

Fossil Fuel Subsidy Reform and Taxation

Stories for Success for the Talanoa Dialogue

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WHY FOSSIL FUEL SUBSIDY REFORM AND TAXATION?

The combined impact of fossil fuel subsidy reform (FFSR) and an increase in gasoline and diesel fuel taxation could do three things: save and raise money for governments; reduce emissions; and provide upfront and ongoing domestic resources to fund sustainable development and the sustainable energy transition. Currently consumer and producer fossil fuel subsidies stand at **around USD 425 billion annually**, and although consumer subsidies have decreased due to a combination of lower oil prices and active reforms, it is also estimated that overall effective gasoline taxation has actually reduced by 13.3% from 2003-2015. However, through a combination of fossil fuel subsidy reforms and increases in fuel taxation, **CO₂ emissions could be reduced by 23% globally** and raise much needed revenue to governments (2.6% of GDP). For example, India and Indonesia both saved around USD 15 billion each in 2015 from FFSR. Almost 70 countries included either FFSR or fuel taxation in their NDC, many more countries might consider including these fiscal policy instruments in the future. A Talanoa dialogue on fossil fuel subsidy reform and fossil fuel taxation would enable the sharing of stories between countries who have made the link between these fiscal instruments of fossil fuel subsidy reform and fossil fuel taxation, and the implementation of improved government revenues, delivering the Paris Agreement and the Sustainable Development Goals.

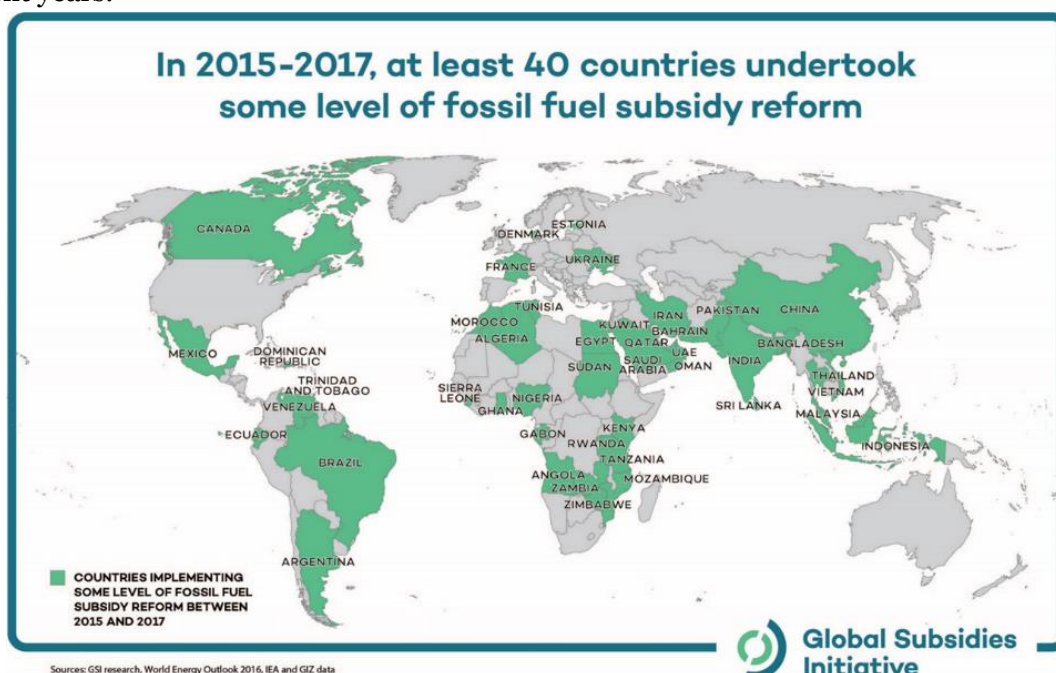
WHERE ARE WE NOW?

Despite recent low oil prices, fossil fuel subsidies are still significant. In 2015, the International Energy Agency (IEA) estimated that fossil fuel subsidies stood at USD 325 billion dollars for consumer subsidies alone (International Energy Agency [IEA], 2016). Subsidies to producers from G20 countries alone stand at 70 billion (Bast, Doukas, Pickard, van der Burg, & Whitley, 2015). The Organisation for Economic Co-operation and Development (OECD) estimates the overall value of government support to fossil fuels at between USD 373 billion to USD 617 billion for the period 2010-2015 (OECD, 2018).



