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Nigeria's energy transition: reforming fossil fuel subsidies and other financing opportunities

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Key messages/Abstract

Nigeria's commitment to achieve net zero climate goals is not supported by recent actions incentivising reliance on the oil and gas industry. At the same time, the country continues to grapple with major development challenges, including improving energy access and the provision of healthcare, basic services and infrastructure.

The Nigerian government continues to channel high levels of public finance towards fossil fuel production and consumption. In 2019, at least \$1.7 billion was provided in consumption subsidies for oil, mostly used to power vehicles and generators. Investment by the government-owned Nigerian National Petroleum Corporation (NNPC) in refineries have led to taxpayer-borne losses of nearly \$2 billion between 2017 and 2018.

Reforming and repurposing subsidies could promote development, reduce poverty, improve access to electricity, support a more equitable transition to a low-carbon economy, and free up the fiscal resources necessary to support 'losers' in the energy transition.

The political economy of reform makes this difficult. Nigerians expect cheap energy and see subsidies as one of the only benefits the government provides. Meanwhile, fossil fuel is still viewed as a major source of government revenue at least in the medium term. The power and influence of special interest groups also restrict reforms.

Careful management of fossil fuel subsidy reform is crucial to prevent further marginalisation of vulnerable populations, avoid exacerbating inequality and heading off a public backlash. Development finance institutions and other donors, wealthier, high-emitting countries and international NGOs are well-placed to support this agenda through channelling the necessary financing and encouraging constructive engagement around subsidy reform, and justice and social responsibility in energy transition more broadly.

These institutions can also support analysis and planning for how best to sequence subsidy reform and a just energy transition, engage the different parties concerned to secure their support, and provide monitoring and consistency through election cycles and different governments to ensure the longevity and successful implementation of plans.

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Acronyms

AfDB	African Development Bank
CDC	Community Development Council
CNG	Autogas
CSWYP	Community Service, Women and Youth Employment Programme
DFC	International Development Finance Corporation
ERA-FOE	Environmental Rights Action-Friends of the Earth Nigeria
ESG	Environmental Social Governance
FCDO	Foreign, Commonwealth and Development Office
GDP	gross domestic product
GENCO	generating company
GHG	greenhouse gas
GIS	Graduate Internship Scheme
GIZ	Gesellschaft für Internationale Zusammenarbeit
IEA	International Energy Agency
IFC	International Finance Corporation
ILO	International Labour Organization
LNG	liquified natural gas
LPG	liquefied petroleum gas
LTS	Low-Emissions Development Strategy
LTV 2050	Long-term Vision to 2050
NBS	National Bureau of Statistics
NDC	nationally determined contribution
NEP	Nigerian Electrification Project
NERC	Nigerian Electricity Regulatory Commission
NGEP	National Gas Expansion Programme
NLC	Nigeria Labour Congress
NNPC	Nigerian National Petroleum Corporation
NREAP	National Renewable Energy Action Plans
PIA	Petroleum Industry Act
PMS	Premium Motor Spirit

PPP public-private partnership
SOE state-owned enterprise
SURE-P Subsidy Reinvestment and Empowerment Programme
TCN Transmission Company of Nigeria
UNFCCC United Nations Framework Convention on Climate Change

Executive summary

Nigeria's energy future is at a crossroads. Nigeria's recent commitments to reach net zero emissions by 2060 and achieve net zero climate goals are not supported by recent actions incentivising the continuation of reliance on the oil and gas industry. At the same time, the country continues to grapple with major development challenges, including improving energy access, as well as the provision of healthcare, basic services and infrastructure.

A large share of Nigeria's public revenues comes from fossil fuels. The current system has resulted in high levels of corruption, a powerful elite that benefits from oil rents and a broken social contract for the vast majority of the population. A significant share of public revenues goes back into fossil fuel production and subsidising consumption. Wasteful and inefficient fossil fuel subsidies have helped create fiscal constraints to the pursuit of development and climate goals and a move towards a just, clean energy transition. Continuing inefficient fossil fuel subsidies risks committing Nigeria to a development pathway where education, health and energy access all remain underfunded, locking another generation into deepening poverty and inequality and limiting options for a just transition.

Due to the lack of transparent accounting and reporting, data on public financing of oil and gas production is scarce. However, our research finds that, according to the recently published accounts of the Nigerian National Petroleum Corporation's (NNPC) subsidiaries, the company's investments in refineries have led to taxpayer-borne losses of nearly \$2 billion between 2017 and 2018 (The Punch, 2020). On the consumption side, the Nigerian government provided at least \$1.7 billion of subsidies for oil in 2019 (IEA, 2021d), most of which was directed to a petroleum (gasoline) product, Premium Motor Spirit (PMS), which is used to power vehicles and generators.

Previous attempts to reform oil consumption subsidies in Nigeria have not been successful and have often triggered a public backlash. The difficulty of reforming subsidies highlights the complex political dynamics at play. The existence of special interest groups that benefit from the status quo also have also hindered opportunities for reform. (Osunmuyiwa and Kalfagianni, 2017; Akov, 2015). The subsidy regime also plays an important role in ensuring fuel price uniformity across the country, creating a sense of equality and fairness. More importantly, subsidies are seen as one of the few areas where the government supports its citizens. Low-income Nigerians spend a significant proportion of their income on food, fuel and transport. They believe that buying fuel at a lower price due to the subsidy is one of the main benefits they receive from a government failing in the provision of social services. Hence, they are less open to reform. Moreover, they have limited trust in the government to use the proceeds of the subsidy savings effectively and equitably, for example to provide social services.

Nevertheless, the large amount of finance currently channelled through subsidies and the comparatively low expenditure on development and social protection, such as healthcare,

electrification and water provision, suggest that repurposing some of the public spending on fossil fuel subsidies towards other priorities may be more equitable and beneficial to most Nigerians. In 2016, it was estimated that converting fossil fuel consumption subsidies into cash transfers could help reduce the population in poverty in the country by 1% with no additional expenditure for the government (Rentschler, 2016). In 2018 Nigeria spent \$4.5 billion on healthcare, 45% of which could have been covered by the money spent on fossil fuel consumption subsidies in that same year (World Bank, 2022a, 2022b, 2022c; IEA, 2021d).

Finally, savings from subsidy reforms can be channelled towards building cleaner, efficient, affordable and more equitable electricity generation systems. Fossil fuel subsidies currently prop up less efficient energy use, as demonstrated with the unreliable electricity supply, as well as inequitable access to energy, as reflected by the limited number of Nigerians with access to electricity. The current lack of availability of clean energy alternatives exacerbates reliance on fossil fuels – demonstrated by the high reliance on private generators, as well as biomass, for meeting energy needs. Subsidy savings can be used to build an electricity system that could deliver for human development and economic transformation. Accelerating the clean transition in Nigeria requires more government support for domestic industries through programmes such as subsidies for cleantech manufacturers, tax credits for mini grid operators and direct financial aid for low-income energy consumers who can also produce their own electricity (*prosumers*). Repurposing subsidies in this way will enhance energy access and security, and facilitate the attainment of Nigeria’s climate goals and targets. More equitable outcomes from the transition away from fossil fuel dependence could be supported by reallocating fossil fuel subsidies funding towards the planning and implementation necessary to achieve a just energy transition away from oil and gas.

While there are numerous opportunities for the repurposing of fossil fuel subsidies, given the lack of administrative capacity to manage copious complex projects with fossil fuel subsidy savings, it is critical to focus on key projects and programmes that can deliver long-term social and economic benefits. Thus, when making decisions about setting up any social protection schemes, it would be preferable to focus on one or two high-impact programmes, for example cash transfer schemes, rather than several complex options. Government engagement with Nigerians and wide-ranging communication strategies would be required to ensure that the proposed development, social protection and just transition support programmes are widely known and efficiently implemented.

Meaningfully involving Nigerians in national dialogues to narrow the options, focusing on one or two high-impact alternatives, and deciding how to better use these funds is a necessary step to reform fossil fuel subsidies. The government needs to carefully sequence the reform process, and ensure social benefits are provided before energy subsidies start to be taken away. This could help restore trust in the government to deliver upon its social contract, and could help increase support for removing subsidies. Carefully planned reforms and repurposing could reduce poverty, improve access to electricity and support a more equitable transition to a low-carbon economy.

Financial support from wealthier, high-emitting countries and multilateral finance and development institutions will be necessary to support Nigeria's subsidy reform and transition efforts. These international actors can also help civil society organisations facilitate constructive dialogue among the different stakeholders, provide the relevant analysis and support for planning reform, and establish continuity between election cycles and increase the likelihood for long-term success in reforming Nigeria's fossil fuel subsidies in line with the country's climate and development objectives.

1 Introduction

Nigeria's Medium-Term National Development Plan lays out a bold vision to build a thriving and sustainable economy. Real gross domestic product (GDP) is projected to grow by an average of 4.7% a year between 2021 and 2025, creating 21 million new full-time jobs and lifting at least 35 million Nigerians out of poverty. The plan aspires to boost entrepreneurship and industrialisation while improving the health, productivity and security of Nigerians (Federal Ministry of Finance, Budget and National Planning, 2021). The attainment of these macroeconomic and development goals partly depends on the provision of reliable, affordable, modern energy.

Nigeria's energy future and development are at a crossroads. The energy production and consumption landscape is complex, and the country faces difficult choices. According to the World Bank (2022e, 2022f), in 2020 only 55.4% of the population has access to grid electricity. Per capita energy consumption is very low by international standards and expected to increase substantially over the next two decades (World Bank, 2014; IEA, 2019). At the same time, Nigeria has a strong history of fossil fuel dependency. The government's plans for future fossil fuel production include oil exploration offshore and in the north of the country, as well as reducing the country's dependence on oil revenues by increasing gas production. Nigerian leaders see gas as a key part of the country's energy transition.

Much of Nigeria's unevenly distributed wealth¹ has been accumulated through the extraction, processing and export of its abundant fossil fuel reserves. Oil and gas account for a decreasing but still very substantial share of public revenues² and foreign exchange earnings, 75% and 86%, respectively (Burns and Owen, 2019). Yet the exploitation of these resources has not delivered a decent standard of living for most Nigerians. Even before the Covid-19 pandemic, 83 million people – almost 40% of the population – lived below the poverty line (NBS, 2021).

The potential revenues associated with fossil fuel production are at risk of diminishing over the next couple of decades as the world's largest economies commit to net-zero emissions, and competition for other oil and gas export markets increases (Okafor et al., 2021; Agu and Ogbeide-Osaretin, 2017). The domestic production and consumption of fossil fuels also carries heavy costs. In addition to the climate impacts, localised impacts include air pollution due to fossil fuel use in transport and traffic jams, particularly in densely populated cities like Lagos and elsewhere in the country (Croitoru et al., 2020), environmental degradation in the Niger Delta, and declining industrial competitiveness as the European Union and United States introduce border carbon adjustment mechanisms (Zimmer and Holzhausen, 2020).

