuels. To catch these subsidies, a different approach is needed.

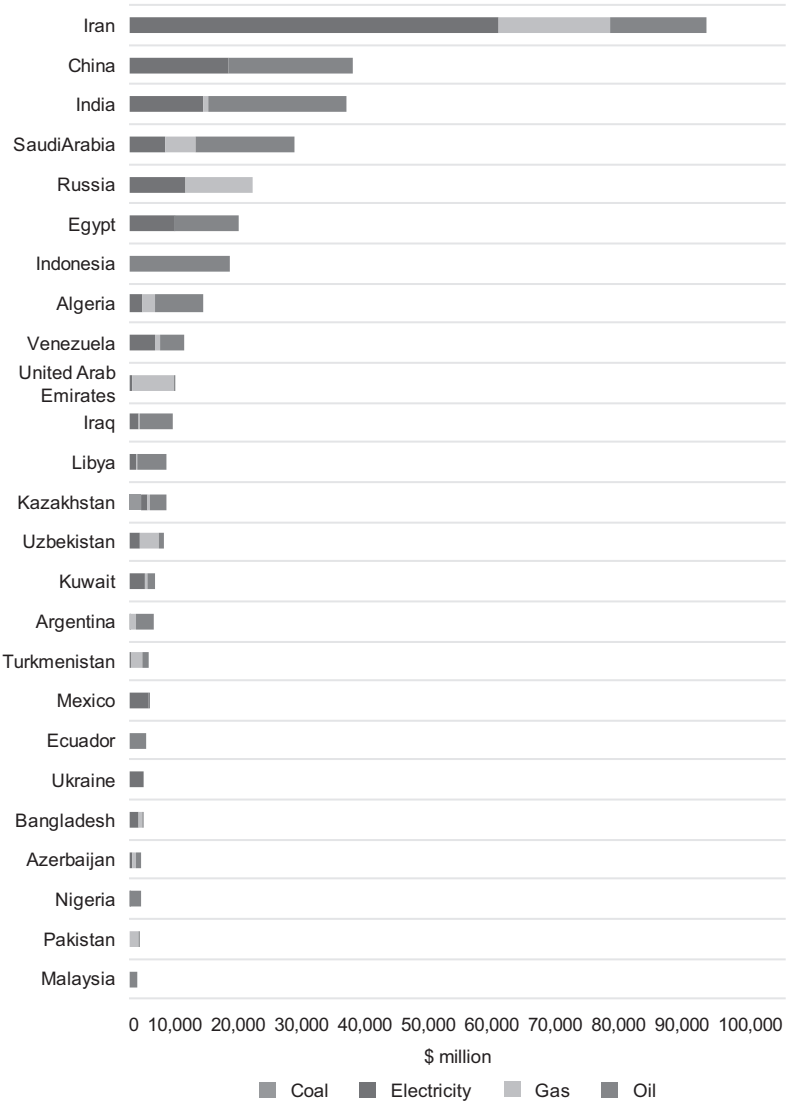

Figure 2.1 Fossil fuel subsidies by country and fuel in 2019
Source: Author's calculations based on IEA fossil fuel subsidies database.[20]

The count-them-up method

The OECD has a different approach to measuring fossil fuel subsidies: it simply counts them up. In rich countries, it is (relatively) straightforward to identify the budgetary expenditures on fossil fuel subsidies and tax breaks. The OECD has created a database of these,[21] and it shows

what the governments of 50 OECD, the Group of Twenty (G20),[22] and Eastern European partnership countries put in their budgets, as well as the normal tax rate and any subsidized tax rate applied to fossil fuels. Calculating the total for each country is then easy:[23] first, you add up all the budgetary transfers. Then you calculate the difference between the normal tax rate in that country and any subsidized tax rate applied to fossil fuels and multiply it by consumption – this tells you the value of the tax break. Together these two give you the OECD's total for fossil fuel subsidies. The total for all 50 countries included in their analysis is $178 billion in 2019. Of this, $105 billion was from OECD countries, while the remaining $73 billion came from 13 non-OECD G20 and Eastern European partnership countries.[24]

You will notice that the $178 billion – though large – is a lot smaller than the global estimate of $468 billion noted above. In part, this is because the OECD measure does not include countries such as Iran, Saudi Arabia, or Venezuela. It is also because the OECD only includes budgetary transfers and tax breaks, not the subsidies caused by fixing prices below the cost of production.[25] However, those subsidies are captured by the IEA's price-gap method (which also covers major oil exporters), so putting the two together gives a more accurate picture.[26]

The OECD approach to measuring fossil fuel subsidies has got one great advantage over the IEA approach, but also one big flaw. The advantage is that subsidies are directly linked to things that policy-makers can change. Each subsidy is either in the budget or in the tax code. The OECD approach therefore allows the government – and CSOs – to get into the details of exactly what changes are needed if a country wants to reduce its fossil fuel subsidies.

The big flaw with the OECD approach is that tax breaks are measured relative to the normal tax rate in that country. Consider the examples we gave above of discounts on VAT rates applied to electricity. The UK's normal VAT rate is 20 per cent, but the VAT on electricity is 5 per cent, so the subsidy according to the OECD method is 15 per cent. Now consider Greece: its normal VAT rate is 24 per cent, but its discounted rate is 6 per cent, yielding a subsidy of 18 per cent. Using the OECD method, subsidies are larger in Greece, yet Greeks pay a higher tax rate on their electricity than Brits. The rate at which individual countries tax consumer goods is an entirely arbitrary reference point for calculating the size of tax breaks, yet that is what the OECD does. Their view is that there is no 'correct' level of taxation and so taking what countries deem to be normal is the benchmark to use.[27]

Notwithstanding the technical debates about measurement, together the IEA and OECD estimates give a good sense of the size

of the consumer and producer subsidies that governments around the world provide to fossil fuels. However, as we noted above, the IMF has a completely different way of defining and calculating fossil fuel subsidies – and it has created enormous controversy.

The planetary-cost method

The price-gap and count-them-up methods focus on the cost of fossil fuel subsidies in monetary terms. But the true costs of fossil fuel subsidies do not arise just because of budgetary transfers or tax breaks. The reason why fossil fuel subsidies are problematic is because they make fossil fuels cheaper than they would otherwise be and, in so doing, encourage greater consumption and generation of CO_2, which warms the planet, creates air pollution, worsens traffic congestion, and increases traffic accidents while foregoing valuable tax revenue that could be used for better things. Chapter 3 will discuss these costs in more detail. The key point for now is that it is possible to calculate the value of all this damage thanks to the efforts of an early 20th-century English poet called Arthur Cecil Pigou.

Pigou was born in 1877 on the Isle of Man. When he was 19, he was accepted to study history at Cambridge University and three years later won the Chancellors Gold Medal for English verse. However, despite his prowess at history and poetry, it was economics that caught his attention. Studying under the great turn-of-the-century economist Alfred Marshall, Pigou began to develop Marshall's concept of an 'externality'. An externality is a cost imposed (or benefit conferred) on others that is not accounted for by the person or organization creating it. The damage caused by burning fossil fuels is an externality since the person consuming the fossil fuel benefits from the motion, heat, light, or power that is produced, but does not take into account the global warming, pollution, congestion, and additional deaths it causes. Pigou's key insight was that it is possible to calculate a tax (now known as a Pigouvian tax) that takes account of the additional damage caused by negative externalities such as pollution. Imposing this tax effectively forces consumers to take account of the full costs of their consumption of fossil fuels on the planet.

The planetary-cost method of defining and calculating subsidies therefore compares the actual local prices of fossil fuels and electricity in every country against the price that *should* be charged in each location to take account of the harm that burning fossil fuels causes. The estimates of the harm caused are taken from detailed scientific studies of the actual costs to, for example, human health as a result of outdoor air pollution or the planet as a consequence of global

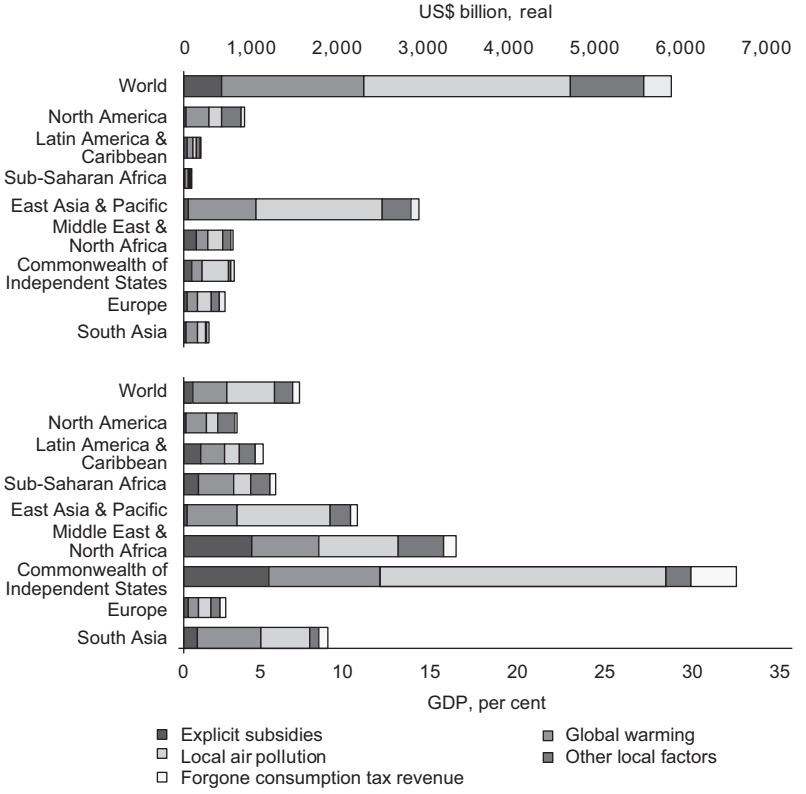

Figure 2.2 The planetary cost of fossil fuel subsidies
Source: Parry, I., Black, S. and Vernon, N. (2021) *Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies*. IMF Working Paper WP/21/236. Washington, D.C.: International Monetary Fund.

warming. The great advantage of this approach is that it provides a credible, internationally comparable benchmark based not on arbitrary choices about local tax rates, but on the actual harm caused by the consumption of fossil fuels.

The IMF has applied this method of calculating fossil fuel subsidies for almost every country in the world and the results are extraordinary. Figure 2.2 shows the value of fossil fuel subsidies calculated using the planetary-cost method for 2020 as a total of $5.9 trillion. The costs to people and the planet from under-pricing fossil fuels accounted for in this figure include over $1.5 trillion of global warming and more than $2 trillion in air pollution costs – primarily from burning coal – as well as the economic costs of additional congestion, more road accidents, and a lower tax take.

The problem with the IMF's approach is that it uses the word 'subsidy' to mean something completely different from the IEA and the OECD.[28] The IEA and the OECD mean subsidy in the way in which most people think of a subsidy – money or equivalent benefits provided by the government for consumers or producers. The IMF uses the term to mean the overall cost to the planet from under-pricing fossil fuels.

Some have suggested that the IMF's estimate is excessive. One commentator said that its figures 'are absurd' and 'should be put in the box marked "political propaganda"'.[29] But these people are missing the point. The IMF is not saying that the world's governments are spending $5.9 trillion on fossil fuel subsidies; instead it is, correctly, saying that failing to include the damage caused by burning fossil fuels into the prices paid for them is causing $5.9 trillion of harm to human beings and the planet – every single year.

With such widely varying estimates of the size of fossil fuel subsidies, it is natural to ask which method is the 'correct' one. The answer is that all of them are, but in different ways. The price-gap method provides a good estimate of the financial liability caused by fossil fuel subsidies, particularly in countries where consumer subsidies predominate – but it misses the extensive production subsidies in richer countries. The count-them-up method provides a meticulous compilation of the actual budgeting and tax measures in rich countries, including the many subsidies on production – but its reliance on local tax norms makes comparing countries hard. The planetary cost method uses a completely different concept of subsidy to look at the big picture – the overall cost to the planet of subsidizing fossil fuels.

CHAPTER 3

The impact of fossil fuel subsidies

Fossil fuel subsidies make fossil fuels either more profitable to produce or cheaper to consume. So the most obvious impact of fossil fuel subsidies is that more fossil fuels are produced and consumed than otherwise would be the case. But why is burning more fossil fuel so harmful? Most people point to the climate impact of burning fossil fuels – and they are right. But fossil fuel consumption causes several other problems too, from pollution and congestion to huge dents in the budgets of poor countries. Subsidies can also exacerbate inequality, since the poor typically consume much less fossil fuel than the rich, which means they benefit less from the subsidies. Women and men also often rely on different types of fossil fuel and so are not equally affected by different types of fossil fuel subsidy reform. Finally, fossil fuel subsidies may even play a role in destabilizing countries. We look at each of these impacts in turn.

Climate change

Burning fossil fuels generates CO_2 as well as soot and other pollutants. As humans have burned more and more fossil fuels over the last few centuries, more CO_2 has accumulated in the atmosphere, causing our planet to warm. Already the average temperature has increased by around 1.1ºC since pre-industrial times, and the rate of increase is accelerating. If emissions continue in much the same way as in recent years, then we are heading for a warming of well over 3ºC by 2100. Such warming would be truly catastrophic for us and our planet. Already, with only around 1.1ºC of warming, we are witnessing more frequent droughts and floods, more violent and destructive storms, declining productivity in agriculture, the death of coral reefs, greater scarcity of fresh water, and the rapid loss of biodiversity.[1] The impact of 3ºC of warming would be far worse, with many parts of the earth being rendered uninhabitable. The climate change locked in from previous emissions is already disastrous. If it is not arrested quickly, it may become an existential catastrophe.

In response to the climate crisis, the international community has attempted to get countries to agree a pathway to net zero – a

situation in which greenhouse gas emissions globally are dramatically reduced and any remaining emissions are matched by more CO_2 being removed from the atmosphere, for example by planting trees, so that net emissions are zero. When the entire world gets to net zero, the temperature of the planet will eventually stabilize. Since fossil fuel consumption and industrial processes are responsible for almost 80 per cent of all the greenhouse gas emissions,[2] reducing fossil fuel consumption is critical if we are to have any chance of reaching net zero emissions.

During COP26 in November 2021, world leaders made a series of commitments to reduce the use of fossil fuels and accelerate the shift to clean energy. If implemented, these commitments might reduce the temperature increase to around 1.8ºC above pre-industrial times by 2100 – which is still well above the internationally agreed target of 1.5ºC. Astonishingly, the agreement in Glasgow was the first time in the 26 years since the start of the UN climate change negotiations that countries agreed to include the term 'fossil fuels' in the overall agreement. Major fossil fuel exporting nations had, for years, prevented any mention of fossil fuels as the cause of the problem. But the evidence was now so overwhelming, the impacts already being experienced so dire, and the popular movements pushing for fossil fuel phase-out so strong that these nations were no longer able to prevent the inclusion of the phrase. However, the challenge of reducing the use of fossil fuels was vividly illustrated at the end of the conference when China and India forced a last-minute change in the language of the agreement from agreeing to 'phase out' coal – the dirtiest fossil fuel, responsible for almost half of all CO_2 emissions – to merely agreeing to 'phase down' its use.

As we saw in the previous chapter, despite the immense harm likely to be inflicted by climate change and the fact that most climate change results from burning fossil fuels, fossil fuels are often subsidized and, even when they are taxed (such as through fuel duty), the level of tax typically comes nowhere near the level needed to compensate for the harm they cause. This naturally begs the question of how much fossil fuels should be taxed to reflect their impact on the climate. The answer depends on the cost to the planet of emitting a tonne of CO_2 – in other words, the heated debate about the right price for carbon.

One way of working out the price of carbon is to calculate its 'social cost', i.e. to work out a valuation for all the bad things that may happen both now and in the future as a result of climate change, then adding these up and dividing the result by the total amount of CO_2 produced. Using this method, the US, for example, estimates the social cost of

carbon as $51, meaning we should pay $51 for each tonne of CO_2 we produce to reflect the damage done to the planet.

Of course, there are huge uncertainties in (and controversy around) such calculations,[3] and so there is a range of values. There are also different approaches. Another one, for example, asks a slightly different question: what price should we pay for each tonne of CO_2 if we are to keep the increase in the temperature of the planet to within 2°C above pre-industrial?[4] This is a tougher challenge and so the cost of a tonne of CO_2 is higher still. For example, Nobel Prize-winning economist Joseph Stiglitz and Professor Nick Stern from the London School of Economics estimated a value between $40 and $80.[5] The IMF adopts the mid-point of this range, $60 per tonne of CO_2, as the cost of carbon. This figure suggests that the cost of the damage done by dumping CO_2 into the atmosphere is extraordinary – some $1.7 trillion each year.

All of this indicates that the climate benefits from properly costing fossil fuels are likely to be large. How large is a matter of debate. The IMF estimates that pricing fossil fuels to take account of the damage they do would reduce CO_2 emissions by 28 per cent globally.[6] To give a sense of scale, pricing fossil fuels to account for their true costs would reduce CO_2 by three times as much as stopping all deforestation, or more than double all the emissions savings from implementing cost-effective energy efficiency technologies globally.[7] Ending both the explicit subsidies on fossil fuels (i.e. selling them below their cost) and taxing them at a rate that accounts for their social cost would make a big difference to greenhouse gas emissions globally.

Some researchers have argued that the impact of ending explicit fossil fuel subsidies is much smaller. Jessica Jewell and other researchers at the International Institute for Applied Systems Analysis in Austria have combined sophisticated climate models with large-scale economic models in an attempt to estimate how people might respond to higher fuel prices.[8] They acknowledge that removing subsidies would significantly reduce emissions in fossil fuel-exporting countries, but they suggest that the emissions reductions from subsidy removal might be significantly less overall. This is because they anticipate that the removal of fuel subsidies will make some users switch to other fossil fuels with lower subsidies or that more fossil fuels will be exported to other countries. Jewell and her co-authors may be right – just as fossil fuel subsidies themselves are uneven, so their removal may give rise to some behaviours that lessen the overall impact. But their headline message – that there are limited emission reductions from fuel subsidy removal – is rather misleading. As other researchers have pointed out, even if removing fossil fuel subsidies only reduces CO_2 emissions by 0.5–2 gigatonnes (Jewell et al.'s estimate), this still amounts to

roughly a quarter of the energy-related emissions reductions pledged by all countries under the Paris Agreement – all from a single policy approach.[9]

In addition to the direct impact of fossil fuel subsidies on climate change, they can also indirectly make tackling climate change harder. Channelling subsidies to fossil fuel companies enhances their profitability and lengthens the lifetime of their operations. Both result in continued power and political influence, which make it easier for them to resist other climate policies. Furthermore, fossil fuel subsidies create constituencies with an interest in maintaining subsidies. The French government, for example, subsidized small diesel cars for years; when the government raised the price of diesel in 2018, people took to the streets.

Pollution, congestion, and accidents

A week after celebrating the festival of Diwali in late October 2019, the city of New Delhi was blanketed by thick, brown smog. Day after day, the stagnant air sat over the sprawling city of 30 million people. The government scrambled to minimize the harm. It shut down factories, closed schools, and told people to stay at home with the windows closed, but the smog did not clear. It was only after a change in the weather several days later that the smog eventually lifted. By then, thousands of people were dead.

This was not a one-off event. New Delhi experiences smog and intense pollution every year for months on end. For the young and healthy, it is a daily misery, but for the elderly, the frail, and the sick it can be a death sentence. In 2019, around 1.7 million people in India died prematurely because of air pollution – 54,000 in New Delhi alone.[10]

New Delhi's experience is far from unique. In the post-World War II period, Chinese energy policy was focussed on coal. To facilitate easy access to power and heat, urban planners put coal-fired power stations in the middle of cities. The consequences were devastating. One study estimated that between 1.5 and 2.2 million people died prematurely in China every year between 2000 and 2016 as a result of air pollution – a total of almost 31 million people.[11]

Rich countries have also learned the politics of air pollution the hard way. London's famous smog in 1952 killed at least 8,000, forcing the government of Winston Churchill to institute the first Clean Air Act in 1956.[12] Similarly, smog in Los Angeles and many other US cities led Congress to pass the 1970 Clean Air Act, which attempted to limit emissions. But the problem is far from solved. In a landmark case in

the UK in 2013, a coroner in London determined that air pollution was one of the causes of the death of nine-year-old Ella Kissi-Debrah. It was found she was exposed to nitrogen oxides and particulate pollution because she lived in close proximity to highly polluting roads.

The vast majority of outdoor air pollution in most countries is caused by burning two types of fuel, coal and diesel.[13] Burning these gives rise to emissions of oxides of sulphur and nitrogen – poisonous gases that cause acidification of water and the resulting death of trees, crops, and aquatic life – as well as large quantities of tiny particulates known as PM2.5. These tiny particles – less than 2.5 millionths of a metre in size – get absorbed in the lungs and the bloodstream, increasing the likelihood of strokes and heart and respiratory diseases. By looking at where these emissions occur relative to where people are concentrated, researchers have been able to calculate how many additional deaths occur as a direct result of outdoor air pollution from fossil fuels. The most recent estimate is that, in 2017, there were 3.4 million deaths as a result of outdoor air pollution.[14]

If we are to calculate the true cost for any fossil fuel, then, in addition to adding at least $60 per tonne of CO_2 for the climate change damage, we need to add a valuation for the diseases and deaths caused by air pollution. Doing this dramatically increases the true cost, particularly for coal and diesel. Of course, this cost would vary widely by location. The concentrations of pollution and the density of population in Ukraine, China, and Indonesia means that burning coal has a very high impact on health, whereas burning the same coal in Ethiopia or Tanzania has a much smaller impact. Notwithstanding these variations, almost all countries are charging far too little for coal and diesel, typically covering the cost of supply but not factoring in the damage due to either global warming or local air pollution. Globally, if prices were raised to reflect the true costs of the damage caused, the IMF estimates that deaths from outdoor air pollution would be almost halved.[15]

There are other environmental costs of subsidizing fossil fuels. Anyone who has visited Jakarta in Indonesia or Lagos in Nigeria will know that a large share of your day is likely to be spent locked in traffic jams. These jams are no ordinary inconvenience; often theses cities are in complete gridlock with journeys of a few kilometres taking hours by car. This is a direct consequence of the pricing of fossil fuel: if fossil fuels were more expensive (and alternatives such as rail more accessible), people would travel less by car, thereby reducing the enormous waste of time spent in jams. We know this because of an ingenuous piece of work done by researchers from Australia and Indonesia: they systematically measured the flow of traffic on Indonesian toll roads over a period

of time when the price of fuel changed dramatically due to fossil fuel subsidy reforms. They found that a jump of around 50 per cent in the price of petrol reduced traffic flows by around 10 per cent – a small but significant effect on the volume of traffic.[16]

Under-pricing fuel does not just mean more traffic jams – it also means more accidents, injuries, and deaths. A study of 144 countries found that a 10 per cent increase in pump prices can reduce road fatalities by 3–6 per cent; approximately 35,000 road deaths per year could therefore be avoided by the removal of fuel subsidies.[17]

Budget drain

Fossil fuel subsidies also wreak havoc with national budgets in many countries. Indeed, it is often the fiscal impact of fossil fuel subsidies that finally prompts governments to initiate reforms. As with all budgets, there are two sides: taxation and expenditure. Fossil fuel subsidies affect both.