According to the OECD, the production or consumption of fossil fuels is supported by almost 800 individual policies (OECD, 2015a). There is no estimate for the combined size of both downstream consumer and upstream producer subsidies, due to the opaque nature of producer subsidies and the painstaking work involved in identifying and tracking them. For the most part, measurements of fossil fuel subsidies focus on direct fiscal incentives. Indeed, the Global Subsidies Initiative (GSI) of IISD defines fossil fuel subsidies on the basis of the World Trade Organization Agreement on Subsidies and Countervailing Measures (WTO ASCM), Article 1.1. GSI measures fossil fuel subsidies based on an inventory approach interpreted from WTO ASCM of around 30 energy subsidy types (GSI, IEA, WB and IMF, 2014). **A reasonable estimate places the combined total for both producer and consumer subsidies for 2015 at around USD 425 billion** (Merrill et al. 2017).

Most consumer fossil fuel subsidies are found in the Middle East. The IEA state that the largest sources of consumer subsidies to fossil fuels are Iran (16 per cent of the total, or USD 52 billion), Saudi Arabia (USD 49 billion), Russia (USD 30 billion) and Venezuela (USD 20 billion) (IEA, 2016). In terms of environmental damage, in 2010 China, the former Soviet Union and the United States accounted for roughly 75 per cent of environmental costs associated with fossil fuel subsidies (Stefanski, 2016, p.29). Changes in the size of fossil fuel subsidies reflect changes in the price of oil, which is volatile. Importing country governments must pay more for fossil fuels when the price is high, and therefore subsidies increase. Reforms are difficult because prices may increase sharply. The current low oil price means the size of consumer fossil fuel subsidies are consequently lower. It is therefore easier for countries that import fossil fuels to reform their consumer subsidies in that the pass-through costs to consumers are lower. Between 2015 and 2017 around 40 countries underwent some sort of reform (see below). Indeed, the IEA points out that “without the reforms adopted since 2009, the value of fossil fuel subsidies would have been 24% higher (\$117 billion), putting the level of these subsidies at \$610 billion in 2014” (IEA, 2015b, p.96). Active reform combined with the lower oil price has helped lead to a reduction in consumer subsidies in recent years.





With low oil prices countries that export fossil fuels receive lower incomes from this resource and pressure has built on fiscal budgets, exacerbated where fuel subsidies are also maintained to domestic consumers. Oil exporters can also no longer afford to maintain such subsidies, and the last few years have seen significant domestic reforms from countries like the United Arab Emirates and Saudi Arabia. In contrast, there are examples of increased pressure on governments to provide more subsidies upstream to fossil fuel producers in times of a low oil price (Gerasimchuk, et al. 2017; Whitley et al. 2017). It is unclear whether reforms to date have structurally eliminated fossil fuel subsidies or if they will return when oil prices rise. Even where mechanisms are in place to automatically pass through future price increases, political pressure may force policy-makers to reintroduce subsidies. Properly structured reforms—with entrenched, transparent pricing mechanisms and additional appropriate taxation levels—will help prevent the return of fossil fuel subsidies in the presence of high oil prices. Sharing lessons between countries as to how to implement smooth reforms is key.

In other words, globally although fossil fuel subsidies to consumers are reducing, due to a combination of active reforms and low oil prices, these figures do not take into account upstream producer subsidies which are likely to be increasing. Research finds that globally the price of fossil fuels as a result of a combination of both subsidy reform and taxation has actually fallen by 13.3% from 2003-2015 (Ross, Hazlett and Mahdavi, 2017). Some governments are missing an important fiscal ‘triple win’ through the careful combination of both fossil fuel subsidy reform and taxation. Namely to firstly save and raise domestic finance through reform of subsidies to and taxation of fossil fuels; secondly via the combined impact that reform and taxation has on increasing the price of fossil fuels hence encouraging energy efficiency or a switching towards cleaner fuels and leading to a reduction in carbon emissions; and thirdly through the provision of domestic finance to enable governments to reinvest into the Sustainable Development Goals or towards Sustainable Energy for All i.e. to deliver a ‘SWAP’ – away from fossil fuel subsidies and towards investment in sustainable energy.