1 In 2018 Nigeria scored 35.1 on the Gini index, which measures income inequality. A score of zero would indicate perfect income equality, while a score of 100 would indicate perfect income inequality. Of the 65 countries with scores in 2018, Nigeria ranked 34th (World Bank, 2022d).

2 In 2015, for the first time since 1971, Nigeria's public finances earned more from non-oil sources than from oil revenues. Oil income accounted for 47% of the country's revenues in 2016 (Owen and Burns, 2019).

The government has begun to explore alternative energy futures. Nigeria's National Climate Change Policy for 2021–2030 commits to expanding renewable energy generation and improving energy efficiency (Nigerian DCC, 2021). The importance of developing targeted policies on renewable energy was recognised in the 2016 National Renewable Energy Action Plan, through a commitment to meeting 16% of Nigeria's electricity consumption with (non-hydropower) renewable energy by 2030, up from only 0.8% in 2012 (Federal Republic of Nigeria, 2016). However, plans to increase renewable energy production in the country have stalled due to a lack of adequate legislative and financing frameworks. These delays in production hinder the country's renewable energy goals, and are occurring even though fossil fuel-powered generators provide almost half of Nigeria's electricity and account for a significant amount of fossil fuel subsidies (Nnodim, 2021; A2EI, 2019).

Nigeria's updated Nationally Determined Contribution (NDC), its climate plan under the Paris Agreement, recognises the need to promote 'long-term changes in key economic drivers and sectors, such as power, oil and gas' (Federal Ministry of Environment, 2021). However, the country's immediate-term commitments focus on 'work towards ending gas flaring by 2030' and 'improved enforcement of gas flaring restrictions', as well as harnessing Nigeria's natural gas reserves as a transition fuel (UNFCCC, 2022; Climate Change Act, 2021: 13; Pius, 2021). Such investments, while helpful and important, may not be enough to facilitate the transition, and newly built infrastructure may ultimately become stranded by evolving regulations and markets.

A key feature of the energy landscape in Nigeria are the huge costs expended on fossil fuel subsidies annually, estimated at about \$1.7 billion for consumption subsidies alone in 2019 (IEA, 2021d). This distorts the economy and denies the government much-needed resources to fund other critical pro-poor and development-oriented sectors like health, education, agriculture and food security, and infrastructure development. As a result, development outcomes are dire. Poverty and unemployment rates are currently 40.1% (2019) and 33.3% (fourth quarter of 2020) respectively (NBS, 2020; Onyeiwu, 2021).

The fossil fuel subsidy regime is characterised by corruption and mismanagement. A congressional investigation report in 2012 showed that several billion dollars were fraudulently paid to private businesses for imported petrol (Mark, 2012). This is reflected in the overstating of the level of domestic consumption. There are no accurate statistics on the volume of oil consumed daily in Nigeria, creating doubts about the amounts being paid by the government in subsidies. The system of checking the amount of oil imported into the country is not credible; some of the oil reported as imported into Nigeria, and on which subsidies are paid, is diverted and consumed in neighbouring countries.

The high levels of subsidies for fossil fuel production and consumption are also at odds with the objectives of the Paris Agreement to align finance flows with a climate-compatible future. Keeping the average global temperature increase to less than 1.5°C will require significant decarbonisation of global energy systems. Of course, countries are at different stages of development and have

different levels of historical emissions, and therefore different responsibilities regarding the speed of their fossil fuel phase-out. Recent research has shown that there is no capacity in carbon budgets for opening any new fossil fuel facilities if we are to meet the 1.5°C global warming limit (IEA, 2021a). A recently published report looking at energy transition pathways based on equity considerations concludes that countries that are more able to diversify their economies are better placed to transition away from fossil fuels more quickly, and finds that ‘Wealthier producers tend to have much more diversified economies, even when they are major producers of oil and gas’ (Calverley and Anderson 2022: 53).

This working paper highlights both the challenges Nigeria faces in moving away from its long-term support to fossil fuels and the opportunities that such a transition can bring. It highlights how fossil fuel subsidy reform can support a clean energy transition while creating the fiscal space to address key challenges around electrification and access to basic services.

In 2021, Nigeria announced it would harness the decline in oil prices to remove its longstanding price cap on PMS, a petroleum product commonly known as ‘petrol’, in line with the Petroleum Industry Act (PIA) passed in August 2021. The government proposed to compensate for the impacts of this, especially on the poorest, by providing N2.4 trillion (USD 5.6 billion) to about 40 million Nigerians as transportation grants (Olinkaya et al., 2021). However, the intent of the reform has been lost in its practical implementation, with central and state governments continuing to support oil and gas production and consumption. The federal government recently announced plans to delay the subsidy’s removal by 18 months due to potential protests (Gupte, 2022). At the same time, the impact of the Russian invasion of Ukraine on oil prices is making it increasingly challenging to sustain the increasing cost of subsidies, even though oil revenues will also increase for producers (Vanguard, 2022).

In this working paper, we explore the possibilities of phasing out fossil fuel subsidies in Nigeria and more effectively directing the savings towards development priorities. In Section 2, we describe the history of oil and gas exploitation in Nigeria, including the implications of oil and gas dependency and emerging plans for diversifying the country’s economy and energy mix. Section 3 highlights the scale and nature of government subsidies for fossil fuel consumption, the non-transparent support for fossil fuel production and the challenges around previous reform processes. In Section 4, we explore the potential for repurposing some energy subsidies away from fossil fuels towards other social priorities, and outline some of the opportunities for financing a just and equitable energy transition. We end by offering some recommendations and ways forward to manage a challenging transformation, but one that promises much prosperity for Nigeria.

2 Energy trends: Nigeria's history of oil and gas exploitation, and what comes next

2.1 Fossil fuel production

The Nigerian National Petroleum Corporation (NNPC) plays a leading role in Nigeria's energy landscape. NNPC was established as a state-owned enterprise (SOE) in 1977. It is engaged in activities throughout the entire petroleum value chain (including exploration, refining, petrochemicals and products transportation and marketing), as well as the import of finished products. Oil and gas production in the country is concentrated in the hands of four major international companies: ExxonMobil, Shell, Chevron and Total (Enerdata, 2021), with NNPC managing joint ventures and production sharing contracts between the federal government and those corporations (NNPC, n.d.).

The recent Petroleum Industry Act (PIA) aims to attract investment in Nigeria's oil and gas industry. Under the PIA, NNPC has become NNPC Limited, a quasi-commercial entity owned by the government via the Ministries of Petroleum and Finance (Federal Republic of Nigeria, 2021). The PIA establishes the Nigerian Upstream Petroleum Regulatory Commission and the Nigerian Midstream and Downstream Petroleum Regulatory Authority to regulate the upstream and downstream sections of the sector. The PIA also changes how Nigeria will allocate oil revenues, with some going towards the new Frontier Exploration Fund to pursue oil and gas exploitation in Nigeria's Inland Basins, as well as the creation of a new Host Community Development Trust Fund to support communities in petroleum-producing regions (Nwuke, 2021). On 1 July 2022, NNPC became a limited company, giving Nigerians a chance to become shareholders (Ibemere, 2022).

Nigeria has Africa's largest gas reserves and second-largest oil reserves (Statista, 2022a, 2022b). It is the continent's largest oil producer and the world's 13th largest, as well as being the second-largest producer of gas on the continent (OPEC, 2022; IEA, 2022a). However, oil production has declined significantly in recent years due to the lack of investment in the sector, occasioned by the uncertainty created by the delay in the passage of the PIA, the poor operating environment and infrastructure, insecurity in the Niger Delta, sabotage and vandalism, and compliance with OPEC production quotas.

Even so, oil and gas production and exports still account for about 9% of GDP, and are major contributors to gross federally collected revenue and foreign exchange earnings (Central Bank of Nigeria, 2022). In 2019, the oil and gas sector accounted for 75% of public revenue and 86% of export revenue (part of which is then used to subsidise fossil fuels, e.g., through PMS) (OPEC, 2020). The outsized importance of fossil fuel production in Nigeria has implications

for other sectors of the economy, influencing policies and investments in infrastructure for domestic and non-domestic energy consumption, transport and electricity generation. and electricity generation.

While the sector accounts for only 0.03% of direct employment (NEITI, 2019), its supply chain provides many additional indirect jobs in transport, equipment, construction and services (NEITI, 2019). Direct and indirect employment associated with fossil fuel production tends to be formal, stable and well-paid (ILO, 2020). However, the sector accounts for very few number of direct jobs. Moreover, Nigerian labour unions have been reporting increasing casualisation³ of the oil and gas labour force, with increased precarity, lower wages and fewer protections for contract workers than for permanent staff (Ohiorenoya and Uwadiae, 2016; Industriall, 2018).

While domestic oil and gas production has generated wealth and jobs for a small portion of the Nigerian population, the vast majority has not reaped its benefits. The proportion of Nigerians living in poverty increased significantly between 1980 and 2010 (24.7% in 1980, 42.7% in 1996, 54.4% in 2004, and 60.9% in 2010), according to the National Bureau of Statistics (NBS) (2021). The latest national poverty profile of the NBS shows that 40.1% of Nigerians were living in poverty in 2019 (NBS, 2012; NBS, 2020; Onyeiwu, 2021).⁴ High dependence on the sector has also had significant costs for human wellbeing. These include environmental degradation in the Niger Delta, which has led to public health concerns, lost agricultural livelihoods, insecurity and conflict (Adekola et al., 2017). Reliance on volatile oil markets has impacted government budgets and consequently public services when prices fall.⁵

As well as a challenging past, oil and gas production in Nigeria faces an uncertain future. Holding the average global temperature increase to 1.5°C will require global gas use to decline by 21–61% between 2020 and 2050 relative to 2020 levels (IPCC, 2022). Even with a 2°C goal, most scenarios demand the almost full decarbonisation of global power generation by mid-century (IPCC, 2018). According to the International Energy Agency (IEA), there is no room for approval of new oil and gas fields for development in a 1.5°C pathway (IEA, 2021a). The global energy transition is already well under way, and decarbonisation is likely to accelerate with new policy commitments and technological change (such as electric vehicles and heat pumps). New investments in oil and gas production to serve international markets therefore risk being stranded as global demand (and potentially prices) fall. Analysis by Manley and Heller (2021) estimates that NNPC risks not

3 Casualisation refers to employment shifting from mostly full-time to short-term, contract, temporary or casual work. Other terms used to describe casual work include ‘nonstandard forms of work’ and ‘informal worker’ for those outside the formal sector (Graham, 2010; Aye, 2017; ILO, 2016).