If you are a motorist in the Netherlands, the idea that fossil fuels are not taxed enough will seem pretty laughable. You may feel that you pay a small fortune to fill up your car and most of the price paid is tax. A litre of petrol in the Netherlands has an effective carbon tax of €350 for every tonne of CO_2 you emit by burning it in your car. The same is true in many rich countries – petrol and to a lesser extent diesel are heavily taxed and make an important contribution to national revenues. But in OECD and G20 countries, 85 per cent of energy-related CO_2 emissions take place outside the road sector, in industry or residential uses or to generate electricity. And the typical tax rate applied to these emissions is … zero.[18] Whether it is industry in China or Colombia, electricity in Italy or Ireland, residences in Latvia or Luxembourg, or airline fuel the world over, the average rate at which fossil fuels are taxed outside the road sector is tiny.

The under-taxation of fossil fuels constitutes a huge amount of revenue foregone. As we saw in Chapter 2, many countries take this one step further and sell fossil fuels – and electricity – for lower than they cost to produce. Fixing prices in this way results in huge losses that are covered by either transfers from the budget or the accumulation of debts. In some countries, fossil fuel subsidies eat up a large share of the budget, taking money away from alternative uses. For example, in 2018, the Nigerian government spent around $300 million every month on subsidizing petrol (it spends even more now).[19] This was more than the allocation for universal basic education for the entire country; it was also more than twice the amount budgeted for immunization. Similarly, in Pakistan in 2019, electricity subsidies amounted to

$1.25 billion – more than the annual budget of the country's flagship income support programme for the poor. The list goes on and on. In country after country, subsidies for fossil fuels and electricity are prioritized over expenditures for basic needs such as health, education, and roads. In Chapter 4, we talk about why politicians the world over make this choice, but for now it is important to recognize that one of the key impacts of fossil fuel subsidies is the money they take away from doing better things.

But surely, you may be saying, under-pricing fossil fuels does at least have one benefit in that it helps the poor who might otherwise struggle to obtain affordable energy. This is true – but as the next section shows, it often helps the rich far more.

Inequality

Rich and poor

On 23 November 2021, US President Joe Biden stood in the White House briefing room to address the problems caused by rapidly rising petrol prices. Freshly back from the global climate conference in Glasgow where he had promised to take urgent measures to limit the growth of fossil fuel consumption, he stated, 'I will do what needs to be done to reduce the price you pay at the pump'.[20] President Biden is not alone in expressing this paradoxical sentiment. Politicians around the world are understandably keen to keep energy prices low – it benefits voters, helps politicians to be re-elected, and is justified because it helps ordinary citizens, including the poor.

But does it? Take petrol. Cheap petrol is regarded as something akin to a birth right in Saudi Arabia and the United Arab Emirates. The citizens of Indonesia and Nigeria, Iran and Libya, Sudan and, of course, the US feel much the same way. But do fossil fuel subsidies – which make petrol cheaper than it would otherwise be – really help the poor? With the exception of the richest countries, the poor do not typically own cars; if they are lucky, they may have a motorcycle. They are much more likely to use public transport, cycle, or walk. Their consumption of petrol is therefore tiny, certainly compared with the car-owning urban elite. One study in Nigeria found that households in the bottom 40 per cent of the income distribution consumed just 3 per cent of the petrol sold in the country. If subsidising petrol is supposed to help the poor, it is a very inefficient way of doing it.[21]

The same is true for electricity. In most countries, the poor do not own air conditioning; they are much less likely to have dishwashers and kettles, fridges and irons. Their consumption of electricity is tiny

compared with that of the better off. Often electricity tariffs reflect this, with lower 'lifeline' tariffs for the poorest. But subsidies are still typically per kWh consumed – which means the more you consume, the bigger the benefit.

The general rule that fossil fuel subsidies mostly benefit the rich is not true for all fuels. In particular, kerosene is primarily used by the poor for lighting and cooking. A dirty and dangerous fuel, it is being phased out in many countries, often replaced by more efficient electric lighting and LPG for cooking. Kerosene subsidies do therefore go primarily to poorer households, but subsidies for LPG still appear to go mostly to the top 40 per cent of households by income. One study looked at the share of benefits that go to different tranches of the population by income for three fuels. It showed that, for petrol, the benefits overwhelmingly accrued to the top 20 per cent of the population; for LPG, it was the top 40 per cent who gained the most; only for kerosene were subsidies roughly evenly spread across different income groups. On average, the richest 20 per cent of the population got six times more benefit from fossil fuel subsidies than the poorest 20 per cent; for petrol, the ratio was 27:1.[22]

Unfortunately, just because the benefits from fossil fuel subsidies are often skewed towards the better off does not mean that removing such subsidies does not hurt the poor. This is in part because, even if their consumption is low, poor people often spend a larger share of their income on energy than the better off. This is because energy is a necessity, so people will prioritize expenditure on energy, even if their incomes are low. Another reason why removing energy subsidies can hurt the poor relates to the price of food. While taking away subsidies on fuel does not always have a big direct impact on poor households that do not use cars or motorcycles, it raises transport costs which can be an important component of the price of food. And the single most important good is food. While wealthy households often spend a very small share of their income on food, poor households around the world can frequently spend more than half their income just buying enough to eat. As a result, poor households are much more sensitive to changes in the price of food than the wealthy. Removing subsidies can therefore hurt the poor every bit as much as the better off, despite their low direct consumption of fossil fuels.

For those who are not the poorest, but who are in the lower-middle part of the income distribution, the impact of fossil fuel subsidy reform can be even more pronounced. Such households often do use fossil fuels – either directly because they have a motorbike or indirectly because they live on the outskirts of an urban area and commute

by bus. They will frequently have subsidized electricity too, hence an even higher share of their expenditure is on food and energy. Such households may not be the poorest of the poor, but they are often the urban poor and subsidy reform can hit them hard.

Gender

Not only do fossil fuel subsidy reforms impact the rich and the poor differently, they also affect men and women differently. For example, in many countries, women have the primary responsibility for cooking. This means that having access to subsidized cooking fuel – whether kerosene or LPG – can be an important benefit to them and those for whom they provide. Therefore, subsidy reforms that increase the price of such fuels can have a disproportionate impact on women. Equally, in countries or contexts where men are the main group of people using trucks, cars, and motorbikes, hikes in the price of diesel and petrol are much more likely to hit them harder.

The World Bank conducted a series of focus group discussions in several eastern and central European countries to look at how price changes from subsidy reforms impacted differently on men and women.[23] It found that gender impacts were highly dependent on the context in which reforms were implemented. Much depended not only on what fuels were used by whom, but also on the power relations within the household. If resources were shared and negotiated fairly within the household, then shocks to the price of one fuel could be partially compensated by reallocating resources across different activities. But where women had little power and resources were not shared (or where there was no one else to share them with), increases in the prices of fuels could lead to a big gendered impact, not only for the women concerned but also for those whom they looked after.

One of the most common examples is the challenge of shifting from traditional cooking with firewood or the use of kerosene to LPG. Unless using an improved cookstove, cooking with firewood can be dangerous for long-term health, because repeated exposure to smoke can lead to respiratory problems and eye infections, among other illnesses. Similarly, the use of kerosene for cooking and lighting can cause dangerous air pollution and run the risk of fires. Consequently, many governments have undertaken comprehensive campaigns to get households to switch to the use of LPG, which is a much cleaner and safer fuel.

But LPG is a fossil fuel, and its price fluctuates with the international price of oil, from which it is derived. Consequently, many

countries subsidize LPG, both to encourage switching from dirtier or more environmentally damaging fuels and to protect households from fluctuating prices. For example, in 2012, the Peruvian government introduced a programme to help households switch to LPG. By the end of 2014, around 1 million low-income families had been provided with an LPG or improved biomass cook stove and 900,000 families were receiving monthly LPG vouchers.[24] Similar programmes were introduced in numerous countries, including large programmes in India, Indonesia, and Bangladesh.

Such subsidies primarily benefit women and the households that they support. As fossil fuel prices have skyrocketed, many countries have tried to reduce the subsidy that they provide to LPG. This, in turn, has generally hit women harder than men. A comprehensive study of the gendered impact of fossil fuel subsidies and their reform in Bangladesh, India, and Nigeria found that the impact depends on three factors:[25]

- First, price hikes affect your real income – the overall amount you can buy taking into account the higher prices. If women are primarily responsible for buying LPG, then their real income is reduced when prices rise.
- Second, an increase in the price of a fuel makes consumers want to switch back to cheaper, dirtier ones. When the price of LPG was increased in India in 2021, millions of households switched back to using firewood, reversing some of the gains from introducing LPG in the first place. Similar shifts have been documented in Brazil, Kenya, Rwanda, and Vietnam.[26]
- Third, the way in which the government implements the reform really matters. Some governments introduced targeted cash transfers or voucher schemes for the poorest. But sometimes compensation schemes do not consider gender and can end up benefiting men more than women, for example where cash transfer schemes give money to the 'head of the household' which, in many countries, results in resources being controlled by men.

In general, fossil fuel subsidy reform is most likely to have a strong gendered impact where it affects fuels used much more by one gender relative to the other, where the burden is not shared across the household (e.g. for female-headed households or elderly women living alone), where there is a lack of information or awareness amongst women both about the reforms as well as their rights and eligibility for compensation, and where compensation programmes fail to consider the gendered impact of reforms.

Political unrest

When President Goodluck Jonathan decided on 1 January 2012 to remove fuel subsidies, the result was explosive. Ordinary Nigerians around the country poured out onto the streets. The unions, backed by the opposition, called a nationwide strike. For ten days, the country ground to a halt while workers fought pitched battles with the police on the streets.

And it worked – sort of. The government agreed to reduce the price of fuel, though not back to the level at which it had started. Citizens still had to endure a 49 per cent price rise and hence felt betrayed; and although the government limped on, its reputation was in tatters and Goodluck Jonathan lost the next election.

The experience of Nigeria is far from unique. In 2019 alone, there were major protests related to energy in Chile, Ecuador, France, Haiti, Iran, Iraq, Lebanon, Sudan, and Zimbabwe, many of which turned into riots. Between 2005 and 2018, 41 countries had at least one riot over the prices of energy; some had several.[27]

Why do countries experience riots over energy prices? A major new study of Mozambique, Nigeria, and Pakistan looks at precisely this question.[28] It shows that these explosions of anger are often grounded in deep-rooted injustice and exclusion, rather than just the sharp rise in the prices of fossil fuel or electricity. As one participant in a focus group discussion in Nigeria put it, '*Ko si subsidy kankan; sosapo lo wa*' (there was never a subsidy; there is only the pocketing of the nation's money).

Citizens in many countries feel that their governments are corrupt and that life is hard precisely because of the venality and incompetence of their leaders. Rises in energy prices are seen not as honest attempts to redirect resources towards better uses, but as yet another attempt to extort money from hard-working citizens. Citizens are virtually never invited to discuss energy policies and have no say over the decisions taken. Policies are simply imposed from above, often with no warning and limited or no effective compensation. Focus group discussions in Pakistan from the study mentioned above revealed citizens' sense of disempowerment with respect to energy decision-making; in Mozambique, there are no institutions to channel citizen complaints into the regulation of fuel prices.

The irony is that the policy designed to protect the people from price rises – fossil fuel subsidies – may actually be making riots more likely. As noted in Chapter 2, in many countries, fossil fuel subsidies are implemented by the government fixing the price of some fuel or energy source below the international price or the cost of production.

The idea, at least sometimes, is an honourable one – to protect citizens from the volatility of world energy markets. Since the price of fossil fuels on the international markets fluctuates with the price of oil – a notoriously volatile commodity – it is entirely understandable that many governments try to stabilize the prices faced domestically by their citizens by fixing local prices.

The problem arises because fixing prices makes them politically hard to change. If citizens know that you chose the price, they have grounds to blame you when you raise it. Consequently, once fixed, many governments are reluctant to change prices often. But when international prices are rising (or local currencies are depreciating), fixed local prices mean a wider and wider gap between local and international prices. That gap has to be plugged by the budget or by accumulating debt. Eventually, the gap becomes so large that the government can no longer afford to pay and so, in an attempt to minimize its losses, it increases prices.

A global study showed that, between 2005 and 2018, countries that fixed their local fossil fuel prices had *more* local volatile prices than those that let them change frequently.[29] The irony is that, by waiting to adjust prices, the price changes made tend to be much, much larger. Countries that changed their prices frequently had average price changes of around 0.7 per cent, whereas countries that kept their prices fixed for most of the year had an average price increase of almost 17 per cent, 24 times larger. Unsurprisingly, such large increases can bring people out onto the streets in protest. In short, fossil fuel subsidies do not just break the bank – they can create instability, violence, and the downfall of governments.

But if fossil fuel subsidies are really so bad, why do so many countries stick with them? We turn to this question in Chapter 4.

CHAPTER 4

Why subsidies persist

If the impact of fossil fuel subsidies is so bad, then why do countries have them? After all, there is no shortage of evidence about the negative impact of these subsidies, which are borne not just at the international level (such as the climate change impact), but primarily at the local level (pollution, congestion, and the loss of revenue that could be used for other purposes). Are governments unaware of the evidence or just irrational?

The politics of consumer subsidies

Sadly, fossil fuel subsidies are both pervasive and persistent not primarily because of ignorance, but because of the same reason why bad policies persist in many countries across the globe – politics. Imagine you are the leader of a poor and developing country. You have very few resources at your disposal. In particular, your administration has very weak capacity – you do not have the budget or sufficiently trained personnel to deliver complex public services such as education and health in an effective way. But you need something to offer to the people, something to get them on your side, something to demonstrate that you have their interests at heart. It has to be something that benefits almost everyone, particularly those most likely to rise up against your rule who in many cases are more likely to be urban workers. In short, you need to construct a 'social contract' – a bargain between yourself and the people whereby the people get something in return for accepting your rule. So what can you deliver easily, with minimal administrative capacity, that will have a far-reaching impact? For many the answer is clear: cheap energy.

Making petrol cheap is easy. No matter what it might cost to produce, governments can set the price at which it will be sold. No complex administrative machinery needs to be put in place – one simply announces the price. Of course, if the price is below the cost at which you can produce or buy petrol, then you have to fund the gap. But as we saw in Chapter 2, there are many ways of doing that. What is true for petrol is also true for electricity. Cheap (or free) electricity can be delivered by decree, with the costs buried for your

successor to worry about. For this reason, fixing prices below cost – and thereby creating subsidies – is extremely attractive, particularly if you do not have the governmental machinery to deliver much else. This is why there is a relationship between weak government capacity and consumer subsidies.[1] Rich countries and countries with a better developed public administration are in a position to offer other things to the electorate, such as roads, clinics, schools, and so on, so these countries are generally less reliant on subsidizing energy to win the support of voters.[2]

There is another less obvious reason that some countries subsidize fossil fuels: governments do not need the money. Or more accurately, they do not want the money. All governments like revenue, but if you have substantial natural resources, then it is possible to fund a large share of your budget simply from selling these resources. For example, over half of Saudi Arabia's revenue comes from oil, as does over 90 per cent of Timor-Leste's. Using natural resource revenues to fund the budget avoids the complex and politically unpopular business of taxing people and companies to obtain revenue. As a result, the share of tax in total revenue is small in many resource-rich countries. Across sub-Saharan Africa, many countries collect less than 15 per cent of their GDP in taxes: in Nigeria, the continent's biggest oil producer, it is just 4 per cent.[3] Having a very low tax take means that the nature of the bargain between the government and the people in these countries tends to be different to that in countries where tax makes up most of their revenue. Low tax countries do not ask much (at least financially) of their citizens, and their citizens do not expect much in return. People's demand for a share in natural resources can be placated by cheap energy.

Governments in some low tax countries need relatively little revenue because their primary function is not to deliver myriad public goods and services, but simply to pay the people in it. The civil service and employment in SOEs is used as a form of patronage, with most government expenditure going on salaries and little left to deliver useful services. During an oil price slump in 2015, Professor Paul Collier, a famous economist at Oxford University, was asked about its implications for Nigeria. His response was: 'Not much. It will only affect two small sectors, trade and government'. He was wrong about the size of the impact, but his comment pointed to an important truth: that the principal beneficiary of public spending in Nigeria was the public sector itself.

In countries that can be characterized as 'patronage states' – that is, countries in which the government rules by dishing out favours in return for political support – subsidies are a useful vehicle for

patronage, while the limited machinery of government can be funded from natural resource revenues. But as countries get richer, their demand for revenue grows, as do the demands of their citizens for functioning infrastructure and services. As a result, providing blanket subsidies becomes increasingly costly, and it instead becomes more politically advantageous to spend the money on other things such as roads, schools, and health care. This is one reason why richer countries with a higher need for revenue tend to have fewer consumer subsidies.[4]

However, it is not just a lack of capacity or a lack of demand for revenue that leads politicians to subsidize energy. Another key reason is resonance. Consider the banknotes of Zimbabwe. On them is an image of the Kariba dam – a large hydroelectric dam that, for many years, constituted a major source of power for Zimbabwe and Zambia. Affordable energy is not merely a physical commodity – it is a political commodity and a vital symbol of nation building and national pride. This is particularly true if the country has lots of natural resources. The cheapest petrol in the world is in Venezuela (recently they increased the price twentyfold – from $0.001 per litre to $0.023 per litre – going from the cheapest petrol in the world to still the cheapest petrol in the world).[5] Among the largest subsidies in the world are those provided by Saudi Arabia. Petrol is also cheap in Angola, Iraq, Kuwait, Nigeria, and Qatar.[6] There is a strong connection between having oil and gas resources and cheap petrol. In a way, this stands to reason. If you have the resource, then, in theory, it is easier to refine it and produce it more cheaply than other countries. We would expect petrol to be cheap in such places. But not this cheap. Many countries with oil sell petrol to the local population well below even the local cost of production. Such behaviour is not driven by economics[7] – it makes big losses – it is driven by politics. Citizens feel, not unreasonably, that a country's natural resources belong to the people. Politicians understand this and so set the prices of energy to signal that they are giving back to the people what is rightfully theirs. For this reason, we see a strong connection between countries with large natural resources and fossil fuel subsidies – the more you have, the more the people feel they deserve their birth right and the more you can afford to give away.

The politics of producer subsidies

So what about subsidies that go to producers? Why do these also seem to go on and on for years? The answer can be summed up in one word: rent.

When most people use the word 'rent', they mean the amount they pay a landlord to live somewhere. But economists and political scientists use the term to convey something completely different: for them, rent is the difference between the amount of money that you can get for supplying some good or service and a 'normal' commercial return. For example, imagine you are lucky enough to own an oil well. To get at the oil you have to purchase lots of expensive equipment and employ a skilled workforce to extract it. After you have paid your workers, the interest on the loans you took out to buy all that equipment and all your taxes, you are left with your profit. However, although you have some control over the number of workers you have and the equipment you buy, the profit you make depends on one thing that is completely out of your control: the price of oil. If the price of oil is low, you may go bust. But if the price of oil is high, you do not just earn a normal commercial return on your capital – as you might in a manufacturing or service industry – you earn profits way above the normal commercial rate of return. This is what economists call rent.

Rents do not just arise due to the market – they can also be created. A rent is created every time the price of a good or service is artificially raised above the value that would occur otherwise. Customs officials who require an additional payment for goods to get through customs are creating rent. Procurement officials who direct a contract towards a company with a higher price but no better quality are creating rent. Rents are not the same thing as corruption. Indeed, not all rents are bad. Patents are a form of legal rent whereby a company can sell their patented product above the cost of production for a while to recoup the costs of investing in research and development. Some political scientists even argue that the countries that have developed most rapidly over the last 50 years have been those that have most effectively managed rents and ensured that they were directed to the most productive uses.[8]

In many countries, politics is an expensive business, and rents are a key source of funding for politicians, political parties and candidates. In Indonesia, standing as a local mayor is estimated to cost millions of dollars; if you want to stand as a candidate in provincial elections, it costs tens of millions.[9] Regular folk do not have access to such vast sums, so they have to reach out to those who do. As a result, campaigns are frequently funded by oligarchs, often the owners of major natural resource companies whose wealth comes from – you guessed it – rent. In the US, the cost of winning a seat in the House of Representatives is well over $1 million; the cost of a Senate seat is over $10 million. The fossil fuel industry is amongst the most generous of contributors,

both to candidates directly and to the Political Action Committees that fund their campaigns.

However, these campaign contributions are not entirely free. Successful candidates are expected to repay their funders – not in cash, but by supporting legislation, regulations, and policies that benefit their benefactors. And the best way of doing that is by creating subsidies. As noted in Chapter 2, sometimes these are direct subsidies in the budget. But those are rather conspicuous and attract scrutiny. More often, subsidies are given as tax breaks, subsidized credit, risk guarantees, or by the creation of monopolies. And few countries better illustrate the creation and recycling of production subsidies than the US.

The US oil and gas industry is huge, earning revenues in excess of $100 billion each year. Each year, it benefits from billions of dollars in subsidies. It is worth spending a little bit of time understanding the way in which some of these subsidies work. One of the main subsidies to the oil and gas sector in the US is the intangible drilling costs (IDC) allowance. In most countries, when a business makes a major capital investment such as a new factory, it is allowed to set aside money each year for the depreciation of the capital asset. The idea is that, since big capital assets eventually wear out and need to be replaced, the company should not be taxed on the money that it sets aside to replace the asset at the end of its life.