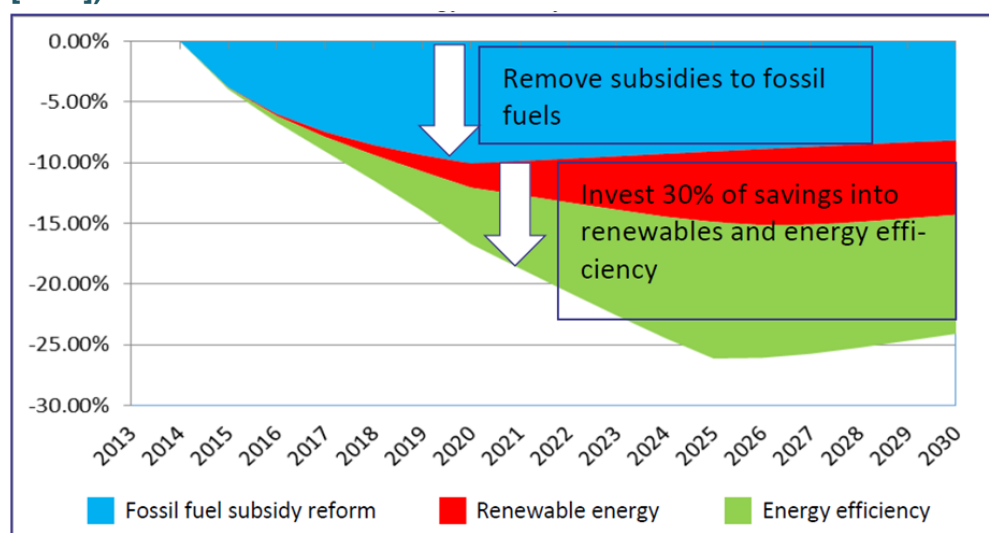
WHERE DO WE WANT TO GO?

In the last few years there has been a growing awareness among governments and an increasing number of studies suggesting a significant link between carbon emissions and the presence or removal of fossil fuel subsidies. Research estimates that the removal of all fossil fuel subsidies would lead to a global decrease in carbon emissions of between 1-4 per cent by 2030 (Jewell et al. 2018) and between 6.4–8.2 per cent by 2050 (Schwanitz et al. 2014; Burniaux & Chateau, 2014). Research funded by the Nordic Council of Ministers enabled the modelling of country subsidy reforms on carbon emissions across 20 individual countries using the GSI-Integrated Fiscal (GSI-IF) model. The research found that across 20 subsidizing countries an average overall drop of 11 per cent in country emissions was achieved through a phase-out of fossil fuel subsidies by 2020. Suggesting average annual savings to governments of close to USD 93 per tonne of greenhouse gas (GHG) emissions removed, or a total (across just 20 countries) of 2.8 gigatonnes (Gt) of CO₂ by 2020 (Merrill, Bassi, et al., 2015). This average emissions drop across the countries modelled increased to an average of 18 per cent if a small share of the savings from subsidy reform (a modest 30



per cent) is “switched” or “swapped” into energy efficiency and renewables, with a further 50 per cent allocated for social spending in the model (see Figure 1). Further switching off subsidies to producer subsidies globally could result in an additional 37Gt of savings by 2050 (Gerasimchuk et al., 2017).

Figure 1. Average emissions reductions from FFSR across 20 countries with 10% of savings invested in renewables and 20% into energy efficiency (as against business as usual [BAU]).



Source: Merrill, Bassi et al., 2015.

The range of emissions reductions from the phase-out of consumer fossil fuel subsidies globally is very broad depending on the scenarios utilized, the countries included in the modelling, the scale of the subsidies and the time frame for phase-out. For example, OECD research finds that reform and removal of these subsidies could lead to co-benefits of global emissions reductions of around 3 per cent by 2020, rising to around 8 per cent by 2050 (Durand-Lasserre, Campagnolo, Chateau, & Dellink, 2015; Burniaux & Chateau, 2014). The IEA (2015a) finds a 10 per cent reduction in energy sector emissions by 2030, from accelerating the partial phase-out of subsidies to fossil fuel consumption.