4 NBS changed their methodology in the 2020 report, so these most recent estimates cannot be compared to those from the 2003/2004 and 2009/2010 reports (Akwagyiram, 2020). The World Bank’s Multidimensional Poverty Measure estimates 47.3% of Nigeria’s population living in multidimensional poverty for that period (Lain and Vishwanath, 2021).

5 Oil price fluctuations heavily affect patterns of economic growth, with volatile oil prices driving average GDP increases of 5.7% per year during the 2006–2015 and -1.5% in 2016 (ILO, 2020).

breaking even on almost half of its projects if the barrel long-term price ends up at \$40, with 30–47% of the company’s capital expenditure failing to break even. For the Nigerian government, this would potentially mean not breaking even on 53% of its expenditure (Manley and Heller, 2021).

Other estimates that are less than optimistic about the long-term implications for Nigeria, posit that in a low-carbon scenario, the country could experience a potential oil and gas revenue shortfall of 69% between 2021 and 2040 compared to average revenue during 2015–2018 (Carbon Tracker, 2021). The government has recognised the risks of oil dependency, at least to some extent. However, this has not translated into a decrease in planned oil production – the government’s strategy is instead to increase oil production further, especially through offshore production and exploration in the north of the country. The PIA created incentives to encourage investment in production from offshore areas and frontier basins by setting a lower royalty rate of 7.5% compared to 15% for onshore and 12.5% for shallow waters. Furthermore, a new hydrocarbon tax does not apply to investments in deep offshore areas, while company income tax for offshore investment is reduced from 50% to 30% (PwC, 2021). The government also plans to expand gas production as a buffer against the projected shortfall in oil revenues, as well as for domestic use (The Federal Government of Nigeria, 2021). There are also plans to increase gas utilisation through infrastructure investments, resulting in the commercialisation of up to 80% of upstream gas, which can then be exported or used in domestic power plants (The Federal Government of Nigeria, 2021).

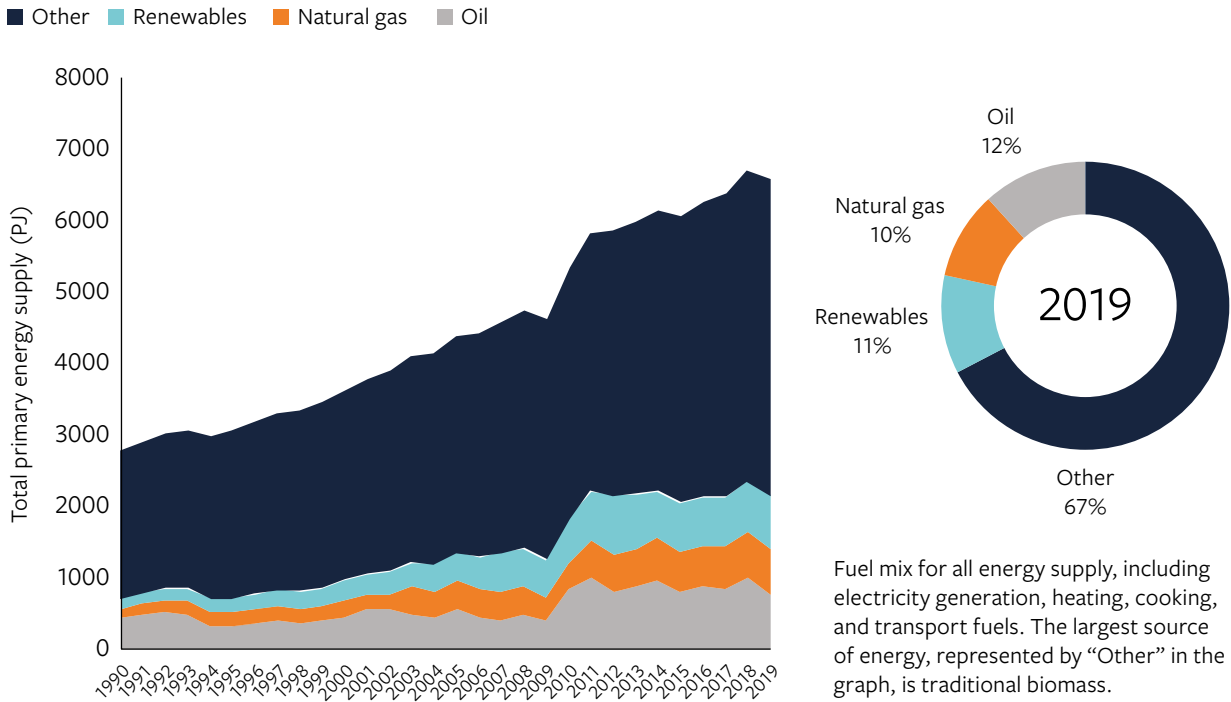
2.2 Energy consumption

In 2019, each person in Nigeria consumed, on average, 764 kilograms of oil equivalent (kgoe) (or 0.76 tonnes of oil equivalent). Total consumption reached 168 million tonnes of oil equivalent (Mtoe), up by 3.7% a year since 2016 (Enerdata, 2021).⁶ For context, the average South African consumes 2.7 tonnes of oil equivalent (toe); the average Chinese consumes 2.2 toe; and the average American consumes 6.8 toe (World Bank, 2022a). In 2019, fossil fuels accounted for 25% of the country’s energy mix, with renewables at 11% (including hydropower and biomass),⁷ and ‘other’ sources – mainly traditional biomass (i.e. wood fuel or charcoal) – making up 65% of the total (Climate Transparency, 2020 – see Figure 1). The carbon intensity of Nigeria’s energy mix has not changed much during the past two decades (ibid.). The highest levels of energy-related CO₂ emissions are attributed to the transport sector (61%) (ibid. – see Figure 2).

6 During the same period, GDP grew by around 10% and GDP per capita by 2.5% (Macrotrends, n.d.).

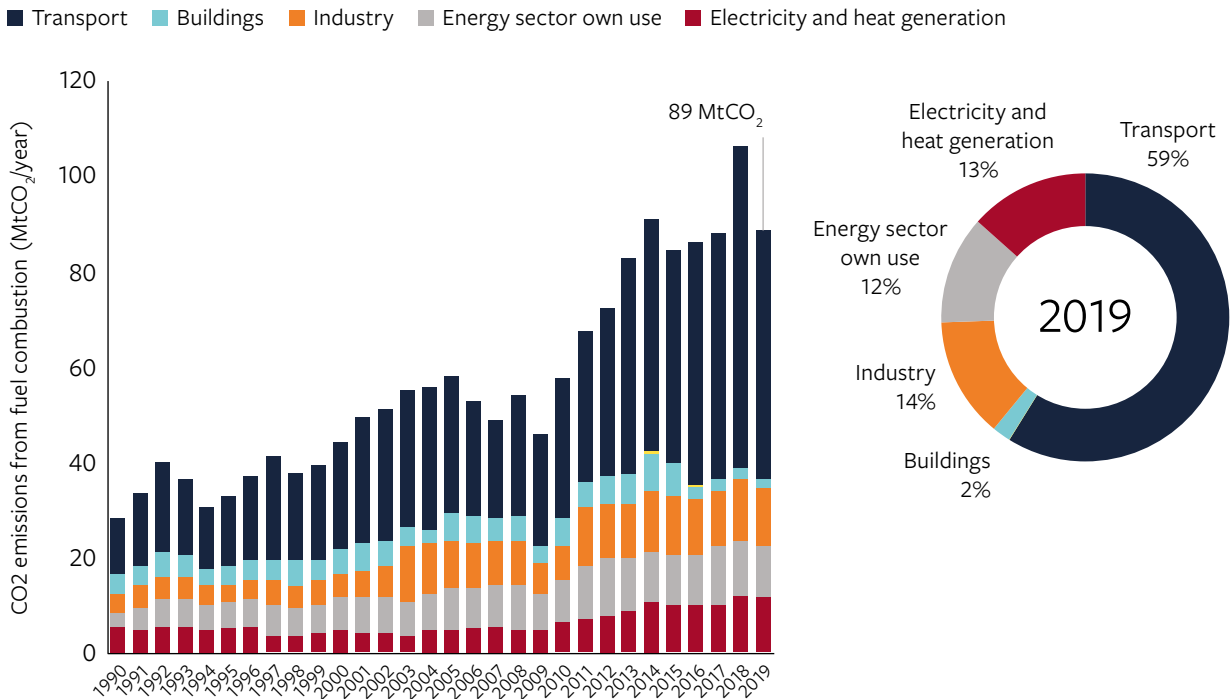
7 The share of renewables includes hydropower. In this case, it is made up primarily of biomass (but excluding traditional biomass). The largest source of energy, represented by ‘Other’ in Figure 1, is traditional biomass.

Figure 1 Nigeria’s energy mix (1990–2019, petrajoules (PJ))



Source: Climate Transparency (2020). Data source: Enerdata www.enerdata.net

Figure 2 Nigeria’s energy-related CO₂ emissions by sector (1990–2019, MtCO₂/year)



Source: Climate Transparency (2020). Data source: Enerdata www.enerdata.net

Nigeria's energy consumption choices have been strongly influenced by its abundant oil and gas: 80% of Nigeria's grid-based electricity is generated from gas, with the remaining 20% coming almost entirely from hydropower (only 0.1% is from solar) (Climate Transparency, 2020). Only 55.4% had access to electricity in 2020, resulting in self-generation through generators electricity (World Bank, 2022f). Nigeria is the largest user of oil-fired back-up generators on the continent (IEA, 2019), reflecting decades of under-investment in power generation, transmission and distribution infrastructure. About 40% of the grid-based electricity generated in Nigeria is lost in transmission, compared to 16% in Kenya (Power Shift Africa, 2021; ITA, 2021). Crude oil is largely exported, while imported refined fuel products are used in the transport sector as well as for domestic cooking, captive power and small industry (Climate Transparency, 2020). Nigeria imports almost all the refined fuel it consumes due to the lack of domestic refining capacity.

2.3 Recent policy developments in the energy sector

In recent years, Nigeria has put forward several domestic energy plans and policies indicating an intention to move away from the high dependence on oil and fill the gap predominantly with gas and a mix of renewables.

At the national level, Nigeria Vision 20:2020, a blueprint for the period 2009–2020, was put in place to set the country onto a path of sustained progress across four dimensions: social, economic, institutional and environmental (ILO, 2020). Economic diversification away from oil dependence was recognised as crucial to Vision 20:2020, and economic diversification of Nigeria's non-oil sectors is also one of the strategic objectives of the current National Development Plan 2021–2025 (ILO, 2020; Federal Ministry of Finance, 2021). In July 2021, Nigeria submitted an updated Nationally Determined Contribution (NDC). The update reiterates the unconditional target of 20% below BAU by 2030 submitted in the 2017 NDC and increases the conditional target from 45% to 47% below BAU by 2030 (Federal Ministry of Environment, 2021; Nigerian DCC, 2021).