Typically, tax rules spread out the depreciation of the asset over its lifetime, allowing it to deduct a fixed amount of depreciation each year over the lifetime of the asset. But that is not the way it works in the oil and natural gas sector. The IDC allows investments in drilling new oil wells to take all of their depreciation upfront. This allows oil and gas companies to deduct the whole cost immediately instead of spreading it out over many years. This is an attractive incentive for investors because it offsets the substantial upfront costs associated with setting up a new oil or gas well. Without the IDC, the rate of return on investments would likely be marginal because revenues will be spread out over many years. Allowing companies to deduct depreciation on all capital expenditure immediately means they can dramatically improve the early cash flow of the project and boost its rate of return for investors. Suddenly, a project that might not have gone ahead if it was judged on normal commercial terms seems like a good bet. The IDC allowance can therefore mean the difference between drilling a well and not.

So how much do the IDC and numerous similar tax and accounting subsidies matter? The answer is, a lot. A recent study showed that 16 subsidies, including the IDC, raised the rate of return of as yet

undeveloped oil and gas projects by 55 per cent and 68 per cent, respectively.[10] If the oil price is high, these subsidies go straight into the pocket of the oil and gas companies, generating large rents while having no impact on production. If the oil price is low, these subsidies can make the difference between locking in new fossil fuel production or not. Production subsidies therefore either pad profits or encourage unprofitable and environmentally damaging production, or both.

This finding was reinforced by the work of the Yale economist Matthew Kotchen.[11] He pointed out that the US, unlike most other countries, is now such a significant oil producer that it influences the world price of oil. If it produces less, the world oil price rises; if it turns on the taps, the global price falls. As a result, oil companies in the US really care whether the government tries to impose a tax to take account of the environmental harm caused by such fuels. Such a tax would not just raise the prices for consumers, thereby reducing demand; it would also reduce the prices obtained by the industry. Kotchen calculated that the overall losses to the industry from pricing fossil fuels to account for the damage they do to the environment would be $62 billion each year.

Kotchen's analysis went one step further. The US has detailed data on the returns of individual firms, so Kotchen calculated precisely how much individual oil companies would lose if fuels were priced in a way that reflects their full environmental costs. The results were quite extraordinary: Peabody Energy Corporation – a major coal producer – would be $1.5 billion worse off each year if coal prices reflected their true costs; Exxon Mobil – one of the world's largest oil and gas companies – would lose almost $700 million annually if its product prices reflected the damage they do. Twelve companies would be more than $300 million per year worse off if fossil fuels were priced to reflect their full social and environmental costs. As Kotchen put it, 'The results clarify what the domestic fossil fuel industry has at stake financially when it comes to policies that seek to address climate change, adverse health effects from local pollution, and inefficient transportation'.

With such large rents at stake, it is not surprising that considerable effort is spent on maintaining them. The energy and natural resources sector in the US spent $4.46 billion between 1998 and 2014 just on lobbying.[12] Such lobbyists are paid to ensure that senior politicians in government and in Congress understand the importance to the fossil fuel industry of the subsidies embedded in the minutia of the tax code. A recent analysis of campaign contributions shows that the more a given member of Congress votes against environmental policies, the more contributions they receive from oil and gas companies supporting their re-election.[13]

Obstacles to removing subsidies

All these reasons explain why countries might start providing fossil fuel subsidies, but they do not explain why they persist. Simple consumer subsidies may be a useful political tool at an early stage of a country's economic development, but many of the largest subsidies are in countries that are well beyond that stage. Iran has a sophisticated civil service – and huge subsidies. Russia has plenty of demand for tax revenue – and huge subsidies. Indonesia may regard oil as its birth right but, as production dwindled and demand for (subsidized) fuel surged, it has become a net importer (and even got kicked out of the oil producers' club, OPEC, as a result) – and it still has immense subsidies. Why have such countries not removed subsidies as they have grown richer?

The reason why so many countries have not removed subsidies – and why fossil fuel subsidy reform is so hard – is political lock-in. Consider the characteristics described above that make subsidies attractive: they resonate politically with the population, have wide coverage (particularly with the urban middle classes), and are easy to implement. While the last of these means that they are technically easy to remove, the other two characteristics means that, practically, removing subsidies is hard. Subsidies with wide coverage inevitably hurt a lot of people when removed, particularly the very people who, if angered, may constitute a leader's greatest political threat. And if you have spent years succeeding in persuading people that these subsidies are their birth right, it is not surprising that they feel betrayed if you try and take them away. This is particularly true if people have made longer-term investments, such as buying a car, that make them vulnerable to higher fuel prices.

Consider the mountainous country of Kyrgyzstan. Sandwiched between Kazakhstan, Uzbekistan, Tajikistan, and China, this rugged and landlocked country should be a hydroelectric superpower due to its abundance of fast-flowing rivers. Instead, it survives its bitter winters by burning imported coal and fuel oil from its neighbours and hoping that its ancient combined heat-and-power system does not break down, as it did devastatingly in 2015. This seemingly absurd power system is a legacy of the Soviet era, when Russia supplied it with cheap fossil fuel, enabling Kyrgyzstan to provide ultra-cheap electricity to its citizens. That system ended in the early 1990s but, 30 years later, the ultra-cheap electricity continues. As a result, the electric utility is insolvent and incapable of investing in the rehabilitation of the creaking system on which its people rely. So why, in the intervening decades, has the government not removed these vast electricity subsidies? I put this question to a senior government official in 2017,

to which he responded, 'We tried that in 2010 – there was a coup; then we tried it again in 2015 – there was a coup. The government is not very keen to try it again'.[14]

This story is repeated in country after country. Subsidy reform is deeply unpopular. The larger the subsidies – and therefore the larger the need for reform – the more painful and unpopular such reform tends to be. Politicians can be forgiven (perhaps) for doing all they can to avoid implementing such reforms during their time in office. Far better for it to be someone else's problem, meaning that every generation of politicians finds itself in the same situation of kicking the can further down the road.

Lock-in does not only happen in poorer countries. In the UK, in 1993, the government of John Major introduced the Fuel Price Accelerator – a measure designed to gradually increase taxation on petrol. This policy lasted for almost seven years, but, in 2000, protests about the high price of fuel led to truck drivers blockading refineries, causing temporary fuel shortages. The government responded by freezing fuel duty, effectively ending the Fuel Price Accelerator. Another wave of protests against high prices in 2010 led to the government freezing fuel duty, a policy that has remained for more than a decade.[15] In the summer of 2022, several of the Conservative candidates to be prime minister promised to cut fuel duty further.

Fuel price rises had an equally disastrous impact on French president Emmanuel Macron. In November 2018, he decided to increase the tax on petrol (by €0.0029 per litre, or about 2 per cent) and diesel (by €0.0065 per litre or roughly 4 per cent) from 1 January 2019.[16] The intention was good: to raise the price of carbon, discourage polluting diesel cars, and redirect expenditures into renewable energy. But the result was explosive. On 17 November 2018, the *Gilets Jaunes* (yellow vests) movement took to the streets. More than a quarter of a million people – many donning the yellow, high-visibility vests that motorists are required to carry in France – protested in Paris and cities around the country. Their grievances ranged far beyond the price of fuel and were driven by a groundswell of anger at the contempt (*mepris*) shown by a privileged elite towards ordinary French working people. People described themselves as sick to the teeth (*ras le bol*) of being ignored and patronized by the likes of Macron. The protests gathered momentum, and week after week the *Gilets Jaunes* returned to the streets to vent their rage at myriad real (and perceived) injustices. The protests grew violent, as did the police response. By 7 December, over 200 people had been injured and four people had died.[17]

In the end, the government was forced to cancel the fuel tax increase. It also froze planned increases in gas and electricity tariffs

and promised a widespread process of consultation across the country to try and understand how the green agenda could be matched with social needs. President Macron learned the hard way that increasing the price of fossil fuels was not merely an energy policy reform; unless it is done in a way that consults the public and takes seriously the need for a 'just transition', it can trigger a visceral reaction among a wide swathe of society angry at the violation of the 'social contract' between the state and the people.

In summary, removing consumer subsidies is hard because people often protest when asked to pay significantly more for energy. Production subsidies are hard to remove because the politicians who create them benefit from and in many ways depend upon the large rents that the subsidies create. Asking some politicians to remove subsidies is like asking them to choke off a key source of finance for their electoral machinery. Similarly, production subsidies sometimes sustain industries that might not be able to continue without them. Local communities depend on these industries for jobs and livelihoods and therefore strongly oppose the removal of subsidies. Where these industries are located in politically influential places, e.g. swing states or constituencies, it can be hard for national governments to remove subsidies, even if compensation is provided for workers and alternative investments are made in the area.

Given the difficulties, one might expect the international community to be devoting a lot of time and effort into finding ways around these political problems. Chapter 5 describes what has been done and outlines why it is not working.

CHAPTER 5

Initiatives to tackle fossil fuel subsidies

Given the sheer scale of fossil fuel subsidies and the damage that they cause, one might imagine that the international community was extremely active in trying to solve the problem. This is true to some extent. There are some initiatives at the international technical and diplomatic level; but extraordinarily, the issue barely features among the myriad initiatives undertaken by governments and aid agencies around the world. This chapter describes what is being done, what is not being done, and why.

Multilateral and international initiatives

When the global financial crisis hit in 2008, it became apparent that the way the global economy was run had to change. Previously, the key decisions on the management of the global economy had been taken by a tiny coterie of leaders from the Group of Seven (G7) – a rich nations club consisting of Canada, France, Germany, Italy, Japan, the UK, the US, and representatives from the EU. Japan is the only Asian country included – China does not feature. There are no representatives from south Asia, central Asia, Australasia, Africa, the Middle East, or Latin America.[1] In an attempt to construct a forum that was somewhat more representative of the world's major economies, world leaders elevated the status of the G20 countries, which brought in nations from around the globe such as Argentina and Brazil, India and Indonesia, Russia, Saudi Arabia, and South Africa among others, representing 80 per cent of global GDP and 60 per cent of its population.[2]

The G20 scrambled to respond to the collapse of the global economy and met repeatedly throughout 2009. In a chilly Pittsburgh in September 2009 – during the first year of the Obama presidency – it agreed formally 'to phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest'.[3] In theory, this was to start a process of gradually removing fossil fuel subsidies. But there were two snags. First, major proponents of fossil fuel subsidies such as Russia, Saudi Arabia, China, and India were

never going to agree to remove fossil fuel subsidies immediately, so they insisted on including the words 'medium term' in the commitment, leaving countries to decide themselves what 'medium term' meant. Second, they fought hard to ensure that the word 'inefficient' was included. Fossil fuel subsidies should be allowed, they argued, as long as they were not 'inefficient'. No definition of inefficient was ever agreed upon, enabling countries to claim that they had no inefficient fossil fuel subsidies, just lots and lots of efficient ones.

The G20 has been meeting at least every year since 2009 and, almost every year, it has reiterated its commitment to eliminate inefficient fossil fuel subsidies (the only exception was in 2018, when President Trump – a strong proponent of subsidizing fossil fuel industries – refused to allow the phrase into the leader's communiqué). Yet progress has been lamentable. Fossil fuel subsidies soared between 2009 and 2014 as oil prices rose, collapsed with the fall in the oil prices, only to rise again when they recovered and then explode dramatically in 2022 as oil prices soared due to the war in Ukraine. If G20 leaders were serious about reducing fossil fuel subsidies one might expect subsidies to have fallen over time. However, a study by Michael Ross and Pascha Mahdavi shows that between 2003 and 2015, when awareness of climate change was rising rapidly, the net taxation of petrol *fell* by 13.3 per cent. While some countries were making progress, Ross and Mahdavi characterized the overall picture in two words – global backsliding.[4]

In an attempt to make some progress, the G20 set up a peer review mechanism for fossil fuel subsidies in 2013. It is impossible to know whether subsidies are going up or down in a country if you fail to do a proper analysis of what subsidies exist. The OECD's inventory of budgetary expenditures and tax measures and the IEA's estimates of price gaps, both described in Chapter 2, provided a starting point for the G20 to build on. The logical thing to do would have been to ask all G20 members to conduct a stocktake of their subsidies using a common method and report it every year. But that approach would have revealed rather too much too quickly. Instead, the G20 agreed that countries would pair up. Each pair would write a report about their own country and then share it with other countries for peer review. The first two countries were China and the US, who published their reports in 2016; next came Germany and Mexico in 2017; in 2019, Italy and Indonesia published their reports; the latest, in 2020, came from the Netherlands on its own.[5]

The establishment of mechanisms and a methodology for detailed assessment of fossil fuel subsidies are a welcome move and the reports produced have helped governments to identify where progress needs to

be made. But with seven countries assessed after eight years, it is hard to avoid the impression that countries are merely using the peer review process to kick difficult political choices into a technical backwater. The G20 countries are not lacking in resources or analytical capabilities, yet somehow seem incapable of producing an annual scorecard and holding countries accountable for the progress – or lack of it – that they make.[6]

The G20 effort to tackle fossil fuel subsidies is typical of almost all other international initiatives – they are small, highly technical, and politically irrelevant. For example, the G7 nations entered into a similar commitment in 2009. In 2016, at the Ise-Shima summit in Japan they stated, 'We remain committed to the elimination of inefficient fossil fuel subsidies and encourage all countries to do so by 2025', setting a deadline for elimination for the first time – at least for the G7 countries.[7] Again, this was repeated in subsequent leaders' declarations, but no mechanism has been put in place to ensure the implementation of the promise.

The 21 countries around the Pacific that make up the Asia Pacific Economic Cooperation (APEC) have made similar statements about eliminating fossil fuel subsidies and, with the support of the US, started their own peer review process. Peru, New Zealand, the Philippines, and Chinese Taipei have already undergone a peer review of their subsidies. While these studies are undoubtedly useful, financing for this activity stopped in mid-2017, reflecting the low political priority placed upon it.[8]

Another international organization that has attempted to tackle the issue of fossil fuel subsidies is the WTO. In a sense, the WTO is *the* organization that should worry about fossil fuel subsidies because such subsidies distort trade. If a country imports fossil fuel and then subsidizes it for consumers by selling it below the cost of importing it, the only firms who will be able to bring fuel into the country will be those that have access to the subsidy; if the subsidy is not given out in a fair and transparent way, then the country is distorting trade. Similarly, if the companies in a country that exports fuel are getting all kinds of production subsidies from their government, they can undercut their competitors and, again, distort trade.

It was precisely to limit such behaviour that the member countries of the WTO signed the Agreement on Subsidies and Countervailing Measures (ASCM), which came into force in 1995. The ASCM's definition of subsidies is very broad. It includes all the things discussed in Chapter 2, but member countries decided that action could only be taken against subsidies if they met two criteria: that the subsidy confers a benefit and that it is specific to a particular group.

The first condition was included at the insistence of exporting countries. As we have seen, many of the countries with the largest fuel subsidies are oil exporters that sell their fuel cheap to the local population. These countries claim that there are no subsidies and therefore no benefit because, although fuel is sold at prices far below the international price, this merely reflects the lower costs of producing it domestically. Since there is no internationally agreed benchmark for what prices should be, it is difficult to disprove such claims.

The second condition, on specificity, was included at the insistence of importing countries. While there are importing countries that subsidize fossil fuels, they tend to do so for everyone. The subsidy is therefore not specific to any particular group.

Since, under the ASCM, the WTO can discipline neither exporters, because they claim there is no benefit from their actions, nor importers, because the subsidies are not specific, it has managed to discipline precisely no one. As Pascal Lamy, the former head of the WTO, put it, 'the on-going political debate on reforming fossil fuel subsidies has largely bypassed the WTO'.[9] However, this may be changing. On 14 December 2021, ministers from 17 WTO member countries plus the 27 members of the EU issued a joint statement on fossil fuel subsidies urging the WTO to play a more central role and promising concrete options to advance the issue.[10]

Other efforts have focussed on research and data gathering. As noted before, the OECD plays a key role in the analysis of fossil fuel subsidies since it compiles a detailed inventory of budgetary expenditures and tax measures that encourage the production and consumption of fossil fuels. This covers both OECD countries as well as major emerging market economies (Brazil, China, India, Indonesia, Russia, and South Africa). Since 2021 it also covers subsidies provided by Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine. Similarly, the IEA, as the main multinational body focussed on energy policy, aims to ensure reliable, affordable, and clean energy for its 29 member countries and others. Its flagship annual publication – the World Energy Outlook – has examined the issue of energy subsidies in detail and the IEA has compiled a dataset of consumer price support subsidies for 41 countries broken down by fuel type (oil, electricity, natural gas, and coal) as well as reviews of subsidy policies in Mexico and Indonesia.[11]

United Nations (UN) organizations also work on fossil fuel subsidies. In 2015, almost all nations in the world agreed on a set of 17 Sustainable Development Goals (SDGs), the 12th of which is 'responsible consumption and production'.[12] To track progress towards attaining these goals, different agencies were given responsibility to

monitor different goals. The UN Environment Programme (UNEP) was given the responsibility of tracking Indicator 12.c.1, which measures the amount of fossil fuel subsidies per unit of GDP. It has developed a methodology for doing so that relies heavily on the work of the OECD and the IEA.[13] It also finds relatively little progress in reducing fossil fuel subsidies, with the overall size of subsidies globally heavily dependent on the price of oil.

More recently, the climate change negotiations under the UN Framework Convention on Climate Change (UNFCCC) achieved something that was regarded by some as a major step forward: it mentioned fossil fuel subsidies during the COP26 meeting in November 2021. It seems quite extraordinary, but, for 27 years,[14] all the countries of the world negotiating action on climate change agreed to avoid mention of fossil fuel subsidies in the main cover text of their annual agreements. Even its inclusion in the COP26 final text was caveated by the inclusion of the word 'inefficient', much like the G20. No attempt was made to define inefficient subsidies and no steps were agreed to phase them out.

Other international initiatives include the Friends of Fossil Fuel Subsidy Reform (FFFSR) – an informal group of non-G20 countries aiming to build political consensus on the importance of fossil fuel subsidy reform. Current members of FFFSR are Costa Rica, Denmark, Ethiopia, Finland, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and Uruguay. Moreover, a communiqué in 2015 by the FFFSR attracted the support of more than 40 countries.[15]

Most controversially, the IMF, perhaps the most influential multilateral financial institution in the world, produced the estimates we saw in Chapter 2, not just of the subsidies that are paid out of budgets, but of the planetary cost of burning fossil fuels. These vast sums – trillions of dollars – have highlighted the scale of the problem by showing how much more we would all have to pay if fossil fuels were priced in a way that reflects the damage that burning them causes. But even these shocking figures have translated into remarkably little action in most countries.

Where countries have hit financial crises and asked the IMF for assistance, it has occasionally made its support conditional on steps to reduce subsidies. But here it is caught in a bind: removing subsidies and raising prices in the midst of a crisis can have a major impact on the poor, even if the subsidies mostly benefit the better off, meaning that such moves are extremely unpopular with governments and citizens alike. Millions of people in poor countries, particularly in Africa and Latin America, hold bitter memories of the structural adjustment policies imposed by the IMF in the 1980s and 1990s. In recent years,

while continuing to advocate strongly for reform, the IMF has focussed more on providing emergency financing to support countries, particularly during the COVID-19 pandemic, but has generally not linked such financing directly to the removal of fuel subsidies.

The international institution that has probably done more work than any other on fossil fuel subsidies and their reform is the World Bank. The Bank's Energy Sector Management Assistance Program (ESMAP) provides technical assistance and policy advice to low- and middle-income countries, as well as conducting studies and encouraging dialogue between countries. It is funded by Australia, Austria, Denmark, the European Commission, Finland, France, Germany, Iceland, Japan, Lithuania, the Netherlands, Norway, Sweden, Switzerland, the UK, and the World Bank Group. However, ESMAP's work mostly focuses on clean energy, energy access, energy efficient cities, and energy assessments and strategies rather than energy subsidy reform.

However, one of the cross-cutting programmes of ESMAP is the Energy Subsidy Reform and Delivery Technical Assistance Facility. This programme provides advice and support to governments that are attempting energy subsidy reform, for example, by helping to analyse the impact of subsidy reforms on the budget, on greenhouse gas emissions and, crucially, on different groups in the country, including the poor. It also helps to design communication strategies for reforms and targeted compensation for those that might be adversely affected by reforms. ESMAP also runs an online 'subsidy reform community', a platform that brings together government officials from around the world and experts from the World Bank Group and other international organizations to share their insights and experiences of reforming energy subsidies.

With all this effort, how much is the World Bank actually spending to help governments tackle energy subsidies each year? After all, a $468 billion problem surely requires a major investment. If it spent an amount equivalent to one-thousandth of the problem, i.e. $468 million, that might not be out of place and, indeed, the budget of ESMAP is of that magnitude. But the vast majority is not for subsidy reform; the total annual expenditure of the work on subsidy reform is just $2.5 million per year.[16] Even if one adds in the cost of all the work by the IEA, OECD, UNEP, and IMF, as well as various non-governmental organizations, the world is probably spending less than 0.01 per cent of all international aid trying to solve a problem equal to more than double the size of all international aid.

So, if the World Bank's ESMAP is not doing the heavy lifting on subsidy reform, who or what is? Perhaps it is not the Bank's technical assistance that matters, but its lending. It has long been involved in

supporting countries with difficult structural reforms to their economy, including, notoriously, the period of structural adjustment reforms in the 1990s. In 2005, the Bank introduced a new way of lending to countries to support reform – Development Policy Loans (now called Development Policy Operations or DPOs). These are, generally, quite large loans to governments to help them implement a major reform. To avoid all the previous problems with harsh conditions attached to loans, the Bank's DPOs specify a set of 'prior actions' agreed with the government that must occur before the loan is disbursed. The idea is that prior actions demonstrate the government's commitment to the reforms, thereby justifying the lending.

The Bank has undertaken 630 DPOs since they were introduced in 2005, representing $117 billion of lending – around a quarter of all Bank lending (the rest is for projects).[17] If the Bank – and governments – were serious about fossil fuel subsidy reform, we would expect to see that subsidy reforms were included as a 'prior action' in many of these DPOs. But looking through the prior actions for these loans, only 8 per cent targeted improvements to the energy sector and only a tiny number of these were associated with subsidy reform. In total, ESMAP estimates that only $4 billion in World Bank lending – a tiny sum compared to its overall portfolio – had energy subsidy reform prior actions, including DPOs in Egypt, Indonesia, Iraq, Jordan, Morocco, Pakistan, and Ukraine.

Last, but by no means least, it is important to acknowledge the efforts of some major international research institutes and non-governmental organizations (NGOs) working on fuel subsidy reform. The only organization focussed entirely on subsidy reform is the Global Subsidies Initiative of the International Institute for Sustainable Development (IISD), which undertakes extensive research and advocacy work, serves as the secretariat for the FFFSR, and has given technical assistance to several countries, particularly on communications strategies for reform. Numerous other research institutes have undertaken extensive research on the subject, notably Earth Track, the Overseas Development Institute (ODI), Oil Change International, the Stockholm Environment Institute, and the World Resources Institute. These efforts have raised the profile of fossil fuel subsidies in the international arena and broadened knowledge about the issue.