These studies are by no means the first. Research on this issue has been recognized as important among economists for over 20 years: “the removal of fossil fuel subsidies has been advocated as the first order of priority in instituting economic policies to protect local and global environments” (Larsen, 1994, p.2). Reform has more recently been recognized as “a foundation policy for the successful further implementation of many other climate policies: energy efficiency, renewables, innovation, carbon pricing and taxation, public transport infrastructure and the generation of domestic resources for the low-carbon energy transition” (Merrill, Bassi et al., 2015, p. 9). Others also observe that in the long term “all phase-out scenario emissions are returning to the same level as the reference case, since the effects of the phase-out [of fossil fuel subsidies] are less important than other effects that drive emissions like population, GDP growth, or resource depletion” (Schwanitz et al., 2014, p. 886).



However, research on the relationship between the phase-out of consumer fossil fuel subsidies and emissions reductions also stresses that, although the removal of subsidies to consumers does lead to domestic and international reductions in GHG emissions, it is no substitute for a global climate agreement with a clear cap on emissions and clear climate policies (IEA, 2015a; Merrill, Bassi, et al., 2015; Burniaux & Chateau, 2014; Schwanitz et al., 2014). For example, fossil fuel subsidy reform in the presence of an emissions cap increases emissions reductions from around 8 to 10 per cent and maintains the reductions from reforms in the long term (Burniaux & Chateau, 2014). This point is critical. **In practice, it means that if countries want to benefit from ongoing and permanent emissions reductions from fossil fuel subsidy reform, they likely need to do two things. Countries need to both reform and make the “switch” or the “swap” to cleaner, low-carbon or zero carbon fuels** (Merrill et al. 2017). Governments can choose to invest in energy efficiency, renewable energy, public transport schemes and the like in order to help move away from energy systems built on fossil fuels and toward those based on sustainable energy. **Countries can also start to tax fossil fuels correctly** in that the removal of fossil fuel subsidies combined with the correct taxation of fossil fuels could reduce CO₂ emissions by a much larger 23 per cent globally (Parry, et al., 2014).

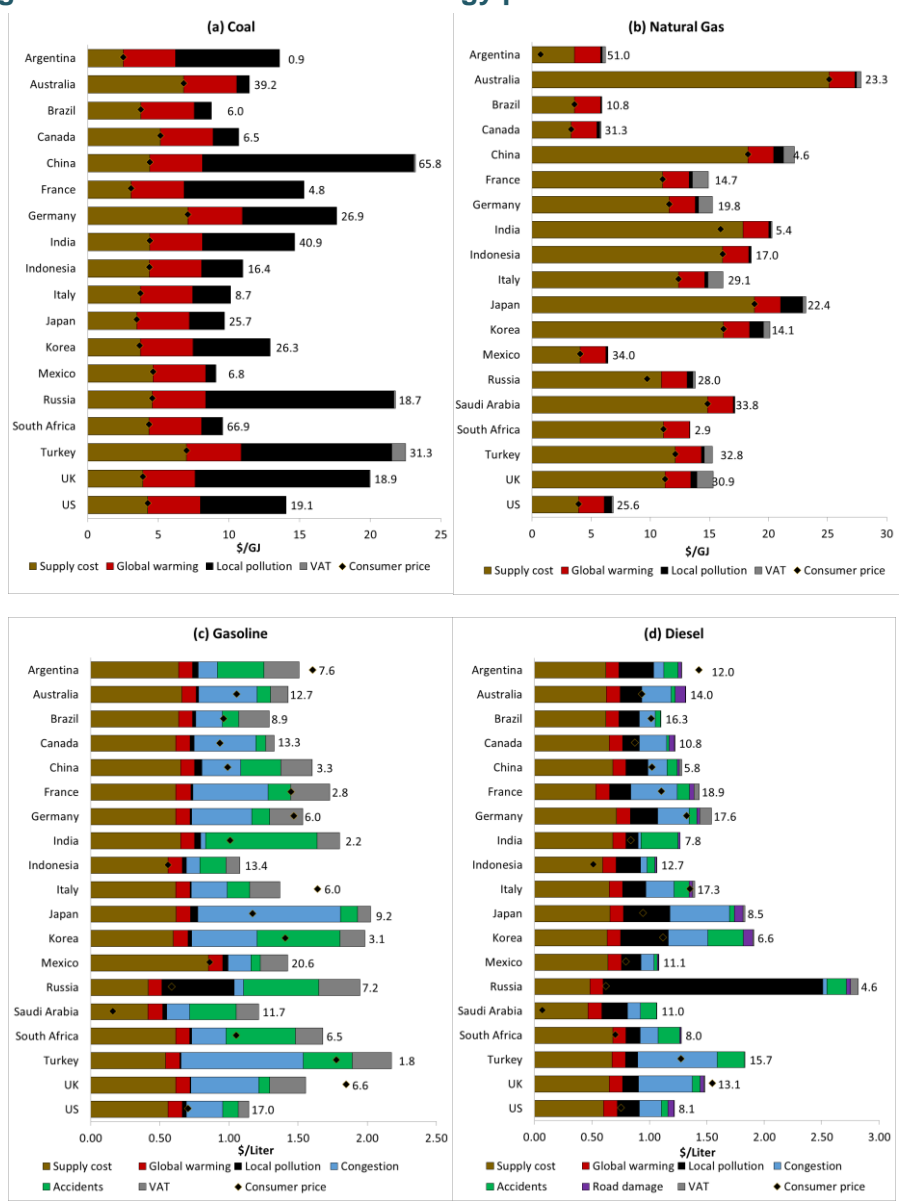
While a successful model of taxation exists for motor fuels (gasoline and diesel), this is not the case for coal (see Figure 2). Coal not only has huge carbon and climate implications, but also immediate health and pollution impacts that are often ignored within its pricing. For example, McGlade & Ekins (2015, p. 187) find that “globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C.” A global estimate of fossil fuel subsidies, which includes the cost of both carbon emissions and the impact of pollution on health (i.e., post-tax consumer subsidies), places the cost at around 4.9 trillion annually in 2013, rising to USD 5.3 trillion in 2015 (Coady, Parry, Sears and Shang, 2015). Currently, the external costs of fossil fuels are not fully accounted for within their price. Nominal global subsidies for coal are estimated by the IEA to be USD 1 billion in 2015 (compared to oil subsidies of USD 145 billion) (IEA, 2016). Yet further research finds that just 10 countries in Europe provide €6.3 billion per year in subsidies to coal across a total of 65 subsidies identified (Whitley et al. 2017). However, these nominal figures do not consider coal’s externalities. Further, “among different energy products, coal accounts for the biggest subsidies, given its high environmental damage and because (unlike for road fuels) no country imposes meaningful excises on its consumption” (Coady, Parry, et al., 2015, p. 6).