The energy shock caused by the Covid-19 pandemic further necessitates diversification. The pandemic has put additional strain on the Nigerian economy, severely affecting revenue from oil and gas exports. (The impact on the oil and gas sector is detailed in Box 1.) Nigeria's response has been shaped by the country's National Economic Sustainability Plan (NESP), approved in June 2020 in an attempt to stimulate and diversify the economy. The economy-wide plan spanned interventions across the agricultural, housing, and social assistance areas, and crucially included important energy and climate interventions. The plan aims to leverage solar energy for improved energy access and job creation. Installing Solar Home Systems for 5 million households, for example, aimed to provide 25 million Nigerians with electricity access and create 250,000 additional jobs (NDC, 2021; Power Shift Africa, 2021).

The importance of developing targeted renewable energy policies had already been recognised in the National Renewable Energy Action Plan (NREAP), approved in 2016. The plan reiterated a previous commitment to meeting 16% of the country's electricity demand via renewable energy

by 2030, to be met mostly through hydropower and newly installed solar capacity, followed by smaller shares of biomass and wind energy (Federal Republic of Nigeria, 2016).⁸ However, installation of renewable energy has stalled in recent years. Between 2011 and 2015, total installed capacity of renewable energy in Nigeria increased by 4 MW, from 2,116 MW to 2,137 MW, and by 1 MW between 2016 and 2018. A larger increase was recorded in 2019 with a total installed capacity of 2,149 MW. The most recent data shows that, in 2020, total installed capacity of renewable energy in Nigeria was 2,153 MW (IRENA, 2021a). Non-hydropower renewable energy sources are the main drivers of the observed increase in renewable energy capacity over this period, as hydropower capacity only increased by 1MW, from 2,110 MW in 2011 to 2,111 MW in 2020. Wind capacity in 2020 was 3 MW, while the installed capacity of solar increased from 15 MW in 2012 to 28 MW in 2020 (IRENA, 2021a).

In terms of high-level international commitments, the government submitted an update to its NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in July 2021. This revision communicates a new conditional 2030 target together with additional sectoral mitigation and ambition strategies. As with the first NDC, this update maintains an unconditional commitment of a 20% reduction in GHGs below the estimated business-as-usual levels. However, it now contains an increased conditional contribution of a 47% GHG emissions reduction⁹ – contingent on international support – and the inclusion of emissions reduction targets for the waste sector (NDC, 2021).¹⁰ The NDC update is accompanied by a government commitment to end gas flaring by 2030.¹¹ Since 2012, Nigeria has ranked in the top seven largest flaring countries, currently accounting for 75 Mtoe CO₂ emitted a year, higher than the total emissions from the country's transport and electricity sectors (Lo, 2021; World Bank, 2021).

At the 26th annual Conference of the Parties (COP26) in November 2021, Nigeria committed to cut its carbon emissions to net-zero by 2060. Later that month, the Climate Change Act, which calls for the mainstreaming of climate change actions and the establishment of a National Council on Climate Change, was signed into law by President Muhammadu Buhari (Akintunde, 2021). However, the optimism inspired by the law has been dampened by the slow pace of implementation, with the first director-general of the Council only being appointed in July 2022, eight months after the decision to establish the entity.

In May 2022, Nigeria launched its Long-term Low-Emissions Development Strategy (LTS) (Akinola, 2022). This is based on the Long-term Vision to 2050 (LTV 2050) developed by the Department of Climate Change and submitted to the UNFCCC Secretariat in December 2021. The strategy focuses on reducing investments in emission-intensive technologies, ensuring a just and

8 This compared to only 0.8% of electricity consumption met through renewable sources in 2012 (Federal Republic of Nigeria, 2016).

9 Under its BAU scenario, Nigeria estimates GHG emissions at around 453 MtCO_{2eq} by 2030; the 47% cut would limit GHG emissions to 244 MtCO_{2eq} (NDC, 2021).

10 2018 is considered to be the base year for the GHG assessment (NDC, 2021).

11 Nigeria has reduced its flaring rate by 70% since 2000 (IEA, 2021).

equitable transition, investment in sustainable and climate-resilient infrastructure and promoting technology innovation. The strategy is also expected to promote efficiency, governance and coordination by reducing duplication of responsibilities, leveraging the modelling work of the Deep Decarbonisation Pathways Project for Nigeria, and aligning all the various relevant instruments, such as the Climate Change Act and the NDC.

Despite its climate ambition and targets for renewables integration, the Nigerian government also plans to massively increase the share of gas in the country's energy mix, which it sees as less carbon-intensive than oil and therefore more climate-compatible. The National Gas Expansion Programme (NGEP), launched in 2020, aims to significantly increase the consumption of natural gas in the country, with a focus on expanding autogas (CNG) and liquefied petroleum gas (LPG) for transport, promoting gas-based cooking (instead of biomass), and nurturing petrochemical industries such as fertiliser and methanol (CBN, 2020; DPLGOVP, 2022). Modelling suggests that expanding domestic gas markets could bring about several beneficial outcomes, including job creation, reduced deforestation (through reduced demand for biomass) and improved air quality (through reduced indoor air pollution from biomass use) (DPLGOVP, 2022). However, it is important to consider the baseline of such models (including their ability to account for potential negative impacts of expanding domestic gas production on the already difficult to limit gas flaring practices) and the opportunity costs of neglecting alternatives – such as electrification and renewables.

The feasibility of a gas-powered development strategy needs to be examined with caution, particularly if Nigeria is hoping to secure financing from international investors who may not find providing cheap gas domestically sufficiently attractive. In Mozambique, a recent similar attempt imposed an obligation to provide the domestic market with 0.7 million tonnes per annum (Mtpa) on the developers of TotalEnergies' \$20 billion Mozambique LNG project, the largest project financing in African history. However, efforts to foster the domestic gas market through foreign investment have thus far failed, as proposed gas-to-liquids, fertiliser and power projects have all been put off due to lack of infrastructure and relatively low purchasing power of end users in the country (IEA, 2021b). There have also been major political challenges and risks, including violence, which have led to a key investor declaring *force majeure* and halting its operations (Reuters and Kar-gupta, 2021). While the contexts in Nigeria and Mozambique differ, careful evaluations are needed to ensure that international investors' perceptions of risk do not stand in the way of the government's interests in providing affordable gas to support domestic industry.

Although the Nigerian government has identified gas as a possible energy transition fuel, the global ambition to meet the 1.5°C scenario will have implications for the sustainability of investment in the oil and gas sector, and ultimately the fossil fuel-based economy. Even where there are short-term economic benefits in expanding gas, these must be balanced with the longer-term climate risks, as well as the opportunities in expanding renewables capacity early on which will avoid higher costs of a delayed energy transition.

Box 1 Impact of the Covid-19 crisis on the oil and gas sector

The combination of low oil prices and weak global demand, partly driven by the coronavirus pandemic, hit Nigeria hard. In 2020, the country's oil and gas labour force declined by an estimated 8.6%, not including workers in part-time or contractual positions (Rystad Energy, 2021). Oil revenues for the first half of 2020 were 65% lower than predicted (Chinery et al., 2020). The lost oil revenue has forced the Nigerian government to cut 25% of its spending over the past year and has increased the country's debt as Nigeria attempts to finance its pandemic response and public health costs (Olurounbi, 2020). To deal with the fallout from the pandemic, Nigeria requested \$11 billion in loans from international and domestic banks in November 2020, which would increase the country's debt stock by 50% (Chinery et al., 2020).¹² IMF later approved \$3.4 billion in emergency support for Nigeria to help address the severe economic impact of the COVID-19 shock and the sharp fall in oil prices (IMF, 2020).

The government's response to the challenges facing the oil and gas sector has been to prioritise cutting costs, including resuming operations at NNPC's under-performing refineries and trying to restart private gasoline imports to lower its import bill. Retail gasoline prices were deregulated in 2020 to increase competition and support consumers (Chinery et al., 2020).

When oil prices were low, prospects for new investment in the sector were weak. Domestic firms, which currently produce around a fifth of Nigeria's oil, are particularly vulnerable to shocks – more so than international oil companies (IOCs), which may be better able to diversify their business faster (Manley and Heller, 2021). Some domestic firms may not survive without further government support. Some IOCs, including Chevron, have started selling their Nigerian assets as they consolidate their portfolios in response to the oil price drop and wider global economic slowdown (Chinery et al., 2020).

Oil prices bounced back in 2022, but nevertheless the impacts of the Covid-19 pandemic underscore the high costs of Nigeria's continued dependence on oil revenue and the sector's vulnerability to uncertainty and diminishing returns. Even before the pandemic, production had stagnated and budgeted oil revenues were regularly not achieved: in 2019, oil revenues were 63% lower than expected (Chinery et al., 2020). It may well be the case that the pandemic simply exacerbated underlying problems in the oil and gas sector which, considering the global energy transition, is urgently in need of a managed decline to help Nigeria see a future beyond oil and gas.

Aside from the impacts of the Covid pandemic, the geopolitical crisis precipitated by Russia's invasion of Ukraine will have significant impacts on global energy supply and security. Contrary to expectations, the rising oil prices have not benefited Nigeria's public budget through increased revenues, as exports have plunged, the country has been facing major challenges around oil theft, pipeline vandalism and increase in subsidies (Kool, 2022).

¹² Even before the pandemic, indeed since 2015, Nigeria's ratio of debt service to government revenue has been above 50% (PwC, 2019).

While the various policies and plans described above demonstrate the Nigerian government's long-term commitment to achieving net-zero carbon emissions by 2060, recent actions show a continued reliance on oil and an increased impetus behind the exploitation of gas. Between 2021 and 2025, 428 oil and gas projects are expected to start operations in Africa. Of these, 23% will be in Nigeria (Global Data, 2021).

The disconnect between declared intentions and ambitions on the one hand, and actual developments on the other, may be partly due to economic considerations and lack of political will, and partly to the difficulties in financing and facilitating these policies to make their implementation as effective as possible. One of the major impediments to the transition is continued government support for the production and consumption of oil and gas. The Nigerian government still sees oil and gas as a key sector of the economy in terms of contribution to GDP, employment creation, revenue and foreign exchange. The PIA, signed into law in August 2021, has so far fallen short in terms of provisions to curtail gas flaring, relative to what was stated in the latest NDC (Nwuke, 2021). Whether the PIA will achieve its intended aims of transforming the Nigerian oil and gas industry and attract investments at a time when major oil producers are looking to the clean energy transition is yet to be seen (Anyanechi et al., 2021).

The following sections explore opportunities and challenges around fossil fuel subsidy reform and analyse the risks Nigeria could incur if fossil fuel dependency is not progressively phased out in favour of cleaner energy sources. These sections also explore options to drive forward a just and equitable transition.

