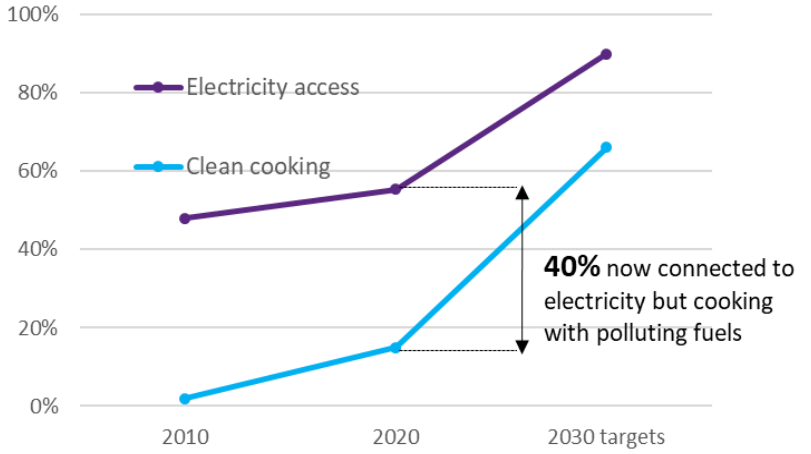
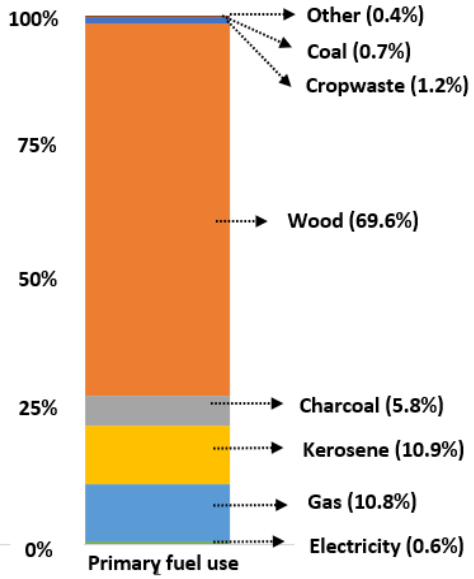
Modern Energy Cooking Brief: Nigeria

Current Situation: Electricity Access, Clean Cooking

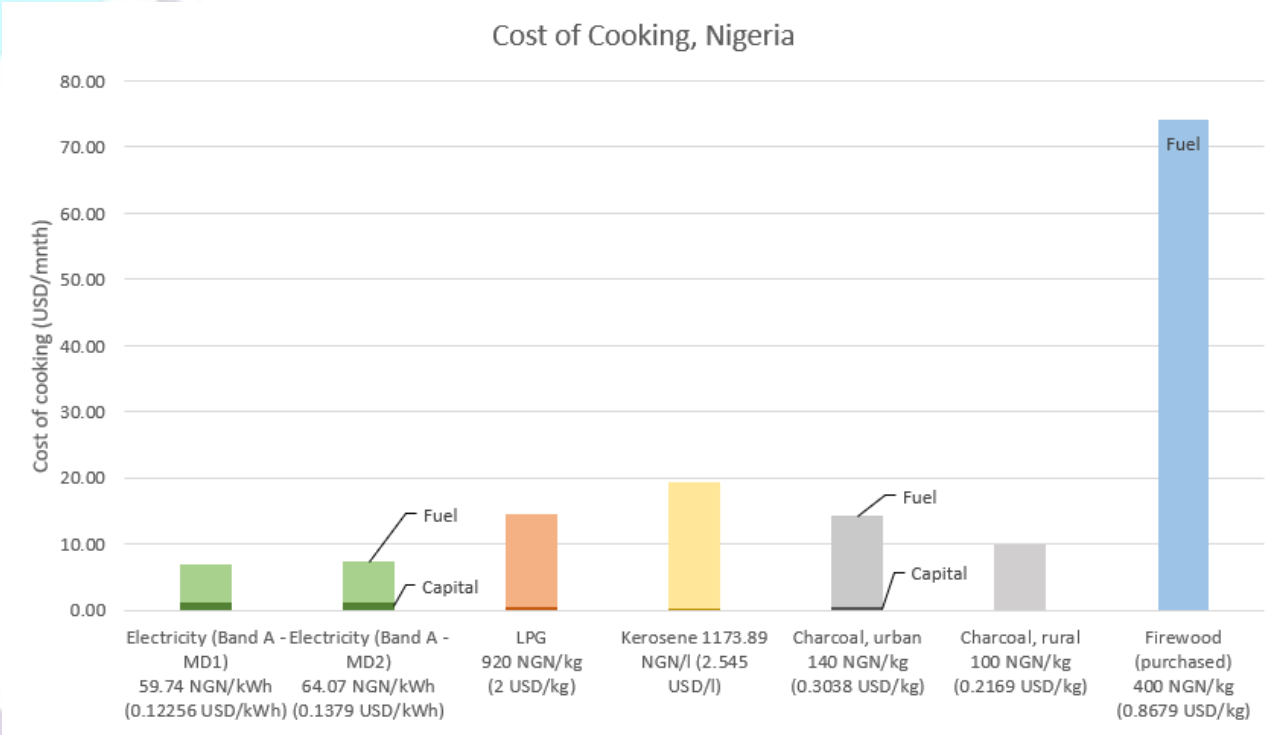
- 55.4% (2020) have access to electricity.
- 5.8% cook with charcoal; and 69.6% cook with wood, more than 75.4% cook with polluting fuels which are harmful to health and environmentally damaging.





