

## Working Paper

# Fossil fuel subsidy reform in sub-Saharan Africa: from rhetoric to reality

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## Executive Summary

Linked to rapid population growth and previously unmet needs, primary energy demand in sub-Saharan Africa (SSA) for both power and transport is fast expanding. Access to energy in the region is still very limited, however, and where it is available is often not affordable.

Almost 66% of the population of SSA had no access to electricity in 2014, and traditional biomass remains the primary source of energy used for heating and cooking. Among those who do enjoy access to electricity, many still rely on expensive privately owned diesel-fueled generators because of unreliable grid supply. As a result the average price of electric power in SSA is often far higher than in other developing regions.

Also, although fossil fuels dominate the transport sector, apart from a handful of countries, its current use for power generation is low. Yet in the past five years, 30% of all new oil and gas discoveries were made in SSA, and the region is also becoming important for the development of coal.

Ensuring access to affordable energy for power and transport and taking advantage of the region's resources will be critical for economic development in SSA. Future government decisions regarding their support for the development of renewable resources as opposed to fossil fuels, both for domestic use and for export, will have a significant impact on wider investment in the energy sector, and the level of greenhouse gas (GHG) emissions in the power, transport and other energy-intensive sectors both in SSA countries and globally.

Worldwide, a significant proportion of the private sector receives some level of support, interventions and subsidies from the public sector. In the specific case of energy subsidies (of which fossil fuels are a subset) their use has been historically linked to supporting energy security, domestic energy production, and access to energy. In recent years, however, accounting for the full economic, social and environmental costs and benefits of subsidies for fossil fuels, along with the development of other government interventions to achieve the same objectives, has led to demands to start removing them. This report outlines the economic, social, and environmental costs of fossil fuel subsidies; emerging evidence of the benefits to be derived from their reform; and opportunities and processes to support such reform.



Photo credit: Missharongray / Flickr.com

## About this working paper

An earlier draft of this paper was prepared as a contribution to the 2015 Africa Progress Report (APR) *Power, People, Planet: Seizing Africa's energy and climate opportunities* by the Africa Progress Panel, which is available at: [www.africaprogresspanel.org](http://www.africaprogresspanel.org).

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## Executive Summary (continued)

Fossil fuel subsidies have been found to inhibit sustainable economic development by creating a significant burden on government budgets, reducing resources that could be put to more efficient use within the economy; perpetuating inequality and undermining access to affordable energy by benefiting the rich rather than the poorest social sectors; decreasing the competitiveness of selected industries, including low-carbon businesses, by discouraging investment in renewable energy and energy efficiency; and increasing the risk of stranded assets (in the event of climate regulation) by encouraging exploration for and production of unburnable carbon.

Despite this mounting evidence of the costs of subsidies for fossil fuels, and the potential virtuous cycles that could result from their removal, governments are often reticent to undertake reform. Researchers have identified several specific reasons for the persistence of subsidies. Some of these are explicit, such as a lack of information, while others are implicit, driven by special interests. In addition, governments sometimes subsidise fossil fuels because they lack other effective means and institutional capacity to adopt more suitable policies. Taken together, these implicit and explicit barriers to reform create a dangerous inertia regarding subsidies even in the context of new technological, economic and social developments.

Given the challenges associated with reform, it is encouraging that a number of countries have recently made significant progress in reforming subsidies for fossil fuels across a wide range of sectors. The International Energy Agency (IEA) and the International Monetary Fund (IMF) have documented reforms undertaken in almost 30 countries in 2013 and 2014, some of which were spurred by falling oil prices. This report includes a number of case studies of reform in SSA (in Angola, Ghana, Kenya, Nigeria and Uganda), and, in conjunction with wider research on the processes of reforming subsidies, provides lessons for the key ingredients of successful reform. These steps are very similar to those needed for any effective process of policy change, and include:

- Mobilising resources in order to support many of the elements necessary for a robust reform process.
- Providing clear, open and honest information on the scale of subsidies, their costs and impacts, who pays and who benefits, plans for reform, and complementary measures to be adopted.
- Creating new institutions or strengthening existing ones to support reform
- Using the fiscal space created by subsidy reform for wider public goods.
- Reallocating the resources saved to those groups most affected by reform by adopting complementary measures. These may include support to sectors, industries and firms, and to households and individuals.
- Setting credible and predetermined timeframes for phasing out subsidies, staggering the elimination of different subsidies, and ideally undertaking reform as part of broader sector- or economy-wide reforms.

In relation to international support for the reform of fossil fuel subsidies in SSA, agencies such as the World Bank and bilateral donors are often already providing resources and finance for complementary measures, such as support for health services, education, social protection, energy sector development, and economic diversification, but seldom in a way that is linked to subsidy reform processes, either in terms of institutional arrangements or timing. It will be important to not only increase these resources, but to also foster linkages between existing support mechanisms and the processes of (and linked to the benefits from) reforming fossil fuel subsidies.

Although this report highlights the fact that opportunities and processes for reforming fossil fuel subsidies take place at the national level, international cooperation is already supporting national reform efforts in a number of ways. These include identifying and estimating the cost of subsidies, country-level support for reform processes, coordination and drawing out lessons, and advocacy. The high-level commitments to reform fossil fuel subsidies made by the G20, Asia-Pacific Economic Cooperation (APEC) and European Union (EU) countries, as well as key international agreements, present a critical opportunity for existing activities to be scaled up, and for new efforts to be developed in order to: 1) improve the availability of comparable information on fossil fuel subsidies; 2) increase technical and financial support for national reform efforts (with a focus on complementary measures); and 3) widen and strengthen countries' commitments to reform.

The primary channels for greater international ambition and action are: bodies for reporting, tracking and accountability; financial and technical support, which must be diverted from providing subsidies and towards reform; multilateral and bilateral agreements (including on trade); and a greater understanding of the processes being undertaken by regions and countries that are already leading by example in reforming subsidies to fossil fuels.

# 1. Introduction

This report examines a sub-set of energy subsidies in sub-Saharan Africa (SSA) related to the production and consumption of fossil fuels (oil, gas and coal), and outlines opportunities and processes to support their reform. This analysis focuses on fossil fuel subsidies because their economic, social and environmental costs have recently received significant attention – including through high-level calls to reform and phase out subsidies to fossil fuels from organisations including the International Energy Agency (IEA), in agreements such as the Addis Ababa Action Agenda and the Sustainable Development Goals (SDGs), and from leading public figures such as Kofi Annan, the former UN Secretary-General. Far less attention, however, has been paid to providing guidance for those seeking to undertake energy subsidy reform more broadly, and fossil fuel subsidy reform more specifically.

In order to support governments and other stakeholders in SSA that are seeking to understand the potential for fossil fuel subsidy reform, or to avoid implementing these subsidies as part of wider energy sector development, this report outlines:

1. The role of fossil fuels in SSA's energy mix.
2. The current scope and scale of fossil fuel subsidies in SSA.
3. Evidence of the costs of fossil fuel subsidies.
4. Potential barriers to subsidy reform.
5. Drivers of and opportunities for reform.
6. Key principles for reform at the national level.
7. Opportunities for accelerating reform through international support.

This report is complemented by a by a global report *Fossil fuel subsidy reform: from rhetoric to reality* that provides broader guidance on reforming subsidies for fossil fuels that apply to a wider range of countries. It is anticipated that additional regional reports could be developed.

## 2. Fossil fuels and sub-Saharan Africa's energy mix

Linked to rapid population growth, primary energy demand in sub-Saharan Africa (SSA) for both power and transport is fast growing,<sup>2</sup> but access to affordable energy is still very limited. Energy use per capita is one-third of the world average, and the energy costs for the rural poor in SSA sometimes exceeds the energy costs of people living in cities such as New York City or London by 60 to 80 times.<sup>3</sup> Ensuring access to affordable energy services, for power and transport, and taking advantage of the region's resources will be critical for SSA's economic development.

### 2.1 RESOURCES

Biomass is the primary energy resource currently used in SSA, and is mainly used by households for heating and cooking, with use for power generation and industrial heat making up only a very small share.<sup>4</sup> More than 750 million people in SSA lack access to non-solid fuels, meaning that only 18% of the population has access to modern cooking fuels.<sup>5</sup> After biomass, hydropower is the most important energy source, which also has the lowest average costs in terms of electricity generation. Coal accounted for 45% of on-grid power-generation capacity in 2012 (most of this in South Africa), followed by hydropower (22%), and oil, (17%). SSA has the potential to meet more than three times its current electricity demand through hydropower.<sup>6</sup>

Although fossil fuel dominates the transport sector, beyond a handful of countries its current use for power generation is low. Nonetheless, in the past five years, 30% of global new oil and gas discoveries were made in SSA, which may spur an increase in the production of fossil fuel energy and exports of fossil fuels.<sup>7</sup> SSA is also becoming an important region for coal, with increasing foreign investment in production infrastructure following recent discoveries in Mozambique, Nigeria and Zimbabwe.<sup>8</sup>

## 2.2 POWER

In 2014, almost two thirds of the population of SSA, or 590 million people, had no access to electricity.<sup>9</sup> Among those who enjoy access, many still rely on expensive privately owned diesel-fuelled generators because of unreliable grid supply.<sup>10</sup> In addition, for those who do have access, the average price of electric power in SSA is often far higher than in other developing regions. Low levels of access, high costs, and unreliable supply also have a significant impact on the cost of doing business across the African continent, with damaging consequences for economic growth, investment and tax revenues. The World Bank has estimated these losses at 2–4% of GDP.<sup>11</sup>

Many of these challenges remain unaddressed, and are exacerbated by the fact that very few power utilities in SSA are able to recover the full costs of generation, creating the need for energy subsidies of on average US\$11 billion per year.<sup>12</sup> These subsidies have a tendency to further discourage investment in power generation and distribution, leading to deteriorating infrastructure, high levels of power line and distribution losses, and persistent electricity shortages across SSA.<sup>13,14</sup> According to one estimate, the whole of Africa is losing US\$8.2 billion annually through power sector inefficiencies.<sup>15</sup>

Where there is investment in developing the energy sector, two-thirds of current finance is directed towards producing energy commodities for export (see 'Resources 2.1'), and roughly half of current electricity consumption is by a small set of industries – mostly mining and refining.<sup>16</sup>

Renewable energies have the potential to offer solutions to many of Africa's energy challenges. The costs of solar and wind power have rapidly fallen in the past few years, and renewables are increasingly cost competitive with fossil fuels in certain countries and markets. Renewable energies could, therefore, provide access to modern energy services, through mini-grid and off-grid provision, and this can increasingly be provided at a lower cost than extending centralised thermal generation.<sup>17,18,19</sup> Globally, the International Energy Agency (IEA) has estimated that to achieve universal energy access by 2030, nearly half of all new electricity connections up to 2030 would need to be facilitated through distributed sources of renewable energy.<sup>20</sup>

## 2.3 TRANSPORT

Although the consumption of energy for transport in SSA has increased by 4% per year since 2000, the sector is largely under-developed in most countries and, where it does exist, transport infrastructure is often poorly maintained.<sup>21</sup> Most use of energy for transport in SSA is through vehicles powered by fossil fuels, and although transport fuel is subsidised in several countries (see *Fossil fuel Subsidy reform: from rhetoric to reality*), it is still expensive in relation to average incomes, which results in a relatively low use of cars and trucks compared with the global average.<sup>22</sup> As a result, the cost of transporting goods in SSA is among the highest in the world, adding a further barrier to economic growth.<sup>23</sup>

In addition, despite the low level of car ownership, many SSA cities suffer congestion and public transport by bus and minibus is largely unregulated and informal, which creates another obstacle to economic development in the region. As the world's most rapidly urbanising region, SSA has opportunities to develop more compact cities, as well as safer and more efficient public transport systems.<sup>24</sup>

Future government decisions about their support for the development of renewable resources as opposed to the supply of fossil fuels for both domestic use and for export will have a significant impact on wider investment in the energy sector, and the level of greenhouse gas (GHG) emissions in the power, transport and other energy-intensive sectors both in SSA countries and globally.<sup>25</sup> In addition, it is likely that addressing the current challenges related to the cost and provision of energy services in SSA will require a shift in the type and nature of energy subsidies provided in and to the region, both in terms of energy production (through fossil or renewable sources) and energy consumption (for power and transport).

## 3. Fossil fuel subsidies in sub-Saharan Africa

### 3.1 WHAT ARE FOSSIL FUEL SUBSIDIES, AND WHY DO GOVERNMENTS PROVIDE THEM?

Worldwide, a significant proportion of the private sector receives some level of support, interventions and subsidies from the public sector. In general, governments use subsidies as part of wider processes of economic policymaking to support specific businesses, markets, sectors or regions and these are among the more common public policy instruments now in use, with political interests often driving who receives subsidies and at what level.

In the specific case of energy subsidies (of which fossil fuels are a sub-set) their use at the global level has been historically linked supporting energy security, domestic energy production and access to energy, which can have wider positive effects for economic development and for public goods such as health and education.<sup>26</sup> In recent years, however, accounting for the full economic, social and environmental costs and benefits of subsidies for fossil fuels, along with other government interventions to achieve the same objectives, has increasingly favoured a move away from them. This report outlines the economic, social, and environmental costs of maintaining subsidies for fossil fuels (see Sections 5 and 8).

The World Trade Organization (WTO) defines a subsidy as “any financial contribution by a government, or agent of a government, that confers a benefit on its recipients.”<sup>27</sup> This definition of subsidies and its detailed components\* are accepted by over 150 member states of the WTO.

Despite this widely agreed definition, language can pose one of the first barriers to understanding and unpicking ‘subsidies’. This is often the result of the negative connotations of the term subsidy, and the potential for legal challenge of subsidies at the WTO, both of which can drive policymakers to seek euphemisms or synonyms.<sup>28</sup> The Global Subsidies Initiative (GSI) finds that ‘incentive’ is a common alternative term for ‘subsidy’, but other frequently used substitutes (ranging from general to technical) include support, aid, assistance and fiscal instruments.

