
POWER FOR ALL RESEARCH SUMMARY

A mini-grid market opportunity assessment of Ethiopia

**POWER
FOR
ALL**

25%

ELECTRIFICATION RATE IN
ETHIOPIA

11.2 GW

INSTALLED CAPACITY IN
ETHIOPIA

\$639 million

CURRENT MINI-GRID MARKET
POTENTIAL

SEforAll Africa hub in conjunction with the African Development Bank recently published a Mini-Grid Market Opportunity Assessment of Ethiopia¹ as part of the Green Mini-Grid Market Development Programme (GMG MDP) document series. Here we highlight the key messages:

Ethiopia has relatively good grid extension, great capacity and enabling policy, and is on its way to meeting its energy demands with surplus.

- » The country is Sub-Saharan Africa's second most populous country, with over 99 million people, but also one of the poorest (12). Energy access in Ethiopia standing at 25% as of 2014 and at only 10% in rural areas (7,15).
- » The grid extends into most regions of Ethiopia, with the main gap being in the south and south-eastern parts of the country in the Somali and Oromia provinces. The core of the transmission grid extends radially from the central capital Addis Ababa with least coverage in border areas and Somali region (7,15).
- » There are 11.2GW of generation capacity installed as of 2015 with an additional 18.9GW planned for operation by 2020 (7,29). 86% of Ethiopia's current generation is from hydropower and Ethiopia is a major exporter of power to Djibouti and Sudan.
- » The UEAP (Universal Energy Access Program) which covers on and off-grid solutions targets an access of 90% by the end of GTP II (Growth and Transformation Program II) in 2020 (15) and has focused on village-level rather than household connections (7).
- » Standalone systems are found to be the best current option for 33% of the population, including 11.5 million and 8.9 million in Oromia and Amhara regions respectively (16).
- » There is local off-grid solar manufacturing spearheaded by the Solar Energy Development Association. However, there are a couple of barriers to the SHS market such as importation of poor quality products, unfriendly legislation and lack of capacity of the body that tests and approves imported goods.(31)

Ethiopia has major mini-grid potential.

- » The report estimates that 16.2 million Ethiopians (16.2% of population) would be best served by mini-grids, with an estimated market size of US\$ 639 million. When planned grid extensions for 2020 are included, the estimate drops to 13.0 million and an estimated market size of US\$ 513 million, still quite significant (8).
- » A number of multi-lateral donors have off-grid programs in Ethiopia. GIZ, with funding from the EU, has established five community-owned mini-hydro off-grid schemes through the Energizing Development (EnDev) program (27,30). Ethio Resource Group is establishing six wind powered micro-grids in Menz-Gera in Amhara region. These schemes, at less than 5kw, have passed the feasibility stage. (31)
- » Private and independent power producers and distributors can operate in Ethiopia (32) enabling establishment of mini-grids.

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There are critical challenges, currently being addressed, to open up the market in Ethiopia.

- » Domestic energy consumption is heavily subsidized with a national tariff of less than US\$ 3 cents per kWh. This is a significant barrier to network reinforcement, connection of IPPs and mini-grids as well as to sustainable operations of the national Ethiopian Electric Utility (7). A review of this tariff is currently underway (7, 28).
- » Substantial legislative changes are being implemented to promote private sector on- and off-grid solutions under the second Growth and Transformation Plan (GTP II). This includes the development of a new energy policy, national electrification strategy, off-grid master plan and a review of the national tariff. (26)
- » Ethiopia law allows for private and independent power producers and distributors, with grid generation under GTP II set for delivery through PPAs with IPPs using government and private financing.(36)
- » Data availability is a constraint to the energy sector development. There is need for greater availability of geospatial data, including the digitizing of government data on national grid infrastructure and the production of renewable energy atlas. (32)
- » There is insufficient clarity for the licensing process of off-grid investments. This is as identified by the National Electrification Strategy. All projects except those run by cooperatives require a license.(32)

Share the Message

Ethiopia has a very promising mini-grid market and is building an enabling policy environment. Key support needed includes:

- » Developing a simple, fast and transparent licensing process for mini-grids.
- » Supporting the further development of alternative financing solutions, investment funds, microfinance and climate finance mechanisms, to reduce the reliance on donor funding.
- » Addressing market uncertainty through better dissemination of government GIS-based electrification planning and through addressing tariff regulation.

Sources:

1. Mini-grid Market Opportunity Assessment: Ethiopia. (2017). Green Mini-grid Market Development Programme.

Page numbers are cited in parentheses. This Research Summary was produced in partnership with the Strathmore Energy Research Center.