Further, countries could tax fossil fuels potentially via a carbon tax but more conventionally via basic Value Added Taxation (VAT) or a Goods and Services Tax (GST). This point is important because there is a wider problem—or rather opportunity—moving forward that is linked to the basic taxation of fossil fuels globally. Namely, not only is there the issue of removing existing subsidies to fossil fuels, but that there is a chronic under-taxation of fossil fuels throughout the global economy (motor gasoline, motor diesel, natural gas and coal) (Parry, Heine, et al., 2014). This is particularly prescient considering the current period of low oil price which encourages over-consumption.



Figure 2 below illustrates the gap between current price levels (the diamond) and appropriate taxation levels (the end of the bar) for G20 countries. It also illustrates an implicit price-gap (i.e., a fossil fuel subsidy) where the diamond has a negative value (e.g., for diesel in Indonesia and Saudi Arabia). In other words, some countries could shift their price (diamond) to cover the cost of supply (i.e., remove the fossil fuel subsidies) and many countries could then further shift their price (diamond) to the end of the bar (i.e., representing appropriate fossil fuel taxation). An increase in price (either through subsidy removal or the addition of VAT) leads to a reduction in demand, drives investment in readily available energy efficiency and renewable energy technologies, supports smart regulation and therefore results in decreased GHG emissions.

Figure 2: Current and efficient energy prices in G20 Countries



Source: IMF (2017). Reproduced with permission.



With the current combination of fossil fuel subsidies and chronic under-taxation, the opposite of correct energy pricing occurs. **In 2014, 13 per cent of energy-related carbon dioxide emissions were from subsidized fossil fuels (equivalent to a government subsidy of USD 115 per tonne of CO₂)—compared to 11 per cent of energy-related carbon emissions covered by emissions trading schemes and priced at around USD 7 per tonne** (IEA, 2015a). However, some countries are realising the co-benefits of emissions reductions from fiscal instruments such as fossil fuel subsidy reform and taxation. 14 countries included the issue of fossil fuel subsidy or energy sector reform within their Nationally Determined Contributions (NDC) and almost 70 countries included either FFSR or fuel taxation in their NDC. (Terton, Gass, Merrill, Wagner, & Meyer, 2015).