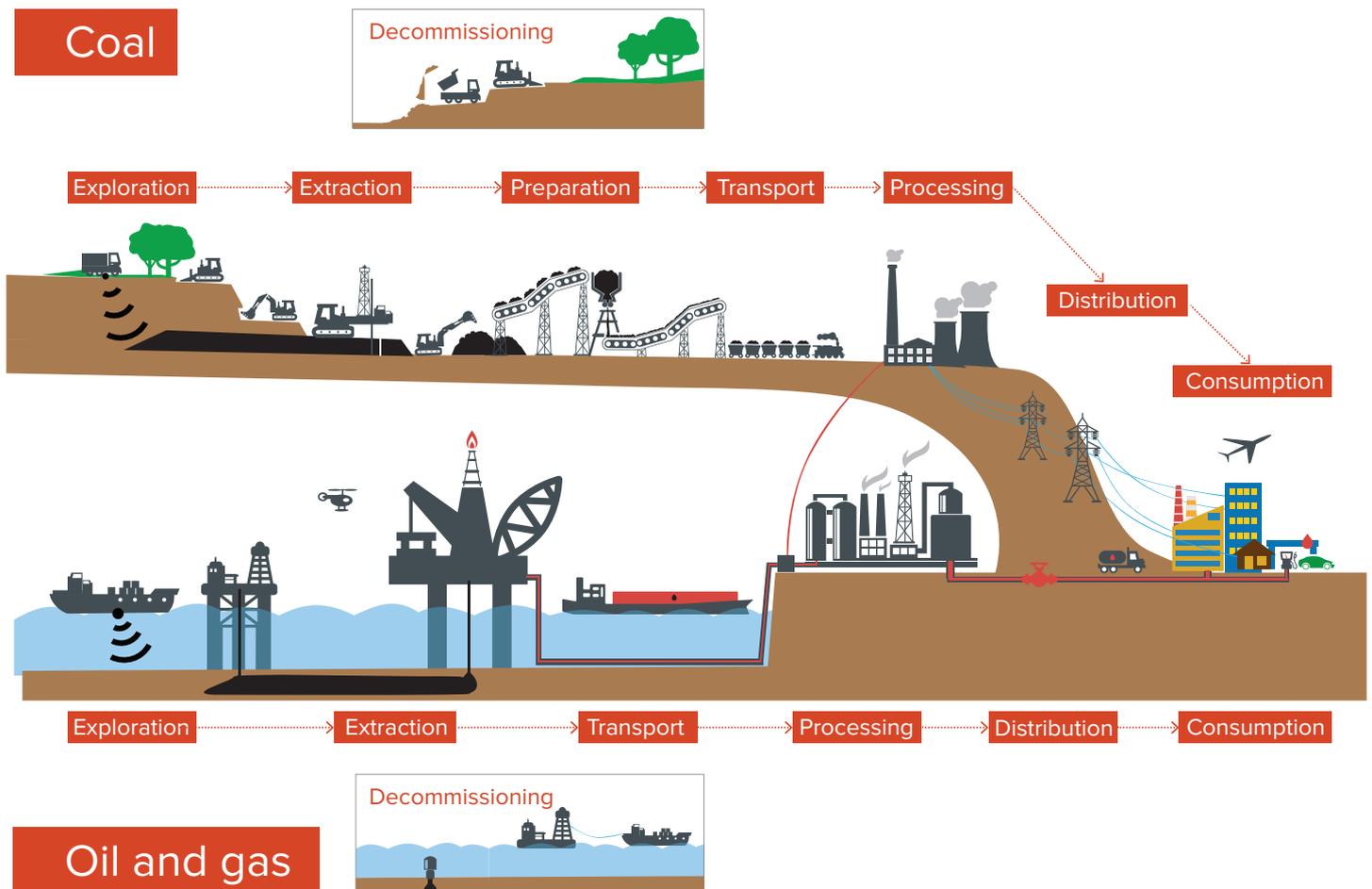
Subsidies for fossil fuels (oil gas and coal) take several forms and are provided along the full value chain from production to consumption including fossil fuel power generation (see Figure 1):<sup>29</sup>

- Direct financial transfer: e.g. fuel vouchers or grants to producers or consumers
- Trade instruments: e.g. tariffs on imports of crude oil and petroleum products, which make domestic fuel production more lucrative; quotas and technical restrictions
- Regulations: e.g. gasoline prices regulated at below international market levels; regulations that prioritise use of domestic coal for power generation; market-access restrictions
- Tax breaks: e.g. favourable tax deductions for depletion or investment in oil and gas fields and coal deposits; excise exemptions for fuels used in international air, rail or water transport
- Credit: e.g. loan guarantees to finance energy infrastructure or preferential rates on loans to producers
- Risk transfers: e.g. insurance or indemnification provided to fossil-fuel producers at below-market levels; limitation of financial liability
- Access to government goods and services below full cost: e.g. provision of seismic data for oil and gas exploration.

*Fossil fuel subsidy reform: from rhetoric to reality* offers more detailed information on these categories

\*According to the WTO, a subsidy is any financial contribution by a government or agent of a government that is recipient-specific and confers a benefit on its recipient in comparison to other market participants. Subsidies include all financial contributions or direct support from a government; transfer of risk through provision of debt, equity and guarantees; forgone revenue through tax breaks; and provision of infrastructure, goods and services below market value; as well as royalty breaks and investment in infrastructure and exploration (WTO, 1994).

Figure 1  
Value chain of fossil fuel production and consumption



Source: Authors' own

### 3.2 ESTIMATES OF FOSSIL FUEL SUBSIDIES IN SUB-SAHARAN AFRICA

Subsidies are currently provided for the production and consumption of fossil fuels in a number of SSA countries, although data on the extent and volume of subsidies is very incomplete (see Box 1). These subsidies are particularly high in oil-producing and oil-exporting countries (See Annexes 1 and 2), and are currently mainly for oil and gas, although this could change in response to the choices made about power production in SSA.

Estimates of fossil fuel subsidies, including subsidies related to electricity, in 30 SSA countries were US\$32 billion for 2013, dropping to US\$26 billion in 2015, due to reform efforts and the falling price of oil, gas and coal.<sup>30</sup> For comparisons with other regions see Figure 2 in Section 5. Countries in SSA providing subsidies for fossil fuels worth over US\$1 billion in 2015 include Angola, Côte d'Ivoire, Mozambique, Nigeria, South Africa, Tanzania, Zambia and Zimbabwe. In addition to government decisions regarding the type and scale of subsidies, the higher levels of subsidies in these countries compared to the rest of SSA is linked to higher levels of economic activity and of fossil fuel use for energy.

In addition, it has also been estimated that subsidies to cover the financial losses of utilities in Africa as a whole are US\$11 billion per year (see Section 4).<sup>31</sup> These subsidies are linked to both fossil fuel and renewable power generation, as outlined in Section 1, coal, hydropower and oil currently generate most electricity in SSA, and are projected to continue to do so.<sup>33</sup>

Additional public support, not included in the IMF estimates, is provided to fossil fuel production in SSA through international development finance, government-owned bank, and export credit, which all fall under the subsidy category of 'risk transfer'.<sup>32</sup>

- Between 2007 and 2014 South Africa alone received US\$4.5 billion in support for coal-fired electric power generation and coal mining from export credit agencies in OECD member states;<sup>34</sup> the African Development Bank (AfDB) and the World Bank Group collectively provided a further US\$5.7 billion for the Medupi coal-power project in 2009 and 2010.
- Oil Change International's *Shift the Subsidies* database tracks global public finance to the development of coal, gas and oil, and lists 116 fossil fuel investments in SSA made by multilateral development banks (MDBs) worth approximately US\$13 billion between 2008 and 2014.<sup>35</sup> These include the financing for the Medupi project mentioned above in addition to a World Bank Group guarantee of US\$437 million for an oil and gas exploration project in Côte D'Ivoire in 2013, guarantees of US\$400 million in 2009 and US\$395 million in 2014 to support natural gas in Nigeria, an AfDB loan of US\$240 million and a World Bank Group guarantee of US\$243 million for the construction of a coal-fired power station in Botswana in 2009.
- A 2014 review found that nine of the G20 countries are providing support to exploration for fossil fuels in SSA countries, through either their public financial institutions or their state-owned enterprises (SOEs) (see Box 2).<sup>36</sup> This is despite a G20 commitment to phase out fossil fuel subsidies.

In addition to these subsidies, the cost of fossil fuel production and consumption in many countries (including those in SSA) frequently fails to fully incorporate externalities such as local pollution, impacts on climate change, road accidents and congestion.<sup>37</sup> The IMF has estimated total fossil fuel mispricing in SSA at US\$45 billion in 2013, rising to US\$49 billion in 2015.<sup>38</sup> These costs of failure to price externalities are particularly high because of the relatively high level of GHG emissions in South Africa.

When these externalities are included as de facto fossil fuel subsidies the negative impacts of fossil fuels in SSA cost the region a total of US\$75 billion in 2015, and across specific fuels and electricity, these costs break down as follows: petroleum (US\$28 billion), coal (US\$25 billion), natural gas (US\$3 billion) and electricity (US\$19 billion).

## Box 1

### Incomplete data on fossil fuel subsidies in sub-Saharan Africa

Research on subsidies for fossil fuels in SSA has been limited to the IMF estimates for 30 SSA countries, and by the IEA on a smaller set of countries and consumption subsidies. Furthermore, this information does not include the cost of individual subsidies in a given country, nor does it outline the individual government incentives that might provide a roadmap for reform. For a detailed inventory of fossil fuel subsidies (for production alone) for South Africa see: G20 subsidies to oil, gas and coal production: South Africa.<sup>39</sup>

More detailed inventories of subsidies for the production and consumption of fossil fuels have been completed for the OECD and the BRIICS countries (Brazil, Russia, India, Indonesia, China and South Africa) countries,<sup>40</sup> and more are being developed as part of the G20 and APEC peer-review process (for New Zealand and Peru),<sup>41</sup>. For additional discussion on the potential to expand subsidy data globally and for SSA countries see *Fossil Fuel Subsidy Reform: From Rhetoric to Reality* Section 8.

## Box 2

**G20 International Public Finance and SOE Investments in Fossil Fuel Exploration in sub-Saharan Africa<sup>42</sup>**

G20 government provider of public finance for exploration	Recipient of public finance for exploration
Brazil	Angola, Benin, Gabon, Namibia, Nigeria and Tanzania
Canada	Gabon
China	Chad, Equatorial Guinea and Gabon
India	Gabon
Italy	Mozambique
Japan	Democratic Republic of Congo and Ghana
South Africa	Equatorial Guinea, Ghana and Namibia
United Kingdom	Ghana, Guinea, Nigeria and Uganda
United States	Nigeria

## 4. Costs of fossil fuel subsidies in sub-Saharan Africa

When the full economic, social and environmental costs and benefits of fossil fuel subsidies are taken into account, their net costs far outweigh the benefits of sustaining them, and there are increasingly less costly alternatives that can achieve the same policy objectives (see Sections 5.1-5.4 below).<sup>43</sup>

Fossil fuel subsidies are often introduced for understandable and legitimate public policy objectives such as improved energy security, domestic energy services and access to energy (see Sections 5.1-5.4). For example, production subsidies may temporarily sustain jobs in the oil and gas sectors (see Section 5.1.3), and consumption subsidies may help to improve access to affordable energy (see Section 4.2). In addition, the benefits of fossil fuel subsidy reform – particularly in the short term – will be unevenly distributed across countries and strongly dependent on the approach and complementary measures adopted (see Section 8).<sup>44</sup>

Nonetheless, emerging evidence demonstrates that in most cases the costs of subsidies far outweigh the benefits. The interconnected economic, social, and environmental costs of fossil fuel subsidies include:

1. Creating a significant burden on government budgets, and reducing resources that could be used more efficiently.
2. Perpetuating inequality and limiting access to affordable energy, benefiting the rich and failing to meet the needs of the poorest in society.
3. Decreasing the competitiveness of key industries, including low-carbon businesses, skewing the 'playing field' for investment in renewables and energy efficiency.

4. Increasing the risk of stranded assets (in the event of climate regulation), and encouraging the exploration for and production of unburnable carbon.
5. Compromising energy security compared to alternatives such as subsidizing renewables and energy efficiency.
6. Damaging public health by increasing air pollution.
7. Negating carbon price signals.

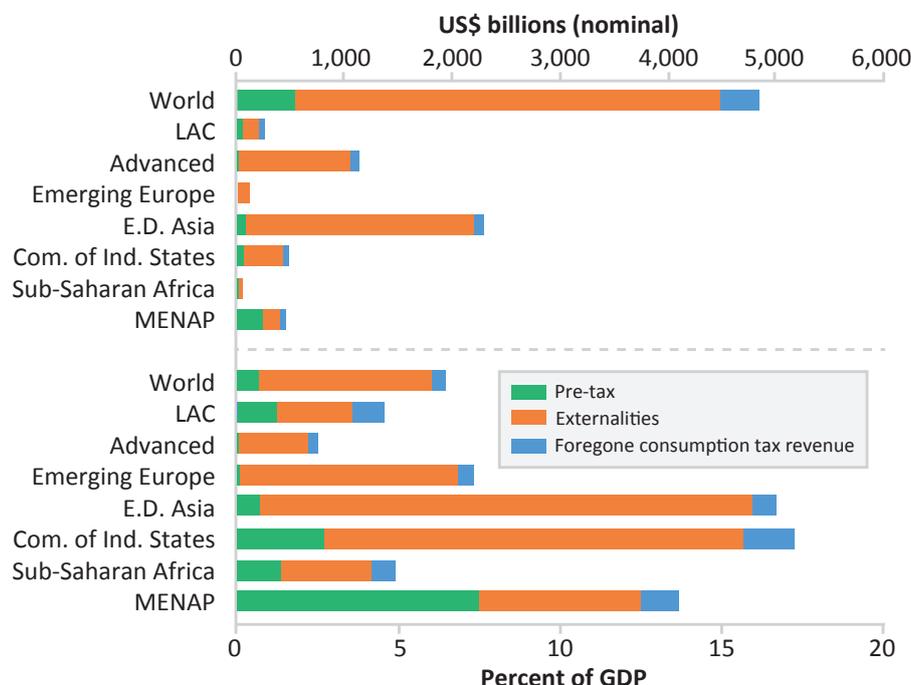
A parallel report *Fossil Fuel Subsidy Reform: From Rhetoric to Reality* presents these costs in further detail. For example, the IMF has documented the costs of air pollution and found that phasing out subsidies to fossil fuels would lead to a 23% reduction in these emissions as well as a 63% decrease in worldwide deaths from outdoor fossil fuel air pollution.<sup>45</sup> Similarly, in relation to carbon pricing, IEA research estimates that 13% of energy-related emissions receive an incentive of US\$115 per tonne through a wide range of subsidies and that since only 11% of energy-related emissions are subject to a carbon price (average US\$7 per tonne), this significantly distorts carbon price signals.<sup>46</sup>

Rather than covering each of these costs separately, the remainder of this section briefly outlines the first four costs listed above, for which data for SSA are more readily available. Section 5 then outlines why fossil fuel subsidies persist despite these significant and well-documented negative impacts.