Bilateral and national initiatives

The initiatives outlined above are all useful in different ways and may have a real impact. However, they are all being undertaken by multilateral or international organizations. Individual countries also have a

key role to play, both in tackling their own fossil fuel subsidies as well as in supporting other countries to reform.

But are they doing so? The short answer is no – or at least, not much.[18] The overall performance of the G7 and G20 countries in reducing their own fossil fuel subsidies is poor. Although G20 government support for fossil fuels dropped slightly between 2014 and 2019, this was largely due to the fall in international oil prices. Seven of the G20 countries actually increased their fossil fuel subsidies over this period.[19] Germany performed best, with low levels of support for fossil fuels, strong pledges to reduce subsidies, and transparency over what is supported and how. Turkey, Mexico, and the UK were judged the worst performers. Turkey continues to provide support for coal production; Mexico has boosted support for oil and gas production; and the UK continues to claim that it has no fossil fuel subsidies (despite ongoing tax breaks and budget transfers for oil and natural gas).

This lamentable performance by richer countries is mirrored by the minimal support they provide to developing countries to undertake subsidy reform. If we look at the top 10 countries supplying bilateral aid to developing countries, very few report any significant efforts to support subsidy reform, despite funding a lot of work in the energy sector more broadly (especially on clean energy).[20]

Consider the US. The US government has traditionally been a strong supporter of fossil fuel subsidy reform (despite having significant production subsidies itself). It championed the inclusion of the statement calling for the elimination of inefficient fossil fuel subsidies in the G20 communiqué in 2009 and submitted itself to an early peer review of its own subsidy policies in conjunction with China as part of the G20 peer review process. It also funded the peer review process undertaken by the APEC countries during the 2015–2017 period.[21]

This all changed under the Trump administration, when the 45th president refused to participate in the joint statement and withdrew from the Paris Climate Agreement. However, President Biden has since rapidly unwound the Trump era position, re-joining the Paris Agreement and announcing an ambitious infrastructure bill focussed on recovery from COVID-19 and the creation of jobs through investments to tackle climate change. Biden has also signed an Executive Order directing federal agencies to stop providing fossil fuel subsidies, publicly saying, 'I don't think the federal government should give handouts to Big Oil'.[22] However, the Order only covers a tiny fraction of the total fossil fuel subsidies provided by the US federal government. Most subsidies are given through the tax system, which can only be changed by Congress. Extensive lobbying

by the fossil fuel industry has led to the government rolling back on most of its proposed changes to the preferential tax treatment given to fossil fuel companies.

Other than its support for the international initiatives mentioned above, the US does very little to directly support other countries in implementing fossil fuel subsidy reform. There is no evidence that the United States Agency for International Development (USAID) has undertaken any activities related to fuel subsidy reforms in poorer countries. The Presidential Initiative 'Power Africa' has touched upon the issue of subsidies in its technical support to regulatory agencies, but the focus of this programme is on facilitating transactions in the power sector in Africa – particularly those between African governments and US independent power producers – rather than policy shifts away from subsidies. Similarly, the Millennium Challenge Corporation set up by former president George W. Bush provides large grants to developing countries based on commitments to implement major reforms, some of which are in the energy sector, for example, investment in clean energy and restructuring of the power sector. But almost none of these relate to the removal of fossil fuel subsidies. Meanwhile, the Development Finance Corporation (which facilitates private investment in developing countries) and the US EXIM Bank (which provides insurance, guarantees, and working capital for exporters) still finances oil and gas projects.[23]

Other countries have put a greater emphasis on supporting fossil fuel subsidy reform. The *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ – the German Association for International Cooperation) was an early pioneer of work on fuel subsidy reform. It initially maintained a database of fuel prices in a large number of countries and sponsored a conference of fuel price regulators, although this work has not continued. Germany also supports the World Bank's ESMAP, endorsed the FFFSR communiqué in 2015, and is an active participant in the G7 and G20 processes on the issue of reform. However, there does not appear to be significant ongoing operational work on fuel subsidy reform in developing countries funded by Germany.[24]

The UK government has also expressed its support for fossil fuel subsidy reform through the G7 and G20 communiqués and endorsed the FFFSR communiqué and the 2021 Ministerial Statement to the WTO. It is also a sponsor of the World Bank's ESMAP and has provided funding for the IISD's Global Subsidy Initiative research programme. In addition to these channels, the UK's FCDO has undertaken some work on fuel subsidy reform in Nigeria and Sudan, as well as some very small analytical projects on subsidy reform in Brazil, Indonesia, and Vietnam.

The Japanese government has participated in the G7 and G20 process, although, like the UK, it has not yet committed to a peer review itself. However, the Japan International Cooperation Agency has done no work on subsidy reductions in developing countries. In April 2021, at the Climate Summit called by US President Biden, Japan finally aligned with the US and Europe and agreed to stop funding the building of coal-fired power stations in developing countries.

France has also participated in the G7 and G20 processes, is a supporter of ESMAP, and endorsed the FFFSR communiqué but does not appear to have undertaken any other individual initiatives to support fossil fuel subsidy reform. By contrast, Denmark, Norway, and Sweden have been strong supporters of subsidy reform. All three countries are members of the FFFSR and have endorsed the FFFSR communiqué and the WTO Ministerial Statement. All three countries are supporters of ESMAP, and Denmark and Norway have been strong supporters of the IISD's Global Subsidy Initiative. Norway also informally earmarks its support of around kr20 million ($2.36 million) of its kr5 million contribution to ESMAP for work on energy subsidy reform.[25]

The Netherlands is also a supporter of ESMAP, providing around 22 per cent of ESMAP's resources. It has also endorsed the FFFSR communiqué, but does not undertake any other work on fossil fuel subsidies outside of its support for ESMAP. Canada, as a G7 and G20 country, has subscribed to the components of those communiqués on subsidy reform and endorsed the FFFSR communiqué. But it has been heavily criticized at home for its failures to address its own large fossil fuel subsidies. Finally, Australia funds ESMAP, but it did not endorse the FFFSR communiqué and maintains strong support for its domestic coal industry.

The overall picture that emerges from the major bilateral donors is clear. While most support subsidy reform initiatives, they do so primarily though funding the World Bank's ESMAP initiative and endorsing diplomatic initiatives such as the FFFSR communiqué. There is some support for the IISD's Global Subsidies Initiative, although to a much smaller scale. Virtually no major bilateral donor directly undertakes significant subsidy reform initiatives in their operational work in developing countries, with the exception of some technical assistance work in the power sector that reviews the way in which electricity tariffs are set.[26]

Why is so little being done?

The smattering of mostly small initiatives described above is completely at odds with the size of the fossil fuel subsidy problem. Between 2016 and 2021, the World Bank spent around $12.5 million on subsidy

reform; in the same period, it committed $6,200 million to energy access programmes and $9,400 million for renewable energy and energy efficiency programmes in low- and middle-income countries.[27] Bilateral donors are now spending hundreds of millions of dollars on clean energy programmes (often tied to the export of renewable energy equipment), but still almost nothing on efforts to support fossil fuel subsidy reform.

There are three reasons for this huge mismatch in spending. The first is complexity. Subsidy reforms are rarely just about reforming subsidies. Fossil fuel subsidies in every country are usually the result of a long-standing battle between the interests that benefit from them and those that have to pay for them. As we saw in Chapter 4, for example, the provision of cheap petrol may be part of the social contract between the ruling elite and citizens who otherwise get very little from the government. Moreover, powerful actors may benefit from the continuation of the subsidy regime. Fuel importers that sell with a guaranteed margin to the government benefit from the increased demand that results from the government subsidizing fuel; some of that benefit may find its way back to those making the decisions on subsidies. Politicians may be happy to earn rents from contracts for large power stations, but they want to advertise low prices when it comes to election time. Subsidies are therefore often embedded within a complex and frequently corrupt sector. It may not be possible to remove subsidies without reforming the sector as a whole, which is a daunting task.

The second reason for donor reticence in supporting subsidy reform is that it is politically sensitive. Most donor countries prefer to avoid providing support for reforms that are likely to be controversial or sensitive in the reforming country. Multilateral organizations are, formally at least, often forbidden from undertaking activities that are political in nature; the World Bank's charter explicitly precludes it from undertaking such activities. Individual countries and bilateral donor agencies are under no such restrictions as, by definition, their relationship with other countries is political. But supporting politically sensitive reforms can upset the diplomatic relationship between the countries, which can have implications for major contracts that the donor country's firms might want to win. Few ambassadors will want to support sensitive reforms if it means they lose commercial advantage for their own country's firms.

However, none of these factors satisfactorily explains the international community's reluctance when it comes to subsidy reform. Donors support complex reforms in all sorts of sectors, such as health, education, agriculture, and infrastructure. The situation in

each of these sectors also results from a battle between the interests of different actors, be they doctors, teachers, unions, farmers, or villagers. And some donors do engage in complex reform programmes in the energy sector, such as undertaking analysis, providing policy advice, drafting regulations, and facilitating private investment. Similarly, a reluctance to delve into sensitive issues cannot explain donor behaviour. Donors engage in sensitive topics all the time, from human rights abuses to election fraud, frequently funding CSOs to highlight abuses and press for transparency and change. Such actions do not necessarily endear ambassadors to their host government, but they do them anyway.

The third factor in explaining the mismatch in spending is quite mundane: many donors simply see subsidy reform as an intractable problem. Precisely because they (correctly) see the issue as complex and political, it is hard to see any way of having a real influence. Why bang your head against a brick wall? Far better to focus on something where you might make a difference.[28]

However, there is hope. Notwithstanding the failure to make significant progress at the global level and the feeble support from bilateral donors, some countries have implemented fossil fuel subsidy reforms. In some cases, this has been a huge success; in others an abject failure. In most, the process has been messy and the outcomes mixed. But, as Chapter 6 shows, there are useful lessons to learn from these experiences.

CHAPTER 6

Lessons from country-level subsidy reforms

Chapters 4 and 5 showed how hard it is for countries to get rid of fossil fuel subsidies. Once the political benefits of subsidies have been locked in, there is a high political cost from removing them – both in votes and protest, and sometimes directly in campaign funding. There is also substantial donor reticence to push for meaningful subsidy reform.

Despite this, some countries have managed to reform their fossil fuel subsidies, either in part or, in a few cases, quite comprehensively. How have they managed to do this? Were they not subject to the same political calculus or did they adopt a different approach? Why did they succeed while others failed? And did the reforms last? Below, I outline the reforms undertaken in six countries and attempt to draw out some general lessons from both their successes and failures.

India

On 3 September 2012, Vijay Kelkar dropped a bombshell: as the chair of the Indian government's Committee on the Roadmap for Fiscal Consolidation, he had been given the unenviable task of working out what the government should do about its ballooning fossil fuel subsidies. Subsidies on diesel, LPG, and kerosene had reached $22.8 billion the previous year, blowing a huge hole in the government's budget. The big problem was diesel, which powered many of India's trucks, cars, and buses. Subsidy spending on diesel alone was more than twice the central budget allocation for flagship social programmes such as the National Rural Employment Guarantee Scheme.[1] Worse still, the benefits of these subsidies went overwhelmingly to the rich. The richest 10 per cent of the population got more than twice as much as the next richest 10 per cent and more than 10 times as much subsidy as the poorest decile of the population. And, unsurprisingly, the places with most of the trucks, cars, and buses were also the richest parts of the country. The diesel subsidy was the very definition of inequality.

Kelkar, a veteran economist, had a simple but deeply unpopular solution: diesel prices would have to rise not once or twice, but again and again for months on end. In fact, his committee proposed steady price increases for all subsidized fuels. For the United Progressive Alliance government of Prime Minister Manmohan Singh, this was a step too far. Increasing the price of diesel, which was generally consumed by the better off, was one thing; increasing the price of LPG and kerosene – the fuels of the poor – was quite another. The Cabinet decided to bump up diesel prices immediately by over 10 per cent to kick-start the reform, but keep the price of LPG and kerosene steady. Diesel prices would then be increased every month for a year by a much smaller amount. The challenge was getting the timing right. After the first two increases in January and February 2013, the next one was suspended during the budget session of parliament and then implemented immediately after the recess of parliament. The price rise for April 2013 was delayed because of elections in the state of Karnataka. But the government kept going. From June 2013 until March 2014, it raised the price every month by half a rupee (about $0.01 at the time). The price of LPG and kerosene was not increased, and the number of subsidized LPG cylinders that households were allowed was increased rather than reduced.

The economic result of the reform was dramatic. The drain on the government budget was steadily reduced and the rapid rise in diesel consumption came to an immediate stop. However, the political impact was also dramatic. The government's initial decision to increase prices led to the withdrawal of one of its coalition partners, making it a minority government. The steady price increases were opposed by all the main opposition parties – including the Bharatiya Janata Party led by Narendra Modi – but the monthly increases were so small that they did not trigger major protests or sustained mobilization against them. Nonetheless, in May 2014, the United Progressive Alliance lost the general election and Modi became prime minister. Despite its previous opposition, his government could see that the subsidy reform was working. So they kept going, making a further four monthly increases in diesel prices. By October 2014, the price of diesel was completely decontrolled. The subsidy was gone.[2]

Indonesia[3]

In 2014, then-presidential hopeful Joko Widodo (popularly known as Jokowi) did something remarkable: he talked about fuel subsidies. In Indonesia, the topic of fuel subsidies was virtually taboo; it was electoral kryptonite, guaranteed to sink a campaign. Most politicians

avoided the topic because they would otherwise have to justify why it made sense to spend 10–20 per cent of the entire budget subsidizing energy. No-one during an election campaign was going to suggest raising the price of fuel or electricity; best to keep quiet and say nothing at all. Until Jokowi.

Jokowi did not just mention subsidies – he talked about them all the time. At almost every rally, he told people that fuel subsidies would have to go, that they made no sense, and that they benefitted the rich more than the poor. But, like all astute politicians, Jokowi had a solution to offer. He knew that most ordinary Indonesians were primarily concerned with education and health, both of which were costly in Indonesia. While tuition was free in state-run primary and middle schools, there were many other costs that parents had to cover. Furthermore, the quality of education in some state schools was poor, so many parents sent their children to fee-paying schools. Similarly, basic health care was free, but any treatment beyond this could entail large, out-of-pocket costs for households. The escalating costs of education and health care were causing hardship and anxiety for millions of people. And so, when Jokowi talked about subsidies, he reached for the top pocket of his signature chequered shirt and drew out two cards: a health card (*Kartu Sehat*) and an education card (*Kartu Pintar*). Getting rid of subsidies, he explained to audiences all around the country, would enable the government to give poor Indonesians access to free health care and free education. At every rally, out came the cards, over and over again. Jokowi won by a landslide.

Once in power, Jokowi enacted the reform. In November 2014, he hiked the price of gasoline and diesel and reallocated the resources to the public health and education sectors (and a whole lot of infrastructure too). By one estimate, the government saved $15.6 billion as a result of the reforms.[4] As the lead economist of the Australian aid programme to Indonesia put it, 'Indonesia has just paid itself the equivalent of 30 years of Australian aid'.[5] And the reforms kept coming. At the end of 2014, Jokowi abolished petrol subsidies entirely for the most populous islands in the country and introduced a fixed subsidy per litre for diesel so that the subsidy would no longer fluctuate with the international price. Prices for petrol were supposed to be adjusted every few weeks to ensure that they tracked international prices and that subsidies would not return.

How was Jokowi able to succeed where his predecessors had repeatedly struggled? Four factors were key. First, Jokowi was a natural communicator. A down-to-earth 'man of the people' and known for taking principled positions on sensitive issues, he was able to communicate the importance of the reforms repeatedly and effectively.

People trusted that he was acting in the best interests of all Indonesians. Second, Jokowi benefitted from the efforts of previous governments. In particular, the enormous social protection database constructed by former president Susilo Bambang Yudhoyono had provided a vehicle for protecting the poorest of the population from previous subsidy reforms in 2005, 2008, and 2013. This meant that people knew that the government would deliver compensation payments. Jokowi doubled down on this system, making it the main mechanism for providing welfare payments. Third, Jokowi was lucky. At the end of 2014, international oil prices crashed. Whereas fuel in Indonesia had been sold for well below the international price before, costing the government billions of dollars, suddenly the local fuel price was above the international price. When Jokowi introduced his second set of reforms in December 2014, he was able to reduce prices, not increase them. Unsurprisingly, no-one protested. Finally, and perhaps most important of all, Jokowi had an attractive political offer. He did not simply tell people that he would try and compensate them for the pain of reform, he offered them something that they valued more: cheaper access to health care and education. By linking subsidy reforms to something politically popular, he managed to make the issue less politically toxic.

However, the subsidy story of Indonesia has a sting in its tail. After the collapse in oil prices in 2014 and 2015, prices gradually began to recover. By 2017 and 2018, they were rising rapidly. This would not have been a problem had Indonesia stuck to using its formula for adjusting prices. But increasing prices is much less popular than decreasing them and so the government decided to abandon its formula and instead changed prices on an ad-hoc basis. Unsurprisingly, as the 2019 elections approached, it turned out not to be convenient to increase prices to reflect the international market and so subsidies re-emerged. But now Jokowi had a problem. He had abolished subsidies, hence, politically, he could not 'unabolish' them. And so the government buried them in the accounts of the state-owned oil company Pertamina, which racked up huge debts to cover the cost of the subsidies. When the issue of subsidies came up in the 2019 election campaign, Jokowi did not say a word.

Iran[6]

Iran has larger fossil fuel subsidies than any country on the planet. Worth over $80 billion in 2019 – almost 20 per cent of the country's GDP – Iran clearly has a huge subsidy problem. It may therefore seem strange that, in 2010, Iran successfully implemented one of the most remarkable subsidy reforms in history.

Cheap fuel is one of the foundations of the Iranian social contract. The founder of the Islamic Republic Ayatollah Khomeini, on arriving back in the country after the revolution in 1979, promised to 'bring the oil wealth to people's tables'.[7] This meant cheap petrol, cheap gas, and cheap electricity. But the cost of these policies grew and grew. Intermittent attempts at reform in the 1980s and 1990s only kicked the can down the road. In 2008, then-president Mahmoud Ahmadinejad attempted to pursue a subsidy reform, but was opposed by the parliament. As a result, by 2009, subsidies were consuming a vast share of the budget and destabilizing public finances.

In 2009, the controversial re-election of Ahmadinejad led to widespread revolt in Iran. In what was dubbed the Iranian Green Movement, protestors deemed the election fraudulent and called for Ahmadinejad's removal. The response was swift and brutal. Police and paramilitary forces violently suppressed the movement; thousands were beaten, pepper-sprayed, arrested, tortured, and even shot.

With the memory of this repressive response fresh in people's minds, the government attempted to reform the immense subsidies. Its approach was simple: every household was encouraged to open a special bank account into which the government deposited the equivalent of around $45 for every individual, every month.[8] To give a sense of this initiative's scale, around 10 per cent of the population was earning less than $2 a day. For these households, the deposited cash represented a 75 per cent increase in their income and even for the typical individual earning $4.50 a day, this was a boost of their income by a third. But there was a catch. While households could see the money in their bank account, they were not allowed to withdraw it. Everyone assumed that this was just a gimmick, another government lie. Four million families did not even bother filling in the forms for the bank account. What was the point?

At 10 p.m. on 18 December 2009, Ahmadinejad went on national television. He announced that, as from midnight that day, the money would be released from all the bank accounts. At exactly the same time, the price of gasoline would increase fourfold, the price of natural gas eightfold, and the price of diesel ninefold. Iranians were stunned. There were no protests, even if protest had been possible. On the one hand, the cost of living for the middle classes and the better off had risen enormously overnight. But for the poor, who consumed very little petrol, natural gas or diesel, the cash was a major boost – far more than they would normally spend on fuel. Because every household got exactly the same amount, inequality was temporarily reduced. And the payments continued month after month, buying support for the government, particularly from the poor.

Unfortunately, the government had miscalculated. As people realized that the payments were legitimate, they rushed to register. Weak administration and controls meant that the government was soon paying for more people than there were in the country. As one parliamentarian put it, 'the Afghans and dead people also registered and have been receiving cash handouts'.[9] The payments were also too generous. Ideally, a subsidy reform should pay for itself, with savings made from the reform greater than the compensation. In Iran, the opposite was the case. Far from improving the budget situation, the reform in fact worsened it because the government had to make significant cash payments to every citizen every month. Injecting large amounts of cash into people's pockets also caused a surge in the rate of inflation, which doubled overnight and remained high, thereby undermining the livelihoods of the poor that the measure was supposed to help.

Yet the popularity of the handouts made them almost impossible to remove. Although those with the highest incomes are no longer eligible, the scheme is still in place and continues to compensate 60 million of Iran's 85 million people. In November 2020, almost a decade after the initial reforms, Iran's conservative parliament won a battle to supplement the existing cash payments still further in the run-up to the presidential election in June 2021. Meanwhile, a combination of economic mismanagement and US sanctions has resulted in the fall in the value of the currency from around RIs10,000 per $1 in 2010 to over RIs40,000 in 2021. The price of petrol in Iran – around $0.06 per litre – is now the second cheapest in the world, but the cost of supplying it remains the same. Consequently, subsidies are back at the same level as 2010. It will be hard to use the same approach again.

Ghana

Ghana has long struggled to contain fossil fuel subsidies, but its reforms in 2015 appear to have finally put it on a more sustainable footing. Fuel is produced by the country's only refinery, Tema Oil Refinery, and also imported. Prior to 2001, the government set the price of fuel at well below the cost of production or importation, leading to huge losses. In 2001, the National Patriotic Party under then-president John Kofi Agyekum Kufuor tried to stem the losses by introducing a fuel price adjustment formula. This took into account the cost of importation as well as fluctuations in the exchange rate to calculate a market rate for fuel prices.

However, as prices rose, the government abandoned the use of the formula little over a year later. Subsidies once again increased, forcing

the government to reconsider and raise prices using the formula, only to abandon it again prior to the elections in 2004. In an attempt to depoliticize the setting of prices, a new National Petroleum Authority was created in 2005, with the remit to stabilize prices and minimize subsidies. But political interference continued, with price adjustments suspended once again prior to the 2008 elections.

The opposition National Democratic Congress won those elections but continued to face the same problems as its predecessor. As international oil prices rose rapidly in 2009, it faced ballooning subsidies and rising international debt. As before, the government implemented ad-hoc increases to fuel prices, only to reverse some of these in the run-up to the 2012 elections. Although the National Democratic Congress retained power, oil prices and debt continued to increase, with the result that Ghana eventually asked the IMF for assistance in 2014.

