



Tanzania energy storage for resilience

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Greening the Grid is supported by the U.S. Agency for International Development (USAID), and is managed through the USAID-NREL Partnership, which addresses critical aspects of advanced energy systems including grid modernization, distributed energy resources and storage, power sector resilience, and the data and analytical tools needed to support them.

Sustainable supply of electricity is crucial to attaining economic development in any country. Despite being blessed with enormous green and non-green energy resources, Africa has been in a quandary about adequate generation and supply of electricity, which has led to blackouts and load shedding and translated into electricity shortfalls. This publication summarizes the framework for action and a broad menu of options available to policy makers to bridge a supply demand gap in the short- to medium-term, and long term approach.

Supply-demand tension has taken its toll in various countries around the world. Governments and utilities have faced gaps between electricity supply and demand, which has led to blackouts and load shedding and translated into electricity shortfalls. The electricity crisis has, over the years, had significant adverse impact on the nation's socio-economic and technological development as well as standard of living of its citizens. This publication summarizes the framework for action and a broad menu of options available to policy makers to bridge a supply demand gap in the short- to medium-term, and long term approach.

Tanzania is endowed with diverse forms of energy resources including natural gas, hydro, coal, biomass, geothermal, solar, wind and uranium which have not been optimally utilised. The country has been moved from a developing country to a lower middle income country category very recently, and so the government of Tanzania is developing an energy-related policy for future development, which includes enough power generation to meet country demand.

Tanzania's electricity sector is dominated by the Tanzania Electric Supply Company Limited (TANESCO), which is a state owned enterprise. TANESCO is mandated to generate, transmit, and distribute electricity to all sectors of the economy in the country. The company owns and operates the national transmission system.

As of June 2020, the country's total installed capacity for entities carrying out electricity activities for sale was 1,601.80 MW, of which 1,565.72 MW was from the main grid and 36.08 MW from off-grids. The generation mix in the national grid consisted of natural gas 62.41%, hydro-power 37.39%, and biomass 0.2%. The country's maximum demand was 1,151.66 MW recorded in February 2020, which has increased by 35.08 MW (3.14%) from that recorded in 2019.

Electricity Shortfall in Tanzania

Tanzania has made good progress in improving the energy sector. The country has a total installed generation capacity of 1,601.80 MW, while the country demand is about 1,151.66MW, but the recent total production deficit of approximately 345 megawatts is equivalent to 21 percent of total production, causing power rationing in the country.

The root cause of Electricity Shortfall in Tanzania

An electricity shortfall is characterized by an occurrence of electricity shortages which can find their origin in:

- 1) Capacity constraints: the available capacity (generation and/or transmission) is insufficient to meet peak demand;
- 2) Energy constraints: the desired electricity consumption of all end users, over an extended period of time, exceeds the production levels (as a result of insufficient fuel availability, such as water resources or fossil fuels, or a surge in energy demand).

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