#### 4.1 CREATE A SIGNIFICANT BURDEN ON GOVERNMENT BUDGETS

The IMF has undertaken a global analysis of the comparative burden of subsidies on GDP and government revenue by region, split according to the impact of subsidies provided through direct spending (pre-tax subsidies) and tax expenditures, and the related failure to price the negative climate, pollution, and other adverse impacts caused by subsidies (which it calls post-tax subsidies).<sup>47</sup> Based on this analysis, fossil fuel subsidies in SSA are estimated to average 5% of GDP (see Figure 2).<sup>48</sup>

Figure 2  
Fossil fuel subsidies as a percentage of GDP by region<sup>52</sup>



Source: Coady, D., Parry, I., Sears, L. and Shang, B., 2015. *How Large Are Global Energy Subsidies?* International Monetary Fund Working Paper. IMF, Washington, DC. Available at: <https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf>.

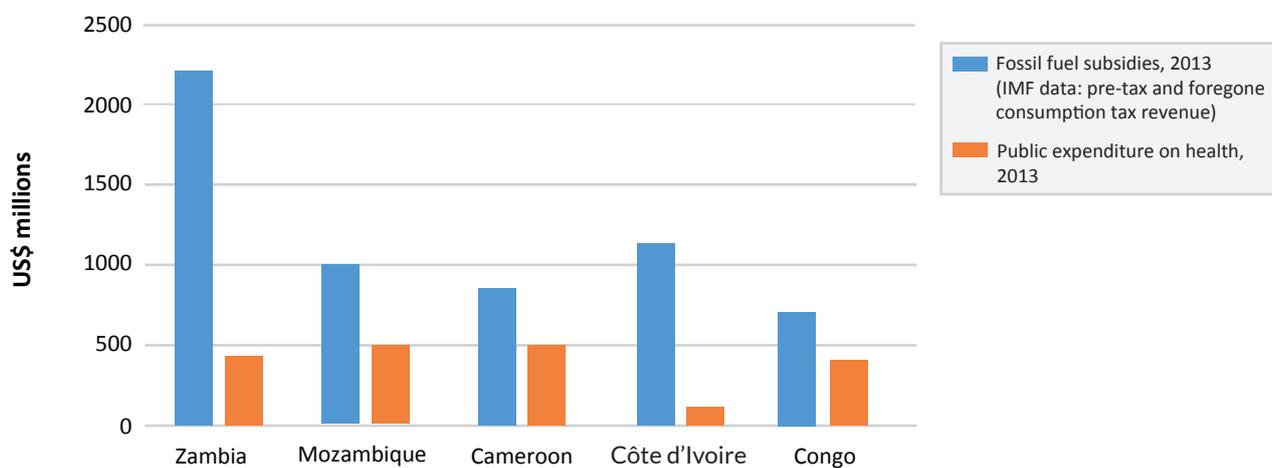
Fossil fuel subsidies also can undermine fiscal balances due to increased government expenditure or transfers, as changes in the prices of imports or exports subject to the subsidies affect the balance of payments, trade flows, and real exchange rates. More directly, subsidies for energy consumption lead to increased domestic demand for energy products that must be imported, or that could potentially be exported, thus forgoing revenue and worsening the trade balance.<sup>49</sup>

For fuel-importing countries, the maintenance of fossil fuel subsidies in times of rapidly rising energy demand puts a strain on budgets.<sup>50</sup> Subsidies can reach levels that become unsustainable. One example is Zimbabwe, which relies heavily on coal, and where subsidies for fossil fuels account for 44% of public spending. As energy demand is rising across SSA, the scale of subsidies in the region can be expected to rise, which will place greater pressure on government budgets.<sup>51</sup> A low oil price, on the other hand, may reduce the impact of subsidies on government budgets of fuel-importing countries.

These impacts can also be acute in producing countries that generate a significant portion of their revenues from oil, gas or coal, and where subsidies may have a significant domestic and international impact. For example, the oil and gas sector in Nigeria accounts for 25% of GDP, 75% of general government revenue, and over 95% of total exports, making the country's fiscal balance particularly vulnerable to changes in international oil price (see Annex 3 and Section 7).<sup>53</sup> For fuel-exporting countries, subsidies for domestic consumption can also reduce the volume available for export.<sup>54</sup>

Keeping fossil fuel prices artificially low may also encourage smuggling and fuel adulteration, thus further reducing government revenue. This is particularly the case for oil products, which are easy to transport and store. For instance, due to a history of high subsidies in Angola, about 10% of the country's oil is smuggled to the neighbouring Republic of Congo and the Democratic Republic of Congo, which have higher domestic prices.<sup>55</sup> Fuel shortages and flourishing parallel markets are common also in countries where low official prices have the impact of reducing overall fuel supply.<sup>56</sup>

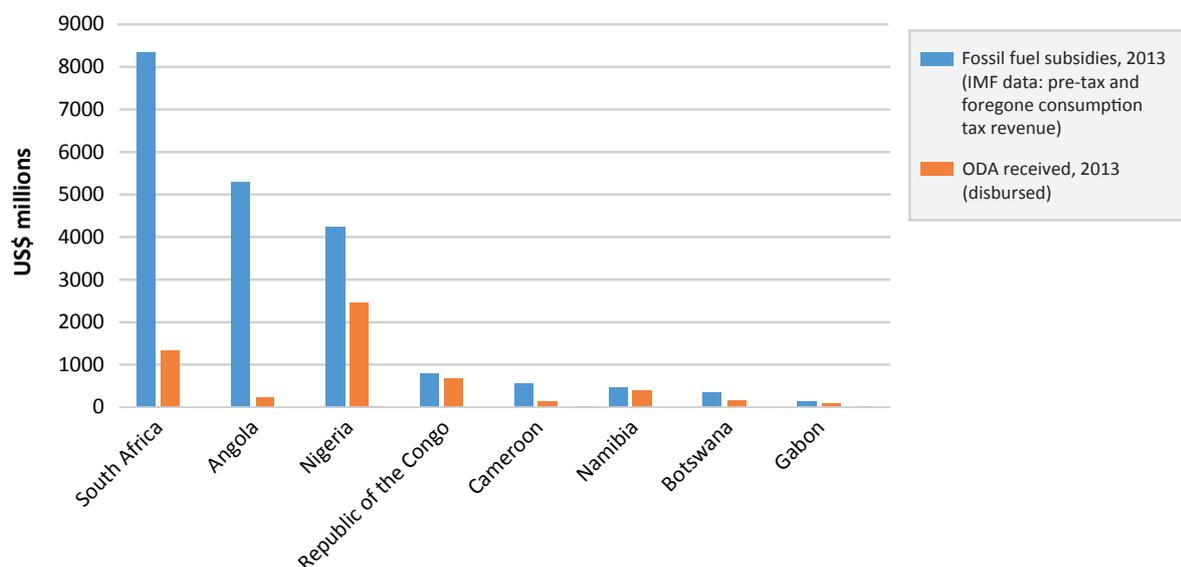
Figure 3  
**Public health expenditure compared to fossil fuel subsidies**



Sources: Coady, D., Parry, I., Sears, L. and Shang, B., 2015. *How Large Are Global Energy Subsidies?* International Monetary Fund Working Paper. IMF, Washington, DC. Available at: <https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf>.

WHO, 2015. *Global Health Observatory Data Repository*. World Health Organisation, Geneva. Available at: <http://apps.who.int/gho/data/node.main.78?lang=en>.

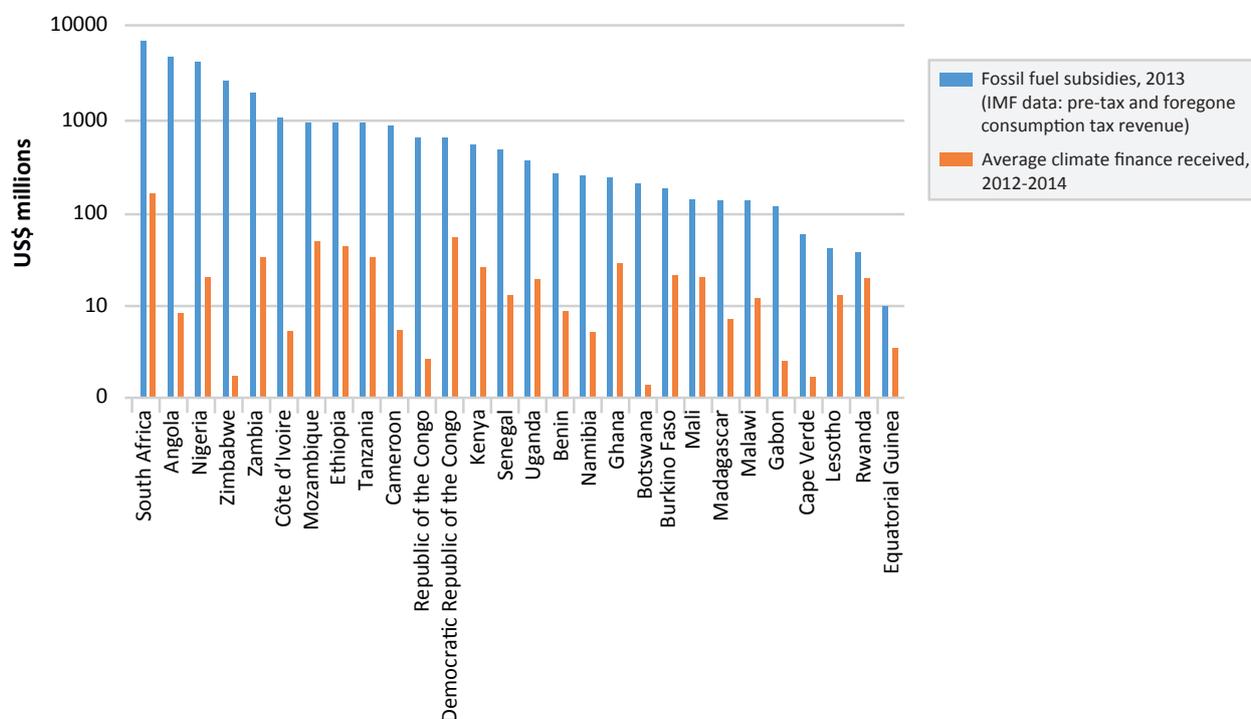
Figure 4  
Aid received compared to fossil fuel subsidies



Sources: Coady, D., Parry, I., Sears, L. and Shang, B., 2015. *How Large Are Global Energy Subsidies?* International Monetary Fund Working Paper. IMF, Washington, DC. Available at: <https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf>.

OECD DAC, 2015. *Aid statistics*. Organisation for Economic Co-operation and Development, Development Co-operation Directorate (DCD-DAC), Paris. Available at: <http://www.oecd.org/dac/stats/>.

Figure 5  
Fossil fuel subsidies and climate finance in developing countries



Whitley, S., 2013. *Time to Change the Game: Fossil Fuel Subsidies and Climate*. Overseas Development Institute, London. Available at: <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf>.

ODI and Heinrich Boll Stiftung, 2015. *Climate Funds Update*. Available at: <http://www.climatefundsupdate.org/>.

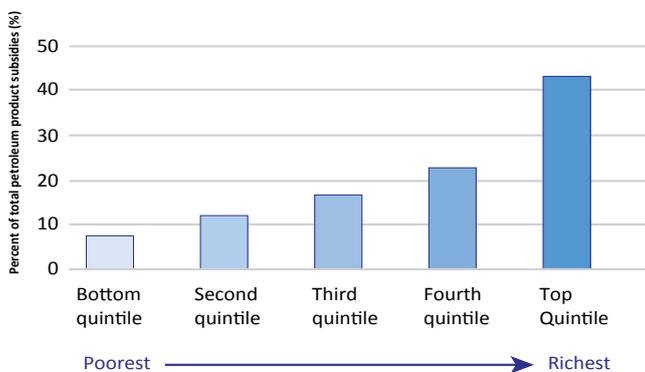
Finally, the fact that a significant proportion of many countries' budgets are dedicated to subsidising fossil fuels is a drain on public finances and reduces the resources available to address social and development objectives. In a number of countries that provide high levels of fossil fuel subsidies to consumers, these are either equivalent to, or significantly exceed, domestic health expenditure (see Figure 3). Many countries are also providing fossil fuel subsidies at levels that far exceed their receipts of official development assistance (ODA) and climate finance (see Figure 4 and Figure 5). In SSA there is a negative relationship between fuel subsidy and public spending on health and education,<sup>57</sup> suggesting that these subsidies compete with public spending on other national priorities.

One could envisage that such resources or support could be dedicated more directly to the pressing need for economic development in SSA, such as improving health services and education, extending access to clean energy services for the poor, and financing the development of low-carbon infrastructure.<sup>58</sup>

## 4.2 FUEL INEQUALITY AND UNDERMINING ENERGY ACCESS: FAILING TO HELP THE POOREST

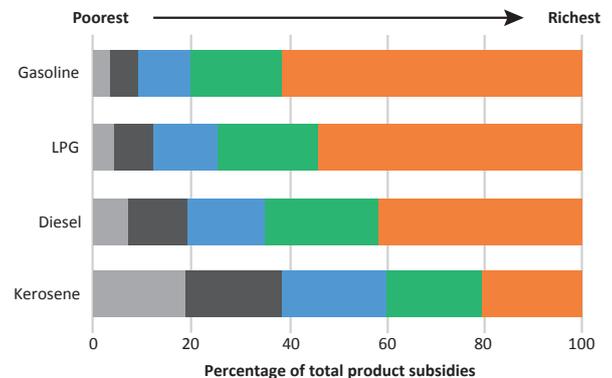
Consumer subsidies are often justified as a way to help the poorest households or to provide access to energy. There is, however, increasing evidence that fossil fuel subsidies are in fact regressive, since their benefits accrue mainly to wealthier social sectors or to large fossil fuel companies, while their costs are borne by the whole population, in particular by low-income households.<sup>59</sup> An IMF review of consumer subsidies in developing countries, with similar findings for SSA, found that only 7% of the benefits reached the poorest 20% of income groups, and that subsidies for petrol and diesel most most benefited the rich (Figure 6 and Figure 7).<sup>60</sup>

Figure 6  
The wealthy benefit most from fossil fuel subsidies in developing countries



Source: Arze del Granado, Coady, and Gillingham, 2010.

Figure 7  
Distribution of petroleum product subsidies by income group



Source: Arze del Granado, Coady, and Gillingham, 2010.