The IMF-supported recovery programme included the complete deregulation of fuel prices from 1 July 2015. It was accompanied by extensive engagement with stakeholders, including business, unions, and CSOs. A communications campaign explained the need for the reform to the public. The government also drew on the Livelihood Empowerment Against Poverty programme, which had been set up in 2008 to mitigate the impact of fuel subsidy reforms. This had expanded to become the central plank of Ghana's national social protection strategy and so provided a mechanism for delivering cash compensation to poor Ghanaian households.

The government used its own state-owned enterprises to ensure that private companies did not attempt to form a cartel and distort competition in the supply of fuel. It also maintained explicit subsidies for 'premix', a low-octane fuel used by the politically powerful coastal fishing communities. The success of the programme depended on one other key factor – luck. Oil prices collapsed in 2015, reducing the price of fuel just as subsidies were removed.

El Salvador[10]

Who do El Salvadoreans trust? The answer, in 2011, was Monsignor José Luis Escobar Alas – the archbishop of the country's capital, San Salvador. In February 2011, he expressed his concerns that the poor would be left out as a result of the reforms that the government was planning to the pricing of LPG. The poor agreed. Only 28 per cent of people in the bottom 40 per cent of the income distribution supported the reform, compared with almost 50 per cent of those in the top 10 per cent. All of which was odd, because the archbishop was wrong.

LPG is one of the most common cooking fuels used in El Salvador, with about 70 per cent of households using it in their homes. The vast majority of households used a 25 lb cannister of LPG and were buying it for $5.10 per cannister in 2011. The price of LPG had been subsidized by the government since 1974 and, other than a small amendment in 2008, had remained unchanged since 1996. The international price had risen during this time so that, by 2011, a 25 lb cannister cost $13.60 to provide. The difference was made up by the government, costing this small and relatively poor country $154 million a year in 2010. Worse still, the benefit of the LPG subsidy went primarily to the better off, who naturally tended to consume more, while almost half of El Salvadoreans in the bottom 40 per cent of the income distribution received no benefit, since they did not consume LPG at all.

In April 2011, the government decided to act. It bumped the price of LPG all the way up to the full market price. At the same time, it announced that all households whose electricity consumption was under 200 kWh per month would receive the difference between the old and the new LPG price – $8.50 – as a direct transfer. This could be either used to reduce their electricity bill or taken in cash. For households that did not have electricity, a separate mechanism was set up to ensure that they could also receive $8.50 each month.

By any reasonable reckoning, this was a progressive reform. Households that previously did not benefit from the subsidy because they consumed no LPG would receive $8.50 per month. Moreover, the vast majority of households who used less than one 25 lb cannister a month would still be compensated for the change in price for one cannister. At the other end, the wealthiest households that consumed more than 200 kWh would no longer be eligible and those with more than one house would only be allowed to claim the subsidy for one household. So, if the reform was so good, why did most people oppose it?

Three economists, Oscar Calvo-Gonzalez, Barbara Cunha, and Riccardo Trezzi, decided to try and figure out why. In this, they were helped by the work of *La Prenza Grafica,* the largest newspaper in the country. Because the LPG subsidy reform had become such an important topic of debate, the newspaper decided to run regular surveys on the topic. In all, six nationally representative household surveys were run: one from before the reform and five between 2011 and 2013 during and after its implementation. Using these data, the three economists tried to understand the factors that drove people to have the views that they did about the reform. What they found has implications for fossil fuel reforms beyond El Salvador.

First, and perhaps most obviously, information matters. The more people knew about the reform, the more likely they were to support it. As the government communicated more effectively about the reform over time, the levels of approval increased. Second, and perhaps most critical, was the level of trust in the government to deliver. Many El Salvadoreans did not initially believe that the government would actually deliver the compensation and prior to its implementation, only 30 per cent of households approved of the reform. But this changed markedly when the government implemented the programme. Two years later, almost two-thirds of households approved of the reform, in large part because the government was delivering on what it had promised.

But there is also a sting in the tail of the El Salvador reforms. The economists found that the third factor that influenced whether people supported the reforms or not was whether they supported the government or not. The impact of people's political views on their support for the reforms did not change, even after the reforms were put in place. If they hated the government before, then they did not like the reforms even two years later, no matter how well they turned out. This mattered politically. The ruling party, the *Frente Farabundo Martí para la Liberación Nacional* (FLMN – Farabundo Martí National Liberation Front), suffered significant losses in the elections to Congress in March 2012; the president of Congress from FLMN admitted the reforms were to blame and that they had made 'serious mistakes [including] the change in the gas subsidy'.[11]

The EU and Ireland

In most countries, fossil fuel subsidies happen because prices of fuel are kept below the cost of producing or importing them. In the EU, at least prior to the war in Ukraine, most fossil fuel subsidies resulted from tax breaks, both to industry and to consumers.[12] As we saw in Chapter 2, if you have to pay, say, 20 per cent VAT on almost all goods and services but a reduced or zero rate on fossil fuels, then that is a subsidy. The EU has myriad tax breaks for fossil fuels, particularly for industry (especially the energy industry), transport, and agriculture, and while it has championed action on climate change, the individual countries of the EU still provided €50 billion in 2018 in fossil fuel subsidies.[13] Worse still, although the EU committed in 2009 to eliminate fossil fuel subsidies, it has not made a huge amount of progress – subsidies in 2009 were also €50 billion.[14] And this figure does not even include the revenue lost by the fact that most countries in the EU apply reduced or zero rates of excise tax and/or VAT on aviation kerosene for flights within the EU.[15]

Unsurprisingly, the EU countries with the largest fossil fuel subsidies are the largest economies – Germany, France, Italy, and Spain. But when calculated on a per capita basis, the result changes dramatically. Looking at all 27 EU countries and adding other major economies, such as the non-EU G20 countries, the country with the second largest fossil fuel subsidies per person is Ireland.[16] Understanding why shows both the challenges – but also the opportunities – for serious reform of fossil fuel subsidies throughout the EU and beyond.

The part of Ireland where my in-laws live is called the 'Hidden Heartlands' by the tourist board. I hope whoever came up with that got a prize for marketing, because the Hidden Heartlands are mostly bog. But in that wonderful, squelchy bog lies the energy that has fuelled a thousand generations of Irish homes: peat. Peat is partially decayed vegetation and organic matter, and it contains significant amounts of energy. For hundreds of years, Irish households heated themselves by burning peat. Cutting the turf – as peat is known in Ireland – is part of Ireland's cultural heritage.[17]

It is therefore not surprising that, when considering how to generate electricity, Ireland looked to peat. Three power stations were constructed using peat on an industrial scale. However, the costs of doing this were high and so the government introduced a public service obligation levy on electricity bills, with most of the money being passed back to the power companies to cover the costs of burning peat. At its peak in 2015, hundreds of millions of Euros were spent subsidizing the burning of peat.[18]

But that has now changed. In 2009, the EU set binding targets for the reduction of CO_2 emissions for member states.[19] This forced a major rethink of climate change policy in Ireland. Peat is extremely carbon-intensive. Draining peat bogs, as *Bord na Móna* (the Irish Peat Board) had done for decades, releases huge amounts of carbon into the atmosphere even before it is burned. Reversing this process by stopping burning peat and re-wetting the peat bogs can reduce emissions significantly. Initially, *Bord na Móna* pledged to end harvesting peat by 2028, but this was accelerated in 2019 when a landmark high court ruling effectively ended commercial peat harvesting.[20] Two of the three peat-burning power stations have now been shut down, with the third committed to switching away from peat as a source of fuel by 2023. *Bord na Móna's* strategy has shifted from brown to green,[21] focussing on rewetting and rehabilitating peat bogs, while the government has promised support for a just transition for the communities affected.[22]

This is a great example of how a rapid transition away from a particularly polluting fossil fuel is possible, dramatically reducing subsidies

for peat in the process. And Ireland continues to use the legal process to drive reform: in 2021, it passed a climate act that provides a legal obligation to reduce emissions by 51 per cent by 2030 as part of its commitment to net zero by 2050.[23]

Yet, Ireland also illustrates the complex political challenge of fossil fuel subsidy reform. At the same time as the government is investing in a just transition for the relatively small number of people whose livelihoods depend on peat, it is still providing hundreds of millions of Euros in fossil fuel subsidies through reduced excise and VAT rates on diesel. With a large rural population dependent on diesel cars and vans, Irish politicians have not yet dared to touch these subsidies, no matter how incompatible they are with their bold climate plans.

Lessons learned

What can we learn about fossil fuel subsidy reform from these six case studies, other than that it is very hard to implement successfully? I believe there are seven lessons for how to get subsidy reform right:[24]

1. *Get beneath the surface of the problem*
   Different types of subsidies affect people in different ways. The beneficiaries of a petrol subsidy are quite different from those of a subsidy on kerosene or LPG. The first step in successful subsidy reform is therefore to understand the system. How does the subsidy work, not just in theory, but in practice? How big is it? Who benefits and who pays? This kind of analysis is routinely done prior to designing a subsidy reform.

   But it is not enough. In particular, subsidy analysis tends to focus on the technical or economic aspects of the problem. However, subsidies are – everywhere – primarily a political problem. It is crucial to understand the politics before designing a change. Knowing the views of key political actors and groups on the topic is essential, as well as how they might react to different reform approaches. This allows reformers to deflect opposition before it has even begun. However, such analysis needs to go beyond mapping out stakeholders and their interests. Often subsidies are embedded in a political system that rewards supporters of the government. Sometimes key political elites benefit directly from the subsidy system and will work behind the scenes to undermine reform. Sometimes the narratives around subsidies have political resonance far beyond their technical significance. Understanding the political economy of reform is critical for designing reforms that are going to work in practice.

2. *Communicate, communicate, communicate*
Almost all successful reforms have entailed extensive and comprehensive communication. Most people do not understand subsidies and, frankly, do not want to. But they do understand price increases and they do not like them. Effective reformers explain why subsidies are harmful, why the government needs to enact the reform, what measures will be put in place to protect people, and how the reforms can lead to something better. Communicating subsidy reforms takes a lot of time – but, as fuel riots in country after country attest, failing to do so costs a lot more.

Communication should not be just a one-way process. Too often governments design a communications campaign to persuade the people of the merits of reform. Most people are not persuaded by government communications campaigns. What is needed is listening and a serious attempt to understand the way people feel about the issue. This can be done systematically by fielding surveys that ask people what they think. When this was done in Indonesia, researchers found that the very process of talking about subsidies changed people's views on them (although most still remained opposed to subsidy reforms).[25]

Crucially, asking people about their views helps understand the nature of the social contract that underlies subsidies. People's views on subsidies are rarely a rational calculation about the costs and benefits for them; instead, they are often visceral and tied to their frustrations with and beliefs about what the government ought to be doing to help them in general. Subsidy reforms are much more likely to be successful if people feel that their broader concerns are being heard. And yet, they are often not. One study on popular protests about access to energy found that citizens were almost entirely excluded from the policymaking processes on energy.[26] Policies tend to be determined in closed-door conversations between policy elites, investors, and international funders. Not only do citizens not have any voice; they generally have no idea what is being decided.

This is wrong. Energy policy institutions need to be more open, more transparent, and more democratic. Major contracts for power plants and fossil fuel supply should be published, as should power purchase agreements with independent power producers. Policymakers should systematically reach out to different communities to ask their views about alternative approaches to energy provision and lay out the benefits and costs clearly. This takes time and cannot be done in the midst of a crisis. It is all the more important for such processes of

dialogue and participation on energy issues to be routine government practice, so that, when difficult decisions need to be made, policymakers already know how citizens feel and can design policies accordingly.

3. *Compensation and social protection*

Starting back in the 1980s, a new and (then) radical idea began to gain traction amongst those working on poverty reduction: give cash to the poor.[27] On the one hand, it seems obvious. Poverty means, at least in part, having little to no money. If we want to reduce poverty, then a good place to start is by giving some money to the poor. Of course, the causes of poverty are much more complex than simply having no money.[28] But a combination of census and survey technology, information technology, and much cheaper ways of moving cash around suddenly made it possible to identify who was poor (accordingly to some nationally determined criteria) and give them some cash. One of the first large-scale experiments with this approach was in Mexico. The scheme was initially called *Progresa* (since changed to *Oportunidades*) and it involved giving cash to poor households in return for them keeping their children in school and accessing basic preventative health services (e.g. vaccinations). This conditional cash transfer was a huge success, contributing to significant reductions in poverty, as well as improving educational and health outcomes.[29]

Cash transfers schemes, whether conditional or not, have since spread to over 60 countries. Consequently, politicians naturally look to them when undertaking painful reforms, such as increasing the price of fuel or electricity during fossil fuel subsidy reforms. The World Bank supports countries to construct a database showing key information about every household (e.g. the number, gender, age, and education of members; the size and location of the dwelling as well as the material it is made of; and key assets owned). This information can then be combined with data from more detailed surveys to estimate which households are most likely to be adversely affected by reforms. Such households can then be given a card that entitles them to obtain cash, either from a bank, post office or, increasingly, through a mobile bank account on their phone where possible. In this way, those designing subsidy reforms can work out how the reforms are likely to affect poorer households and ensure that those households receive additional cash to compensate them for the shock.

Cash transfers schemes have been a huge success globally, but they have their critics. One obvious criticism is that it takes a lot of

time and effort to construct a reliable database of poor households. No matter what system you use, there will be many poor households that, for one reason or another, get overlooked; and there will be wealthier households that are erroneously included. Some approaches to compiling a relevant database are much better than others, but none are perfect and, unless the process is seen to be scrupulously fair, people may harbour a suspicion that the data are rigged to benefit some groups over others.

Some criticize cash transfer schemes because they do not tackle the root causes of poverty. If poor education is the root cause of poverty, these critics argue, then support should go to education; if it is poor health, then health should be prioritized.

Others claim that cash transfer schemes are really just a way of buying votes. Certainly, they have been used that way, as the Iranian example shows. Having the ability to dish out large quantities of cash, supposedly for poverty alleviation, just prior to an election is a great benefit for a hard-pressed incumbent. It is understandable why opposition politicians are often sceptical about such practices.

Notwithstanding all these caveats, compensating households suffering from price rises associated with subsidy reform is essential and cash transfers are often a good way of doing this. A study of subsidy reforms in the Middle East and Africa showed that most of the reforms that involved cash transfers succeeded, whereas all of the reforms that did not failed.[30] But while compensation is clearly necessary for subsidy reforms to succeed, it is far from sufficient. Surveys show time and again that most people say that they would rather not have subsidy reforms, even when they are offered significant compensation. The problem, again, is trust. Many people do not believe that the government will really deliver cash to them, particularly if it has never happened before. Their fears of mismanagement and fraud are often well justified. For this reason, some analysts argue that cash transfers should be delivered before the subsidy reform, so that people can see the money first.[31]

4. *Redistribution and the 'offer'*

Subsidy reforms save money for the government – usually lots of it. A key part of successful subsidy reform is what is done with the savings. If compensation is provided, then clearly part of the savings will need to be used to pay for this. The amount required to do this will depend on whether the compensation is narrowly targeted at the poor or encompasses a wider section of the population. However, the revenue gains from subsidy

reforms are usually so large that even substantial compensation uses up only a small part of the savings. What really matters is what is done with the rest. In other words, what is the 'offer' that politicians can make to their citizens? There are, broadly speaking, two types of activities that are included in any offer – those that boost growth and those that improve the distribution of income or welfare.

Some countries focus on growth: subsidy savings are reinvested in infrastructure to boost productivity, or in job creation schemes. In some cases, they are given to SOEs to increase investment or create jobs directly. Other countries compensate for rises in the price of energy by reducing other taxes. The key question when focussing on growth is whether the activities supported actually yield any additional growth (and whether any growth is fairly distributed). All too often measures to boost growth can end up propping up preferred industries or creating jobs for politically preferred groups. Compensatory tax reductions almost always benefit the better off relative to the poor.

Some countries reinvest subsidy savings in improvements of social services. Many countries boost health and education expenditure, as Jokowi did in Indonesia; others invest in nutrition or school feeding programmes. Such expenditures tend to have a much better impact on inequality since poorer households benefit far more from such spending than they do from fossil fuel subsidies. But again, the devil is in the detail, as increased expenditure on education does not necessarily mean better educational outcomes. Improving the quality of that expenditure so that it delivers results is key; the same is true in health care.

It is increasingly being proposed that savings from subsidy reforms should be reinvested in renewable energy, thereby helping end our reliance on fossil fuels. Some argue for 'subsidy swaps' whereby subsidies are not removed but rather switched to other forms of energy, such as solar or wind power.[32] Given the increasing urgency of the climate crisis, using savings from fossil fuel subsidies to propel alternatives seems like a sensible idea. However, one size does not fit all. The best course of action for any country will depend on its individual circumstances.

Regardless of the type of offer, it is clear from the many examples of subsidy reform to date that providing one is critical for successful reform. Telling citizens that you are going to hurt them but that it is okay because you will give them some cash really does not cut it. Politicians need to be able to project a vision; a narrative about how these reforms are helping to deliver

a better future and solve problems that people really care about. This is why successful subsidy reforms must be tailored to their particular context. Different kinds of offers resonate in different places and at different times. Subsidy swaps may go down a treat in Norway, but they may fall flat in Zambia. Some offers have very broad appeal across many countries (such as universal health care); others are much more niche. Either way, the key to ending fossil fuel subsidies is for politicians to be able to offer something that is not only technically and environmentally better, but also politically more attractive.

5. *Timing and smoothing*

The experiences of reform provide useful lessons about how to implement reform and how not to. Perhaps the best example of how not to reform was the 2012 fuel price hike in Nigeria. With virtually no prior communication, no credible compensation[33] and no phasing of the price change, it was not very surprising that Nigerians took to the streets, eventually forcing the government to retract much of the change. This points to a general lesson: people do not like sharp shocks. Reforms that have increased prices gradually and over an extended period of time have tended to be more successful and more sustainable. India's reforms took this approach by stepping up the price by a small amount over almost two years until the subsidy was gone.

Some argue against such a gradual approach on the practical grounds that if people know a price rise is coming, then they hoard. This can cause fuel shortages in the run-up to each price change and volatile and high prices on the black market. In June 2021, for example, the acting government in Lebanon announced that it was running out of foreign exchange to pay for fuel imports. This encouraged importers to hoard fuel since they anticipated a price rise, precipitating long queues at petrol stations and the shutdown of its major power stations plunging the country into darkness. In September 2021, the government removed all fuel subsidies. Fuel prices skyrocketed and suddenly the queues disappeared as suppliers released fuel onto the market to benefit from the new high prices.[34]

Politicians also worry about implementing a series of price rises. They may have enough political capital for one or two price rises but scheduling a series of price rises gives the opposition something to focus on and may result in push-back. Others feel that it is better to get the pain over and done with in one go. But the evidence suggests that gradualism is good. It is arguably worth hoarding (or smuggling) fuel if the price

difference is 100 per cent, but it generally is not if it is 5 per cent. Making gradual price changes takes the sting out of reform and avoids the harm caused by a sudden and painful adjustment. Gradualism can make political sense too since it is harder for opposition leaders to mobilize protests around small increases than large ones.

There is an even better approach that is rarely used: smoothing. This approach prevents nasty price shocks while still gradually moving prices up to international prices (and thereby removing the subsidy) by changing the price every day, week, or month using a formula. The formula simply calculates the size of the gap between local and international prices and then moves prices by some fraction of that gap each time. The formula can be tailored to account for spikes in international prices so that local prices do not have to rise dramatically if the international prices rise.

Alternatively, the formula can exploit the volatility of world prices to help adjust local prices in a process known as ratcheting. For example, when local prices are below the international price and the international price rises, the formula can adjust the local price upwards by some share of the international price rise; and when the international price falls, it can adjust the local price downwards by a share of the international price fall. As long as the share of the price rise is larger than the share of the price fall, prices will gradually work their way up to the international price. An advantage of ratcheting is that, when international prices fall, there is also a fall in domestic prices even if they are still below the international price. This allows governments to pass back some of the benefit associated with falls in the international price.

The reason why smoothing and ratcheting approaches are rarely used is because they are based on formulas. Subsidy reforms are intensely political; formulas are not. Few politicians want to hand over control for determining the price of fuel or electricity to a simple formula. Where formulas have been used, politicians have been keen to pass on price decreases but much more inclined to interfere with the formula when price increases were demanded, as was the case in Indonesia.[35] But formulas can work where the government establishes a reputation for following the formula. For example, the subsidies on petroleum products in South Africa are relatively small precisely because it uses a smoothing formula that adjusts domestic prices every month to ensure that, on average, they match international prices.[36]

6. *Complementary measures*
Successful subsidy reforms rarely consist of only price changes; rather, they form part of a broader package of measures. This matters because the other elements of that package can help to minimize the harm from the reforms and, critically, provide people with realistic and affordable alternatives. For example, the Indonesian government recognized that people did not like the poor quality of the subsidized fuel – it was more polluting and damaged engines. So it introduced a higher-quality, unsubsidized fuel. This allowed those that could afford it to pay more for a better alternative. Similarly, public transport – or the lack of it – is often a major concern for the urban poor. In Mozambique, the subsidy reforms in 2010 triggered protests in part because of the subsequent increase in public minibus fares, forcing commuters to resort to unlicensed and dangerous private alternatives. Serious investment in public transport services, along with regulation of the fares, can provide urban households with a realistic alternative, even if petrol prices rise for private cars.

The same argument applies for other fuels. India, Indonesia, Niger, and the Philippines all have attempted to remove kerosene subsidies by subsidizing the price of LPG cookers instead, enabling households to move to a cleaner and safer form of cooking. Of course, this creates another fossil fuel subsidy. Ecuador, among others, has attempted to avoid subsidizing another fossil fuel by investing in improved electricity connections and encouraging the adoption of electric induction stoves. Other countries have focussed on investments in energy efficiency to reduce demand (and bills) for the same level of service.

There is one other kind of complementary measure that has proved very effective: justice. When Yemi Adamolekun, one of the leaders of Nigeria's campaign against fuel subsidy reforms in 2012, was asked what compensation she felt would be appropriate to make a subsidy reform acceptable, she gave a shocking answer: 'Alison Diezani in jail'. Alison Diezani was the minister of petroleum at the time. Widely believed to be responsible for the theft of billions of dollars of state funds, she was arrested in London in 2015 and is still awaiting trial. It is striking that the single most important request from a group campaigning against subsidy reform was for accountability for corruption, and yet this is not uncommon.

