BRIEFING PAPER

Can the low-carbon development agenda increase energy access for the poor in Nigeria?

Ewah Otu Eleri, Precious Onuvae, Okechukwu Ugwu 2012

The Nigerian economy depends on fossil fuel extraction and export, yet 60 per cent of its people live without access to electricity or modern cooking fuels. Can a shift to a lower-carbon economy help to increase energy access and reduce poverty? Nigeria's low-carbon policy framework is evolving in response to international obligations and incentives, and the need to develop more options for power generation. As signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Nigeria has made international commitments to promoting low-carbon development. The United Nations Development Programme (UNDP) sponsored the Nigerian Renewable Energy Master Plan, while the World Bank and Global Environment Facility (GEF) are promoting the Global Gas Flaring Reduction Initiative. Yet the low-carbon agenda alone will not transform Nigeria's energy sector for climate adaptation and mitigation, or to support pro-poor energy access. More traditional economic incentives are required to attract foreign investment, enforce efficiency measures, establish sustainable tariff practices, demonstrate the feasibility of renewable energy technologies, and ensure responsible use of energy resources.

Energy and poverty in Nigeria

Nigeria is Africa's largest exporter of crude oil, but 70 per cent of its 167 million people live in poverty. Contributing factors include a rent-seeking economy, weak governance institutions, and inadequate levels of investment in human capital and infrastructure, especially in providing energy services.

About 60 per cent of Nigerians live literally in the dark without electricity and over 72 per cent depend on the traditional 'three-stone fire', According to the World Health Organization, smoke from the inefficient use of biomass causes 95,000 deaths annually, ranking as the nation's largest killer after malaria and HIV/AIDS. Contrary to the National Energy Policy's expectations in 2001, deepening poverty is forcing Nigerians to shift from modern and efficient forms of energy such as electricity, gas and kerosene, to use of wood in traditional open fires.

Power plant closure and under-utilisation of available energy capacity has become commonplace in Nigeria's industrial landscape. Companies resort to diesel generators for their own electricity and the millions of these are a major source of local pollution and harmful emissions that cause climate change. There is no clear national agenda for expanding access to electricity for the urban and rural poor, despite good prospects for power from natural gas.

Nigeria produces large amounts of natural and associated gas in the Niger Delta. Yet very few households and institutions use this gas. In 2010 about 2,393 million standard cubic feet of gas was produced in total. Of this, 75 per cent was utilised while 25 per cent was flared into the atmosphere. This represents Nigeria's single largest source of greenhouse gas emissions, as well as an energy loss that could have closed its present demand and supply gap.

POLICY POINTERS

- If implemented properly existing domestic policies, including current energy sector reforms, could expand Nigerians' access to low-carbon energy; a national agenda for low-carbon energy access would facilitate this.
- Low-carbon energy access can be made more affordable if the government sets the prices right for electricity and low-carbon technologies, applying time-bound smart subsidies and removing barriers such as import tariffs; while also applying incentives to attract more domestic and international finance to the sector.
- Research and development centres for emerging clean energy technologies already exist in Nigeria, but need more financial and policy support, and markets for the products of their research.
- Holding Nigeria's government to account for its policy commitments can be facilitated by a stronger civil society and increased access to information on low-carbon energy.

Table 1. Nigeria: Socio-economic indicators

Socio-economic indicators	Value
Population (2011)	167 million
Population living in poverty (1980)	17 million
Population living in poverty (2010)	112 million
Population with access to electricity	47%
Number of households without electricity	15.3 million
Number of black-outs per day	28
Electricity consumption per capita	150kwh
% of pop. dependent on biomass fuel	72%
Per capita CO_2 emission (2007)	0.7 tonnes

Sources: Nigeria Poverty Profile 2010 (National Bureau of Statistics); World Development Indicators Database December 2010; Little Green Data Book 2011; National Population Commission – http://www.population.gov.ng/; Central Bank of Nigeria website.

Box 1. What is low-carbon development?

Low-carbon development has been defined in a number of ways, including the following:

- A development path that simultaneously restrains energy demand growth, drives new production towards low-carbon sources, and provides sufficient and secure energy supply for global economic growth;
- Substituting fossil fuels with low-carbon energy sources and ensuring enhancement of human welfare; and
- Sustainable growth that helps reduce emissions of greenhouse gases and environmental pollution.

Low-carbon development explores alternatives to an unsustainable business-as-usual approach to economic growth. It aims to increase the resilience of poor and vulnerable groups and enable them to develop sustainably. This requires rethinking old practices and contesting entrenched value systems. A country's low-carbon development pathway should be anchored in its own development prospects, goals and capacities.

Key considerations for Nigeria are: economic growth, poverty reduction, expanding the poor's access to energy, shifting away from fossil fuels, diversifying energy sources to include renewables, improving efficient use of energy, and ending gas flaring.

Low-carbon development in Nigeria

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Nigeria has made international pledges to promote low-carbon development. This includes meeting reporting obligations and reducing greenhouse gas emissions within the context of poverty reduction and economic growth.

The UNFCCC and Kyoto Protocol also offer financial incentives for low-carbon projects. These include the Clean Development Mechanism (CDM) and Reduced Emissions from Deforestation and Degradation (REDD). Nigeria's first REDD+ project was approved in October 2011. Others such as the Green Climate Fund are currently in development. Additionally, Nigeria has access to funds and incentives outside the UNFCCC process, including the World Bank's Clean Technology Fund and the EU's Global Energy Efficiency and Renewable Energy Fund.

International agencies are also promoting low-carbon development through their in-country programmes. The United Nations Development Programme sponsored the 2005 Nigerian Renewable Energy Master Plan and the World Bank and Global Environment Facility are developing a programme under the Global Gas Flaring Reduction Initiative. A Nigerian policy framework to endorse low-carbon development has also been evolving, owing to international obligations and incentives, and internal drivers such as the need to diversify options for power generation.