Fossil fuel subsidies frequently exacerbate unwelcome distributional effects. This is particularly true in those countries in SSA where most people lack access to electricity or commercial fuels and often rely on biomass, which is collected in rural areas, or purchased at an unsubsidised cost in urban areas. These populations do not share the benefits of lower prices for commercial energy, as subsidies tend to go to large, capital-intensive projects or wealthier users, which may be at the expense of support to smaller-scale biomass-based energy.<sup>61</sup> As noted earlier, half of all electricity on the African continent is currently consumed by industrial customers, predominantly in the mining and refining sectors, underscoring the unequal distribution of benefits from electricity subsidies, which both favour particular sectors and those who enjoy access to electricity.<sup>62</sup>

Subsidies often constitute a barrier for the poorest to obtain access to energy. In countries and regions where electricity production is based on fossil fuels, subsidies to consumers create a disincentive to invest in the power sector and can result in an industry being unable to recover the full costs of production. On average, electricity tariffs in SSA cover only 70% of the cost

of power production, let alone the additional cost of extending grids or establishing new connections.<sup>63</sup> This adds to challenges faced by SSA countries, including high line and distribution losses, persistent shortages and deteriorating infrastructure (a result of under-investment in the sector – often caused by poor creditworthiness of utilities, largely caused by tariffs that do not reflect the true costs of production and distribution – a form of subsidy) all leading to poor and unreliable access.<sup>64,65</sup>

In SSA, over 85% of those who lack access to electricity live in rural areas, where centralised generation – and the extended grid that must accompany it in order to increase access – may prove prohibitively expensive.<sup>66</sup> It is anticipated that the lack of access to energy will continue to affect rural areas disproportionately. Between 2010 and 2012, the most recent two years for which data are available, the urban–rural divide increased in SSA, as access grew faster than urban population growth (by 25 million people), but fell behind the rate of population growth in rural areas (by 23 million people).<sup>67</sup> Thus, improving energy access for the poor will not be a matter simply of promoting domestic fossil fuel extraction and power plants, but will require a redistribution of support. Estimates of the cost of providing universal access to modern energy services globally are between US\$200 billion<sup>68</sup> and US\$640 billion<sup>69</sup> over the next 20 years; in SSA alone, subsidies for fossil fuels have been estimated to amount to at least US\$26 billion in 2015 – or US\$520 billion over 20 years – highlighting the opportunity to increase access to energy by redirecting subsidies.

Although the benefits of subsidies accrue mostly to middle-class and wealthier sectors, the adverse impact of their removal may still fall disproportionately on the poor. Income groups differ greatly in their energy consumption patterns, and the distributional impact of subsidies is not the same for all types of fuel and electricity. On average, lower-income households (particularly in urban areas) spend a higher proportion of their energy budget on fuel, particularly in cases where these are used for cooking, and less on electricity and private transport.<sup>70</sup> As a result, the poor will be directly affected not only by the rising prices resulting from reforming subsidies, but also indirectly through the increased cost of transport and food. Any reforms to phase out subsidies for fossil fuels should therefore include measures to mitigate the likely negative impacts on the poorest, which can lower the overall cost of living more efficiently than maintaining fossil fuel subsidies (see Section 8).<sup>71</sup>

Nonetheless, in SSA countries where reforms have been undertaken and maintained, industrial and household consumers appear willing to accept higher tariffs if doing so would guarantee better services, particularly where the higher tariffs are still lower than the cost of self-generation. Moreover, since particularly high electricity prices<sup>72</sup> in SSA are partly caused by under-investment in the sector, wider sector reform will in the long term make it possible to lower these prices.<sup>73</sup>

Subsidies for the production of fossil fuels can also be poorly targeted in terms of ensuring that the poorest have access to energy, even when enhancing access is a stated priority. For example, as stated earlier, MDBs, which have mandates to support sustainable development in regions that include SSA, are funding fossil fuel projects (through grants or loans that contain a subsidy component) that do not focus on enabling the poor to have access to energy. A review of fossil fuel projects supported by four major MDBs found that only 1% (in dollars) from 2011 to 2013 included provisions to increase access for the poor.<sup>74</sup> Recent analysis suggests that a stronger focus on using subsidies to close the distribution gap for clean energy services, rather than a continued focus on public support to the centralised generation of electricity from fossil fuels, could play a particularly important role in enhancing households' access to electricity.<sup>75</sup>

## 4.3 MAKING THE ECONOMY AND SOME INDUSTRIES, INCLUDING LOW-CARBON BUSINESSES, LESS COMPETITIVE

Governments often use the under-pricing of energy inputs to support production across particular sectors or firms. The purpose of these subsidies is often to promote national or regional economic development by conferring an advantage to domestic energy-intensive industries or energy producers, and to increase the competitiveness of export-oriented firms.<sup>76</sup>

Consumption subsidies can have the effect of decreasing competitiveness by undermining efficiency, and encouraging the over-use of energy. For example, consumption subsidies in the transport sector distort energy pricing, and encourage the over-consumption of fossil fuels compared to other forms of energy, which in turn leads to the inefficient allocation of resources.<sup>77</sup> In Burkina Faso, for example, low fuel prices sustain the road transport sector, while the rail system is more efficient and less dominated by cartels. Artificially lowering petrol prices also encourages the use of fuel-inefficient vehicles and excessive use of private vehicles.<sup>78,79</sup>

Conversely, production subsidies, for example in the context of subsidies for fossil fuel inputs to power generation, can lead to higher consumer costs because of under-investment by utilities and other power producers. These industries have no incentive to invest in improvements in efficiency of operations since they do not have to pay the full cost of energy inputs. As outlined above, in SSA these subsidies lead to energy costs that far exceed global averages in spite of (and often linked to) poor and unreliable access.<sup>80,81</sup> The South African government estimates that the blackouts the country has suffered in 2015 will halve its economic growth forecast to 1%.<sup>82</sup> Subsidies also serve to maintain dependence on fossil fuels and undermine the competitiveness of renewable energy sources, which are abundant in SSA.<sup>83</sup> By lowering the attractiveness of renewable energy technologies, fossil fuel subsidies create an obstacle to the adoption of renewable energies in SSA. For example, although solar PV is already cost-competitive with subsidised diesel-power generation in Angola, continued subsidies to diesel make investment in PV less attractive. The reform of fossil fuel subsidies would therefore create opportunities to further unlock the potential for renewable energy generation.<sup>84</sup> Even subsidies for kerosene, which tend to be less regressive than those for diesel and petrol – are highly inefficient and sap resources that could be used to transition to safer, healthier and more reliable forms of lighting.

A 2014 United Nations Environment Programme (UNEP) report noted:

“[I]n a single year the level of subsidy awarded to the fuel burned by a single lamp can be on par with the price of purchasing a replacement solar lantern, which are available at costs of US\$20 or less. Viewed a different way, the effect of a 50% kerosene subsidy is to approximately double the payback time required for the user to recover their potential investment in a solar replacement system.<sup>85</sup>”

This example highlights the way in which fossil fuel subsidies can lock in poor and inefficient energy services by undermining alternatives.

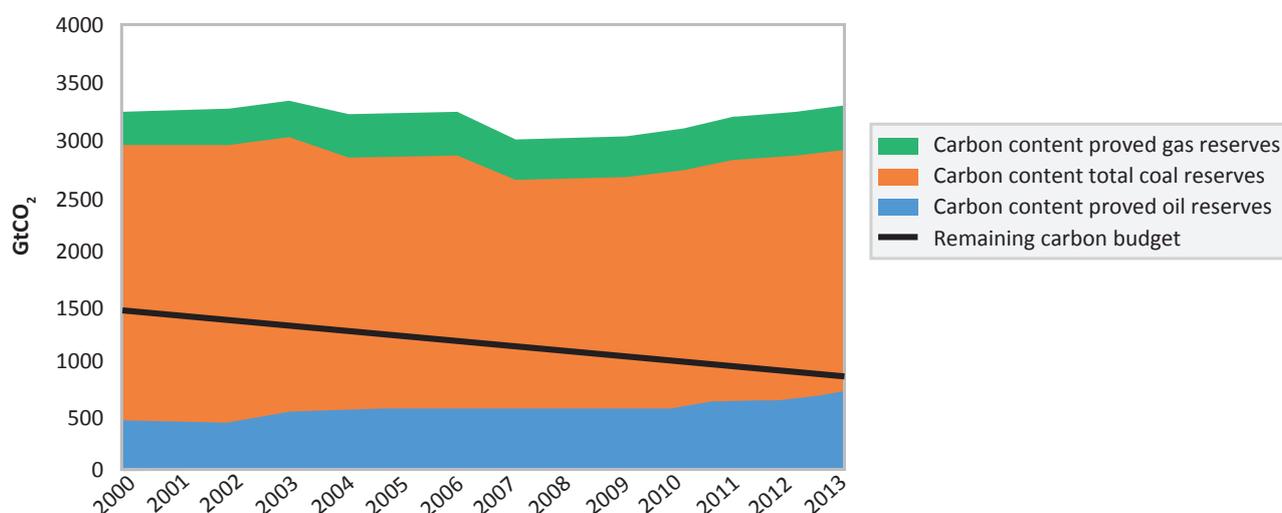
#### **4.4 INCREASING THE RISK OF STRANDED ASSETS: DRIVING EXPLORATION FOR AND PRODUCTION OF ‘UNBURNABLE’ CARBON**

At the 2010 United Nations Framework Convention on Climate Change (UNFCCC) negotiations in Cancún, governments from around the world agreed to limit global average temperature increase to a maximum of 2°C above pre-industrial levels in order to avert dangerous climate change.<sup>86</sup> Following their lead, the world’s major scientific institutions that were working on climate and energy issues determined the volume of fossil fuels that could be burned to stay safely within this limit – and, at the same time, the amount of carbon reserves that are ‘unburnable.’ According to both the IEA and the Intergovernmental Panel on Climate Change (IPCC), by 2013, at least 75% of proven reserves of oil, gas, and coal needed to stay in the ground if climate change was not to reach dangerous levels.<sup>87</sup> The percentage of total reserves of fossil fuels that are unburnable has grown rapidly over the past decade: there are more proven global oil, gas and coal reserves while the carbon budget (the amount left to burn) has shrunk as the result of rising greenhouse gas (GHG) emissions (see Figure 8).<sup>88</sup> A study produced by the Climate Policy Initiative demonstrated that it was governments and taxpayers rather than the private sector that would be most affected if assets become stranded since globally governments own 50–70% of fossil fuel reserves.<sup>89</sup>

A review of 34 African countries found that 22 stake their economic future on development of mineral or oil production.<sup>90</sup> Many of these countries’ extractive industries are focused on oil and coal extraction. The promotion of such industries, both through direct spending and tax breaks, can lead to the sustained use of fossil fuel infrastructure for decades. Further, promoting an export model of the fossil fuel industry as a means to achieve economic growth poses a risk given the increasing likelihood of stranded assets in a climate-constrained world.

Mozambique is an example of a country encouraging expansion of the coal industry, particularly for export. Current investments, supported by “a sound and stable business environment, with low taxes and low political interference” are, according to KPMG, setting it up to become one of the largest global coal exporters by 2017. While the Mozambican government recently adjusted its mining law to increase local participation in mining operations, the changes did not alter royalties or tax policies, but created a faster licensing process.<sup>91</sup> Furthermore, investment in transport infrastructure will be needed in order to export more coal, which is likely to require more public support. By establishing an environment that will foster coal exports through public

Figure 8  
**The carbon content of fossil fuel reserves in comparison to the carbon budget (2007–2013)**



Source: Bast, E., et al., 2014. *The Fossil Fuel Bailout: G20 subsidies for oil, gas and coal exploration*. Oil Change International (OCI) and Overseas Development Institute (ODI), London. Available at: <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinions-files/9234.pdf>.

support and subsidies, Mozambique is locking itself into an economy that will continue to be heavily reliant on fossil fuels. A significant majority of Mozambique’s coal reserves comprise hard coal, and a recent study assessing the regional distribution of unburnable resources before 2050 suggested that 94% of Africa’s hard coal would need to remain unburned for the world to stay below the 2°C global warming threshold.<sup>92</sup>

## 5. Why fossil fuel subsidies persist: barriers to reform

Phasing out subsidies for fossil fuels as part of wider reform of the energy sector can reduce pressure on budgets, and create the necessary fiscal space to support sustainable economic development and ensure access to energy for the poor; establish price signals for investment in efficient, low-carbon energy systems and efficient urban planning and transport systems; and eliminate the perverse incentives that drive up carbon emissions. Despite the potential virtuous cycles for national priorities that could result from the removal of fossil fuel (and other) subsidies, however, governments are often reluctant to undertake reform.<sup>93</sup> Researchers have identified several specific reasons for the persistence of subsidies – some of these are explicit, such as misperceptions of their role in social protection and economic development, while others are implicit, driven by special interests.<sup>94</sup>

### 5.1 EXPLICIT REASONS FOR THE PERSISTENCE OF SUBSIDIES

#### 5.1.1. Lack of information regarding consumer subsidies

Though the general public is aware of the level of fuel prices, they rarely have complete or accurate information on what they or others receive in subsidies. This lack of transparency, or asymmetric information, can affect the political dynamics associated with revising or eliminating a subsidy.<sup>95</sup>

Nigeria is a clear example of where a lack of information about subsidies, combined with low level of public trust in government,<sup>96</sup> have made it difficult to reform consumer subsidies (see also Annex 3). In 2012, an attempt to reform subsidies by increasing prices by 115% overnight was abandoned after major protests, and increases were scaled back to 49% in the face of unrest.

Prior to the reform attempt, information about the reform programme, called Subsidy Reinvestment and Empowerment (SURE), was distributed in order to counter popular misperceptions about fuel subsidies, but it was released only six weeks before the reforms were to be implemented, which left little time for the information to reach the general public.<sup>97</sup>

In some North African countries, where more studies have been completed on the topic, survey and focus group evidence collected in Morocco in 2010 found that few households were aware of a subsidy for butane gas that absorbed 5.5% of GDP, or 17% of the government budget, and the households that did know about it underestimated its scale by a wide margin.<sup>98</sup> In 2014, the Egyptian government sponsored a survey that found that nearly 70% of households did not know the scale of the country's fossil fuel subsidies, and that poor households in particular had no idea of the size of government support. Although richer households were more likely to claim knowledge, they usually underestimated the scale of government spending, which at the time of the survey absorbed 8% of GDP and 39% of the government budget.<sup>99</sup>

Robust processes of subsidy reform should therefore be accompanied with the public dissemination of detailed information about the impacts of fossil fuel subsidies, and the potential benefits of their reform (see Section 8).

### 5.1.2. Lack of information regarding producer subsidies

It may be even more complicated in political terms to reform producer subsidies than consumer subsidy reform, and this may also face stiff opposition given the role of fossil fuel revenues in government budgets in some countries, and the fact that the fossil fuel industries often have access to many levels and branches of government.<sup>100</sup> In addition, there is a basic lack of knowledge about the extent of support for producers and of taxes and revenues governments receive from the energy industry, and where this information is held.