Citizens in many countries that suffer from pervasive corruption tend to react with anger when ordinary households

are forced to bear the additional burden of price rises due to fuel price increases, especially when members of the elite have benefitted directly and personally from the nation's natural resources. People feel that the government should stop the stealing first before asking for further sacrifice from citizens. In such situations, subsidy reforms are much more likely to be successful if accompanied by credible efforts to stamp out corruption and bring those responsible to account. While the 2012 reforms in Nigeria were a disaster, the 2016 subsidy reform undertaken by President Muhammadu Buhari went ahead with almost no dissent. One of the main reasons for this was that Buhari had previously garnered a reputation for fighting corruption. People are less likely to protest in the face of integrity.

7. *Change the system*

One of the most depressing lessons of previous subsidy reforms is how often subsidies return. Reform is rarely a one-off fix. More commonly it is a struggle that takes place over years, sometimes decades. Countries often make substantial 'progress' in reducing subsidies when international oil prices are falling (because the gap between domestic and international prices automatically declines), only to regress when oil prices shoot upwards again. Even if oil prices do not change at all, many countries constantly have to play catch up. Subsidies often are the result of domestic prices being lower than the international price. Domestic fuel prices are always a set amount of the local currency, but international prices are denominated in US dollars. In most poorer countries, inflation is higher than in the US, which means that the value of the currency is constantly falling against the US dollar. As a result the local price has to keep on rising simply to maintain the same US dollar value. If it does not, then subsidies will re-emerge automatically. This is why countries with fossil fuel subsidies have to bump up their prices again and again and again (see Box 6.1 for details).

There are two solutions to this problem. The first is described above: use a formula to regularly adjust prices to ensure that there is never a significant gap between local and international prices. Although this approach works, many countries are unable to insulate their price-setting body from domestic politics. The second solution is more radical still: liberalize the downstream oil sector. This means allowing importers to import as much fuel as they wish and to sell it for whatever price they can get.

Box 6.1 Why subsidies keep coming back

After a country has eliminated subsidies by raising its fuel or electricity prices up to the cost of supply, why do subsidies keep coming back? The answer is because of the interaction of three factors: inflation, depreciation of the currency, and fixing energy prices.

Let's take inflation first. Almost all countries experience inflation, but the rate of inflation differs dramatically from country to country. In many rich countries it was quite low for some years (although it is increasingly rapidly now due to the impact of the war in Ukraine on energy prices, as well as the gradual recovery from COVID-19). Nonetheless, as a general rule, inflation has been somewhat higher in poorer countries than in richer countries.

If a country has higher inflation than, say, the US, this means that prices in that country are rising faster than in the US. In turn this means that exported goods from that country become more and more uncompetitive as time goes on. Zambia is a case in point. In 2020, its inflation rate was 15.7 per cent, while the rate in the US was 1.2 per cent (a difference of 14.5 per cent). At the beginning of 2020 the exchange rate averaged around ZMW 14 per $1, which means that exports that cost ZMW 1,400 to produce would have to sell for at least $100 in the international market. But because of inflation in Zambia, the same export the next year cost ZMW 1,620 to produce (a 15.7 per cent increase). If the exchange rate remains unchanged, then this means it has to sell that good for at least $116 in the international market to cover its costs. Now consider a consumer in the US: they have seen prices increase slightly, but the prices of goods from Zambia have increased by much more, so they are disinclined to buy them. If this process happens for a few years, exports from Zambia will rapidly become uncompetitive.

The response that many countries take to this problem is to let the value of their currency slide a little bit each year. More precisely, if you let your exchange rate depreciate by the difference between the inflation rate in your country and that in your main trading partners, you will maintain your competitiveness. If we return to our Zambia/US example, where the initial exchange rate was ZMW 14 per $1 and the difference between inflation rates was 14.5 per cent, we can see how depreciation works. If Zambia was to let its currency fall to ZMW 16 per $1 – effectively making ZMW 1 worth 14.5 per cent less than before – then, even if it cost Zambian manufacturers ZMW 1,620 to produce their exports, the price for this would be $101 (i.e. 1,620/16). As a result, the price of Zambia's exports would increase at the rate of US inflation, thereby ensuring that its goods and services remained competitive in that market.

However, there is a snag. If a country lets its currency depreciate, then its imports become more expensive. Traded energy products – particularly fossil fuels – are all priced in US dollars. If a country lets its currency depreciate to maintain the competitiveness of its exports, then it automatically increases the cost of those fossil fuels in domestic currency. Returning to Zambia, let's say the international price for petrol at the beginning of 2020 was about $1 per litre and the exchange rate was, of course, ZMW 14 per $1. Zambia has been subsidizing petrol, but let's say that it decides to eliminate the subsidy by increasing local prices to ZMW 14 per litre (i.e. $1 per litre). Because of inflation in the subsequent year, however, the government had to let the currency depreciate to ZMW 16 per $1 to maintain its competitiveness. Now the cost to Zambia of a litre of fuel is

(Continued)

Box 6.1 Continued

ZMW 16; but if the government keeps the local fuel price fixed at ZMW 14 per litre, then a gap between the domestic and international price has re-emerged. In other words, the subsidies are back.

This gap does not have to be large for it to have an impact on the budget. Zambia consumes 1.26 million litres of petrol every day, so this relatively small change in the exchange rate means that the government would have to spend an additional $57 million each year on the subsidy. Notice that this gap has emerged even though there was no change at all in the international price of petrol – it is entirely caused by the natural depreciation of the currency due to different inflation rates between countries. In the long run, the only way to avoid such a gap occurring is to regularly adjust domestic prices to take account of both changes in the international price of fuel and changes in the exchange rate. Countries that adjust their prices in this way keep a lid on subsidies; countries that don't often see them run out of control.

There are big advantages to this approach. By allowing any suitably qualified organization to import fuel, one creates competition in supply. This provides an incentive for importers to find the lowest cost of supply and to minimize leakages and inefficiency in their supply chain. Moreover, since importers and marketers have to make a profit, one can be sure that local prices will be above the international price, so there will no subsidies and no liability for the government. Better still, domestic refineries can now operate profitably since they are allowed to sell their fuel for a commercial price instead of a heavily subsidized price. This encourages the development of local refining, which reduces the need to import fuel. These advantages help to explain why this is the approach used in most OECD countries.

But there are also downsides to liberalizing the sector. First, one of the reasons for setting a fixed domestic price for fuel is to protect households from volatility in international markets. With a liberalized sector, the domestic price of fuel fluctuates in line with the international market. However, as shown in Chapter 3, governments that have fixed prices for long periods of time may expose their citizens to much bigger price shocks and make riots more likely, so the fact that liberalization makes prices fluctuate more is not a strong argument against liberalization.

Second, and a much more serious concern, is that liberalization does not always mean competition. In most countries there are a small handful of companies responsible for importing fuel. They all know one another and often they talk. As a result, liberalization of imports can sometimes result in the

creation of a cartel that controls imports and pushes up local prices. This is particularly true if the size of the market is small, as is often the case in poor countries. Avoiding this requires a strong competition authority to crack down on anti-competitive behaviour. However, if members of the cartel are closely linked to the governing elite, efforts at enforcing competition rules can be lax.

So, while there is a clear and strong connection internationally between liberalization and having an efficient and well run downstream oil sector, it is not necessarily the case that liberalization will solve a sector's problems overnight. However, in the long run the message of innumerable attempts at reform is clear: ending fossil fuel subsidies means more than just changing prices. Ending subsidies for good requires a change in the system, either to a formula or by liberalization of the sector. Anything less and subsidies, like a fossil-fuelled zombie, will eventually re-emerge. Nothing illustrates this better than the failure to tackle fossil fuel subsidies during the COVID-19 pandemic and the huge resurgence of subsidies due to the outbreak of war in Ukraine, to which we now turn.

CHAPTER 7

COVID-19, war, and building back worse

The missed opportunity of COVID-19

Wullie Kirkcaldy was struggling. As a result of the COVID-19 pandemic, he had suddenly lost his job. With his wife and two small kids at home and virtually no money coming in, it was hard to make ends meet. 'I feel sorry for my kids because [other] kids can be cruel sometimes,' Wullie says. 'Especially [for] my oldest daughter. She tries to hide that [she's on free school meals] from her chums'.[1]

Wullie's predicament was not uncommon, as COVID-19 destroyed lives and livelihoods across the globe. What makes Wullie's story unusual is that he worked in the oil sector. The COVID-19 pandemic and the policy responses to it caused a collapse of the global economy not seen for over a century. As workers worldwide were told to stay at home to avoid spreading the disease, output declined dramatically. Global GDP fell by 3.4 per cent in 2020, the largest fall since the Great Depression of the 1930s. Trade was hit even harder, falling by 5.3 per cent in 2020.

Worried about the prospect of soaring unemployment and social unrest, policymakers used all the levers at their disposal to maintain demand. After years of claiming that there is no 'magic money tree', countries suddenly discovered it and borrowed and spent at levels not previously seen in peacetime. Benefits were boosted, rapid spending programmes expanded, tax rates slashed, and debt soared. Many governments took the unprecedented step of paying a significant share of people's wages to try and dissuade employers from laying people off. Poorer countries, without the financial firepower to support their citizens in the same way, saw poverty and unemployment skyrocket. The World Bank estimates that the COVID-19 pandemic threw an additional 97 million people into extreme poverty, reversing decades of progress.[2]

One of the consequences of the pandemic was a dramatic collapse in demand for energy, particularly for oil and gas. The price of oil in December 2019 was $67 a barrel; by April 2020 it was $20 – a drop of 70 per cent. The price of natural gas also decreased substantially.

These falls resulted in very different economic impacts in different countries. For importing countries, a collapse in their fuel bill provided some small relief to the much larger economic shock of COVID-19. But for countries reliant on the production of oil and gas, COVID-19 was a double catastrophe. Export earnings plunged along with the revenues that governments extracted from fossil fuel industries, making it even harder for them to respond to the hardships caused by the pandemic.

After the desperate scramble to protect people and save lives in the early days of the pandemic, a new political narrative soon developed: the COVID-19 crisis should be used as an opportunity to accelerate the radical energy transition needed to achieve the world's climate change goals. Concern about climate change was at an all-time high. With the UN's COP26 climate conference originally scheduled for November 2020 (subsequently postponed to November 2021), international organizations, activists, think tanks, researchers, and all manner of other groups were clamouring for their governments to design a green recovery from the pandemic. This generally entailed calls to use the billions of dollars of recovery spending to build a new energy economy, to shift away from fossil fuels and towards the achievement of net zero emissions by 2050.

'We have to build back better' was the phrase used by politicians all over the world. Indeed, even the original (unsuccessful) bill in the US to fund such a transition was called the Build Back Better Bill.[3] The EU announced plans for a European green deal and devoted a third of its €1.8 trillion COVID-19 recovery plan to funding it.[4] The UK government similarly announced its plan for a green industrial revolution.

To some extent, the politicians delivered. The IEA stated that, 'the speed and scale of the fall in energy investment activity in the first half of 2020 is without precedent',[5] reflecting the collapse in fossil fuel investment as a result of the low prices. The OECD noted that investments in renewables amounted to $359 billion in 2020, a 7 per cent increase on 2019.[6]

Yet amidst all the promises and action on green investments, there was one phrase conspicuously absent from policymakers' rhetoric – ending fossil fuel subsidies. In one sense, this is surprising. Numerous international organizations and think tanks were quick to point out that this was the perfect time to reform subsidies: international prices were at historic lows, so the gap between local and international prices was greatly reduced or even gone. Subsidy reform would not have necessitated large and painful price rises. All that was needed to remove subsidies permanently was to latch onto world prices and keep

them linked with domestic prices, even if international prices subsequently rose.

Some countries took advantage of this opportunity. India quietly took steps that effectively removed the subsidy on LPG for households. This meant that households benefitted from the collapse in gas prices in 2020, but then steadily paid more as prices subsequently increased. Some countries took advantage but then reneged on their reforms. Nigeria announced the abolition of subsidies when the fall in prices meant that they no longer existed, but then felt compelled to reintroduce them when prices started to increase. But many countries took no action whatsoever.

The failure of governments to act can be put down to several reasons. One is that politicians are forward-thinking, even if their time horizon is short. There is little political gain from announcing the abolition of fuel subsidies but doing so gives a hostage to fortune. If you do not want to commit to increasing domestic prices in line with international prices when they eventually rise, then it is best to keep quiet. Equally, if your fossil fuel subsidies are in the form of preferential tax rates, for either consumers or producers, then the economically logical thing to do when international prices collapse is to remove the preferential rates, i.e. increase taxes. That way, the domestic price would remain the same (since the increase in tax would only compensate for the fall in the international price), but your fossil fuel subsidies would be eliminated. But raising taxes in the midst of a global pandemic is political suicide. People are suffering enough because of the consequences of COVID-19; the last thing they will accept are tax rises.

However, there is another reason why politicians avoided the topic of subsidy reform during the pandemic: while fossil fuel subsidies for consumers were falling, a slew of new subsidies for fossil fuel producers were in fact being introduced. This might have gone unnoticed if it had not been for my friend Tom.

Tom Moerenhout is a Belgian economist with a passion for fossil fuel subsidy reforms. As a researcher at Columbia University in New York and an associate of the IISD, he viewed the COVID-19 pandemic a bit differently than most: 'As soon as we saw just how big the economic impact of COVID was going to be, we knew what was coming next … large subsidies to fossil fuel companies'. And Tom and a team at IISD and ODI also knew something else – that in an environment in which governments were making big pledges to tackle climate change, policymakers would do all they could to keep these subsidies hidden. So they came up with the idea of the Energy Policy Tracker.[7]

The Energy Policy Tracker tracks public money for energy in the COVID-19 recovery packages of 34 major economies and 8 multilateral

development banks. Specifically, it looks to see if politicians are being true to their words and devoting resources primarily to funding green energy. The findings were shocking: from 1 January 2020 to 31 December 2021, these countries and banks pledged $515 billion to fossil fuel-intensive sectors. This figure is 41 per cent of all public money committed to energy-producing and -consuming activities – larger than the 38 per cent spent on green energy.[8] Worse still, most of the money given to the fossil fuel industry was not even conditional on undertaking any kind of reforms towards lower carbon emissions.

Why did politicians funnel more subsidies to fossil fuel companies during the pandemic instead of using it as an opportunity to retire fossil fuel plants and shift to renewables? Part of the answer is that it simply was not possible to expand green energy fast enough. Almost two-thirds of the world's energy still comes from fossil fuels. No matter how fast one invests in renewables, it is not possible to change this overnight. Of course, countries could have let their own fossil fuel industries fail and import fuel instead, but few politicians would permit their country's industries to break down while industries in other countries receive support from their governments.

Another part of the answer relates to jobs. Fossil fuel industries employ lots of people. There are, for example, 3.6 million people employed directly or indirectly in the coal mining and power sectors in India. No government would want to see those jobs disappear so rapidly. The same is true for the aviation sector. The collapse in travel due to the pandemic brought many firms to the brink of bankruptcy. But people like flying and politicians know that. Letting carriers go bust is not good politics – far easier to tide them over until the recovery begins.

Moreover, governments the world over gain large amounts of revenue from their fossil fuel sectors. Some depend heavily on fossil fuel tax revenues and royalties and are unlikely to willingly forego them. Similarly, pension funds and savings globally are heavily invested in large fossil fuel companies. Letting these companies collapse would have entailed large losses, for both ordinary savers and wealthy investors alike.

The pandemic was (and still is) a global catastrophe, destroying lives and increasing poverty everywhere. One of the few positive things to emerge from the crisis was a sense that it could be used as an opportunity to accelerate the transition to green energy. And many governments and the private sector have stepped up and invested more than ever before in renewables and energy efficiency. But the opportunity to eliminate fossil fuel subsidies was largely missed. Much more could have been done, particularly to force fossil fuel

companies to plan for a long-term future without fossil fuels in return for the substantial short-term assistance they received. At the same time the failure to address fossil fuel subsidies points to the political challenges of doing so during a time of crisis. And another crisis was about to hit.

The war in Ukraine

On 24 February 2022, Russian president Vladimir Putin did what he had repeatedly promised he would not do and invaded Ukraine. Within two weeks, over 2 million refugees had fled the country to Poland, Romania, and Moldova. As I write this, the people of Mariupol, a besieged Ukrainian city on the Black Sea, are trying to fathom the evil that bombed the local maternity hospital.

It may seem inappropriate to talk about fossil fuel subsidies when such a nightmare is unfolding, yet the war in Ukraine is having huge implications for the entire world's energy supply. Russia is one of the main energy suppliers in the world. It is the second largest producer of oil and gas globally. Before the war, it pumped more crude oil than Saudi Arabia, exported more gas than any other country, and was the third largest net exporter of coal globally. Russia fuelled the world.

To try and force Putin to withdraw from Ukraine, the West has imposed severe sanctions on Russian oil and gas. These have huge implications not only for Russia but for the entire world. In April 2020, in the midst of the pandemic, the oil price was $20 per barrel; in March 2022, it soared to over $130. Gas prices, which had been in the range of €15–25 per megawatt hour for a decade, were already rising sharply before the war. On 7 March 2022, they hit €345 – the equivalent of $600 for a barrel of oil.[9]

The war in Ukraine is having the exact opposite impact to the COVID-19 pandemic. Whereas the pandemic drastically reduced consumer subsidies as prices tumbled and incentivized governments to boost production subsidies to keep fossil fuel industries afloat, governments around the world are now struggling to contain consumer prices and protect their citizens from the economic shock. As the gap between the prices charged to consumers and the international price widens, governments are creating huge subsidies. EU countries have ploughed hundreds of billions of Euro into energy subsidies in 2022 to try and cushion the impact of the energy crisis on ordinary households and businesses. In September 2022, the UK announced that it would be fixing unit prices for energy for two years at an estimated cost of over GBP 150 billion.[10] Politicians cannot be blamed for doing so. It is their

job to look after the interests of their citizens and, when prices spike, voters demand protection.

At the same time, the very same fossil fuel companies that benefitted from government largesse during the pandemic are now earning huge profits from the spiking prices. Governments are rolling back the subsidies that they previously provided and some are implementing windfall taxes on energy companies to help pay for the cost of protecting citizens. Fossil fuel companies are opposing such taxes arguing that additional taxes should not be imposed because they will use the excess profits to invest in additional supply, both fossil fuel and renewables. The EU has decided that it is not right for energy companies to make huge profits in the midst of a crisis and have announced an emergency intervention which places a revenue cap on low cost power generation as well as requiring a 'solidarity contribution' from fossil fuel companies.[11] In contrast, the UK government appointed in September 2022 has rejected the imposition of any further windfall taxes on the energy sector.

The climate implications of the war in Ukraine are also very serious. Western nations are now placing a much greater emphasis on energy security and autonomy. While this will undoubtedly include further efforts to develop renewable sources of energy, it is also likely to mean a greater focus on exploiting domestic fossil fuel reserves. The UK government has reversed its moratorium on fracking and is encouraging the development of existing and new oil and gas fields.[12] Yet opening new oil and gas fields, or even coal mines could lock countries into further dependence on fossil fuels for decades. Such actions would make the achievement of climate change targets even more difficult.

What is the alternative? The obvious answer is to invest more in renewable energy. Doing so would reduce vulnerability to volatile fossil fuel prices but this requires not only the pull of investment in renewables but the push of prices. In this sense, the current high prices are an opportunity.

Achieving a lasting energy transition requires two things. First, investing in renewables must be profitable. This means high prices for producers of renewable energy. At the same time, we want users of renewable energy to face low prices to encourage them to switch to renewable sources of energy. Second, the exact opposite must be the case for fossil fuels. Investing in fossil fuels must be much less profitable, meaning the prices received by producers should be low. At the same time, we want users of fossil fuel energy to face high prices to encourage them to switch to renewable sources of energy. In a completely free market, these two objectives would be mutually

incompatible. But there is a way in which both can be achieved and it relies on … subsidies.

Consider the current high price of fossil fuels. It is inevitable that prices for consumers will rise as a result. As noted above, governments around the world are rightly looking for ways of cushioning this blow by reducing consumption taxes and limiting price rises, creating consumer subsidies in the process. A shift to renewables could be accelerated by waiting until the oil price declines and then, as it falls, gradually reducing the consumer subsidies that have been put in place in a way that keeps prices unchanged for consumers. For example, if a fuel levy has been removed to cushion consumers from fuel price rises, it could be re-introduced when oil prices have fallen by the value of the fuel levy, thereby leaving prices unchanged. Re-imposing taxes or reducing subsidies in this way will be unpopular, but the popularity of such an approach could be enhanced if the money is used explicitly to support people suffering from energy poverty.

Consider fossil fuel producers such as Exxon, Chevron, Shell, and BP. At the moment they are laughing all the way to the bank. Oil company profits soared to $174 billion in 2021 due to the rise in gas and oil prices. Imposing a windfall tax on these companies (and generally reducing the producer subsidies that they get) would cut their incentives for further investment in supply. Using these resources to cross-subsidize renewable energy producers would provide strong incentives for the expansion of renewables (effectively, high prices for renewable producers), while the flood of renewable electricity on the market would reduce prices faced by consumers.[13]

In short, a pathway exists to use tax and subsidy policies to encourage faster expansion of renewables, discourage fossil fuel consumption and production, and support consumers to switch, while protecting poor consumers that cannot. Moreover, such a pathway is politically feasible. A windfall tax on big oil companies would be popular. So would protection for the energy poor and help in switching to renewables. And voters keen to see action on climate change might finally believe that the government was taking them seriously.

Is this realistic? The failure of the world's governments to use the COVID-19 crisis to eliminate fossil fuel subsidies should give us pause. Politicians may find it impossible to resist the temptation of giving voters a quick benefit by reducing fossil fuel prices when international oil prices fall. And the fossil fuel lobby is strong and will argue for the need for energy sovereignty and developing local resources. Building back better is looking increasingly unlikely and the opportunity for serious reform may well be missed again.

The catastrophe of COVID-19 and the misery of the war in Ukraine teaches us an important lesson – that no sensible politician can, or even should, set fossil fuel subsidy reform as a political objective. What matters is peace, protection – from disease, war, and climate disaster – and prosperity. Fossil fuel subsidy reform is a good idea, not in itself, but because it helps to achieve energy security, climate protection, better air quality, and the provision of resources to improve people's lives. This suggests that we need a new approach to fossil fuel subsidy reform, seeing it less as a technical challenge to be overcome and more as part of a broader struggle over things that really matter politically. In other words, serious fossil fuel subsidy reform will only be possible when we start to think and work politically. Chapter 8 shows how this might be done.