3 Energy subsidies: public funds backing an outdated system

Both the production and consumption of oil and gas in Nigeria are heavily subsidised. Government support to fossil fuels skews investment towards their production or skews spending towards their consumption. It does so by either increasing the risk-adjusted returns that fossil fuel producers receive on their investment, or by lowering the price that consumers pay for fossil fuel energy. In both cases, public finances are used to reward firms and households for choices that lock in inefficient and polluting development pathways, risking dangerous levels of climate change, rather than to enable inclusive, low-carbon development. Moreover, energy subsidies tend to be regressive, mainly benefiting the middle and upper classes, who have much higher levels of energy consumption. Public finances can be allocated much more effectively if the goal is poverty reduction and economic transformation. Reforming these subsidies is thus a necessary step towards reducing the country's dependence on fossil fuels, and a major opportunity to expand social protection, begin planning for a just transition, finance essential infrastructure and support small and medium enterprises.

It is difficult to estimate the extent of subsidies provided to support the production of fossil fuels. Total global fossil fuel subsidies – for both production and consumption – were estimated by the Fossil Fuel Subsidy Tracker to be over \$525 billion in 2020 (IISD and OECD, 2021). The most recent OECD report on subsidies notes that, between 2018 and 2019, production subsidies increased by 30% (OECD, 2021). While the analysis looked at 50 countries, the resulting spend of \$53 billion on production subsidies was mostly driven by OECD members (OECD, 2021).

In 2020, the NNPC published the audited accounts of its subsidiaries for the first time in decades, covering the 2018 financial year (The Punch, 2020). That report and the subsequent one revealed that the company's downstream investments led to significant losses, and required taxpayers to support four inefficient refineries to the tune of ₦154.37 billion (\$425 million) for 2018, and another ₦213 billion (\$592 million) until October 2019. In 2017, the corporation requested \$1 billion to rehabilitate its refineries (The Punch, 2020). Moreover, data on subsidies provided to corporate actors, for example to open new oil fields or keep open fields that would otherwise close, is not publicly available. The annual reports therefore reveal production subsidies of nearly \$2 billion to NNPC's refineries between 2017 and 2018, but are not transparent about the additional, possibly substantial, support channelled to IOCs.

Reforming production subsidies presents different challenges compared to consumption subsidies. The beneficiaries of production subsidies are often powerful political and corporate actors, including international oil companies and the NNPC (Sayne, 2020). It is therefore difficult to hold them to account given the opaque nature of the subsidies and the relationship between the government, SOEs and multinational corporations. Moreover, public support to oil and gas production is not seen as wasteful but rather as an investment to maintain revenues from this sector, which are highly

significant for the government's budget. Reforming production subsidies will require confronting these vested interests and making important decisions around diversifying the economy.

Estimating the full extent of consumption subsidies can also be difficult. In Nigeria, there is no specific line item for subsidies in government budgets. This is because a provision in the 1977 NNPC Act allows the NNPC to deduct all its expenses from the petroleum revenue it collects in trust for Nigeria. NNPC has consequently replaced the term fuel 'subsidy' with 'under-recovery'¹³ of returns on investment (BudgIT, 2020).

The Nigerian government provided at least \$1.7 billion of subsidies for oil and oil-based fuels consumption in 2019¹⁴ – equivalent to 0.89% of GDP (IEA, 2021d) and around 42.5% of the government's annual spending on health (IEA, 2021d; World Bank, 2022a; 2022b; 2022c).¹⁵ As Figure 3 shows, subsidies were high between 2011 and 2014. They dropped considerably in 2015–2017 due to a substantial fall in oil prices, enabling a reduction in the total amount of government support provided without sudden, unpopular, consumer price increases (OECD/IEA, 2017; Climate Transparency, 2020). Total subsidies provided then partially rebounded during 2018 and 2019, largely due to the depreciating value of the Naira. Recent official data from the NNPC shows that the government spent ₦350 billion (\$1.1 billion) on fuel subsidies in 2019, ₦450 billion (\$1.3 billion) in 2020 and ₦1.573 trillion (\$4.14 billion) in 2021. The National Assembly had approved ₦4 trillion (\$10.5 billion) for payment of fuel subsidies in 2022, while ₦396.72 billion (\$1.04 billion) had already been spent in January and February 2022 alone (Ujah, 2022).

Corruption has been rife in the management of the subsidy regime (McCulloch et al., 2021). A parliamentary committee report in 2012 revealed huge corruption in the management of the subsidy scheme (IISD, 2012). The six-fold increase in the subsidy payment between 2009 and 2011, which did not correspond to such a high fluctuation in oil prices, raised questions about the opaqueness and possible corruption in the system. The investigation found that about \$6.8 billion was fraudulently paid to private businesses for imported petrol, which was either never imported or the amounts were significantly inflated (Mark, 2012). Closely related to this is the lack

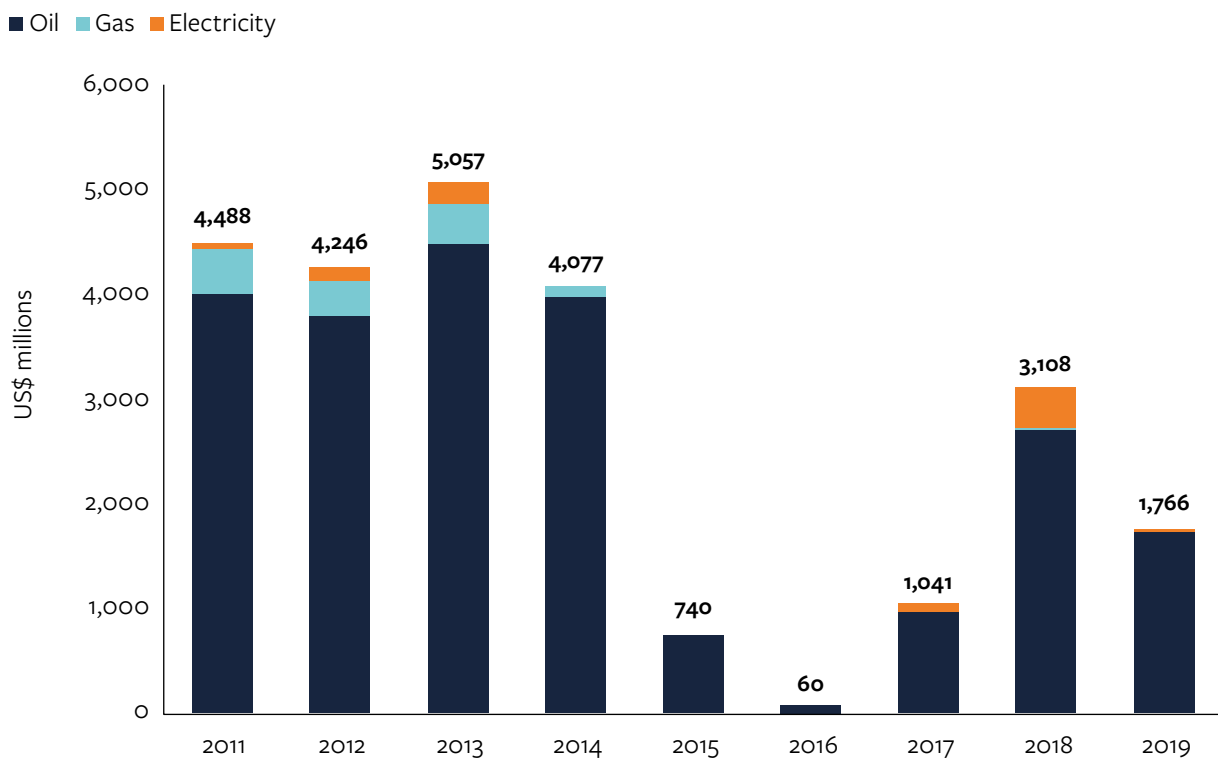
13 Under-recovery is the term the NNPC uses to refer to its subsidy spending, and is the difference between the amount of oil revenue and the price of fuel subsidies. The under-recovery is charged against oil revenue held by the NNPC on behalf of the federation. Once this under-recovery is deducted by the NNPC from the oil revenue, the remaining revenue that the NNPC remits to the federation account is lower. As of the end of June 2022, NNPC had not remitted any funds to the federation account for 2022, with an estimated \$3.066 billion (₦1.301 trillion) spent on PMS subsidies and \$21.94 million (₦9.11 billion) on refinery rehabilitation (Nnodim, 2022).

14 The International Energy Agency uses a 'price gap' method of estimating consumption subsidies. Unlike the OECD's approach (which is an inventory-based estimation), the price gap approach compares average end-user prices paid by consumers with reference prices that correspond to the full cost of supply (IEA, 2022b).

15 The World Bank estimates total current health expenditures in Nigeria to be 3.027% of GDP for 2019. However, 70.524% of the total expenditure is estimated to be out-of-pocket household spending on health; this means that government spending on health effectively amounts only to 0.892% of GDP for 2019 (World Bank, 2022a; 2022b; 2022c).

of accurate data on the volume of daily fuel consumption, as there is a wide gap between reported volume discharge by vessels and daily consumption (Reuters, 2012). Several reports have noted that most of the fuel being subsidised with public funds was never imported or simply diverted and consumed in neighbouring countries, where it is sold at market price (The Punch, 2021). Hence, the subsidy system creates supply problems characterised by artificial scarcity, frequent queues in gas stations, and large black markets.

Figure 3 Fossil fuel subsidies in Nigeria – amounts and fuel types



Source: Climate Transparency Initiative (2020)

Most consumption subsidies have been directed to Premium Motor Spirit (PMS), also known as petrol,¹⁶ through a price cap – lowering prices at the pump instead of reducing production costs, thus functioning as a consumption subsidy (Financial Times, 2015). The main beneficiaries of PMS subsidies have been wealthier sections of the population, who use more fuel than poorer groups: according to analysis by Soile and Mu (2015), the top 20% income group benefit twice as much as the bottom 20%. By contrast, the share of kerosene expenditure is higher in low-income households (IMF, 2022); Soile and Mu (2015) find that the benefits of kerosene subsidies are evenly distributed across all income groups. In response to spikes in oil prices, Nigeria introduced the country's first fossil fuel subsidies in 1977. There have been several attempts at reforming these subsidies, with the most recent occurring in 2021 (Jung et. al, 2021; Osunmuyiwa and Kalfagianni, 2017).

¹⁶ In 2019, petroleum accounted for 97% of Nigeria's \$1.8 billion spent on fossil fuel subsidies. Natural gas accounted for the remaining 3% (Climate Transparency, 2020).