HOW DO WE GET THERE?

If fossil fuel subsidy reform was coupled with correct pricing of fossil fuels via taxation, the potential combined savings and ongoing revenue streams to governments would be significant. The IMF estimates that removing subsidies and then taxing fossil fuels effectively represents an average potential revenue to governments of 2.6 per cent of GDP globally (Parry et al., 2014). Corrective taxes could be a significant revenue sources for many countries, and an increase in price leads to behavioural change. Many countries could experience significant revenue gains from either removal of subsidies and/or correct taxation of fossil fuels including Brazil, China, Egypt, Indonesia, Japan, Mexico, Nigeria, and the United States (Parry et al., 2014). Such revenues to governments could be better spent on other sectors of the economy, such as those reflected in the SDGs including health, education, infrastructure, and sustainable energy for all (Table 3 gives an indication of the scale of subsidies in comparison to existing financing gaps).

Table 3. Mind the Gap: Fossil Fuel Subsidies Could Fill the SDG Financing Gap

<i>Climate Finance: Fossil fuel subsidies are 6 times larger than the gap to reach the Paris pledge</i>	<i>The Paris Agreement (2015) included agreement to mobilize USD 100 billion in climate finance every year up to 2025. The current financing gap is estimated at USD 70 billion in 2015 (World Bank, 2015a). Annual fossil fuel subsidies are currently 6 times larger than this gap.</i>
<i>Renewables: 3 times higher than renewable energy subsidies in 2014</i>	<i>Consumption subsidies of almost USD 500 billion were more than three times higher than renewables subsidies of some USD 140 billion (consisting of USD 114 billion for non-hydro renewables for power generation and USD 24 billion for other sectors, notably biofuels) (IEA, 2016).</i>
<i>Energy Access around 1/2 the gap</i>	<i>Fossil fuel subsidies represent just under half of the budget needed to fund the clean energy transition. Achieving universal energy access, doubling the share of renewable energy in the global energy mix, and doubling the rate of improvement in energy efficiency by 2030 is estimated to cost USD 1 trillion annually (SE4all, 2016)— savings from subsidies to fossil fuels could help fund this transition.</i>



<i>Education: Fossil fuel subsidies 11 times more than the gap</i>	<i>Globally annual subsidies to fossil fuels are almost 11 times larger than the funding needed to plug the financing gap for universal education (USD 39 billion) (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2015).</i>
<i>Health: Fossil fuel subsidies 13 times more than the gap</i>	<i>Fossil fuel subsidies are almost 13 times larger than the gap of USD 33.3 billion (2015) needed to finance health care (reproductive, maternal, new-born, child and adolescent health) (Global Financing Facility (2017).</i>
<i>Climate Change Adaptation and Resilience: Fossil fuel subsidies 22 times more than current financing</i>	<i>Fossil fuel subsidies represent around 22 times more than 2014 financing of USD 22.5 billion (Merrill, 2016). By 2050 the gap is estimated to be huge at between USD 280–500 billion. (United Nations Environment Programme [UNEP], 2016).</i>