A GSI research project found that fossil-fuel production is supported by a wide range of subsidies that include direct payments; preferential access rights to energy deposits; credit and insurance support; caps on liabilities related to fossil-fuel enterprises; tariffs or export restrictions; government ownership of power generation; transmission or distribution assets and fuel stockpiles; support for bulk fuels transport; and health and safety oversight.<sup>101</sup> Moreover, most of these subsidies, despite being widely recognised as incentives, are not clearly identified in standard government budget documents.<sup>\*102</sup>

Compounding the lack of information on subsidies and incentives, there is also a lack of information about the revenue from taxes or fees obtained from the fossil fuel industries, and how it is used. On the basis of information from a fee-based data provider (i.e. not publicly available) ODI and OCI research found that government income from the companies active in oil and gas exploration and production in the G20 countries (including royalties, government profit oil, income tax and bonuses), excluding Saudi Arabia, was U\$554 billion in 2012.<sup>104</sup> This is, on average, 8% of these countries' total tax income. With more information on production subsidies and tax revenue in SSA countries there would be greater potential to understand how countries might sustainably move away from fossil fuel-based tax revenues.

A recent survey found that 60% of people living in African countries that have extractive industries say it is difficult or very difficult to know how the government uses revenues from taxes and fees.<sup>105</sup> The lack of knowledge on both sides – what subsidies are being provided to these industries and what is paid in the form of taxes and revenues – presents a real challenge to the reform of producer subsidies.

### 5.1.3. Explicit reliance on fossil fuels to support national energy or economic development strategies

Subsidies may also be established – and be quite difficult to remove – in order to support a broader government energy strategy that is fundamentally reliant on the use or production of fossil fuels. These strategies may presuppose the need for fossil fuels to achieve energy production objectives, or tie economic growth to exporting fossil fuels.

For example, although Tanzania has made progress in diversifying energy strategies to reach more people through decentralised power, the country is still heavily focused on increasing the amount of centralised fossil fuel power generation, and the electricity company TANESCO says that “future generation plan will largely be dominated by Coal and Gas power plants.”<sup>106</sup> The

\*There is a small group of oil producers that records fuel subsidies explicitly in the budget including Indonesia, Iran, Malaysia, Sudan, and Yemen.<sup>103</sup>

expansion of the the gas sector has received significant public finance support via policy and project loans from MDBs and the US government's Power Africa initiative. With an explicit plan to expand the use of fossil fuels, reliance subsidies to facilitate its implementation may become particularly entrenched.

Although a desire to spur economic development is often a major rationale for subsidies to fossil producers, in many instances the over-reliance on extractives-led growth may slow down economic growth rather than accelerating it (see Section 4.3). The 'resource curse' – whereby countries and regions with an abundance of natural resources tend to have slower economic growth, weaker development, and greater instability than resource-scarce countries – has been a prominent theme in the literature on natural resource management, particularly in relation to SSA.<sup>107</sup> While SSA as a region is rich in natural resources, until very recently it has been characterised by low growth and high levels of corruption. Owing to the resource curse, governments in countries with significant non-renewable resources stifle development because they are distracted from supporting the broader range of sectors and public goods needed in order to ensure long-term prosperity. With little incentive to raise taxes or focus on sectors other than fossil fuels, plentiful resources can cripple economies and undermine government responsibility.<sup>108</sup>

While prevailing beliefs over the past decade have suggested that the resource curse can be overcome with better governance and stronger institutions, a recent analysis suggests that it remains a significant risk for resource-rich countries.<sup>109</sup> This conclusion has been underscored by the economic consequences of the rapid decline in recent global oil prices. Countries that placed a significant focus on developing fossil fuels – including subsidies to spur investment – are among those suffering the worst effects of the decline.<sup>110</sup>

Subsidies for the production of fossil fuels can exacerbate price volatility by encouraging rapid development in times of high prices, and as outlined in Section 3.1 these subsidies can worsen fiscal imbalance when commodity prices fall. The case studies on Angola and Nigeria in Annex 3 highlight their reliance on resource revenues – the less diverse a country's revenue sources, the tighter treasuries are squeezed when oil prices decline sharply.

Despite some successful attempts by the Ugandan government to recoup taxes owed from the sale of resource rights from one international oil company to another (see Annex 3), the country is struggling financially. Despite significant external debt relief during the mid-2000s, Uganda is again considered one of the world's most heavily indebted countries, in large part as a result of government borrowing against oil revenues that have not materialised.<sup>111</sup> Producer subsidies limited Uganda's revenue from oil companies in pre-production stages of exploration and field development, and recent reductions in taxes on exploration demonstrate a reversal of efforts to obtain more revenue from oil development.<sup>112</sup>

Consumer subsidies in countries that produce fossil fuels, especially oil, can also contribute to the resource curse, since domestic production leads to the use of consumer subsidies or price controls, which by reducing the sale price of fossil fuels can undermine the intended economic benefits of the development of a domestic fossil fuel industry.<sup>113</sup>

## 5.2 IMPLICIT REASONS FOR THE PERSISTENCE OF SUBSIDIES

### 5.2.1. Special interests

Even when experts agree that the cost of a given subsidy significantly outweighs its benefits, it can be difficult to reform or phase it out. The benefits of these subsidies are often concentrated among specific sectors or groups, while the costs are spread across the general population (i.e. consumers and taxpayers).<sup>114</sup> This creates asymmetric incentives for political leaders, as lobby groups often support the interests of small, special interest groups rather than those of comparatively vague "general interest" and disbursed benefits.<sup>115</sup> Depending on the political influence of such lobby groups, this can impose significant constraints on policymakers.<sup>116</sup>

Special interests also influence producer subsidies for fossil fuels, such as international public finance for fossil fuel projects, including in SSA. In the case of the US Export-Import Bank (ExIm), limits on finance for high-emitting infrastructure have been advanced and temporarily rescinded by various acts of the US Congress since 2013. When attempts were made to introduce legislation to bolster limits on the carbon intensity of ExIm-supported projects, fossil fuel companies lobbied congress members.<sup>117</sup> While congressional authorisation of ExIm lapsed in June 2015, language was proposed by senators, some of whom represent states with a strong coal industry, to extend Ex-Im's authorisation to 2019, but with restrictions on financing coal-fired power plants removed.<sup>118</sup>

### 5.2.2. Weak institutions

Governments sometimes use fossil fuel subsidies because they lack other effective means and institutional capacity to implement more targeted policies. In most countries in SSA, the price of energy is a simple indicator that is fairly easy for the public to monitor, and so consumption subsidies are a visible way to provide benefits in exchange for political support.<sup>119</sup> As a result, fossil fuel subsidies are difficult to reform because governments see them as a convenient fiscal tool for achieving economic or social objectives, requiring little administrative capacity.<sup>120</sup>

Governments may not reform subsidies due to their limited capacity to respond, lack of mechanisms for targeting and transferring payments at the national level, lack of strategy to integrate transfer programmes and subsidy policy, and little or no coordination between entities that administer subsidies and social programmes (and other complementary measures).<sup>121</sup> Moreover, distressed state-owned electricity and energy companies may be supported by government transfers, which are easier to continue than to address underlying structural issues.

This dynamic is often reinforced in countries where the public has little confidence in the government's ability to make responsible use of the fiscal savings generated from reform for more targeted and efficient policies and support.<sup>120</sup> Weak governance and institutions can lead to distrust, and makes potential supporters of change averse to risk, which severely limits policymakers' capacity to reform subsidies.<sup>121</sup> In Nigeria, a report produced by investigative journalists in 2012 alleged that weak institutions had failed to make accurate calculations of the cost of fuel subsidies or to account for the delivery of fuels against subsidy payments, creating further distrust and creating another barrier to reform.<sup>124</sup>

Well-targeted subsidies require adequate institutional and administrative capacities, and strong links among different ministries and departments. Governments willing to reform subsidies but lacking these capacities need to be supported in their efforts to build or reinforce the necessary institutions and create new incentives (see Section 8).<sup>125</sup>

## 5.3 INERTIA

Taken together, the implicit and explicit barriers to reform create a dangerous inertia regarding subsidies even in light of new technological, economic and social developments. Subsidies tend to lock in the patterns of activity that they support, and thus prevent dynamic responses to changing circumstances. They tend to encourage rigidity, because they maintain the production and consumption decisions encouraged by the subsidy.<sup>126</sup>

In many cases fossil fuel subsidies persist even when their original rationale or justification has ceased to exist, and the original policy objectives have been achieved. This poses a significant challenge, as subsidies will often persist even in a changed policy environment with new preferences and objectives.<sup>127</sup> Subsidies that were intended to be temporary can eventually become permanent, because they become embedded in planning and expectations, prices (including of capital), resource allocation, and community assets, creating new vested interests.<sup>128</sup>

This inertia may be exacerbated in cases where governments fear that subsidy reforms could lead to political instability. For example, transport unions are likely to be affected by removal of petrol subsidies, and union protests can create urban instability.<sup>129</sup> In SSA, with its rapidly growing urban populations, the risk of instability can be a real concern for politicians, and create a barrier to reform even if it might be possible to mitigate it.

As will be outlined in detail in Section 8, subsidy reform often calls for the use of a wide range of complementary measures in order to make it more likely that reforms will be successful and lasting. These interventions must also be carefully designed to allow for flexibility and phase-out so that they do not become impossible to change in response to evolving public priorities.

## 6. Drivers of reform: and opportunities for change

A review of case studies of reform show that the most common motivation was a combination of crises, particularly where the fiscal costs are so high that the government has no choice but to act. In addition, although such reforms may be driven by wider sector or economic reforms and political changes, they are rarely driven by broader social and environmental (or climate) issues. Many have highlighted the recent drop in fossil fuel prices as a unique opportunity to reduce fossil fuel subsidies, but it is important to recognise that falling commodity prices often lead to a parallel rise in demand for production subsidies (for more information on the impacts of recent oil price changes see Klevnas, Stern and Frejova, 2015).<sup>130,131</sup>

The continued volatility in oil prices and the rising cost of finding and extracting oil, gas and coal create a significant risk for economic development that is over-reliant on fossil fuels.\* In particular, fuel-producing countries such as Angola, Nigeria and Mozambique (see Annex 3) are particularly at risk of fiscal deficits and crises due to rapid changes in international prices for oil, gas and coal, although these impacts could be mitigated by reducing production subsidies and increasing taxation during times of high prices.<sup>132</sup> In addition, the falling cost of renewables and efficient alternatives in transport and industry all put into question the sustainability of an energy mix focused on fossil fuels, particularly in cases where their development depends on subsidies.

The growing political momentum to achieve universal access to modern energy services is also a potential driver of reform: as described in Section 4.2, fossil fuel subsidies tend to support approaches to the provision of energy services that do not meet the needs of those who currently lack access. The need to demonstrate gains in energy access by supporting solutions that focus on the poor – which tend not to be based on fossil fuels – may in some cases also help to push subsidy reform or redirection.

Growing concern about climate change is another possible driver of reform. For example, a number of governments and multilateral institutions have significantly reduced international support for coal-fired power generation because of climate-related concerns. Greater understanding of the pollution and health costs of fossil fuels and subsidies, as outlined in the IMF's inclusion of externalities in its subsidies estimates, could be helpful in encouraging governments to rethink their support for fossil fuels.

Although there is only limited evidence of producer subsidy reform, a 2013 IMF survey found that a number of governments in SSA have made efforts to reform consumption subsidies in recent years (see Box 3). Such efforts have been made in 14 countries, most of which have been through changes to fuel-pricing formulas, with the aim of facilitating the pass-through of international prices. Efforts to reform electricity subsidies have been made in 12 countries.<sup>133</sup> In addition, as members of the G20 and the Friends of Fossil Fuel Subsidy Reform\*\* respectively, South Africa and Ethiopia are committed to phasing out “inefficient fossil fuel subsidies that encourage wasteful consumption”.

## 7. Principles for reform: national level

Lessons from various reform efforts across SSA (and elsewhere) have informed the following principles for effective reform. While diverse national conditions require tailored reform programmes, governments can use the following elements to guide the development of robust reforms:

### 7.1 WHOLE OF GOVERNMENT APPROACH

Although at first glance efforts to reform fossil fuel subsidies might seem to link only to one sub-sector, and only a limited portion of an energy department or ministry's portfolio, the role of energy in the economy and the significant impact of subsidies on wider economic, environmental and social objectives justify a whole of government approach to reform. In addition, individual government ministries seldom have access to all the tools required to mitigate the impacts of reform, support economic diversification, or the convening power to plan reform processes.

\*In part due to increased climate-related regulation, demand for coal is slowing down, and prices have fallen to their lowest level since 2009. In Australia, one of the world's biggest exporters of coal, the price is around US\$60 per tonne, while four years ago it was US\$120, underlining how changes in demand from countries such as China affect the economies of resource production. Source: <http://www.theguardian.com/world/2015/apr/13/chinas-coal-imports-fall-nearly-half-in-12-months-as-anti-pollution-drive-bites>

\*\*Costa Rica, Denmark, Ethiopia, Finland, New Zealand, Norway, Sweden and Switzerland.

## Box 3

## Experiences of fossil fuel subsidy reform in sub-Saharan Africa (see also Annex 3)

Country	Product	Year	Outcome	Policy and impact	Mitigating measures using resources from reform
Angola (see Annex 1)	Fuel	2014	Still in planning stage	The government is planning gradual subsidy reform (IMF, 2014). Increased gasoline and diesel prices by 25% in September 2014 (IEA, 2014).	Strengthening existing social programmes and developing plans to provide direct longer-term support to poorer households.
Ghana (see Annex 1)	Fuel	2005 – 2014	Reform maintained	A price adjustment formula. In 2014 gasoline and diesel subsidy reforms led to a price increase of 22% (IEA, 2014)	Eliminated fees for state-run schools; increased public-transport; increased funding for health services in poor areas.
Kenya (see Annex 1)	Electricity (linked to fuel cost)	2005	Reform maintained	Automatic pass-through of changes in fuel costs and exchange rate movements. Aim was to help finance the development and expansion of domestic sources of renewable energy. Subsidies declined from 1.5% of GDP in 2001 to zero in 2008.	Lifeline tariff (for consumers of less than 50 kWh a month), a rural electrification programme, and efforts to improve the technical efficiency of SOEs (which improved quality of and access to power services).
Namibia	Fuel	1997	Reform maintained	Introduced a fuel price-adjustment. As a result of reform, fuel prices have generally moved in line with international oil prices, but the government has intervened from time to time when this was deemed necessary. Rural pump prices remain subsidized.	Namibia experienced little protest against reform efforts. It undertook a structured, and consultative approach to reform and used a price-smoothing mechanism (a gradual increase of fuel prices rather than direct increase). To mitigate the effects of reform, VAT on selected food items was removed, and a food distribution programme was established for the most vulnerable.
Niger	Fuel	2011	Reform partially maintained	Automatic pass-through of international prices, but in 2005 an explicit subsidy was introduced into the formula as global fuel prices increased.	A direct subsidy to public transport, and a 19% increase in social spending, particularly focused on education.
Nigeria (see Annex 1)	Fuel and electricity	2005 -2012	Reform partially maintained	A subsidy cut in January 2012, doubled petrol prices overnight and triggered protests. The Nigerian government had to scale back initial price increases of 117% for gasoline, to around 50%.	The Subsidy Reinvestment and Empowerment (SURE) programme was announced in 2011 (only six weeks prior to reform). The president made public statements on the benefits of reform and budget documents highlighted the costs of the subsidies, and plans to spend more on social safety nets and on the construction of new refineries and the rehabilitation of existing ones (IMF, 2013).
Uganda (see Annex 1)	Oil and gas	2014-2015	Still in initial stages	Reform of tax measures for investment in oil and gas exploration and production, and major efforts to recover capital gains tax from sale of exploration rights.	Recovery of capital gains tax partially successful in settlements with international oil companies. Whether the reform of tax measures on oil and gas exploration and production represents a net increase or net decrease in producer subsidies is not yet clear.