Table 2. Projects in Nigeria registered by the CDM Executive Board (as at August 2011)

Category	Project description	Estimated annual emission reductions (1,000 t CO_2e)
Oil field flaring reduction	Pan Ocean Gas Utilization Project	2,627
Oil field flaring reduction	Recovery of associated gas at Kwale oil-gas processing plant	1,497
Landfill gas	Municipal Solid Waste Composting Facility, Lagos, Earth Core Nigeria Ltd (ENL)	282
Oil field flaring reduction	Recovery and marketing of gas at the Asuokpu/ Umutu Marginal Field	257
Energy efficiency in households	Efficient Fuel Wood Stoves for Nigeria	31
Total		**4,694**

Source: UNFCCC, UNEP Risoe Centre

Key challenges and opportunities

While international commitments and incentives are important, applying the Federal Government's existing domestic policy commitments is crucial for a low-carbon Nigeria. There is no explicit national low-carbon development strategy, but already agreed policies could lead to record growth in incomes and a shift in the country's carbon trajectory. The challenge is to tackle current implementation barriers.

Vision 2020 is an ambitious plan by the Federal Government to turn Nigeria into a top 20 economy by 2020, including a competitive and sustainable energy sector. It singles out the expansion of electricity production from gas and hydropower as a key driver for growth, and outlines measures to transform transportation and agriculture – all three sectors representing nearly 90 per cent of Nigeria's total greenhouse gas emissions. Yet despite a pledge in 2009 to implement this, no measures are yet in place.

Gas flaring and other energy-related emissions represent a quarter of Nigeria's total emissions. Current power sector reform processes – including the 2010 Roadmap for Power Sector Reforms and the 2012 Petroleum Industry Bill, soon to be passed into law – would lead to cost-reflective tariffs, incentivising gas supply to power plants. Natural gas would replace diesel-powered generators. As gas prices rise and regulation improves, more currently flared natural gas will find its way into power production. The government has over the years set many deadlines for ending gas flaring – none of which has been kept.

Gas flare and pipeline, Niger Delta © Brian Shaad

A major challenge is finding champions to promote this agenda. Influential institutions that are vital to reforming policy are disconnected from the climate change policy space. These include the Presidency; Federal Ministries of Power, Petroleum, Transportation and Finance; international oil companies; and domestic financial institutions. At the same time, actors that dominate the climate change policy space have no great influence in the sectors most relevant to shifting to low-carbon development (including the Federal Ministry of Environment, donors and NGOs, and increasingly the House of Representatives' Committee on Climate Change).

As a result, little progress is being made on gas investment policies and implementation of transportation, agriculture and power sector reforms. A new narrative mapping the interests, influence, institutions and choices in these sectors is needed to deepen understanding of the political and economic conditions for effectively applying already agreed policies.

An eight-point agenda for action

The low-carbon agenda alone will not transform Nigeria's energy sector for climate adaptation and mitigation, or support pro-poor development. Measures to achieve this must include the following:

1. **Establish a national agenda for energy access:** A national energy access programme will set an achievable electrification target. Large-scale expansion will only be met by a combination of grid and decentralised options, with renewable energy being strategic to achieving energy access in remote areas. A strong national institutional framework is required with identified bodies to champion and deliver low-carbon energy goals collaboratively.

2. **Implement and scale up current reforms:** Several of Nigeria's national macroeconomic and energy sector-specific action plans can lead to the increased use of lower-carbon energy, particularly with gas and power sector strategies. Building a coalition to ensure the successful implementation of already agreed national policies would help to counter possible vested interests in the current energy sector's political economy.

3. **Set electricity tariffs right:** Tariffs for conventionally generated electricity still do not reflect the full cost of production and do not internalise environmental costs. Artificially low tariffs for conventional electricity make investment in lower-carbon energy resources less competitive.

4. **Set prices right for low-carbon technology:** Nigerian prices for technologies such as solar and small hydropower are above world averages. The government could address this by reducing import duties and providing tax incentives. Time-bound smart subsidies will encourage investment in renewable technologies. Ensuring that the Nigerian Electricity Regulatory Commission (NERC) implements already agreed feed-in tariffs will be a key step.

5. **Expand access to domestic and international finance:** To stimulate investment, the government could offer subsidies, equity investments, guarantee schemes, low interest loans, tax incentives, concessions or private/community management of publicly owned assets. A clean energy finance initiative would de-risk domestic lending to the sector and attract international funding.

6. **Increase support for research and development:** A strong national research and development policy for emerging clean energy technologies is required. Nigeria already has many such centres, but they need increased funding for research and training. Efforts must also be put towards bringing the products of their research to the marketplace.

7. **Deepen the voice of civil society to demand government accountability:** Civil society groups, including community- and faith-based NGOs, are important in holding governments to account for their commitment in providing services such as energy. While Nigerian civil society has been strong in promoting civil rights and increasing the democratic space, these organisations are weak in pursuing the right to development, especially to energy access.

8. **Increase access to information on low-carbon energy:** There is very little access to information on available technologies, costs, benefits, government programmes and international support. Information needs to be spread by local media such as radio, TV, newspapers and the Internet, in order to expand people's options, empower communities to make appropriate choices, and ultimately grow the market for these technologies.

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The SUNGAS project aims to catalyse development of Nigeria's natural gas and renewable energy markets through innovation, demonstration, policy dialogue and advocacy. Small demonstration projects for both renewables and gas-to-power aim to show that community-based energy facilities are technically viable, financially sustainable, and can ensure better access to modern energy services for rural communities.

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