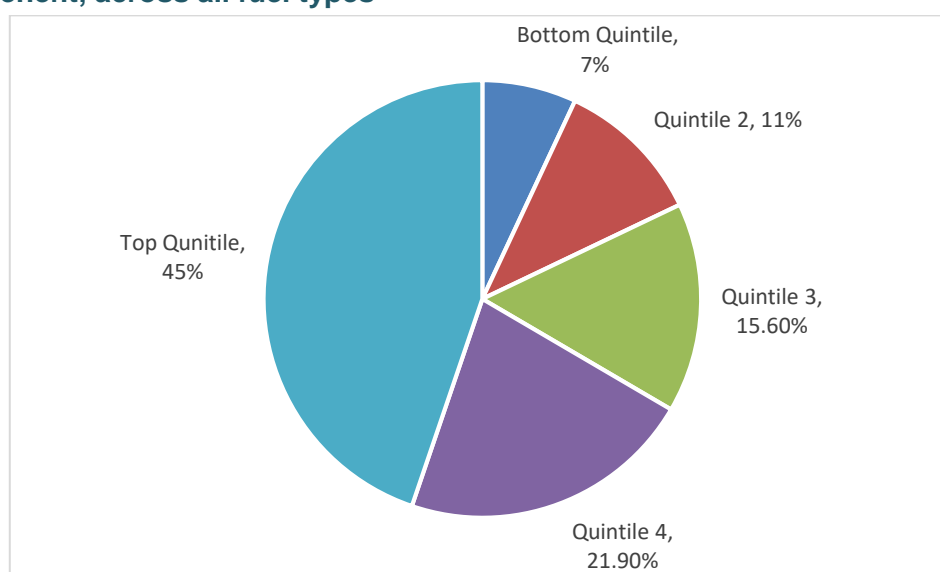
Source: Merrill et al. 2017

By tackling subsidies governments are able to save resources and potentially allocate them elsewhere (health, education and sustainable energy). Governments may also tax fossil fuels effectively to bring in ongoing revenues.

Not only can fossil fuel subsidy reform and taxation help deliver the SDGs through provision of additional domestic finance but also through behaviour change. Many of the SDGs are interlinked for example linked to poverty reduction, gender empowerment, and sustainable energy access. Fossil fuel subsidy reform is also linked to climate change, because reform leads to an increase in fossil fuel prices which in turn can lead to fuel efficiency and switching and a subsequent decrease in emissions. However, there are broader implications for example around shifting welfare systems from those based on subsidized fossil fuels (cheap fuel) towards more sophisticated social safety nets. Fossil fuel subsidies are very regressive in their nature in that they do a poor job of assisting the poor effectively. Research covering 35 countries finds that "on average, the top income quintile receives more than six times more in total subsidies than the bottom quintile" (Coady, Flamini & Sears, 2015, p. 12, see Figure 4) and that fossil fuel subsidies are very regressive: "**nearly 93 out of every 100 dollars of gasoline subsidy 'leaks' to the top three quintiles.**" Subsidies to gasoline perform badly, the bottom two quintiles receive on average 7.4 per cent of benefits and the top two quintiles receive on average 83.2 per cent of benefits (Coady, Flamini & Sears, 2015). Country data is also striking. Even with kerosene, where the IMF study finds that benefits are equally distributed across the quintiles, national surveys find real variations on the ground. One study in India finds that for every six rupees the government spends on kerosene subsidies only one rupee reaches the poorest 20 per cent of consumers (Clarke, 2014). This substantial leakage of subsidy benefits to the top income groups means that blanket fuel subsidies are an extremely costly and thus inefficient way to providing assumed targeted welfare to poor households.



Figure 4. Distribution of Fossil Fuel Subsidy Benefit by Income Group, % of total subsidy benefit, across all fuel types



Source: Coady et al. 2015. Reproduced with permission.

STORIES FOR SUCCESS ...

On fossil fuel subsidy reform

The last few years have seen impressive progress by a number of governments in phasing out fossil fuel subsidies and investing instead in social safety nets, education, health care and development priorities. To mitigate the impact of gasoline and diesel subsidy reforms, Indonesia used a basket of social protection policies covering education, health insurance, food subsidies, cash transfers and infrastructure programs. Indeed, **Indonesia**'s first large-scale unconditional cash transfer system was created in only six months in order to compensate for subsidy reforms. **Brazil** started to gradually increase prices on fossil fuels in the early 1990s with deregulation in 2002 across gasoline, diesel and liquefied petroleum gas (LPG). From 2001 onwards Brazil developed better-targeted LPG voucher subsidies and a national conditional cash transfer scheme aimed at covering education and energy outcomes (Adeoti, Chete, Beaton, & Clarke, 2016). **Ghana** reformed subsidies to gasoline and diesel: it also developed a livelihoods program to support families. **India** put in place a direct benefit transfer for LPG, which has since become one of the largest cash transfer programs in the world (Adeoti, et al., 2016). **Morocco** expanded a national conditional cash transfer, education and health insurance scheme at the same time as reforming (Merrill et al., 2016). **The Philippines** used targeted cash transfers to help build a national safety net and lifeline tariffs to protect the poor in the process of reforms (Mendoza, 2014). **Peru** expanded a conditional cash transfer program and introduced an improved cook stove distribution scheme (Merrill et al., 2016).