## 7.2 RESEARCH AND ANALYSIS

Research and analysis should be undertaken before, during and after reform to support understanding of the scope and nature of fossil fuel subsidies, their policy objectives, up-to-date information on the costs of energy services, key attributes of relevant institutions and decision-making processes, the potential domestic impacts of removing consumption subsidies and the sectors that would be favoured or penalised as a result of subsidy reform.

In Ghana, a Poverty and Social Impact Assessment (PSIA) clearly showed that fuel subsidies disproportionately benefited the rich and could be better spent. The results of this study were made public and discussed with various stakeholders.<sup>134</sup> The GSI has published a series of “Citizens’ guides to fossil fuel subsidies” for Bangladesh, India, Indonesia and Nigeria. These guides are simply written in order to increase public understanding of subsidies.<sup>135</sup>

The production of fossil fuels and associated subsidies are often ingrained in government approaches to energy development. Subsidy reform may depend on a government’s ability to understand the swiftly changing nature of energy systems, such as the rapid growth and increasing cost competitiveness of renewable energy and alternative means to provide access to energy. There is also a need for a willingness to try new approaches to energy development, which requires on-going learning and openness on the part of those responsible for designing and implementing public policy.

For example, energy strategies have often historically been approached in terms of the amount of fuel produced or the number of megawatts generated. More recently, particularly in the context of providing increased access to energy, and improving efficiency, energy production has been discussed as providing energy services, such as hot water, thermal comfort, lighting, cooking, food cool-storage, and mobility. An approach to energy policy that begins with asking what services are needed – in terms of access and productive use – and what the most efficient way is to provide these services, may result in different energy choices than one that prioritises production and megawatts. Furthermore, using methods such as full cost accounting – which acknowledges the direct and indirect economic, environmental, health and social costs of a project or action – can help in assessing the undesirable by-products and additional costs of energy choices from the project to the systems level. A new approach to energy strategies and systems can help pave the way for reforming the policies and subsidies that promote fossil fuels, while ensuring that energy policy and investment achieves maximum value for money.

## 7.3 COMMUNICATION AND CONSULTATION (BEFORE, DURING AND AFTER REFORM)

Subsidy reform process must be supported by extensive communication and consultation with stakeholders. For consumption subsidies, there is strong evidence for the need for clear, open and honest messages on: the scale of subsidies, their costs and impacts, plans for reform, and complementary measures to be provided.<sup>136</sup> Consultation and engagement can also include efforts to build alliances for change. This may include engaging unlikely allies such as well-performing segments of sectors or regions that could help to offset lobbying against reforms.<sup>137</sup> The stakeholder groups are diverse and beyond government officials include industry associations, companies, trade unions, consumers, social and labour political activists, and CSOs – all of which need to be involved if subsidies are to be eliminated.<sup>138</sup> Reform efforts may even originate from or be supported by some of these non-government groups outside such as international organisations and CSOs. There are also several examples of how failing to engage and communicate with stakeholders can significantly undermine reform efforts. In Nigeria, for instance, the failure to give sufficient warning to the public of a significant increase in fuel prices led to large-scale demonstrations and strikes, and the partial reinstatement of subsidies (see Annex 3).

## 7.4 MOBILISING UP-FRONT RESOURCES (BEFORE AND DURING REFORM)

While subsidy reform can provide significant fiscal space and additional government revenue, and often far exceed any up-front costs, these positive impacts are felt only after the subsidies have been reformed.<sup>139</sup> As a result most governments will need to mobilise up-front funding to support many of the elements necessary for a robust reform process. These resources could be mobilised both domestically and internationally. This is particularly important for covering the costs of analysis, communication, consultation, complementary measures and institutional reforms that are required in advance of wider subsidy reform processes. Countries in SSA could benefit from bilateral and multilateral support for their reform efforts.

## 7.5 STRENGTHENING INSTITUTIONS

The establishment of independent regulatory bodies can be part of wider power sector reform, including improving (state) enterprise efficiency and encouraging investment in cheaper forms of energy production in order to ensure the quality of and access to affordable services.<sup>140</sup> In Tanzania's energy sector, a specialised regulatory entity was set up to monitor reform efforts and to keep the public constantly informed about energy prices. In a number of countries similar independent institutions were established in order to depoliticise the price-setting framework by separating it from election cycles.

In addition, subsidy reform provides opportunities to free up government budgets for more efficient public spending. For example, the savings can be reinvested in public health, education and transport. This depends on the strengthening or establishment of the institutions that are charged with providing these services, and ensuring they reach the poorest and most vulnerable.

## 7.6 COMPLEMENTARY MEASURES (INCLUDING NEW AND MORE EFFICIENT SUBSIDIES)

Although fossil fuel subsidies are often ill targeted, the impact of their removal can be significant for particular sectors of the population, as every subsidy benefits somebody, somewhere.<sup>141</sup> For consumption subsidies in particular, the sectors affected may represent a large proportion of the population. A key element of successful reform is, therefore, the efficient and highly visible reallocation of resources to those most affected.<sup>142</sup> For example, in Nigeria, the general public was very suspicious of plans to reform fuel subsidies because they did not trust that the government would redirect savings in a way that would directly benefit them.<sup>143</sup>

Although there are specific considerations for the complementary measures that might be provided to affected sectors (e.g. employment insurance in sectors where job losses are likely to occur), to households (e.g. social safety nets such as cash transfers), and to different parts of government (e.g. budget transfers to regions or municipalities), they should be designed and implemented according to the basic principles building on lessons from industrial policy:<sup>144</sup>

- Transparency – governments must be explicit about the transitional costs of reform and communicate clearly about the complementary measures to be implemented;
- Public accountability – complementary measures should be designed so that the objectives are for the public good rather than the specific groups being supported;
- Use of independent measures – each instrument should be matched to each objective to facilitate continual adjustment of policies as objectives change (to minimise policy inertia);
- Decentralisation – developing complementary measures based on local information may allow for more targeted actions and policies (and may be facilitated by transfers from central to regional and local governments);
- Grouping measures together – packaging several offsetting measures may reduce political opposition;
- Balance flexibility with predictability – so that measures can be adjusted when new information is available, with enough continuity to support longer-term investment decisions;
- Exit strategy – clear and transparent criteria and timeframes that determine when complementary measures should be terminated.

### Complementary measures for sectors, industries and firms

Fossil-fuel subsidies often become embedded in the operations of sectors, industries and firms. As a result, any process of reform can gain political support only if it is designed in such a way that these can adapt to new economic circumstances. Just as much as it requires support to the growth of new sectors, the rapid economic transition needed to achieve de-carbonisation requires active government policies to mitigate the effects of the decline of old sectors.<sup>143</sup> Complementary measures should aim to improve the competitiveness or viability of those which stay in the sector, support those that want to leave the industry or to diversify into other activities, and take into consideration the potential of the private sector to create new opportunities in response to changing conditions.<sup>146</sup>

These measures for sectors, industries and firms can include incentives to diversify the regional economic base, infrastructure development, assistance with business restructuring and adoption of alternative technologies, counselling for workers, retraining and relocation, unemployment insurance, and support for early retirement programmes.<sup>145</sup> Where relevant, complementary measures may be developed through existing systems, which could reduce costs and simplify administration. Where there is no existing social security system (to protect those who lose their jobs) or alternative infrastructure and services to support transitions in the power and transport sectors, the development of new institutions and systems may be required and can be linked to support at the household level.<sup>148</sup>

In SSA, where energy services, infrastructure and public transport are of poor quality, engaging in broader reforms to improve services before reforming energy subsidies can make the increased fuel prices more acceptable.<sup>149</sup> Where complementary measures involve supporting emerging industries, firms and infrastructure they should ideally favour those that contribute to a more energy-efficient, less carbon-intensive economy.<sup>150</sup> For example, in the transport sector this could include the coordination of new Bus Rapid Transit (BRT) systems with plans to increase urban density, the restriction of inner-city parking, along with optimising traffic-light timing, ensuring that traffic lights have backup power, and deploying police quickly to manage traffic flows.<sup>151,152</sup> Similarly, taxing the higher property value generated by extending public transport is being explored in Cape Town and Johannesburg as a means of financing their BRT systems.<sup>153</sup>

## Households and individuals

In addition to support at the sector, industry and firm levels subsidy reform should also be accompanied by high-profile support at the household level in order to improve equity more broadly and protect the poorest, who are most likely to be negatively affected by price increases.<sup>154</sup> This may include the development or expansion of social safety nets or transfers, and include direct transfers such as cash benefits or near-cash transfers such as vouchers or smart cards, and indirect transfers such as fee waivers to help households maintain access to essential services such as health, education, or public transport.<sup>155</sup> This could also include wider support in terms of developing infrastructure and the improving the quality of public services.

As outlined above, some fossil fuel reforms have been used to create entirely new social programmes and thus serve as an impetus for wider social reforms, while others have modernised existing social programmes to facilitate subsidy reforms (see Annex 3).<sup>156</sup> Strong social protection systems help to insulate households and individuals from economic hardship, regardless of its origin.<sup>157</sup>

These new or improved social safety nets can be developed in advance of reform through up-front resources (domestic or international), or through revenues and savings from subsidy reform (see Section 7). The fiscal space created by reform can be used to reduce wider costs to individuals by cutting payroll and consumption taxes, increasing personal income tax thresholds, and providing tax credits for low-paid jobs. Governments can also use the revenues saved from subsidy reform to increase spending on other priorities such as health and education.<sup>158</sup> Together these are far more efficient means to achieve distributional objectives than holding down energy prices below market cost in addition to their adverse social and environmental impacts.<sup>159</sup>

Many of the country reform experiences highlighted in Annex 3 show the importance of direct and indirect support measures for households and individuals, including in Ghana whose reforms included an expansion of primary health care, large-scale distribution of efficient light-bulbs, improved public transport, and immediate elimination of fees at state primary and secondary schools.<sup>160</sup>

## 7.7 CAREFUL TIMING, PHASING IN AND LINKING TO WIDER REFORM OF THE ENERGY SECTOR

Although it may be tempting to undertake the wholesale elimination of fossil fuel subsidies, where possible (apart from times of crisis) the best approach is to set ambitious goals, but to have gradual, credible and pre-specified timeframes for phasing out subsidies.<sup>161</sup> This is because sharp increases in prices are generally disruptive and can lead to social unrest; do not allow time for planning and implementation of consultation, communication, and complementary measures; and that incremental reforms are more likely to be maintained if the policy environment becomes less favourable in the future.<sup>162</sup> By phasing out subsidies slowly there is also more time to take advantage of timing reform during economically advantageous periods in business or sectoral cycles.<sup>163</sup>

Another important consideration is the sequencing of reforms. To mitigate the poverty impact of fossil fuel subsidy it may be beneficial initially to target subsidies to goods mainly consumed by wealthier sectors (e.g. petrol), before those consumed by lower-income groups (e.g. diesel and kerosene).<sup>164</sup> Examples of countries that have phased in reforms for different fuels include Angola in SSA (see Annex 3), India and Peru.

Finally, reforms of fossil fuel subsidies are more likely to be accepted if they form part of broader sector- or economy-wide reforms.<sup>165</sup> Subsidy reduction can be packaged with other fundamental policy changes or combined with other changes to the regulations governing an industry to ease the adjustment process.<sup>166</sup> In addition, it is recommended that reform be undertaken as an integral part of, or first step towards, introducing or increasing carbon pricing.<sup>167</sup>

## 8. Opportunities for accelerating reform in sub-Saharan Africa

While reforms are implemented at the national level, international cooperation can and is already supporting national reform efforts in multiple ways. The fossil fuel subsidy reform efforts highlighted in Annex 3 demonstrate the role that international institutions and a number of CSOs are already playing in country level support to reform processes.<sup>168</sup> This is complemented by high level commitments to fossil fuel subsidy reform by groups of countries such as the G20, APEC, the EU, and the Friends of Fossil Fuel Subsidy Reform.

Although there are multiple opportunities for international cooperation on fossil fuel subsidy reform (see Fossil fuel subsidy reform: from rhetoric to reality), in the context of SSA it is critical to understand how international actors\* can help to increase technical and financial support to national reform efforts (with a focus on complementary measures). This is particularly important as current interventions are focused on other regions (see Figure 9).

The section below highlights how these existing activities can be scaled up and suggests additional opportunities to increase technical and financial assistance to the full scope of subsidies, including those provided to fossil fuel exploration, production, and through channels such as public finance and SOEs.

### 8.1 INCREASE RESOURCES FOR EXISTING SUBSIDY REFORM INITIATIVES

In regions other than SSA international governmental and non-governmental organisations are already supporting domestic reform efforts by providing direct technical and financial assistance to governments, and engaging with and raising awareness about fossil fuel subsidies (see Figure 9). One relatively simple way to scale up existing, effective international activities is to increase the resources that are directed to governmental and non-governmental groups, with an increased focus on reforming and averting the introduction of new fossil fuel subsidies in SSA. In so doing, the emphasis should be on collaboration to ensure that efforts are coordinated and resources are used efficiently, such as that encouraged through the network of CSOs working on fossil fuel subsidy reforms, and of international institutions through the Green Growth Knowledge Platform, Climate and Development Knowledge Network and the Green Fiscal Policy Network. Since most of these groups are focused on consumption subsidies in developing countries, there is also a need to focus on increasing technical and financial resources for the emerging group of agencies and others working on reforming the full range of subsidies and energy pricing, including those provided to the exploration and production of fossil fuels, and through channels such as public finance and SOEs.