A \$1.5 billion loan from the World Bank to the Nigerian government in 2020 was conditional on reform of the PMS subsidy (Reuters and Kar-gupta, 2021). The price cap on PMS was in principle removed in May 2020, thus allowing the market to set the price (Climate Transparency, 2020). The reform was enacted following the collapse in oil prices during the early months of the Covid-19 pandemic, which closed the gap between market prices and the price cap so that consumers did not feel the immediate effects. As noted, fuel subsidies are considered by many to be the country's principal welfare mechanism in the absence of adequate social safety nets (Hossain et al., 2021), and previous attempts at consumption subsidy reform have met with strong public opposition (Bassetti and Landau, 2021), illustrated in Box 2.

Most recently with the passage of the Petroleum Industry Act in 2021, petroleum subsidy reform was proposed to take effect in mid-2022 (Oluocha, 2021). In November 2021 the government committed to remove subsidies and replace them with a monthly ₦5,000 (\$12) transport grant targeting 30–40 million of the poorest Nigerians (Adegboyega, 2021). This direct cash transfer would help mitigate the effects of price increases of petroleum products (Eboh, 2022). However, to avoid a backlash, particularly from labour unions, the government has paused the subsidy reform for 18 months (Onuah, 2022). As the government plans for this reform, it will need to deliver real improvements in people's lives as petrol prices will be higher without subsidies in place – and clearly link these gains back to the fiscal savings from subsidy reform. For example, this could be demonstrated through better service delivery or expanded social protection. Section 4.1 explores options for repurposing fossil fuel subsidies towards social protection financing in further detail.

Box 2 Subsidy reform in 2012

In 2011, then President Ebele Jonathan made public statements highlighting the cost of fossil fuel subsidies, and plans to use the savings from subsidy reform to increase spending on safety nets for the poor, wider infrastructure for energy, transport and water and improving the country's oil-refining capacity. The government stated that the potential negative impact of the removal of the subsidy on the poor would be mitigated via targeted safety net measures in the Subsidy Reinvestment and Empowerment Programme (SURE-P). On 1 January 2012, the government raised the petrol price to full cost-recovery level, leading to a 117% increase in price. This sparked widespread protests and strikes. In response, the government scaled back the price increase to 49% by mid-January 2012, thus significantly reducing, though not eliminating, petrol subsidies (Alleyne, 2013; 5). As a means to mitigate the negative effects of the partial subsidy removal, SURE-P had limited success. While some sub-programmes, such as the Community Service, Women and Youth Employment Programme (CSWYP) and the Graduate Internship Scheme (GIS), recorded notable achievements, there were serious issues, including the hijacking of the process by political party representatives, missing funds, lack of transparency and corruption in the programme's management (CSJ, 2014). The abrupt resignation of the Programme Chairman and the eventual failure of SURE-P further increased public distrust in government.

Due to experiences with previous reform attempts, Nigerian leaders who are committed to further subsidy reform may need to take a more gradual and cautious approach grounded in rebuilding trust in government (Hossain et al., 2021), particularly through prioritising genuine inclusive development, improved service provision and measures to tackle corruption. An incremental reform agenda may generate longer-term success by working to rebuild the social contract between state and citizen. In the next section, we explore some key elements of how the government might manage this complex process.

4 Repurposing fossil fuel subsidies: options for Nigeria

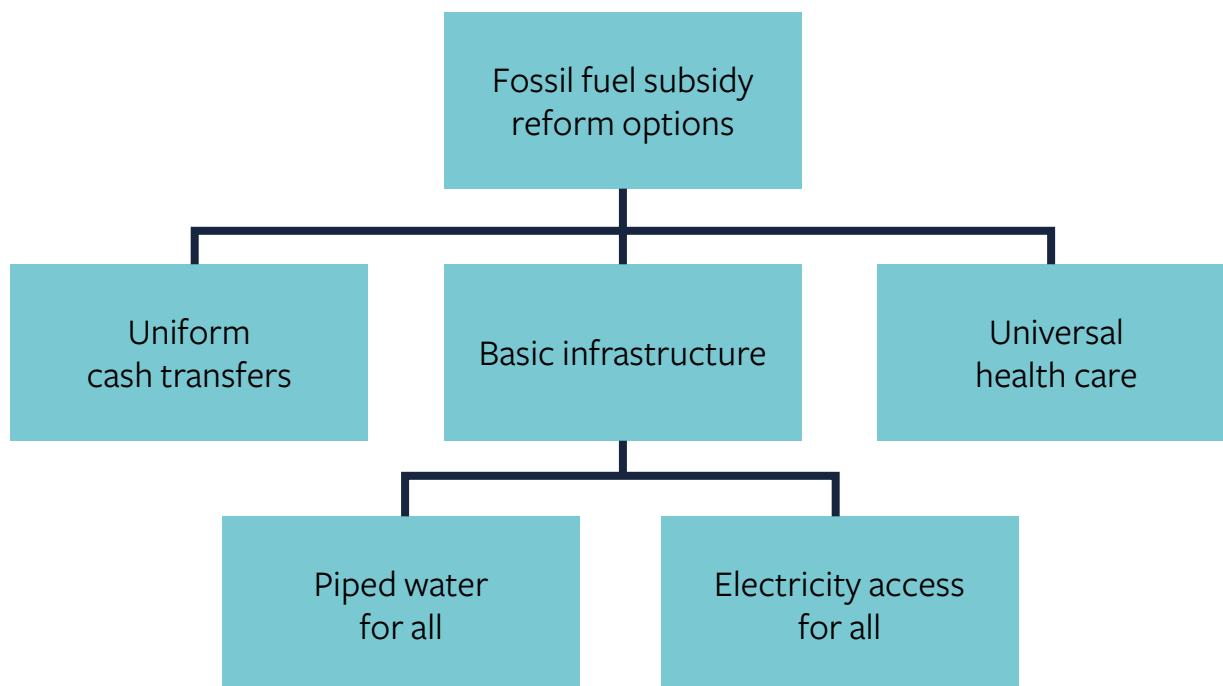
If not managed well, fossil fuel subsidy reforms risk deepening social vulnerabilities (for example by increasing the price of fuel, as well as prices of consumer goods closely linked to transport costs). On the other hand, they may provide an opportunity to create the fiscal space necessary to tackle urgent social priorities, such as healthcare, education and broader social protection, or make the investments necessary to support sustained economic growth and diversification. Reforms also allow planning to begin for a just and equitable transition away from fossil fuel dependency.

To avoid political backlash, any subsidy reform needs to be carefully managed to maximise the number of winners and minimise the number of losers, and, at the very least, ensure that the poor or vulnerable are not further marginalised (Sovacool, 2017). This is especially relevant in a country like Nigeria, where levels of poverty and marginalisation are extremely high. At the same time, governments can seize the opportunity to use public resources more efficiently and fairly. This may imply a reallocation of public support away from current beneficiaries towards those more in need. As discussed above, such reforms should be pursued carefully to avoid exacerbating pre-existing societal inequalities and vulnerabilities, and causing social unrest and opposition. Subsidy reform is an immensely fraught effort for any government, but especially for one like Nigeria where there is limited trust in the state's ability and willingness to deliver pro-poor alternatives (Inchauste and Victor, 2017; McCulloch et al., 2021). Nevertheless, the current wastage of resources severely hinders government financing for crucial aims such as healthcare or infrastructure, and continues Nigeria's lock-in to a fossil fuel pathway that can be avoided.

In this section, we consider two options for how the Nigerian state could repurpose fossil fuel subsidies to work towards stated development and climate goals. This could be accomplished, first, through basic service provision or social protection for low-income and marginalised groups, and second, through financing a just transition to a clean energy system that could support structural economic transformation and create jobs.

4.1 Repurposing fossil subsidies for services, infrastructure and social protection

Figure 4 Options for repurposing fossil subsidies for basic infrastructure and social outcomes



The most politically straightforward approach to fossil fuel subsidy reform may be introducing a uniform cash transfer. Rentschler (2016) modelled fossil fuel subsidy reform options in Nigeria using 2010 subsidy, fuel usage and poverty data. Unsurprisingly, the modelling analysis found that removing 100% of kerosene, petrol and electricity subsidies without providing any compensation would increase poverty rates.¹⁷ However, by providing a uniform cash transfer to everybody, the government could reduce national poverty rates by 1% compared to pre-reform levels. The simulated reform would also imply that the poorest 60% of Nigeria's population would be better off. Critically, this consumption subsidy reform and associated compensation would be accomplished with no additional strain on the government's budget. Although there are still challenges in creating a cash transfer system in Nigeria, experience during the Covid-19 period shows that some tangible progress has been made in this regard (Igwe, 2022).

A uniform cash transfer has its limits. A simulation by Rentschler (2016) looked at national-level averages. Context-specific differences across Nigeria mean that, in practice, more urbanised states with larger populations, such as Lagos and the Federal Capital Territory (which includes the capital, Abuja), would be more vulnerable than others to subsidy reforms and consequent price

¹⁷ The simulation estimated that the poverty gap would increase from 25.7% to 27.9% because of the subsidy removal and in absence of any compensation (Rentschler, 2016).

shocks as, on average, urban households spend 5% of their income on energy in comparison to rural households, which spend 3%. While cash compensation schemes aimed at mitigating the adverse effects for poor households in the short term are crucial, they are not sufficient to meet longer-term goals to maximise the development potential of a subsidy reform.

One alternative would be to use the fiscal space generated by subsidy reform to finance basic infrastructure and services in support of human development. Jakob et al. (2015) modelled the share of fossil fuel subsidies that would be required over the coming 15 years (until 2030) to cover the costs of providing universal access to a number of basic services in different countries. For Nigeria, where only slightly more than 60% of the population have access to clean water, less than 4% of fossil fuel subsidies would be sufficient to provide clean water for the entire population. The same analysis found that around half of the current spending on fossil fuel consumption subsidies would be sufficient to provide electricity to the over 140 million people currently lacking access to it. Meanwhile, Ohiare (2015) estimates that, by 2030, a much more modest \$34.5 billion could connect the 125 million Nigerians in 2013 estimated to be without electricity access to the grid. Total subsidies provided for oil consumption between 2011 and 2019 (as shown in Figure 3) amount to about 80% of the \$27 billion estimated costs of achieving universal energy access by 2030 (Ibrahim, 2022).

Finally, the reallocation of fuel subsidies could become an important mechanism for Nigeria to pursue universal health coverage (Gupta et al., 2015). According to the latest available data (World Bank, 2022b), in 2018 Nigeria spent \$4.5 billion on healthcare, 45% of which could have been covered by the money spent on fossil fuel consumption subsidies in that same year (IEA, 2021d).

These investment and spending options seem like attractive alternatives to fossil fuel subsidies. Moreover, survey results suggest that households have strong preferences for social protection support over energy subsidies (Adeoti et al., 2016). It is therefore important to recognise the political economy factors that have constrained the reallocation of public funds to date.