Reform presents an opportunity for governments to switch from relatively simple and easy-to-administer subsidies designed to provide welfare benefits via cheap fossil fuels toward more administratively complex, but better-targeted (and often cheaper) social welfare systems and safety nets via direct cash payments and targeted measures.



A World Bank report (Inchauste & Victor, 2017 p.9) finds that the link between reforms and the development of social protection schemes is important in that “improvements in social protection systems are critical to the success of reforms” because they make it possible to target assistance to those most in need. Furthermore, it finds that a switch away from fossil fuel subsidies and toward better-targeted assistance can also promote better tracking and governance of the subsidies via smart cards or micropayment schemes.

On fossil fuel taxation ...

Countries can also learn from one another regarding **progressive fossil fuel taxation**. In **China**, currently 17% VAT and excise tax are imposed in fuels. The tax prices on gasoline and diesel were increased between November 2014 and January 2015 from US\$0.16 to US\$0.24, and US\$0.13 and US\$0.19 respectively (Kojima (2016)). In **Brazil** an excise tax on fuels (CIDE) was introduced as a means of generating income to be spent on subsidizing the consumption of Liquid Petroleum Gas (LPG) for vulnerable households. Other uses for the revenue include use for environmental protection projects, the construction of roads and subsidies for ethanol production (Adeoti et al. (2016)). **South Africa** introduced a fuel levy on gasoline and diesel in 2007 and in 2015 the government announced that it was increasing fuel taxation to create general government revenue and The Road Accidents fund levy. It was estimated that the increases were expected to raise 6.5 billion rand (USD 0.5 billion) over the following two years after implementation. In addition, the government is finalising a Carbon Tax policy for 2017, which will be US\$7.80/ tonne of CO₂ (Kojima (2016), OECD (2015)). **India** introduced a coal cess in 2010 and increased in the cess on coal from Rs 200 per tonne to Rs 400 per tonne in the 2016/2017 budget. This is the third time the cess, now called Clean Energy Cess, has doubled since being introduced in 2010. Since the cess was introduced it has become an important source of revenue, financing an entire budget and supporting green activities. At Rs 200 per tonne it was estimated that Rs 13,000 crore or USD 2 billion was donated to the National Clean Energy Fund (NCEF) every year (Sinha, A., 2016).

THE NEED FOR DIALOGUE: SHARING STORIES AND LESSONS LEARNED

However, many governments are still missing an effective fiscal financing trick from the perspective of saving and raising revenues, significantly reducing emissions and encouraging sustainable energy take off as well as sources of financing and moving forward on broader SDGs such as health, education and safety nets to eliminate poverty. **A triple win could be achieved with a combination of fossil fuel subsidy reform and effective fossil fuel taxation**. Removing subsidies to fossil fuel consumption is estimated to have emissions reductions ranging from between 6-8 per cent by 2050. Further switching off subsidies to producer subsidies could result in additional savings of 37 Gt, equivalent to all emissions from the aviation sector (Gerasimchuk et al. 2017). Reallocation of subsidy savings toward renewables and energy efficiency would lower emissions further still. Subsidy reform, combined with a strong—and fully implemented—climate agreement and regulation would improve emission reductions further. Finally, additional taxation of fossil fuels through VAT, GST or carbon pricing improves emission reductions further (to around 20 per cent) and



provides much-needed ongoing revenue streams to governments. Yet globally many governments are still doing the opposite. In 2014, 13 per cent of energy-related carbon dioxide emissions were from subsidized fossil fuels compared to 11 per cent of energy-related carbon emissions covered by emissions trading schemes. Not only are these fiscal instruments overlooked from an emissions reductions perspective but also from the perspective of savings and revenue gains that governments could make from implementation, as well as the opportunities for funding the broader SDGs from the perspective of financing for health, education and sustainable energy. There are also opportunities for governments to build more sophisticated welfare systems in the process of fossil fuel subsidy reform that are better targeted at poverty reduction, rather than the provision of cheap fossil fuels.

In short, a Talanoa dialogue could enable governments to learn from leaders, share stories for success and explore the opportunities afforded nationally from smart fiscal instruments on fossil fuels such as subsidy reform and taxation: for increasing fiscal revenues, for decreasing GHG emissions, and for financing the SDGs, in other words delivering a triple win.

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