CHAPTER 8

A new approach to fossil fuel subsidy reform

Chapter 6 showed what countries – whether rich or poor – are doing to reform fossil fuel subsidies. The lessons from numerous attempts at reform point to the need for good analysis, effective communication, compensation and social protection, redistribution, smart timing, complementary policies, and a long-term vision for reform. Chapter 7 showed how major shocks such as COVID-19 and the war in Ukraine make it politically very difficult to follow through on the 'best practice' approach to reform, reinforcing the point that fossil fuel subsidy reform is fundamentally a political problem, not a technical one.

Thinking and working politically

If subsidy reform is a political problem, then a political approach is needed to address it. What does this mean in practice? In recent years, a new model for engaging in the politics of reform has emerged, known as 'thinking and working politically' or TWP for short. The approach has three key characteristics.

First, it is politically informed. Endless papers and reports are written pointing out that fossil fuel subsidies are not an efficient way of helping the poor, damage the planet, and should be stopped, but these papers and reports fail to mention the political reasons why subsidies persist. A new approach to ending fossil fuel subsidies should acknowledge the politics upfront. Much more effort is needed to understand the details of the political economy of subsidy reform in each individual context. Those involved in a new approach to subsidy reform must devise a strategy that makes reducing and eventually removing subsidies politically feasible. Without this, change simply will not happen. It may mean taking unorthodox or 'second-best' approaches to reform, which might not be ideal but are consistent with the politics of the country or context.

Second, reforms must be locally driven. In relatively rich countries, efforts to promote fossil fuel subsidy reforms are overwhelmingly driven either by domestic actors, whether government, the private

sector or CSOs. But this is far from the case in many developing countries, where initiatives to press for subsidy reform are often driven by staff in multilateral organizations, bilateral donors, or international NGOs. These groups do some great work, but they are the least well equipped to really know how reform unfolds on the ground. The key proposals for reform should be devised by a local team that understands the local politics and what is and is not possible. Any activities that are undertaken to support efforts for reform should primarily be implemented by reform-minded local actors and organizations as part of their own agenda, creating genuine legitimacy and buy-in for the reforms. In any country, sustainable subsidy reform will only really take hold when it is driven by local leadership able to navigate the complexities of local politics.

Third, the approach to reform should not be formulaic but flexible and adaptive. A TWP approach allows politically savvy local actors to identify and implement the activities that they believe will have the most impact on the reform objective – and they need to be able to change tack. The truth is that nobody really knows exactly what kinds of activity are most likely to push politicians and policymakers to stop fossil fuel subsidies in any particular country. Local actors need the leeway to experiment and see if they get traction. Programmes that give local actors the ability to adapt what they are doing and how they do it as they go along, based on good political economy analysis of the context, are much more likely to make meaningful progress.[1]

The TWP approach has had some remarkable successes in extremely challenging environments.[2] For example, from 2010-2016 a UK-funded project called the Facility for Oil Sector Transparency and Reform (FOSTER) in Nigeria succeeded in supporting far-reaching reforms in the politically sensitive oil sector by employing this approach. A Nigerian-led team built a coalition of local actors – champions in government, private sector, media, and NGOs – in favour of action to improve the quality of governance of Nigeria's notoriously corrupt oil sector. This small project saved hundreds of millions of pounds for the Nigerian government and shifted thinking about the way in which the oil sector should be run.[3]

However, with the exception of a handful of programmes like FOSTER, the TWP approach has rarely been applied in the energy sector or used to tackle the thorny issue of fossil fuel subsidy reform. Indeed, a recent review showed that donor projects in the energy sector are almost invariably highly technical – focussed on planning and analysis, capacity building, and financing – while almost entirely ignoring the political dimensions of reform.[4] Yet, it is precisely the politics that cause

seemingly sensible reforms to unwind. Without understanding – and cleverly navigating – the political aspects of reform, technical solutions are likely to be of little use.

For a TWP approach to work in any country – whether in Nigeria or Norway, India or Italy – groups that are pushing to end fossil fuel subsidies need to answer two questions:

1. *What is a credible, politically feasible way in which the key actors involved might agree to take steps that would lead to reform?*
   Notice how different this question is from the one usually asked when it comes to reform, 'What should policymakers do?' Rather than focussing on what they *should* do, it is asking what they are *likely* to do given the political objectives that they are pursuing, the set of ideas that drive them, and the interests and incentives that they face. But it is not just political prediction – it goes one step further. It asks whether there is a set of actions that are consistent with those objectives and interests that might give rise to the desired reform. In other words, it asks if there is a politically feasible pathway of change.

   Of course, the answer may be 'no', or at least 'not yet'. But political contexts are often fluid and rapidly changing. Actions that are not politically feasible now may become so if circumstances change. Which leads to the second question.
2. *How can you best support or encourage the actors that might bring about reform (or hinder or discourage those that oppose it)?*
   Again, notice that the focus in this question is on the key actors that will bring about change. This is not about what 'you' do. It is about how you[5] can best facilitate or empower the people or groups whose actions will make a real difference. This might entail research or building capacity, or it could involve facilitating dialogue, building coalitions, or hosting public debate.

   This is quite different from the approaches to subsidy reform often taken by international organizations and some NGOs, which are often heavy on technical analysis but shy away from explicit analysis of political objectives. They tend to urge policymakers to follow 'best practice' approaches with little consideration of whether doing so is consistent with their incentives. Given the imperatives of climate change, there is often a focus on scale, with an unstated assumption that the same solution can be implemented in countries with very different political contexts. Similarly, funders often want to see 'quick wins', thereby undermining the need to build ownership for sustainable reforms.

To be clear, technical analysis is essential – without it, we cannot fully understand the problem. Solutions are needed and results matter. But none of these technical aspects are of much value if the subsidy reform does not actually happen because of political reasons. Political feasibility is therefore not an optional extra – without it, fossil fuel subsidies are here to stay.

Practical steps of TWP

What might a political approach to fossil fuel subsidy reform look like? Here are some examples of what it might entail:

> *Understand the political context.* Ghana is not Greece. Bangladesh is not Belgium. It is not just that some countries are democracies and others autocratic – there are many different nuances in political systems. Some countries have a more inclusive 'political settlement'[6]; in others, the elite is dominated by a few families. Some governments have a developmental vision; others are led by a kleptocratic elite. Some countries are fuelled by resource rents; others have a broad social contract based on taxation. It is not surprising that different approaches to subsidy reform are more likely to work in some contexts than others.[7]
>
> *Grab the narrative*. Much as I would love to believe otherwise, fossil fuel subsidy reform is hardly sexy. Politicians generally latch onto narratives that have broad appeal. Fossil fuel subsidy reform needs to be presented in a narrative that has political resonance. Sometimes this is easy. Subsidy reforms are consistent with strong action on climate change. If the public wants such action, then subsidy reforms can be part of the measures to mitigate climate change. But if the dominant political narrative is about the cost of living, a different approach is needed, for example one that stresses the low costs of wind and solar. Sometimes the narratives that are most effective for local political actors are unrelated to subsidy reform. Occasionally, these narratives can make those promoting subsidy reform deeply uncomfortable, such as when political battles are fought around religious or ethnic identity. The point is not to support such narratives but to be aware of their power and how they influence the behaviour of key actors.
>
> *Build coalitions*. Subsidy reforms are rarely enacted by governments because they are the 'right thing to do'. Rather, multiple groups influence the behaviour of government (and of each other). Identifying groups that have a common interest in subsidy reform and bringing them together enables them to

align their interests and coordinate strategies. Sometimes this involves unexpected collaborations. Private fuel importers may share interests with faith-based groups campaigning for climate justice; air pollution activists can share a common cause with coal companies desperate to minimize their stranded assets. Being alert to the unusual and facilitating coalitions can enhance the power of those seeking reform.

Accept second best. It is rare that reforms are technically optimal. Governments will always have constituencies that they have to please. President Jokowi in Indonesia could not implement his 2015 reforms without buying off fisherfolk and farmers; President Macron in France had to roll back his reforms because of the power of rural households who owned diesel cars. All political leaders have to provide favourable treatment to groups that have special political significance in their country, whether farmers, small businesses, public transport users, war veterans, or landowners. Such benefits make little technical sense as often these groups are not the worst affected, but they are a critical part of making reform feasible.

Be opaque (at least sometimes). Transparency and accountability are often regarded as the cornerstone of progressive reform. There is no doubt that shining a light on the actions of government and companies handing themselves large subsidies can be a powerful weapon for change, particularly if the political context means that this will lead to accountability. But transparency is not always a friend of subsidy reform. Sometimes, political strategies and alliances need to be secret; surprise can be a useful political weapon.

Attack! Many organizations working on fossil fuel subsidy reform focus on a positive agenda. They marshal the evidence and make the case for reform. This is laudable and sometimes effective – but not the way in which the vast majority of political actors behave around the world. While persuasion and vision are essential parts of any political campaign so is attacking ones' opponents. Those with strong vested interests in maintaining subsidies are not likely to be persuaded by evidence. But they are often proactive in opposing reform. Successful reform does not just mean empowering allies; it can also mean hindering and discrediting opponents. Sometimes, a political approach entails taking sides.

Be opportunistic. Politics is often in flux. Things that were not possible yesterday become imperative today; ideas that were once

radical become mainstream. But these sorts of sea changes come only once in a while and are generally unpredictable. Thinking and working politically means being willing to seize windows of opportunity. It entails taking a series of small bets, many of which will not pay off but some of which will. There is a reason why many subsidy reforms are conducted early in a leader's term of office, or in a moment of crisis or transition. A political approach means being positioned to exploit the opportunity when it arises.

Supporting subsidy reform in developing countries

The TWP approach can be applied by governments, the private sector, and CSOs in all countries, both rich and poor. However, many rich countries provide aid to developing countries. Traditional approaches to aid have typically eschewed tackling the political barriers to fossil fuel subsidy reform in developing countries because of the sensitivities involved. But if thinking and working politically is at least part of the answer to subsidy reform, then how should the international community support reform in developing countries? Below, I outline actions that could be taken by three different sets of actors: multilateral and bilateral donors; the private sector; and citizens and CSOs more generally.

Multilateral and bilateral donors

Donors have an important role to play in facilitating and supporting fossil fuel subsidy reform in poorer countries. Although the large subsidies of major economies contribute more to climate change, the immediate negative effects of subsidies are more acutely felt in many poor countries. These effects include pollution, queues, unreliable supply, sudden price hikes, and systematic underinvestment in producing a cleaner and fairer energy system for all. Yet, as we have seen, reforming subsidies is hard. Donors can help the process in four ways.

1. *Understand the problem*
   There is no shortage of technical analysis of the fossil fuel subsidy problem, but there is a shortage of understanding of the underlying political economy challenges in each country. This is changing. In recent years some new books have been published with detailed case studies of the politics of subsidy reform.[8] The World Bank also routinely tries to assess the political economy context when discussing reforms with its member governments. However, often such studies focus on the attitudes of the government or the key political actors and there is much

less analysis of the political ecosystem that surrounds them and how it shapes their behaviour. Donors know the views of the minister but less often study the perspectives of the members of parliament or political parties; they understand the views of the unions but rarely survey the attitudes of workers or households;[9] they hear from the key bureaucrats but do not dig into the murkier connections between key energy companies and the political establishment. Also, the analyses that are done are often one-off, static snapshots of the situation. Much less effort is made to build into projects the ability to continually touch base with the key actors, understand their motivations and how these are influenced by the changing context. Politics is fluid, so donors need to have a way of keeping their finger on the pulse and shifting their approach accordingly.

2. *Build demand for reform*
   Most approaches to subsidy reform entail a donor (usually the World Bank) working with a government to design a reform programme. In other words, they focus on supplying reform. Much less attention is paid to building domestic demand for reform. Yet the success of subsidy reforms depends critically on their political acceptability. Without political allies, subsidy reforms fail. Donors could do much more to support building up the domestic demand for subsidy reform. This is different from designing communication strategies to persuade people to accept reform. Rather it is about proactively identifying key supporters of reform in CSOs, the private sector, parliament, the media, unions, and other non-state actors, and helping them to collaborate and coordinate to pursue their own reform agenda. Such an agenda might look different from the standard model pursued by the World Bank and other donors, but it might have a better chance of success. Building demand for reform could also involve promoting well-informed debate and dialogue about the topic, and improving the quality of that debate by training journalists to understand the issue better and report on it more effectively.
3. *Support serious reformers*
   Ultimately, subsidy reforms are undertaken by governments. But leaders embarking on reform know that they are likely to court unpopularity and could lose their positions as a result. The international community could and should do more to back serious reformers. Doing so overtly does not always help – there are few things more likely to give a leader domestic political problems than a ringing endorsement from the IMF. However,

there are other ways in which the international community can support leaders who want to make progress.

One is diplomatic. Sometimes other blockages to reform exist that can only be solved through diplomatic action. For example, Sudan's subsidy reforms were delayed, in part, because they needed backing with international finance. Getting it was impossible until the US removed Sudan from its blacklist of countries associated with financing international terrorism, thereby enabling international institutions to provide financial backing for the subsidy reforms implemented by the transitional government. (Sadly, the manner in which the reforms were then implemented – with little dialogue or communication – contributed to the pretext for the subsequent military coup on 25 October 2021.)

Another option is to facilitate dialogue between political leaders of countries that have similar sets of problems and experiences. Politicians in Zambia may be more likely to listen to Ethiopia than to the UK; leaders in Pakistan have more in common with those in Indonesia or Nigeria than those in the US; and Kyrgyz problems are more like those in Nepal than those in Germany. While the World Bank already promotes such dialogue at the technical level, there is currently no mechanism for countries with significant subsidies to talk with one another about the political challenges of reform and to learn from each other's approach.

4. *Support compensation, reallocation, and complementary policies*
Donors can bring money to the table. Achieving sustainable subsidy reform requires mechanisms of ensuring that the poorest do not suffer as a result of price changes – and not just the poorest. To be acceptable politically, targeting of compensation needs to be broad enough to include a significant share of the population. As noted in Chapter 6, a recent study showed that (many) reforms with a well-designed system for compensating those affected were successful. Perhaps more importantly, however, the study also showed that all attempted reforms that did not include effective compensation failed.[10] Donors are already heavily involved in supporting countries to develop social protection mechanisms, including cash transfers. Programmes in relevant countries could be encouraged to explicitly consider how they might support energy subsidy reform through the design of appropriate compensation mechanisms.

Moreover, if subsidy reform is successful, it often entails substantial budget reallocations (such as the $15.7 billion budget

reallocation resulting from the Indonesian reforms in 2015).[11] It is important that such reallocations are conducted in a transparent fashion and that the funds are used to further the country's development. Several donors support economic development programmes that attempt to improve the governance and transparency of resource allocation. Again, such programmes could be asked to explicitly consider how to support the process of ensuring that energy subsidy reform gives rise to reallocations that are consistent with inclusive national development objectives.

Box 8.1 The advantages of bilateral donors

Bilateral agencies have four characteristics that make it much easier for them to think and work politically on energy subsidy reform in a way that multilateral institutions cannot.

1. **The ability to support politically sensitive reforms.** Multilateral institutions are forbidden by their charters from engaging in activities that could be described as 'political' and therefore tend to focus heavily on technical assistance and finance. Bilateral agencies are able to support broader reform agendas to promote good developmental outcomes.
2. **The ability to work across government.** Bilateral aid agencies can draw on the other branches of their own governments. Being able to tap into the knowledge and expertise of the foreign office or defence or business ministries may provide alternative entry points for influence over domestic reform agendas.
3. **The ability to work with multiple partners.** Multilaterals typically work directly with and lend to governments. Bilateral aid programmes can work with business associations, the media, parliamentarians, CSOs, research institutions, as well as the government and thereby reach more extensively across society. They can do so in a neutral way – not as an advocacy organization, but by way of providing evidence and encouraging debate about policy options. As we have seen in Chapter 6, reform efforts that take the time to inform and debate the issues in public prior to implementation tend to be more successful because, by the time implementation occurs, everyone is expecting it, everyone understands the reason for the change, and everyone is aware of the complementary and compensatory mechanisms that will be put in place. Longer-term 'voice and accountability' projects such as those typically supported by bilateral funders can be an important mechanism for supporting open debate and promoting broader understanding.
4. **The ability to use multiple instruments.** Most multilaterals structure technical assistance around project or programme lending, such as the technical assistance around the World Bank's Development Policy Lending operations. Bilaterals can enhance the ability of multilateral institutions to provide technical assistance separate from lending, for example through the creation of multi-donor trust funds such as ESMAP. Bilateral donors also have greater flexibility in the nature of the funding that they provide, for example, giving grants to a range of organizations outside government. This approach is better suited to programmes of coalition-building than traditional lending and technical assistance approaches.

Finally, and critically, donors can help by supporting complementary policies not related to subsidies that the government can expand using the resources reallocated from the reforms. Cash transfers, while important, do not always have much political traction. Politicians need to be able to offer something more politically attractive, for example universal health care, free schooling, a road building programme, better inputs for farmers, or electrifying every village. What is most politically salient will depend on the country and the offer will not always be the technically best thing to do. But such offers are critical to the success of subsidy reforms. Donors can demonstrate their understanding of the politics of subsidy reform by backing the complementary plans of serious reformers.

The private sector

Although subsidy reforms must come from government, the existence of subsidies and how they are implemented can have a major impact on the ways in which the private sector operates in a country. Companies receiving subsidies are likely to oppose their removal and some invest significantly in lobbying to try and maintain the status quo. Yet most of the private sector does not benefit from fossil fuel subsidies. Even companies that use a lot of fossil fuel, such as for transportation fleets, or rely on subsidized electricity produced from fossil fuels do not always oppose reforms. What matters for many companies is security of supply. Subsidies often cause shortages and reduce the ability of utilities to invest in better electricity supply, so commercial consumers of subsidized energy sometimes favour reform. Even companies that are part of the fossil fuel supply chain may support change because governments often make subsidy payments late. Subsidy reforms would allow companies to sell fuel at a price that makes a profit without having to rely on unreliable handouts from government. The growing renewable energy industry can also be a key lobbyist for fossil fuel subsidy reform, particularly where some of the subsidies shift to support the expansion of renewable power.

Donors should consider how their work with private sector associations might help domestic and international businesses to communicate the practical implications of subsidy policies and the potential economic benefits from subsidy removal. Companies can share their knowledge of the practical operation of the fuel supply and electricity sectors with governments to ensure that proposed reforms are practical and workable. They can also help policymakers to understand where potential blockages to reform may arise, for example due to the interests of particular companies or actors in the sector. Sometimes the most effective advocacy against subsidies can

come from private companies that do not receive them and that wish to level the playing field with their competitors.[12]

Citizens and civil society organizations

CSOs and citizens have a key role to play in reforming subsidies. In most countries, people simply do not understand what subsidies are or how they work. For example, a survey in Nigeria showed that two-thirds of the population were not aware that fuel is subsidized, but 70 per cent still opposed subsidy reforms.[13] NGOs can help to spread information about how subsidies work, whom they benefit, how much they cost, and how the money could be used alternatively. Donors can work with media organizations to enhance the quality of reporting about subsidies and facilitate much wider dialogue on the issue. Parliamentarians can enhance scrutiny of subsidies and question whether the distribution of benefits is fair. International research institutes can work with local research partners to create the evidence base for reform.

Perhaps most importantly, CSOs can advocate to ensure that reforms are fair to all communities. One major research programme on citizen efforts to ensure that governments meet their country's energy needs showed that citizens are generally left out of the conversation entirely.[14] Energy policy is made by governments, donors, and investors with little input or consultation from the citizens who have to live with the resulting energy system. CSOs therefore have a critical role in raising the voice of citizens to ensure that their energy needs are met and that any reforms consider the impact on their livelihoods. This is particularly true of unions, which can mobilize to ensure that the needs of workers are taken into consideration in the design of reforms.

Some researchers have argued that a key element of subsidy reform is to persuade people that fuel and electricity are commodities rather than rights – to depoliticize energy access.[15] But energy and fossil fuel subsidies in particular are inherently political.[16] The challenge is not to squeeze the politics out, but to make the politics fair. CSOs have a critical role to play on both sides of the debate. They should demand that ordinary citizens have access to a fair and affordable energy system and they should also educate citizens to be sceptical of simplistic political promises of cheap fuel or electricity. It is precisely the subsidy policies that flow from such promises that damage the ability of the energy sector to invest in creating the supply that people need. Citizens are more likely to get fair access to affordable energy if they vote for politicians who are serious about fixing the problem rather than those that promise unsustainably cheap energy in return for votes.

CHAPTER 9

Conclusions

Fossil fuel subsidies are both big and bad. They damage the climate, choke the air, and bleed resources that could otherwise be put to better use. But changing them is hard because doing so often means price rises for consumers and job losses for those working in the fossil fuel industry. Reform also threatens the rents captured by politically connected groups that benefit from these subsidies. Politicians across the globe know that getting rid of fossil fuel subsidies may be unpopular both with voters and sometimes with the people who pay for their election campaigns. And so, wherever possible, politicians do their best to avoid the topic.

If that is not possible, they set up a committee, commission a study, initiate a process, and do whatever is necessary to turn the topic into a dry, technical issue so that they do not have to face the difficult political choices that ending fossil fuel subsidies entails. It is no coincidence that, so far, international efforts to stop fossil fuel subsidies have been tiny, technical, and timid. Tiny because the amount spent on tackling the problem is a miniscule fraction of the size of the problem; technical because this dilutes the interest and attention of the mainstream media; and timid because they propose virtually no concrete actions that might upset anyone at all.