### 8.2 LINK EXISTING TECHNICAL AND FINANCIAL SUPPORT FOR ‘COMPLEMENTARY MEASURES’ WITH SUBSIDY REFORM PROCESSES

In addition to shifting development finance, climate finance, and international public finance away from fossil fuels; there may be the possibility to combine international and domestic resources (public and private) to support the up-front finance required to initiate and implement subsidy reform processes and in particular to support complementary measures for adversely affected households and sectors (see Sections 5.4 and 5.5). International agencies such as the World Bank and bilateral donors are already providing resources and finance for ‘complementary measures’, such as supporting health services, education, social protection, development of the energy sector, and economic diversification – but in a manner that is separated from subsidy reform, in terms both of institutional arrangements and timing. It will be important to not only scale up these resources, but

\*This includes international governmental and non-governmental organisations and financial institutions.

to also increase the linkages between these existing support mechanisms and the processes of (and linked to benefits from) reforming fossil fuel subsidies.

Figure 9

**International agencies providing support for national-level reform of fossil fuel subsidies**

<b>ADB</b>	India, Indonesia, Thailand	A GSI/ADB report on fossil fuel subsidies in SE Asia is forthcoming	Additional countries in South and SE Asia where most electricity is generated with fossil fuels.
<b>Chatham House</b>	Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates)	Project completed in 2013	On-going work on resource valuation in developed and developing countries
<b>ESMAP and World Bank</b>	Country-level engagement has begun in East Asia, Latin America, Eastern Europe, and the MENA (countries not disclosed)	Energy subsidy reform facility Established in 2014	Develop knowledge-sharing platform. In its initial 3–5 year period ESMAP will support about 15 countries
<b>GSI</b>	Bangladesh, Egypt, India, Indonesia, Jordan, Libya, Morocco, Nigeria, Thailand, Tunisia and Vietnam	2015–2017	Countries in MENA and in SE Asia
<b>IEA</b>	Two emerging market countries (countries not disclosed)	2014–2016	In process of finalising the two country studies
<b>IMF</b>	Global	On-going	

Source: Authors own.

**8.3 INCORPORATE SUPPORT TO FOSSIL FUEL SUBSIDY REFORM IN THE MECHANISMS OF THE UNFCCC THROUGH INDCS AND NAMAS, AND WITH SUPPORT FROM CLIMATE FINANCE**

Given the multiple climate benefits of phasing out fossil fuel subsidies, the process of tracking, reporting and reforming fossil fuel subsidies in developing countries could also be included in Intended Nationally Determined Contributions (INDCs), recognised as Nationally Appropriate Mitigation Actions (NAMA), Low Emission Development Strategy (LEDS), and supported with climate finance.

The INDCs that are to be submitted to the UNFCCC prior to the Paris negotiations on climate change, are meant to submit information on national emission-reduction plans, which are important building blocks for a new international agreement, but since the process for reviewing INDCs has not been agreed, it remains unclear how binding they will be.<sup>167</sup> Parties are free to determine the content of their INDCs and so plans to reform fossil fuel subsidies could be included as planned emission-reduction efforts from 2020, and would need to be accompanied by a corresponding estimation of emission reductions expected from reform.<sup>170</sup> To date the INDC of Vietnam includes a roadmap to phase out subsidies for fossil fuels, and those of Ethiopia, Singapore, and India mention efforts already undertaken to reform fossil fuel subsidies. In addition, Morocco’s INDC signals an intention to substantially reduce fossil fuel subsidies through energy sector reforms that are ongoing, and China and Mexico’s INDCs include intentions to improve the pricing and taxation regime for energy products.<sup>171</sup>

Within the UNFCCC framework developing countries could also propose fossil fuel subsidy reform as a Nationally Appropriate Mitigation Action (NAMA) to the Secretariat. The concept of NAMAs, described as policies and actions taken by developing countries

to reduce GHG emissions in the context of sustainable development, is sufficiently broad to include subsidy reform.<sup>172</sup> To ensure that NAMAs would both lead to reduced emissions and foster sustainable development, the reform policies would need to guarantee that resulting savings are redirected to low-carbon development objectives.<sup>173</sup> Although none has yet been established, if the Secretariat approves these NAMAs, developing countries could benefit from additional external technical and financial support.<sup>174</sup>

Climate finance can make a direct contribution to subsidy reform efforts as part of increased support to developing countries INDCs and NAMAs between now and 2020.<sup>175</sup> International donor support will be particularly important for assisting these countries to define complementary measures for sectors and households, in particular those that need to be established in advance of subsidy reform. For example, INDCs of SSA countries that include fossil fuel subsidy reform could also signal commitment to providing access to clean energy in the context of climate equity, ensuring that discussions on subsidy reform also indicate how alternatives to fossil fuels can benefit SSA countries.

The High-level Advisory Group on Climate Change Financing has also emphasised that the elimination of fossil fuel subsidies in developed countries would be a valuable source of climate finance, and since it is a domestic instrument, it could allow finance to be disbursed more rapidly than sources that require significant international coordination.<sup>176</sup>

## **8.4 ENSURE THAT DEVELOPMENT AND EXPORT FINANCE FOR FOSSIL FUELS IS SHIFTED TO SUPPORTING REFORM AND LOW-CARBON ENERGY, AND THAT CLIMATE FINANCE IS NOT USED TO SUPPORT FOSSIL FUELS**

The same governments and international institutions that are providing climate finance under the UNFCCC are currently continuing to provide public finance for fossil fuel exploration, production and consumption, a portion of which would be considered a subsidy under the WTO definition. In the absence of a definition of climate finance under the UNFCCC, there is the potential for fossil fuel subsidies to be tagged as climate finance. Already a group of the leading development finance institutions (including the World Bank) have established their own “common principles” for climate finance, which includes support to efficient coal power and carbon capture and storage (including enhanced oil recovery), and Japan has included loans to the construction of super-critical coal-fired power plants in Indonesia in its climate finance tracking under the UNFCCC.<sup>177</sup>

As a first step towards ensuring the phase-out of fossil fuel subsidies through international finance, a large number of CSOs have called on the Green Climate Fund (GCF) to rule out the use of its funds for fossil fuel projects.<sup>178</sup> In addition, agencies providing development and international public finance should stop supporting from fossil fuels and move towards supporting complementary measures as part of subsidy reform, and investment in renewable energy and efficiency.

There has been some progress in shifting development finance away from fossil fuels in the form of commitments to end public finance for coal plants abroad (other than in exceptional circumstances) by the governments of Denmark, Finland, France, Iceland, Norway, Sweden and the USA, and by the World Bank, the European Bank for Reconstruction and Development (EBRD), the US Export-Import Bank, and the European Investment Bank (EIB).<sup>179</sup> These efforts should be scaled up through the discussions that OECD is currently convening on support to fossil fuels provided through export credits and guarantees. A strong OECD agreement, with timelines and criteria for ending support to all fossil fuels through export credits and guarantees, would be a good opportunity to encourage broader international efforts to phase out all public finance support to fossil fuel projects. Recently, the US and Japan have reached agreement on curbing coal financing, increasing the prospects for a successful outcome at the discussions the OECD is convening on support to coal through export credits and guarantees.<sup>180</sup>

## ANNEX 1: CASE STUDIES OF FOSSIL FUEL SUBSIDY REFORM IN SUB-SAHARAN AFRICA

Figure 10

### Case study countries in Sub-Saharan Africa



The following country studies are based on a literature review on the process of reforming subsidies to fossil fuels, including those published by the International Monetary Fund (IMF), the World Bank, and the Global Subsidies Initiative (GSI). The IMF and World Bank country studies typically include detailed information (including modelling) on the potential economic impacts of reforms, while the GSI tends to offer wider information on the local context and the challenges involved in implementing reforms. The case studies were selected, where possible, to highlight countries from different parts of sub-Saharan Africa (SSA), and to represent a range of subsidies for fossil fuels, including those for transport, power generation and the extraction of resources. Although interviews were not undertaken, where possible an expert in subsidy reform in the country reviewed the case study (see Acknowledgements).

Currency conversions are based on: <http://www.irs.gov/Individuals/International-Taxpayers/Yearly-Average-Currency-Exchange-Rates>.

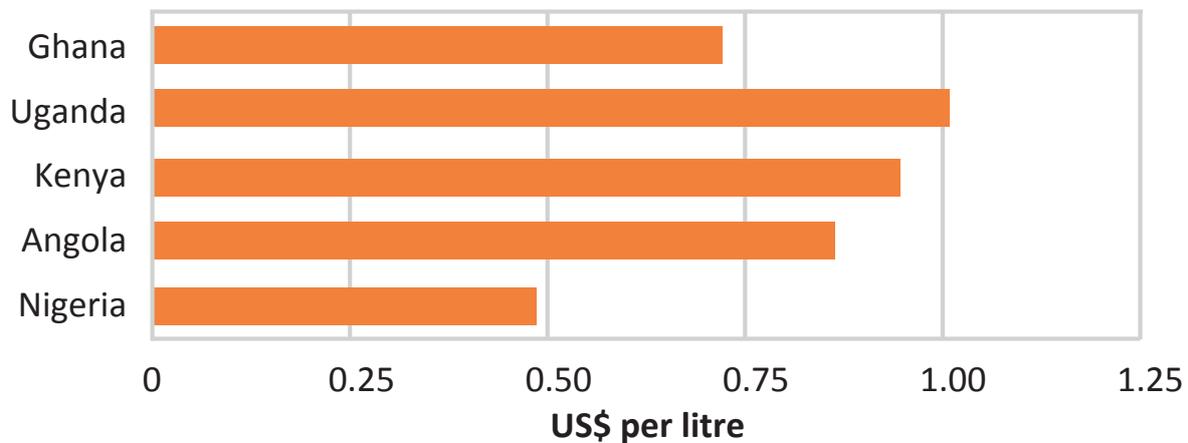
### 1. ANGOLA

Angola is the second-largest oil producer in sub-Saharan Africa (SSA). The country experienced an oil boom between 2002 and 2008 as several deep-water fields came online, and in 2007, became a member of the Organization of the Petroleum Exporting Countries (OPEC). Angola hopes soon to commercialise more of its natural gas for export and domestic consumption.<sup>181</sup>

Despite being an oil exporter, in 2011 55% of Angola's primary energy consumption was from traditional solid biomass and waste.<sup>182</sup> In 2010, only 40% of Angolans had access to electricity, and hydropower contributed 60% of the country's electricity supply.

As do many oil-producing countries, Angola's government provides significant subsidies for the consumption of fossil fuels. Fuel products are exempt from taxes and custom duties, and Angola's fuel prices are among the world's lowest (see Figure) and in 2011 were 67% below the average in SSA. In 2014 Angola spent more on subsidies for fossil fuels than for health and education combined, accounting for 3.7% of its GDP.<sup>183</sup> In order to address this situation, in 2015 the Angolan government approved a 60% cut in support for fossil fuels.<sup>184,185</sup>

Figure 11  
**Petrol prices US\$/Litre as of 9 November 2015**



Source: Globalpetrolprices.com.

As a first step in the reform process, the IMF's initial analysis showed that:

- Subsidies to diesel, petrol and LPG accounted for 94% of all consumption subsidies.
- Industry absorbed about 47% of all subsidies, the government 21% and households 32% (based on fuel consumption).
- Subsidies created incentives for over-consumption and smuggling (about 10% of consumption was being smuggled to the Republic of Congo and the Democratic Republic of Congo).
- 77% of fuel price subsidies benefited the richest 40% of households, while only 10% of benefits accrued to the poorest 40%.
- Although poorer households benefited less from the subsidies, they spent about 4.8% of their income on energy while richer households dedicated about 3.6%.
- The fuel-intensive sectors that would experience the greatest impacts of subsidy reform include fisheries, electricity, transport, and mining.
- Inflation resulting from subsidy reform would be limited as many consumer goods in Angola are imported, so their cost of production would not be affected by higher fuel prices.

Based on this analysis the IMF proposed the following reform strategy:

- Phasing of reforms with an immediate reduction of subsidies for fuels consumed by richer households (petrol), and later for those consumed by poorer households (kerosene).
- Increasing household fuel prices by 133% between 2015 and 2020.
- Strengthening existing social welfare programmes including assistance for vulnerable children, the elderly, poor households, people with disabilities and war veterans; professional training; and school meals.
- Support to the Ministry of Social Assistance in setting up a cash-transfer scheme. The estimated costs of the cash transfer, equivalent to 50% of the poverty line (i.e. US\$40.50 per month for a family of five) would represent 0.5% of GDP.<sup>186</sup>

In a recent presentation, Angola's Finance Minister underlined the significance of timing and of linking reform of fossil fuel subsidies to larger macroeconomic or social initiatives. He stated that such measures worked better when treated not as a stand-alone issue, but as part of more comprehensive and society-wide reform.<sup>187</sup>

Although not the focus of the country's subsidy reforms, there may also be potential for Angola to review and phase out support for the production of fossil fuels. In 2011, over 80% of government revenue came from oil and gas, making the country vulnerable to volatile international prices (see Section 3.1). Sonangol, Angola's state-owned national oil company, has a stake in all of the country's oil and gas exploration and production blocks, and although Angola has significant hydroelectric capacity, it has no near-term, detailed plans to develop it and is currently focusing on the development of natural gas-fired power plants.<sup>188</sup>

## 2. GHANA

Research has found that the LEAP programme is well-targeted, has had positive impacts in reducing inequality. Over the past 15 years Ghana has made numerous attempts to reform fuel subsidies. By 2004, the total cost of fuel subsidies represented 2.2% of GDP, which exceeded the total budget of the Ministry of Health, and about 1% of GDP was needed to support the operations of Tema Oil Refinery (TOR) alone. In addition, LPG subsidies caused such fuel shortages (by encouraging over-consumption), that drivers of commercial LPG vehicles lobbied for the government to remove the subsidy.<sup>189</sup>

Following initial failures to sustain efforts to reform fuel subsidies in 2001 and 2003, in 2005 the government was able to make more permanent reforms by establishing the National Petroleum Authority (NPA). One of the government's objectives in setting up the NPA was to depoliticise the price-setting process, mandating it to establish a formula for adjusting fuel prices and to review oil prices twice a month. The 2005 reforms have been considered successful in that they did not lead to widespread protests (as had happened following the 2003 reforms, which hit the poor hardest) and were maintained over a longer period. The successes of the 2006 reform can primarily be attributed to a joint scientific survey undertaken by the government and the IMF on the impact of changes in fuel prices on different social sectors, the constant dialogue with stakeholders and civil society before and during the reforms, as well as to the complementary measures that were introduced to cushion the effects of price increases, such as social-protection programmes.