In Nigeria, ministries and public agencies are often unable to meet their remit (Yagboyaju and Akinola, 2019). There are multiple reasons for this, including lack of public awareness leading to limited uptake; lack of knowledge and skills within the public sector to design and implement programmes; and institutional challenges and failures, such as budget misappropriation, embezzlement and lack of transparency (Ijewereme, 2015). These limitations have also bedevilled earlier subsidy reforms. For example, SURE-P was initiated to mitigate the effects of deregulated energy prices by reallocating subsidy spending to social support measures including training and employment opportunities for women and youth (see Box 2).¹⁸ However, for a host of reasons, including disjointed communications around the programme leading to low levels of public

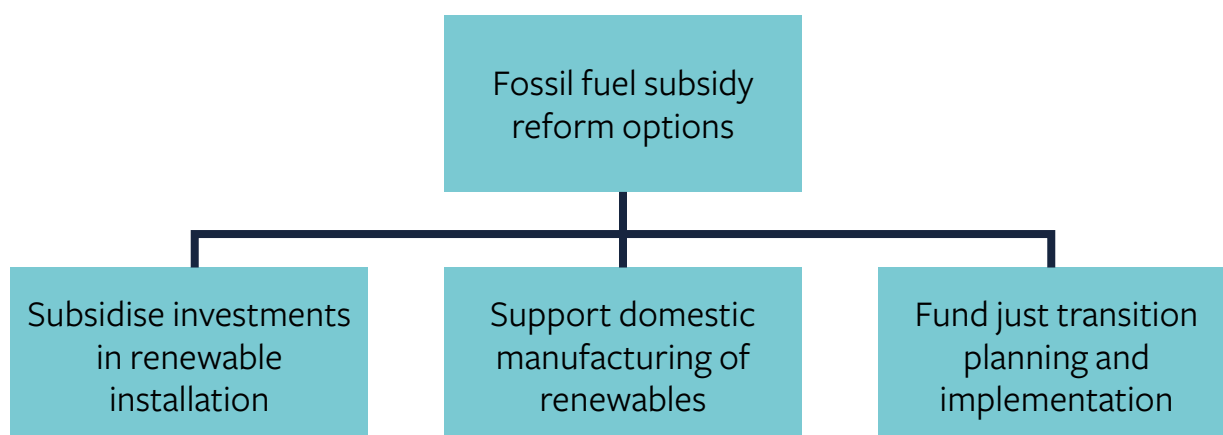
18 Other social programmes supported by SURE-P included child and maternal health; infrastructure development focused on urban mass transit, roads and bridges; and graduate internship schemes (Atansah et al., 2017; IISD, 2016).

awareness and slow receipt of benefits to targeted populations, the government ended the programme in 2015 (IISD GSI, 2020; Atansah et al., 2017).¹⁹ Given these experiences, any public acceptance of proposed plans for reallocation of energy subsidies to social protection, healthcare provision, or infrastructure and services is challenging.

The government needs a comprehensive implementation plan outlining how repurposed funds would be utilised. While the amount of government budget allocated to subsidies fluctuates year-on-year depending on the price of oil and gas, calculations of the total amount of subsidies provided in the past – as well as predictions around global trends in prices – indicate the potential savings that can be made. Comprehensive and strategic communications and engagement strategies are needed to ensure higher levels of awareness among individuals and communities of the ways funds are being repurposed, and therefore benefiting members of society.

4.2 Repurposing fossil fuel subsidies within the energy sector

Figure 5 Options for repurposing fossil fuel subsidies within the energy sector



According to a recent estimate by the Nigerian government, \$310 billion would be required for the country to bridge its energy deficits in terms of electricity production, transmission and distribution infrastructure and achieve its net-zero economy-wide target goals (Onu, 2021). Current fossil fuel subsidies in Nigeria fall far short of these investment needs, but their reform could create a level playing field for clean alternatives, and the public funds made available could be repurposed to stimulate private investment in the electricity sector.

¹⁹ Only 9.2% of rural women and 10.6% of women in Lagos reported awareness of the government support programme (IISD, 2020). Additional reasons for the ending of SURE-P include concerns around corruption, decreased government oil revenues, a lack of trust in the federal government, and a change in the presidential administration (Oluwagbemi, 2016; Okwaku, 2015; Atansah et al., 2017).

Nigeria is endowed with an abundance of potential for solar, wind and hydropower. Renewables are envisaged to become a substantial part of Nigeria's energy mix, and can provide an economically sound and less risky alternative to natural gas. Although several policy frameworks have been established to facilitate a clean energy transition (Nigerian DCC, 2021; Federal Republic of Nigeria, 2016), the growth of renewable energy industries in Nigeria has been slow, limiting the ability to harness renewable energy sources for electricity generation.

Fossil fuel subsidies could be repurposed to support renewable investment, from utility-scale plants through to small-scale solar home systems. Nigeria has the largest PV distribution and mini-grid installation market in sub-Saharan Africa. This indicates that solar energy has the potential to replace diesel generators, which account for 16.6% of Nigeria's self-generated electricity (Nnodim, 2021). According to the NBS, fossil fuel (petrol, diesel and gas) powered generators currently account for approximately 48% of Nigeria's electricity consumption, and 52% of electricity was supplied through the national grid. Only 0.1% of electricity generated came from off-grid renewables (Nnodim, 2021). Replacing diesel generators with solar energy systems would be possible with more private sector investment in clean energy generation, transmission and distribution (SEforALL, 2020). While the extent to which solar systems are replacing fuel generators for households is unknown, there has been an increase in businesses seeking solar energy systems in response to diesel price increases of up to 181% because of Russia's invasion of Ukraine (Al Jazeera, 2022; Onu and Osae-Brown, 2022).

Although Nigerians are generally interested in decentralised energy systems, high capital costs typically make these options less attractive for prospective energy prosumers²⁰ in Nigeria, other than the relatively wealthy elite.²¹ Therefore, fossil fuels remain the preferred energy options for households in middle- and low-income brackets. Fossil fuel subsidy reform would shift these underlying economics by making oil and gas generators more expensive; the funds could then be repurposed to make clean energy cheaper, for example through the provision of feed-in tariffs, tax exemptions or concessional loans (Phillips et al., 2020). Fiscal reforms could be complemented by other policy reforms to facilitate private investment, for example reducing duties and tariffs on clean technology imports or the cost of electricity trading permits making oil and gas generators – which could be replaced with grid or decentralised power – more expensive. (Ebigenibo, 2021). Private investment is particularly challenging for households, businesses and communities seeking to invest in decentralised renewable energy systems. Taken together, these measures should crowd in private capital for clean energy generation from households and firms while reducing energy poverty.

20 Prosumers are defined as energy consumers who can also produce their own electricity.

21 Despite the slow growth of renewable energy, since the Covid-19 pandemic there has been a significant increase in the acquisition off-grid solar technology among the affluent in Africa, as they moved to bolster their grid supply during the pandemic (Hall, 2021).

Optimising renewable capacity installation and operation requires technological capacity-building. Nigerian-based companies have yet to begin manufacturing affordable and competitive technologies needed to meet the country's renewable energy targets. As a result, Nigeria's clean energy transition relies heavily on technology imports from China, the United States and Europe (Isah and Jelilov, 2020). Technology dependency, as well as high customs duties and tariffs, have proven to be major barriers in improving energy access in Nigeria. The devaluation of the Naira over the last seven years has also made the import of capital-intensive materials less affordable (Iyatse, 2021). Furthermore, shortages in global production and supply chains disrupted the renewable energy market in Nigeria, with 88% of distributors experiencing delays when importing solar panels, storage batteries and other clean energy components (Isah and Jelilov, 2020). Global lockdowns due to the Covid-19 pandemic exacerbated problems with the renewable energy supply chain, slowing down export and import activities and limiting the supply of clean energy technologies. Accelerating clean energy transitions would therefore possibly entail public support for the manufacture of renewables, as well as efforts to build the implementation and maintenance capabilities necessary to sustain the local value chain.

Reallocating fossil fuel subsidies towards renewables has been identified as a pathway for supporting clean energy access and financing low carbon infrastructure in sub-Saharan Africa (Whitley and van der Burg, 2015; Bridle et al., 2019). However, subsidies need to target technology capacity-building and infrastructure projects that focus on energy generation, transmission and distribution networks. In order to facilitate rapid distribution of electricity services in semi-urban and rural areas, state and local governments also need to prioritise decentralised off-grid projects. Government subsidies can be used to incentivise private sector participation in clean energy. It may be beneficial to provide energy research and development subsidies to firms focused on domestic manufacturing of the critical technology required to accelerate a clean energy transition. Economy of scale in the production of technologies is required to implement the cost-effective and cost-efficient adoption of renewables.

Finally, the government could use the fiscal space from fossil fuel subsidy reforms to support a just energy transition. International climate action and domestic ambitions to reduce dependence on oil and gas indicate that the time is ripe to begin discussions around what needs to happen to ensure the process is fair and equitable.

There are international frameworks and guides for working towards just transition. In 2015 the International Labour Organization (ILO) released guidelines for a just transition focused on workers' rights and grounded in its decent work agenda, social dialogue²² and social protection (ILO, 2015). Other UN agencies have subsequently built on this, providing guidelines for national

22 Social dialogue encompasses workers, their representatives, employers and governments, as well as separate stakeholder engagement with communities and civil society (Smith, 2017).

and subnational action on just transition centred around the ILO's decent work agenda, as well as principles of sustainable development, poverty elimination, inclusion and human rights (UNFCCC, 2020).

Just transition is clearly on the agenda in Nigeria. The country's labour movement and civil society have come together to kickstart the discussion on what just transition means for Nigeria. In 2017, Environmental Rights Action-Friends of the Earth (ERA-FOE) Nigeria and the Nigeria Labour Congress (NLC) held several stakeholder workshops focusing on just transition for the petroleum and agriculture sectors. Specific to the oil and gas sector, rights to a clean environment, decent jobs and livelihoods were highlighted, as well as the responsibility of companies to deploy clean methods of production, and of governments to ensure the well-being and security of their citizens (Ojo and Mustapha, 2019). Reforming fossil fuel subsidies could help further these discussions; sparking new ones with other members of society, including policy-makers and communities that would be directly affected by a transition away from oil and gas.

Going by past attempts to reform fuel subsidies, there may be opposition from labour unions, particularly in the current context of stagnant wages and high living costs. After the Federal Government reversed the reforms to take effect in 2022, the NLC suspended planned protests (Izuaka, 2022). It is also important to recognise that a just transition to a clean energy system in Nigeria cannot be wholly or even primarily financed by fossil fuel subsidy reform. These resources are not sufficient relative to the country's investment needs in electricity generation, transmission and distribution, or to the wider programme of structural economic transformation necessary for the country to thrive as oil and gas production diminishes. However, the repurposing of fossil fuel subsidies could make clean energy alternatives more competitive and free up resources for critical social and economic priorities that can enable a just transition down the line.