The irony is that in the midst of international paralysis, individual countries have undertaken major fossil fuel subsidy reforms themselves. From Iran to India, Indonesia to Ghana, France to El Salvador, dozens of countries have been forced to grapple with reforming fossil fuel subsidies. Some governments have made a complete mess of it. Others have managed to pull off remarkable changes with surprisingly little opposition. From the growing wealth of experience, we now have a reasonably clear idea of what works and what does not. Successful reforms tend to have a clear plan, communicate it often and well, compensate those hardest hit in a way that is seen as fair, and, critically, provide an 'offer' – a vision – of how things can be done differently for the benefit of all. Conversely, governments that rush into reform with little preparation, poor communication, few credible vehicles for compensation, and no vision of a better future are asking for trouble. Often they get it, with protests on the streets. When these are violently

Box 9.1 A world without fossil fuel subsidies

Ayo had to admit that things were a bit better, both for him and his country of Nigeria. It was 2037 and Ayo now had a reasonably paid new job working in the burgeoning digital media industry in Lagos. At least he didn't have to sweat away in that pointless refinery like his dad had for years. The oil industry was a shadow of its former glory; dozens of fields had shut down, unable to compete as world prices fell due to the world switching to electric. And it turned out that it wasn't the catastrophe that many in his parent's generation had predicted. Not that many people worked in the sector, and they mostly got healthy pay offs. Some even headed straight to Lagos and got jobs in the tech sector, which now employed far more than the oil industry ever did. And it generated money too – lots of it. The government got far more from taxing the sector than the oil revenues it used to rely on, but it didn't have to spend half of it making petrol cheap. His dad had told them that the government used to sell petrol cheaper than it cost to produce, costing billions. What idiots! No wonder the services used to be so bad. But since phasing out the subsidies the government had doubled the health budget and introduced free universal health care. A good thing too – his mum had fallen sick and they would have never been able to afford the care without it. She was OK now, but the doctor said that her lungs had been affected by years of breathing in the toxic soot that used to blanket the city. To be honest, he only vaguely remembered it. As a kid he recalled seeing the roads clogged with cars and buses belching out fumes. It was still pretty crazy on the roads, but at least the electric bus transit system was pretty good and the air, although not exactly clean, was breathable. Of course, the government were still crooks and liars, but some things never change.

suppressed, the result is damage to property, injuries, and sometimes deaths. The governments responsible rarely survive for long.

Those who want to end fossil fuel subsidies – whether governments, business, or CSOs – need to think and work politically. This means understanding the political complexities of fossil fuel subsidies in the country and formulating a political strategy, not just a technical solution. Such a strategy might entail building coalitions of unusual allies. It may involve being opaque and opportunistic. It might involve confronting the political actors that oppose reform as well as empowering those in favour. What is critical is that the strategy is locally owned and locally led. If fossil fuel subsidies are a political problem, then only local actors have the political legitimacy to bring about lasting change.

And things are changing. There are now better ways of providing electoral benefits than making fossil fuels cheap. Free health care is better than cheap fuel and far more popular too. The same is true of good education. The trick is not to stop subsidies – it is to swap them for something people value more. As countries build their capabilities to deliver decent alternatives, they need more revenue. Fossil fuel subsidies increasingly become a drag on the ability to spend on the things that people really want. Smart politicians can navigate the

transition, using subsidy savings to both deliver progress and, if they are lucky, gain popularity too.

Of course, we also need to be realistic. Governments the world over failed to build back better from the COVID-19 pandemic and are now rushing headlong to boost fossil fuel subsidies to tackle the energy price shock caused by the war in Ukraine. Subsidies are still seen as a useful tool, whether to prop up favoured businesses or to protect voters from shocks and economists may argue (correctly) that it is more efficient to compensate the poor directly than to lower the price of fuel, but this misses the political point. Governments need to signal that they are trying to protect the average voter, not only the poor. Helping to dampen spiking energy prices by boosting subsidies or reducing taxes is a way of doing that.

But even this use of subsidies may become less important. The current energy price spike has reminded many governments around the world just how vulnerable they are to sudden changes in the price of oil, gas, and other fuels. Governments are suddenly recognizing that solar and wind power are a good idea, not only because they are low carbon but also because the price of their input never changes. The sun does not switch off if it does not like a country and the atmosphere does not redirect the wind based on its political preferences. While solar and wind may be intermittent sources of energy, they are inherently less susceptible to price volatility than fossil fuels. As they continue to expand, the temptation to use fossil fuel subsidies to tackle energy price shocks should gradually disappear.

Even producer subsidies may be on the way out. The last decade has seen a transformation in the way the fossil fuel industry is perceived. With relatively conservative institutions such as the IEA now saying that to achieve net zero carbon emissions globally by 2050, no new oil and gas fields can be developed,[1] the fossil fuel industry is increasingly being seen as a relic of the past, not an industry of the future. As resources rapidly shift towards renewables as the cheapest source of energy, governments will inevitably use subsidies to ease the transition. But in a relatively short amount of time, most fossil fuel industries need to shrink and close, and subsidies for fossil fuel production must die with them.

However, big oil and gas companies are not intending to lay down and die. While the trend for fossil fuel subsidies should be downwards, there is no guarantee of success. Barely six months after the COP26 conference, an investigation by the UK's *Guardian* newspaper found that there are over 150 large new oil and gas projects being planned by the major companies.[2] Oil and gas companies are likely to continue to

use their political influence to try and maintain production subsidies for the foreseeable future.

Equally, while many governments see value in building a broader social contract through the delivery of effective social services, not all do. Some governments see fossil fuel subsidies primarily as a useful political tool, or simply operate in such a fragmented or contested political environment that building a long-term plan to replace subsidies with something better will not be credible. Making progress in such contexts is about much more than fossil fuel subsidies. It is about the struggle for a state that represents the interests of its people and the political stability to turn plans into reality.

The experience of the last few decades has shown that sustainably ending fossil fuel subsidies requires governments to listen to their people. Governments rarely ask people whether they want billions of dollars spent on cheap petrol, gas, or electricity. They rarely lay out the alternatives and ask people their views. If they did, they might be surprised by the answer. Ending fossil fuel subsidies requires a conversation – a genuine dialogue – and listening to ordinary people to learn what kind of approach will be seen as fair and appropriate.

The role we must all play is to demand to be part of that conversation. Do not let the decisions about fossil fuel subsidies – about your energy future and the use of your money – be taken behind closed doors. Tell politicians what you want, whether it is free health care, better education, or cleaner air. When politicians remove subsidies without your consent, protest. Demand that the rich share the pain with the poor; that the government shows it is serious about reining in corruption and rent-seeking before dumping the burden on the poor; that the most vulnerable are protected; and that funds are used for tangible and sustainable benefits.

It is possible to end fossil fuel subsidies. But only if, together, we make our political leaders listen to our needs and force them to subsidize a better future and not the fossil-fuelled past.

Endnotes

Chapter 1

1. OECD (2021a).
2. See Gao et al. (2017) for a detailed description of how these thresholds came to be adopted.

Chapter 2

1. This is the main reason for subsidies, but in some countries, governments also want to support specific fossil fuel industries to maintain levels of employment, for example.
2. Premium Times (2022).
3. Moreover, fuel subsidies have massively increased in 2022 as a result of the increase in the price of oil caused by the war in Ukraine. See World Bank (2022).
4. Ayoub et al. (2021).
5. See the comprehensive discussion in Prayas (Energy Group) (2017).
6. IHS Markit (2019).
7. Erickson et al. (2017).
8. For detailed rates and reductions see OECD (2020).
9. See Jones (2021). The share of fossil fuels in all final energy consumption is, of course, much higher than the share in electricity.
10. Some argue that such lending is not a subsidy because it gets paid back. However, the cost of the credit is lower than it would otherwise be and so there is a subsidy component. The OECD provides the details of how to calculate this subsidy component in OECD (2018).
11. See Environmental Audit Committee (2019) and also Catholic Agency for Overseas Development (no date).
12. For the full statement, see UN Climate Change Conference (2021).
13. In fact, project developers only have to ensure that the infrastructure for carbon capture and storage is included in their plans. Whether they will actually use it will depend on its costs and effectiveness and will not be known until later.
14. For a comprehensive analysis, see Zhou et al. (2018).
15. Peng et al. (2017).
16. OECD (2021a). This figure covers 81 countries, including all the major countries that have significant fossil fuel subsidies. I provide

the 2019 figure since it is closer in time to the IMF figure and because it pre-dates the COVID-19 pandemic. The figure for 2020 is 30 per cent smaller, but this is likely to be reversed in 2021 due to the increase in fossil fuel prices as economies recover from the pandemic. The figure for 2022 is likely to be dramatically higher still due to the effect of the war in Ukraine.

17. Parry et al. (2021).
18. This is my term. Economists call it 'measuring the size of the externality'; the IMF call these externalities 'implicit subsidies'.
19. The benchmark also typically includes the cost of getting the fuel to consumers, i.e. transportation, distribution, and VAT.
20. IEA fossil fuel subsidies database [dataset] <https://www.iea.org/data-and-statistics/data-product/fossil-fuel-subsidies-database#subsidies-database>.
21. OECD [dataset] <https://stats.oecd.org/Index.aspx?DataSetCode=FFS_FRA>.
22. The G20 was originally created in 1999 as a meeting of finance ministers in response to the Asian financial crisis of 1997 and is comprised of 19 countries, plus the EU. The countries are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the UK, and the US.
23. Although it is not as easy as it should be. Many companies and governments don't report all the information needed for a complete calculation. One study of Canada found that around 50 per cent of subsidy measures could not be quantified and so the value of these is unknown. See IISD (2020a).

24 OECD (2021a). The 13 additional countries consisted of non-OECD G20 countries (Argentina, Brazil, China, India, Indonesia, Russia, South Africa) and the EU Eastern European partnership countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine).

25. You may remember that there are five ways in which subsidies can happen: budgetary transfers, tax breaks, debt, subsidized credit, and foregone export revenue. The OECD method only measures the first two of these. No one has yet attempted to measure the accumulated liabilities in debt. In 2018, the OECD piloted a new methodology for calculating the subsidy value of credit subsidies, but no figures have yet been published for this.
26. If you find mental arithmetic fun, then you have probably already noticed that $178 billion + $320 billion does not equal $468 billion. This is because there is a small amount of overlap between the two approaches; the OECD carefully avoids double-counting and so comes up with the $468 billion figure.
27. To be fair to the OECD, it is now considering ways of using an international benchmark, such as a carbon price, to avoid these problems, but that means having to agree on a carbon price benchmark.

28. The IMF calculates two measures: explicit subsidies – by which it means the price-gap measure calculated in much the same way as the IEA and the OECD; and implicit subsidies – by which it means explicit subsidies plus externalities, i.e. the planetary-cost measure.
29. Worstall (2015).

Chapter 3

1. For more on the likely implications of different levels of warming, see IPCC (2022).
2. See <https://ourworldindata.org/emissions-by-sector for details>.
3. In particular, the answer depends greatly on how much you discount for harms that happen in the more distant future. See the detailed discussion by Carbon Brief (2017). For analysis of the social cost of carbon in the US, see Rennert et al. (2021).
4. According to the UN Framework Convention on Climate Change (UNFCCC, 2015), the goal is 'to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels'.
5. This is the figure for 2020; by 2030, they estimate a value between $50–100. Moreover, in 2021, they said that appropriate carbon prices should be at the top of this range. See Stern et al. (2021).
6. Coady et al. (2019).
7. Deforestation is generally accepted to be responsible for around 10 per cent of carbon emissions globally each year. For estimates of reductions from the implementation of energy efficiency technologies, see the section on 'emissions savings' in IEA (2019).
8. Jewell et al. (2018).
9. Erickson et al. (2020).
10. And, of course, air pollution also has a huge impact on health and the quality of life through exacerbating lung conditions such as asthma. It also has a very negative impact on children and pregnant women.
11. Yirka (2020).
12. Klein (2012).
13. Of course, there is also outdoor air pollution from other sources. Forest fires, crop burning, and peat fires can cause air pollution in some countries. There is also a huge problem of indoor air pollution caused primarily from burning wood. The World Health Organization estimates that this causes 3.8 million premature deaths each year. However, fossil fuel subsidies generally do not directly contribute to this problem and so we focus on outdoor air pollution.
14. Ritchie and Roser (2019).
15. Coady et al. (2019).
16. Burke et al. (2017).

17. Burke and Nishitateno (2015). Because cheaper fuel results in more traffic, it also results in more road damage – another externality. However, this externality is not specific to fossil fuel use since it would still exist even if all vehicles switched to being electric.
18. See OECD (2019). The situation is slightly better now due to higher carbon prices under emissions trading schemes – but only slightly.
19. BudgIT (2019).
20. Biden (2021).
21. World Bank (2022).
22. Arze del Granado et al. (2012). See also Coady (2015).
23. World Bank (2015b).
24. As reported in Kitson et al. (2016).
25. See Kitson et al. (2016) for details.
26. Shuppler (2022).
27. McCulloch et al. (2022).
28. Hossain et al. (2021).
29. McCulloch et al. (2022).

Chapter 4

1. Cheon et al. (2013).
2. That said, rich countries also continue to subsidize energy for consumers. This is even more the case in the current energy price crisis. See Geddes et al. (2020).
3. For a brilliant assessment of taxation in Africa, see Moore et al. (2018).
4. Mahdavi et al. (2020).
5. Zerpa and Squires (2021).
6. For a list of petrol prices around the world, see Global Petrol Prices <https://www.globalpetrolprices.com/gasoline_prices/>.
7. In some cases, subsidies are driven by the economic idea that cheap energy leads to industrialization and growth. While there may be a relationship between access to cheap energy and long-term economic growth, there is no evidence that subsidizing fossil fuels helps to promote economic growth.
8. Lockwood (2015).
9. Hill (2014).
10. Achakulwisut et al. (2021).
11. Kotchen (2021).
12. For more on campaign finance in the US, see Prokop (2014).
13. Goldberg et al. (2020).
14. To be clear, these are the views of the respondent; the rise in electricity prices was not the only, or even the primary, reason for unrest in these years, but the comment is indicative of the political sensitivity of electricity price increases.
15. For analysis of the consequences of this freeze for carbon emissions, see Carbon Brief (2020).

16. For details, see Roth and Gerasimchuk (2018).
17. For detailed analysis of the *Gilet Jaune* movement, see Lichfield (2019).

Chapter 5

1. Although leaders or high-level officials from these other regions would often be invited to attend G7 meetings. See <https://www.g7germany.de/g7-en/g7-summit/g7-partner-countries>.
2. The G20 was originally created in 1999 as a meeting of finance ministers in response to the Asian financial crisis of 1997.
3. G20 (2009).
4. Ross et al. (2017).
5. Bast et al. (2015) and Geddes et al. (2020). The long-delayed peer review by Canada and Argentina was still not published at the time of writing.
6. The OECD and IEA produce for the G20 an annual report that documents progress, but countries do not self-assess annually and, notwithstanding initiatives in individual countries, very little aggregate progress has actually been made. For the latest annual report, see IEA and OECD (2021).
7. G7 (2016).
8. Steenblik (2016); OECD/IEA (2021).
9. Pascal Lamy, 29 April 2013, quoted in Steenblik et al. (2018).
10. WTO (2021).
11. Husar and Kitt (2016).
12. For more details, see UN (no date).
13. For details of the methodology, see UNEP (2019).
14. It is 27 years because the UNFCCC came into force in 1994, but COVID-19 meant that COP26 was postponed by one year to 2021.
15. FFFSR (no date).
16. ESMAP (2021).
17. World Bank (2015a).
18. The long answer can be found in McCulloch (2017) and McFarland and Whitely (2014).
19. Geddes et al. (2020).
20. McCulloch (2017).
21. IEA and OECD (2018).
22. Osaka (2021).
23. This is true despite the Executive Order from President Biden placing restrictions. For further analysis, see DeAngelis (2021).
24. A possible exception may be the work of the German–Mexican Energy Partnership, which has focussed on phasing out subsidies in Mexico's electricity sector. See GIZ (no date).
25. For a more comprehensive account of Nordic country support for fossil fuel subsidy reductions, see Merrill et al. (2017).

26. For a comprehensive recent analysis of international initiatives on fossil fuel subsidy reform, see Skovgaard (2021).
27. World Bank (no date).
28. Another reason may be that fossil fuel subsidy reform saves money, so some donors may feel that they should not have to pay for a reform that pays for itself. I am grateful for Jakob Scovgaard for this suggestion.

Chapter 6

1. Clarke (2015).
2. Indeed, changes in the exchange rate and the international price meant that oil marketing companies reduced prices.
3. For a detailed account of subsidy reforms in Indonesia, see Beaton et al. (2017).
4. Pradiptyo et al. (2016).
5. Full disclosure – I was the lead economist of the Australian aid programme at the time!
6. This account is largely derived from Bazoobandi (2017).
7. Bazoobandi (2017).
8. Isfahani (2011).
9. From Khabar Online website (in Persian) cited in Bazoobandi (2017).
10. This account is largely based on Calvo-Gonzalez et al. (2015); see also Calvo-Gonzalez et al. (2017).
11. Agencia EFE, 12 March 2012, cited in Calvo-Gonzalez et al. (2015).
12. The huge spike in energy prices in 2022 resulting from the restrictions in gas supply to Europe as a consequence of the war in Ukraine has led European countries to cap energy prices leading to very large energy subsidies. See Chapter 7 for further discussion of this.
13. European Commission (2020).
14. In 2018 prices.
15. To correct this glaring omission from carbon taxation, the European Commission announced in 2021 that it intends to introduce gradually an EU tax on aviation jet fuel from 2023. See McDermott and Vaughan (2021).
16. Saudi Arabia comes top.
17. For a vivid illustration of the significance of peat to Irish life, read Seamus Heaney's wonderful poem 'Digging' <https://www.poetryfoundation.org/poems/47555/digging>.
18. See CSO (2022) for details.
19. The EU's Effort Sharing Decision (Decision No 406/2009/EC) sets targets for the non-emissions trading scheme sector for EU member states including Ireland for 2020. Ireland's 2020 target was to achieve a 20 per cent reduction of non-emissions trading scheme sector emissions on 2005 levels – a target it missed. See EPA (2021).
20. Dwyer (2022).
21. Bord na Móna (2022).

22. DECC (2019).
23. DECC (2021).
24. In this section I draw heavily on the excellent paper by Rentschler and Bazilian (2017) who reviewed reform experiences in several countries. The IISD and IMF have also produced guides on how to reform fossil fuel subsidies. See Beaton et al. (2013) and IMF (2013).
25. LSI (2014).
26. Hossain et al. (2021).
27. *Just Give Money to the Poor* was even the title of one of the books on the topic. See Global Development Institute (2021).
28. There is a large literature on the causes of poverty. See, for example, Banerjee and Duflo (2011), Baulch (2011) and Ravallion (2016).
29. Parker and Todd (2017).
30. Sdralevich et al. (2014).
31. Moayed et al. (2021).
32. Increasing the share of renewables may also make subsequent fossil fuel subsidy reform easier. See Merrill et al. (2017).
33. The Nigerian government did introduce the subsidy reinvestment scheme SURE-P, but it was widely derided as ineffective.
34. For more on this, see McCulloch (2021a).
35. Kojima (2013).
36. Although the spike in prices in 2022 has led to calls to move away from the formula – see Bloomberg UK (2022). Also, while South Africa's petrol subsidies are not large, it does have a complex system of subsidies aimed at protecting the coal industry. See Burton et al. (2018).

Chapter 7

1. This story is taken from an article on BBC News (2021).
2. Mahler et al. (2021).
3. The US Senate eventually passed the Inflation Reduction Act on 7 August 2022, which included many of the measures from the Build Back Better Bill.
4. European Commission (no date).
5. IEA (2020).
6. OECD (2021b).
7. See Energy Policy Tracker [database] <https://www.energypolicytracker.org>.
8. The remaining 21 per cent was spent on activities that could not be easily classified as either green or fossil fuel.
9. They subsequently fell back to 'only' €190.
10. For a comprehensive analysis of the measures taken by European countries see Sgaravatti et al. (2022).
11. European Commission (2022).
12. Hydraulic fracturing (fracking) is a method of obtaining gas and oil from shale by pumping water, sand, and chemicals at high pressure

into the rock. A moratorium on fracking was introduced in the UK in 2019 due to concerns that it may cause earth tremors.
13. For more ideas about how tax and subsidy reforms can support the recovery, see IISD (2020b).

Chapter 8

1. For more on applying these ideas in practice, see Teskey and Tyrrel (2021).
2. For example, in Myanmar the Pyoe Pin programme worked to promote inclusive, accountable, and fair governance (Booth and Unsworth, 2014). For a review of the evidence about programmes that take a TWP approach, see Laws and Marquette (2018).
3. For details of both the successes and failures of FOSTER, see Buckley et al. (2018); Lopez Lucia et al. (2019).
4. For more details, see McCulloch (2021b).
5. Here I am assuming that you are not one of the key actors that can bring about change, but an external actor – whether domestic (such as a local NGO or CSO) or foreign (such as a donor).
6. A political settlement is a tacit agreement among powerful groups about the rules of the political and economic game, that keeps the peace by providing opportunities for those groups to secure a distribution of benefits (such as resources, rights, and status) they find acceptable. See Kelsall et al. (2022) for more on the concept of political settlements.
7. See Dercon (2022) for more on the 'development bargains' between political elites in different countries.
8. See Inchauste and Victor (2017); Scovgaard and van Asselt (2018).
9. Although there are some good surveys: on Nigeria, see McCulloch et al. (2021); on India, see Aklin et al. (2014). The IISD have also undertaken surveys in several countries.
10. Moayed et al. (2021).
11. Pradiptyo et al. (2016).
12. For an example of this outside the fossil fuel sector, see Sidel and Faustino's (2019) account of how the Asia Foundation managed to get British American Tobacco to support increased taxation on tobacco in the Philippines.
13. McCulloch et al. (2021).
14. Hossain et al. (2021).
15. Burgess et al. (2020).
16. A point well made by Dubash et al. (2018) on energy reforms in India.

Chapter 9

1. See IEA (2021).
2. Carrington and Taylor (2022).

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ENDING FOSSIL FUEL SUB$IDIES

Fossil fuel subsidies are killing both people and the planet. By encouraging excessive consumption of fossil fuels, subsidies exacerbate pollution and climate change, make violent protests more likely, and waste huge sums that could be used far better. Yet for years there has been minimal progress in eliminating fossil fuel subsidies. This book explains what fossil fuel subsidies are, how they inflict harm and what steps are being taken to reduce them. It also shows why subsidies persist and why existing efforts have been so ineffective. Drawing lessons from countries which have tried to remove fossil fuel subsidies, it explains that the fundamental challenge to reform is not technical, but political. The catastrophic COVID-19 pandemic and the tragic war in Ukraine illustrate that fossil fuel subsidy reform will only succeed where it supports the achievement of things that really matter politically - energy security, protection from climate change, better air quality, and resources to improve people's lives. The book lays out a new agenda for action on fossil fuel subsidies, showing how a better understanding of the underlying political incentives can lead to more effective approaches to tackling this major global problem.

'Neil McCulloch's wonderful, short book explains why it is hard to end fossil fuel subsidies, but also charts a politically savvy way in which it could be done.'

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'Ending Fossil Fuel Subsidies provides a treasure trove of insights about what can practically be done to tackle [this] problem – it should be read by policymakers everywhere.'

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