
POWER FOR ALL RESEARCH SUMMARY

Nigerian mini-grid market offers US\$8 billion annual revenue potential



\$8 billion

ANNUAL REVENUE POTENTIAL
OF MINI-GRIDS IN NIGERIA

\$25 billion

ANNUAL ECONOMIC LOSS
FROM POOR POWER
SUPPLY IN NIGERIA

20%

POTENTIAL MINI-GRID COST
REDUCTION FROM
STANDARDIZATION

Join the conversation:

powerforall.org
twitter.com/power4all2025
facebook.com/pwr4all

In Nigeria, mini-grids have emerged as a cost-effective option for electricity provision creating exciting opportunities to increase the pace of electricity access. Nigeria's large unelectrified and under-electrified population makes it an attractive place to build the sector. Rocky Mountain Institute (RMI) and the Nigerian Economic Summit Group (NESG) recently published a report based on their audits of 10 commercial mini-grids, and estimate the market potential and investment opportunities of the Nigerian mini-grid sector. Here we provide the highlights:

Nigeria has a large mini-grid market because of the low electrification rate and high demand in rural areas and bad grid electricity quality. The market can realize an annual revenue potential of US\$8 billion.

- » Only 36% of Nigeria's rural population has access to electricity. Not only is electricity access rate low, the quality of access is a day-to-day challenge. More than 80% of the Nigerian businesses have cited quality of power supply as one of their biggest challenges. On average, they experience 8 hours of power outage everyday. This results in an annual economic loss of US\$25 billion. (9)
- » Nigeria's large economy, low access rate and access quality, and growing energy demand make it an ideal market for mini-grid development. To satisfy the booming demand for better energy supply, Nigeria has the potential to electrify 14% of its population by building 10,000 mini-grids of 100kW each by 2023. (9)
- » In total, the Nigerian mini-grid market offers potential revenue of US\$8 billion annually. (4,9)

Best practices are emerging, and many of them fall within mini-grid developers' influence. These best practices include: clustering sites, engaging local host communities, stimulating demand by sales of appliances, improving developer ownership, and building a friendly regulatory environment.

- » Clustering sites in densely populated areas can reduce mini-grid operational costs by reducing maintenance trips; the clustering effect of economic activities in populated areas can also ensure higher uptake of electricity consumption. (16)
- » Engaging local host communities can improve local willingness to pay. Best practice includes frequent site visits and siting local representatives. (16)
- » Demand stimulation through appliance financing helps balance the load profile of mini-grid systems and increase capacity utilization. (16,17)
- » Most developers have used an owner-operator business model funded through a 70:30 mix of debt and equity supplemented with grant funding. Some are embracing a split assets model -- by owning only generation asset and having a third-party who owns the distribution asset to lower installation cost. (4,18)
- » Nigeria's supportive and market-oriented mini-grid regulation offers freedom and support to developers. (18)

With an ambitious electrification target that integrates mini-grids as a key solution, Nigeria is creating friendly policy environment that allows room for private sector-led mini-grid development.

- » Nigeria aims to achieve 90% electrification by 2030 with 10% renewable energy mix by 2025. With the support of key international partners (i.e. ECOWAS, SE4ALL), Nigeria is designing a least cost pathway to increase energy access (21).
- » Rural electrification projects can benefit from capital grants of up to 75%, administered by the Rural Electrification Agency (REA). (21)
- » The Mini Grid Regulation of 2017 governs the systems below 1MW. The regulation provides for a compensation mechanism, standardizes private sector participation processes, and defines a cost

POWER FOR ALL RESEARCH SUMMARY

Nigerian mini-grid market offers US\$8 billion annual revenue potential

By the Numbers:

\$8 billion

ANNUAL REVENUE POTENTIAL
OF MINI-GRIDS IN NIGERIA

\$25 billion

ANNUAL ECONOMIC LOSS
FROM POOR POWER
SUPPLY IN NIGERIA

20%

POTENTIAL MINI-GRID COST
REDUCTION FROM
STANDARDIZATION

reflective methodology for tariff setting. (21)

- » Power systems below 100kW do not need a permit. This significantly simplifies the process and reduces cost for mini-grid developers. (22)

Key recommendations for scaling the mini-grid market include building consortia of businesses and investors, improving the mini-grid business case through cost reduction and demand stimulation, and creating incentives with favorable policies.

- » A mini-grid developers' consortium would allow for better data sharing, which can facilitate accurate load assessment, better site selection, system standardization and cost saving through bulk purchase. (24,26)
- » Finance consortium can help drive the implementation of appropriate financing instruments and payment guarantee schemes. (26)
- » A consortium of hardware suppliers and services can lower costs; a strong association can tap expertise to achieve standardization, which could reduce the total cost of service by 20%. (27)
- » Improved regulatory clarity can help increase confidence in financial security. Policy makers can eliminate duties and fees on renewable energy technology in order to reduce up-front cost for developers. Engagement of both the local and state involvement in off-grid projects is key. (27)

Share the Message

- » Mini-grids offer a cost effective and reliable source of power for millions of underserved Nigerians while creating a market opportunity with potential revenue of US\$8 billion.
- » Nigeria is building a favorable policy environment for mini-grids, with simplified processes, capital subsidies, compensation schemes and cost-reflective tariff guidelines.
- » Mini-grid best practices are emerging. Building consortia of developers, hardware and service suppliers and investors can accelerate mini-grid development.

Sources:

1. Rocky Mountain Institute. "Mini-Grid Investment Report: Scaling Up the Nigerian Market". August, 2018.