4.3 Additional sources of finance to support a just energy transition

Reforming and repurposing fossil fuel subsidies in Nigeria will take time, especially if the country pursues inclusive and meaningful conversations with stakeholders to determine what to use these funds for instead. However, planning for and financing a just energy transition needs to start now.

During the 2021 UN General Assembly, Nigeria reiterated its commitment to a just energy transition and called for financial support from developed countries to achieve this (UN, 2021). Certainly, such support is fair and necessary for many emerging economies, especially those dependent on fossil fuels, to transition. Finance that supports renewable energy installation and uptake is necessary, but so is finance that supports removing structural barriers that continue to prop up fossil fuel subsidies, which could free up fiscal space and enable countries like Nigeria to fund development and climate goals. While distribution of pledged climate finance from developed countries has been slow, there are also other sources of finance for a just energy transition in Nigeria:

1. Nigeria is already seeing significant private investment in clean power generation, transmission and distribution, sometimes as joint ventures with the federal or state governments.

Much of the energy sector in Nigeria is based on public private partnerships (PPPs). Since the privatisation of the energy sector in 2013, facilities have been jointly constructed by federal or state governments and private companies. While most generating companies (GENCOs) are privately owned, a few are still owned and operated by the government. Transmission is solely within the jurisdiction of the government via the Transmission Company of Nigeria (TCN). The distribution companies (DISCOs) are privately owned, with the government holding shares in them.

Following the federal government's commitments towards clean energy transition, private companies have mostly responded by constructing mini-grids with decentralised distribution systems (SEforALL, 2020). Between 2015 and 2019, the installed capacity of mini-grids commissioned by the government increased from 0.2 MW to 1.7 MW (SEforAll, 2020). The cumulative installed capacity of mini-grids in Nigeria increases if residential projects are taken into account. As of December 2019, the estimated installed mini-grid capacity for households in rural areas was about 2.8 MW (SEforAll, 2020). These projects – financed through private capital – are based on offtake agreements²³ with federal, state and local governments and community development councils (CDCs). Through the Rural Electrification Fund, the government has also provided public finance for mini-grid projects, while the World Bank has used development finance to catalyse private financing. Although electricity tariffs are set by mini-grid operators, the Nigerian Electricity Regulatory Commission (NERC) approves their licences and energy price caps (SEforALL, 2020; Ebigenibo, 2021).

Electricity tariffs remain high even for households and businesses connected to these newly installed mini-grids. This is due to high transmission costs and electricity trading payments made by grid operators to the government (Ebigenibo, 2021). The major issue with private investments in mini-grids across sub-Saharan Africa is whether the primary objective is to maximise profits or provide energy access for rural communities. In general, programmes designed to achieve both objectives are unlikely to succeed unless governments incentivise the market, for instance through viability gap subsidies, feed-in tariffs and tax credits (Phillips et al., 2020). To reduce utility charges for clean energy consumers, lowering electricity tariff caps should be set as a precondition for incentivising mini-grid developers and operators. Government subsidies for private firms should be accompanied by strict tariff regulation agreements.

Given the opportunities to generate commercial returns on investment in a sufficiently enabling policy environment, private investment in the electricity sector is likely to be the primary source of finance for Nigeria's domestic clean energy transition.

23 An offtake agreement is an arrangement between a producer and a buyer to purchase or sell portions of the producer's upcoming goods.

2. Nigeria has secured significant international climate finance and official development assistance from multilateral entities such as the African Development Bank (AfDB) and the World Bank, and from bilateral partners including Germany's Gesellschaft für Internationale Zusammenarbeit (GIZ), the UK Foreign, Commonwealth and Development Office (FCDO) and the US International Development Finance Corporation (DFC).

Donors mostly support Nigeria's clean energy transition by directly funding public sector energy generation and distribution networks, including mini-grid installations for local communities. Much of the clean energy financing goes towards decentralised off-grid solar projects (REN21, 2021). Private sector utility companies also collaborate with international financial institutions to implement the clean energy transition in Nigeria. In 2020, Lumos (one of the major solar pay-as-you-go renewable energy companies in Africa), received \$35 million from the DFC to produce 160,000 solar systems for about a million households in several Nigerian cities (Mwirigi, 2020).

To accelerate the clean energy transition in Nigeria, institutions such as the World Bank, the International Finance Corporation (IFC) and the AfDB are financing clean energy solutions that directly provide electricity access for households, small- and medium-sized enterprises and rural communities. In general, multilateral financing is channelled through specialised government agencies and programmes. For example, the Nigerian Electrification Project (NEP), the largest mini-grid support programme operated by the Nigerian government, received performance-based grants from the World Bank and AfDB to finance a solar-hybrid initiative which aims at providing electricity access to 300,000 households and 30,000 local MSMEs by 2023 (SEforALL, 2020). In 2018, the World Bank provided a \$350 million loan for renewable energy programmes (REA, 2018). In 2020, AfDB committed \$200 million for financing off-grid projects (SEforALL, 2020). Donors also support capacity-building for government agencies and job training programmes in the cleantech service sector for workers from various regions, including women (GIZ, 2015). Donors could also support measures to improve social protection, considered by many including the ILO and UNFCCC as crucial components for a just transition.

Private investors and banks have identified skill transaction intermediation – firms that can link the different forms of financial and non-financial support necessary to bring schemes to market – as a major capacity gap (CFA, 2019). This has largely translated into the supply chain being unable to develop a financeable pipeline for projects. A government coordinating entity with a clear mandate to improve investment in the clean energy sector, ideally independent of both financial and political interests, could ensure that available climate finance sources turn project ideas into reality (CFA, 2019). Implementation of the provisions of the Climate Change Act would be helpful here, however, the National Council on Climate Change, which is to drive implementation of the Act, has not been inaugurated, thus undermining any prospect of attracting international climate finance. Nigeria also has no accredited implementing entity under the Adaptation Fund.

Given historic responsibilities for global warming, climate agreements including the UN Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement (UNFCCC, n.d.) all

recognise that international support is fair and necessary for emerging and developing economies to pursue lower-carbon development. These concessional funds can play a catalytic role in mobilising private capital by building essential capabilities and de-risking demonstration projects.

3. International courts have recently begun to award financial compensation from IOCs to communities who have suffered human rights abuses and environmental degradation during oil and gas production.

For over five decades, the Niger Delta region has suffered ecological degradation. Oil spills and gas flares have severely impacted human health, destroyed agricultural and fishing activities and resulted in the loss of communal livelihoods. Now, IOCs are being held to account in international courts. Shell was recently ordered to pay \$95 million in compensation to Southern Nigerian communities for oil spills in 1970, and separately for leaks in the Bayelsa Estate of the Niger Delta between 2004 and 2007 (NL Times, 2021; BBC News, 2021). Social movements and NGOs are seeking compensation from ExxonMobil for a series of oil spills in the state between 1998 and 2012 (Udegbumam, 2021). Although much smaller in value than the other sources of finance mentioned above, coupled with funds currently used to support inefficient fossil fuel subsidies, such compensation can help expand access to clean energy and a just energy transition. In addition, these funds are symbolically important because they recognise historical injustices in terms of who has enjoyed the benefits and who has borne the costs of fossil fuel production in Nigeria.

Despite their importance to the Nigerian economy and energy sector, Niger Delta communities still lack access to basic electricity services – in 2015, only 34% of the population had electricity access (SDN, 2016). In addition to financial compensation for individuals and communities affected by oil spills and gas flares, investors in oil and gas exploration should direct their Environmental Social Governance (ESG) funds towards financing clean energy access for Niger Delta communities.

Supporting the development of alternative energy solutions and economic diversification is also crucial. In Europe and North America, oil companies are entering the clean energy space, increasing their investments in low-carbon technologies and supporting cleantech value chains and employment opportunities in the renewable energy industries. For instance, Equinor has ventured into offshore wind farms in California, Hawaii and Norway (NES Fircroft, 2019). A similar approach should be adopted by oil multinationals in Nigeria. While many companies have some level of renewables operations, most of them are not yet at the scale they could be. The world's largest oil and gas firms, Chevron, ExxonMobil, BP and Shell, spent less than 1% of their capital investment on low-carbon technology between 2010 and 2018 (Gabbatiss, 2022).

Compensation for past harm could also be used to kickstart the repurposing and reform process. Programmes for social protection, access to clean energy or just transition need to be established and demonstrate tangible benefits to Nigerians before fossil fuel subsidies can be removed. The

Nigerian government could set aside some of this compensation for these purposes. One example could be to use compensation from IOCs for environmental remediation in the Niger Delta, for a pilot universal cash transfer or to increase clean energy access in the region.

5 Conclusion

This working paper has looked at the challenges Nigeria faces regarding its complex energy landscape and energy transition. Despite its high-level climate commitment and a discourse of wanting to move away from oil dependence, the country continues to heavily support oil and gas production and consumption.

While gas reserves in Nigeria are abundant and a gas-based strategy can arguably provide short-term economic gains, these risk locking the country into a longer-term, fossil-oriented economic model. Keeping global temperature increases within 1.5°C will require global gas use to halve between 2020 and 2040. New investments in oil and gas production to serve international markets therefore risk being stranded as global demand (and potentially prices) fall. Moreover, the policy emphasis on gas hinders prospects for the development of other, more sustainable alternatives such as renewable energy generation.

As discussed extensively in this paper, a key factor that perpetuates and exacerbates Nigeria's dependence on fossil fuels is the high level of subsidies the country provides for their production and consumption, amounting to over \$1.7 billion in 2019 alone. Reforming these subsidies and repurposing the associated public spending towards other social priorities, such as healthcare, as well as the financing of renewable energy, constitutes an important step to achieving an energy transition that is effective and fair.

Even though subsidies disproportionately benefit the wealthier segments of the population, their reform has been challenging as many see subsidies as part of the social contract between the government and its citizens, and there is a lack of trust in the government to carry out subsidy reforms effectively and equitably. Thus, stronger efforts are needed to ensure that adequate compensation is put in place for the most vulnerable, who are most reliant on subsidies to afford essential goods and services, and to ensure that the benefits of reform are communicated well across the whole of society. Repairing the broken social contract between the government and its citizens will require support measures being put in place *ahead* of any subsidies being removed. International organisations can provide the intermediary financing to support this.

The international community is also well-placed to support national CSOs in Nigeria through research, knowledge exchange and capacity-building to help establish constructive engagement around fossil fuel subsidy reform, and justice and social responsibility in energy transition given the domestic challenges faced in progressing this agenda. Development finance institutions, other donors and international NGOs can support analysis and planning for how best to sequence subsidy reform and a just energy transition, engage the different parties concerned to secure their support, and provide the monitoring and consistency through election cycles and successive governments to ensure the longevity and successful implementation of plans.

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