Above: Electricity and clean cooking access. Access to electricity data from WDI and 2030 target from SEforALL, access to clean cooking data from Our World in Data and 2030 target from ICEED.
Right: Primary cooking fuel use. Data from Addressing Household Cooking Fuel Options in Nigeria

Potential for eCooking



Cost of cooking over a month, using international averages for cooking energy demand from ESMAP (2020) and local electricity/fuel prices (electricity, LPG, kerosene, charcoal, firewood), and appliances costs (EPC, Gas cooker, and wood/ charcoal/ kerosene stoves). Includes cost of appliance levelized over stove lifetime. Electric appliance capital cost consists of one EPC.

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- **40% of people are connected to electricity and not cooking with it** – urban centres can be easily targeted (83.9% have access to electricity[1]).
- **Cooking with electricity using efficient appliances such as electric pressure cookers is cheaper than alternative fuels**.
- Nigeria spends more than US$1.3 billion on polluting cooking fuels each year, much of which could be redirected towards cooking with cleaner fuels[2].
- **Prices of kerosene and LPG have risen drastically** – between 2022 and 2023, the cost of kerosene has risen by **160%**[3], and LPG by **24%** (5kg cylinder) and **38%** (12.5 cylinder)[4]. This increase is driving many households to use wood and charcoal, despite cooking with electricity being cheaper.
- Huge expansion in electricity generation coming on board – **115,000 MW by 2030**[5] will create generation surplus, and demand stimulation is a government priority.
- Modelling by SEforAll using their Integrated Energy Planning tool showed that **eCooking had much lower investment costs compared to LPG and biogas**[6].

MECS programme activity

- Little generators can generate vast amounts of power. There is action by MECS' partner Ayrton Fund (as part of Energy Catalyst Round 10) to develop innovations to substitute diesel and petrol generators with solar and battery options.
- Okra Solar and SAO Group, one of Africa's leading social impact investment firms, have signed an MOU to energize community households, Primary Healthcare Centers (PHC) and Digital Literacy Centers (DLC) in Nigeria. Okra Solar has experience with off-grid eCooking.
- Tonipash Energy Ltd applied for a MECS Supply Chain Challenge Fund in 2022 for eCooking supply chain development. Though not eligible for this specific fund the company is a good example of entrepreneurial innovations and young companies working in the energy sector and may be considered for future Challenge Funds.
- MECS partner Sustainable Energy for All (SE4All) have used their Integrated Energy Planning tool for Nigeria and found that eCooking was the least cost option for clean cooking compared to biogas and LPG.

This material has been funded by UKAid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

[1] Ref.: https://data.worldbank.org/indicator/EG.ELC.ACCS.UR.ZS?locations=NG
[2] Ref.: Scaling eCooking in Nigeria: Gap Analysis for Programme Development - Modern Energy Cooking Services (mecs.org.uk)
[3] Ref.: https://nigerianstat.gov.ng/elibrary/read/1241301
[4] Ref.: https://nigerianstat.gov.ng/elibrary/read/1241302
[5] Ref.: https://www.se4all-africa.org/seforall-in-africa/country-data/nigeria/
[6] Ref.: https://www.seforall.org/system/files/2022-01/Nigeria_IEPT-Clean_Cooking_Report.pdf