In addition to establishing the NPA, the 2005 reforms were supported by preliminary research, including a Poverty and Social Impact Assessment (PSIA), a communications campaign, and the complementary measures to ensure broad support for reform.<sup>190</sup>

The PSIA found that subsidies were poorly targeted, with the rich receiving the biggest share of the benefits, and less than 2.3% benefiting the poor. The results of the PSIA were made public through a widespread communications campaign, and were discussed with various stakeholders. The finance minister announced that the savings from subsidy reform would be directed to complementary measures including the elimination of fees for state primary and secondary schools; a ceiling on public transport fares; additional funding for health care in poor areas; and a rise in the minimum wage.<sup>191</sup> The government also continued to cross-subsidise kerosene and LPG (by charging a fee for petrol, which is used to subsidise kerosene and LPG, fuels that are typically used by the poor), and distributed compact fluorescent light bulbs to reduce household electricity costs.<sup>192</sup>

The 2005 reforms did not remove all subsidies to fossil fuels, as there continued to be (cross-) subsidisation for petrol, diesel, kerosene and LPG, and the NPA continued to make ad hoc price adjustments. In addition, in 2007 and 2008 the automatic price adjustment was suspended in response to rising commodity prices. By 2013, the cost of fuel subsidies had risen to US\$1.2 billion, or about 3.2% of GDP.<sup>193</sup>

To address the increasing budgetary burden, in 2013 the government raised the price of petroleum products by 15% (for kerosene) and 50% (for LPG), while the price for pre-mix (petrol with a lubricant blended in) was not adjusted and remains heavily subsidised.<sup>194</sup> Similarly, there were reductions in the large subsidies for electricity, through increases in tariffs.<sup>195,196</sup>

This recent round of reforms was complemented by a 17% rise in the minimum wage and an expansion of the cash-transfer programme (LEAP) from 100,000 to 150,000 households.<sup>197</sup> Research has found that the LEAP programme is well targeted, has positive impacts also in terms of reducing inequality, and costs far less than fossil fuel subsidies.<sup>198</sup> These recent reforms have contributed to a fiscal surplus, are expected to help reduce fossil fuel consumption and emissions, and reduce road traffic, which in turn may reduce local air pollution.<sup>199</sup>

In response to recently falling oil prices, in 2015 the Ghanaian government has made further statements about reforms to fossil fuel pricing which may reverse efforts to reform subsidies:<sup>200</sup>

- The NPA announced that it would use the windfall from low price of crude oil to settle the country's Bulk Oil Distribution Companies (BDCs) debts that arose from earlier subsidies, and respond to consumers' demand for a further 10% reduction in prices.

- The NPA is considering alternatives to the full-pass-through of changing international prices to domestic prices, including a hedge policy to secure low energy prices in the future.
- The government proposed a levy on petroleum products to establish a renewable energy fund that would enable residents and “micro enterprises” to install rooftop solar panels.

Ghana’s state of the nation address also hinted at the need for new consumption and production subsidies, indicating that due to low rainfall the country’s base-load generation would have to be shifted from hydro- to thermal power, and that Ghana stands to lose about US\$700 million from oil exports if the price remains at current levels.<sup>201</sup>

### 3. KENYA

Until recently, electricity prices in Kenya bore little relationship to the cost of production. The subsidy, primarily in the form of under-priced electricity, accounted for as much as 0.6% of GDP in 2002.<sup>202</sup> While this under-pricing benefited all sources of electricity generation, it included major benefits for electricity generated using fossil fuels, which constituted 24% of supply in 2012.<sup>203</sup> Under-pricing electricity also meant that expanding its provision was often a money-loser for the government and utility companies, so that every additional connected customer and kWh consumed resulted in further losses.

Owing to the nature of access to grid electricity in Kenya, before they were reformed electricity subsidies disproportionately benefited the wealthier social sectors, while those without access to grid electricity (31 million Kenyans, including the country’s poorest) did not benefit at all. Even poor households living within reach of the grid often remained unconnected because of the initial connection fees, which is a continuing problem.<sup>204</sup>

The ‘unbundling’ of the electricity sector began in Kenya in the 1990s with the aim of improving the performance of the power sector. Major legislation was passed in the mid-2000s, in the form of the 2004 Energy Policy and 2006 Energy Act. Reform of electricity tariffs began in earnest in 2005 and gradually became increasingly cost-reflective.<sup>205</sup> Tariffs have risen from an average US\$0.07/kWh in 2007<sup>206</sup> to roughly US\$0.20/kWh in May 2015.<sup>207</sup> A complementary subsidised “lifeline” tariff for the poorest has been retained for consumption up to 50kWh per month, and total charges and fees for this level of consumption represent less than 5% of the average household budget for those living on the poverty line.<sup>208</sup> Analysis suggests that Kenya’s cost-recovery reforms have also maintained a high share of the population that can afford subsistence consumption at the average effective tariff (although this does not include an assessment of impacts on distribution that takes into account those who still lack access to electricity).<sup>209</sup> A new Kenya Energy Bill is expected to be passed by the end of 2015, which may have implications for the cost-reflectivity of tariffs.

In conjunction with provisions aimed at protecting the poorest from tariff increases, tariff reform has also succeeded because it occurred simultaneously with improvements in the quality of service, and a rural electrification programme, for which the government promised to use savings from cutting the subsidies. This measure has helped gradually to reduce actual electricity costs and improve the service and reliability of the system. This crucial dimension brought major private-sector consumers of electricity into line with the reforms and made them sustainable. Reforms also avoided retrenchment in utility companies,<sup>210</sup> thus averting some of the political friction that can accompany broader efforts to reform electricity supply. As a result of the reforms, the annual rate of new electricity connections increased from 43,000 in 2003 to 200,000 in 2008/2009, and distribution losses fell from 21% in 2000 and to 15.5% in 2009. Moreover, revenue collection rose from 81% in 2004 to 98% in 2010.<sup>211</sup>

As electricity tariffs have increasingly reflected the actual costs of generation, transmission, and distribution, renewable energy has become a more attractive option. Reforms are also some of the key factors that have enabled a greater supply of renewable electricity, including geothermal electricity, which has brought down the actual cost of generating it, with new generating units at just one of Kenya’s geothermal plants saving consumers an estimated US\$24 million a month on fuel costs in 2015, according to plant operators.<sup>212</sup>

Beyond electricity subsidy reform, Kenya’s relatively cost-reflective price of kerosene has also helped to foster the use of clean energy, particularly forms of distributed renewable energy that can help provide first-time access to electricity to the more than 31 million Kenyans who currently lack access.<sup>213</sup> Clean energy enterprises in Kenya have expressed the view that the country’s relatively low overall subsidy for kerosene is an important feature of the existing policy framework that has enabled distributed clean energy enterprises to expand.<sup>214</sup>

## 4. NIGERIA

Nigeria is the largest oil producer in Africa, and has the world's ninth-largest natural gas reserves.<sup>215</sup> The oil and gas sectors account for around 25% of Nigeria's GDP, 75% of general government revenue, and over 95% of total exports, making the country's fiscal balance particularly vulnerable to international oil price volatility, as highlighted by recent low oil prices.<sup>216</sup> Despite Nigeria's natural resource wealth, the country's domestic petroleum consumption is met largely by imports. This is in part due to Nigeria's limited refining and domestic pipeline capacity.<sup>217</sup> In addition, only half of Nigeria's population has access to electricity and even they continue to depend on petroleum products during frequent electricity supply shortages.<sup>215</sup> Biomass and waste account for 80% of Nigeria's primary energy consumption, oil for 13% and natural gas for 6%.<sup>219</sup>

Poverty rates in Nigeria are high, and in the absence of a well-designed social welfare system, subsidies are a means for the government to distribute the country's oil wealth.<sup>220</sup> While diesel prices are deregulated, the Petroleum Products Pricing Regulatory Agency (PPPRA) sets maximum prices for premium motor spirit (petrol) and kerosene on a monthly basis, meaning that those who are officially licensed to sell this fuel must do so below the market rate. The government then partially compensates the petroleum vendors and licensed importers both with lump-sum payments.<sup>221</sup> Subsidies to electricity come in the form of subsidised gas used as an input in electricity production as well as the setting of too low tariffs to recover the costs of electricity production. To help state utilities recover their costs the government provides payments as compensation.<sup>222</sup> The IMF estimates that fossil fuel subsidies in Nigeria (pre-tax and foregone consumption tax revenue) were US\$4.5 billion in 2013.<sup>223</sup>

While fossil fuel subsidies are justified primarily as supporting social welfare, their benefits accrue largely to richer households that consume more energy than do low-income households. Kerosene subsidies are also often captured by intermediaries in the parallel market, who sell it at far above the price set by the PPPRA.<sup>224</sup> Also, although electricity subsidies include lifeline tariffs that are supposed to be progressive, the poorest households often lack access to electricity and can hence do not benefit from these subsidies.<sup>225</sup> Finally, Nigeria's fossil fuel subsidies, as in other countries, create a disincentive for investments in efficiency such as for upgrading and maintaining energy infrastructure, which can in turn be linked to frequent blackouts and oil spills in the country, and to over-consumption and inefficient use of fossil fuels, all of which exacerbate fuel shortages.<sup>226</sup>

The strain that fossil fuel subsidies placed on the government's budget, and the wider negative effects of subsidies, prompted the Nigerian government to make efforts to reform electricity subsidies from 2008 (in a 15-year plan to achieve cost-reflective tariffs), followed by petrol in late 2011. Before the latter, the president made public statements highlighting the cost of the subsidies, and plans to use the savings to spend more on safety nets for the poor, wider infrastructure for energy, transport and water, and improving the country's oil-refining capacity.<sup>227</sup> The government stated that the potential impact of the subsidy removal on the poor would be mitigated "through properly targeted safety-net programmes". These complementary measures formed the Subsidy Reinvestment and Empowerment (SURE) Programme.

In January 2012, only six weeks after the SURE Programme was presented to the public, the government raised the price of petrol to full cost-recovery level, leading to a 117% price increase.<sup>228</sup> For most Nigerians, this short notice meant that the implementation of the reforms came as a surprise and many did not trust that the government would use the proceeds in a manner that would benefit them.<sup>229</sup> Consequently the reforms resulted in nationwide protests and strikes. In response, the government had scaled back the price increase from 117% to 49% by mid-January 2012, meaning that the country's petrol subsidies were reduced significantly but not eliminated.<sup>230</sup>

Nigeria has not since resumed reform efforts. The IMF forecasts that fossil fuel subsidies in Nigeria (pre-tax and foregone consumption tax revenue) will be US\$1.7 billion in 2015, a significant fall from 2013 due to subsidy reforms and falling oil prices.<sup>231</sup> As is the case in many other countries, there is only limited information on production subsidies in Nigeria. According to Nigeria-based Spaces for Change, fuel subsidies are likely to exceed the national revenue if they remain intact.<sup>232</sup>

The country is currently facing persistent fuel scarcity, which has led to a significant increase in the domestic price of petrol and long queues at fuel stations. Although these difficulties, and the heightened fiscal burden from low oil prices, have drawn increasing attention to existing fossil fuel subsidies, current president, has said that subsidies will be maintained, and that the challenges in the energy sector are best addressed by targeting "sabotage, corruption and mismanagement".<sup>233, 234</sup>

## 5. UGANDA

In the wake of recent oil discoveries, the Ugandan government has made efforts to reduce tax breaks as a form of subsidy for the production of fossil fuels. It has reformed tax regulations and pursued unpaid taxes linked to oil production. This is not a clear-cut success story, however, since while reforming some tax breaks for oil and gas exploration and development, the government has entrenched others. The IMF estimates that fossil fuel subsidies in Uganda (pre-tax and foregone consumption tax revenue) were US\$380 million in 2013 and are forecast to be US\$400 million in 2015.<sup>235</sup>

Major oil discoveries in Uganda's Lake Albert Basin in 2006 have spurred more urgent consideration of taxing exploration and production activities in the country, particularly those linked to capital gains tax on the sale of oil and gas assets. In 2010, the Jersey-based company Heritage Oil sold its Ugandan assets to Tullow Oil for approximately US\$1.45 billion. Tullow later sold two thirds of an oilfield's assets for US\$2.9 billion to two other companies, CNOOC Ltd. and Total E&P SA. These transactions sparked a dispute between the Ugandan government, Heritage, and Tullow regarding the payment of capital gains tax due on these sales.<sup>236</sup>

Heritage argued that because the initial transaction took place outside Uganda, it did not owe capital gains tax. The Uganda Revenue Authority disagreed, and in 2011, a Ugandan tax appeals tribunal ruled that Heritage owed at least US\$404 million in capital gains tax. Heritage appealed this decision, but in February 2015, the United Nations Commission on International Trade Law Tribunal ruled in favour of Uganda.<sup>237</sup>

Tullow has also been embroiled in a tax dispute with the Uganda Revenue Authority, which originally assessed US\$437 million due in capital gains tax on the sale of its assets to CNOOC Ltd. and Total SA. Tullow argued that it had been granted an exemption by a previous energy minister, while Uganda's tax appeals tribunal ruled the minister in question had no authority to grant such an exemption. Tullow settled this dispute in June 2015 by agreeing to pay US\$250 million of the tax bill.<sup>238</sup> This is significantly below the US\$437 million tax liability originally assessed, and it is not clear how the parties arrived at the settlement of US\$250 million.

In the light of these disputes, Uganda's Income Tax Act was amended in October 2010, and now explicitly obliges firms to pay capital gains tax on the sale of exploration rights.<sup>239</sup> This represents a success in removing a fossil fuel subsidy in the form of foregone capital gains tax revenues and foregone revenues on certain untaxed and under-taxed exploration activities. It is only a partial success story, however, as the amendments simultaneously enshrine other subsidies by defining and adding to deductible tax categories, including exploration, development and production expenditure. The Public Finance Act of 2014 was also recently passed with the partial aim of addressing similar disputes over taxation of capital gains. Furthermore, in April 2015, the Ugandan government waived the 18% VAT on upstream investments in capital equipment in the oil and gas sector made during exploration and development,<sup>240</sup> despite the objections of some CSOs.<sup>241</sup> Furthermore, although the government has declined to release Production Sharing Agreements signed with oil companies, leaked information shows that these agreements contain "stabilisation clauses" that protect companies from tax increases over a 20-year period.<sup>242</sup>

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# ABOUT THE NEW CLIMATE ECONOMY

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The Global Commission on the Economy and Climate, and its flagship project The New Climate Economy, were set up to help governments, businesses and society make better-informed decisions on how to achieve economic prosperity and development while also addressing climate change.

In September 2014, the Commission published *Better Growth, Better Climate: The New Climate Economy Report*. Since then, the project has released a series of country reports on the United States, China, India and Ethiopia, and sector reports on cities, land use, energy and finance. In July 2015, the Commission published *Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate*. It has disseminated its messages by engaging with heads of governments, finance ministers, business leaders and other key economic decision-makers in over 30 countries around the world.

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## About ODI

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