



Clean Energy in Tanzania: Will we get there by 2050?



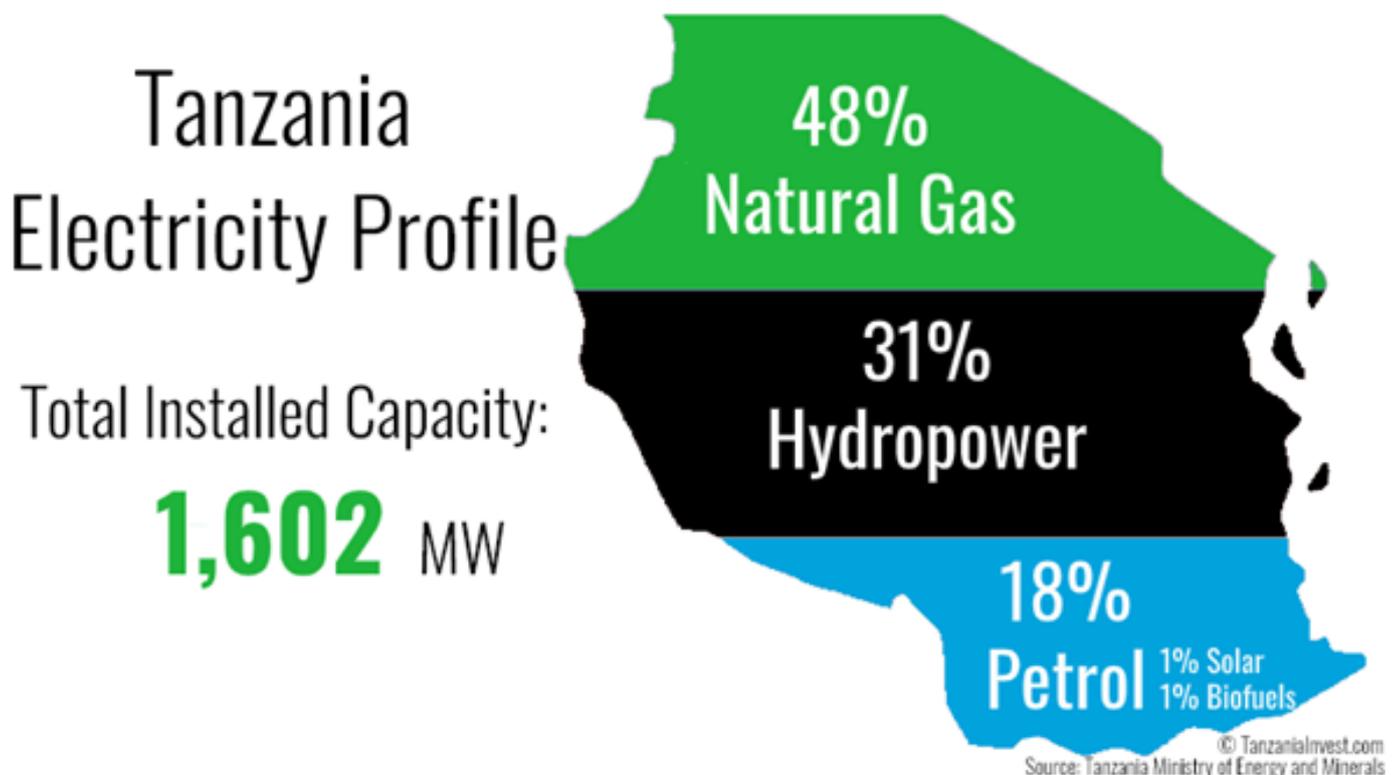
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1.0 Introduction

Sustainable Development Goal 7 (SDG 7) is one of 17 [Sustainable Development Goals](#) established by the [United Nations General Assembly](#) in 2015. It aims to “Ensure access to affordable, reliable, sustainable and modern energy for all.” Access to energy is a very important pillar for the wellbeing of the people as well as [economic development](#) and [poverty](#) alleviation.

Tanzania is one of the countries that is committed to achieving access of energy for all by 2030. The Tanzania energy sector is regulated by the Acts of 2001 and 2006 which establishes Energy and Water Utilities Authority (EWURA) as the regulatory authority; the National Energy Policy of 2003 that aims at promoting sustainable energy in Tanzania; the Rural Energy Act 2005 which established the Rural Energy Agency (REA); the Rural Energy Board (REB) and the Rural Energy Fund (REF); the Electricity Act 2008; the Petroleum Act of 2008; Gas Policy of 2014 and the Public Private Partnership (PPPs) Policy of 2009 and the PPP Act N.18 of 2010 that establishes the framework for PPPs including the coordination unit.

In terms of total primary energy consumption, biomass represents 90% of the energy consumed in Tanzania. Electricity represents 1.5% and petroleum products represent 8% of the energy consumption in the country. Solar, coal, wind and other sources represent around 0.5% of the total energy consumed in the country.



According to data from the United Nations (UN, 2020), the share of Tanzanians households with electricity connectivity increased from 24% in 2014 to 38% in 2019. Over the same period the share of connected households in rural areas nearly doubled from 10 to 19 percentage points, in large part due to implementation of the Comprehensive Rural Electricity Plan funded by the Government of Tanzania (GoT) and their development partners. Even so, Tanzania is well behind schedule to meet its Sustainable Energy for All (SE4All) goal of 75% connectivity to electricity by 2025. An electrification rate of 38% means that there are still 37 million Tanzanians left to rely on costly and unhealthy alternatives such as kerosene for lighting.

In terms of emissions as a country, we have reduced our per capita emissions from fuel combustion in the power sector from 0.047 ton to 0.043 ton per capita between 2014 and 2018. Therefore, a clean development path for the power sector in Tanzania is less about cutting existing emissions, and more about meeting expected demand growth without locking the country into a high-emissions pathway.

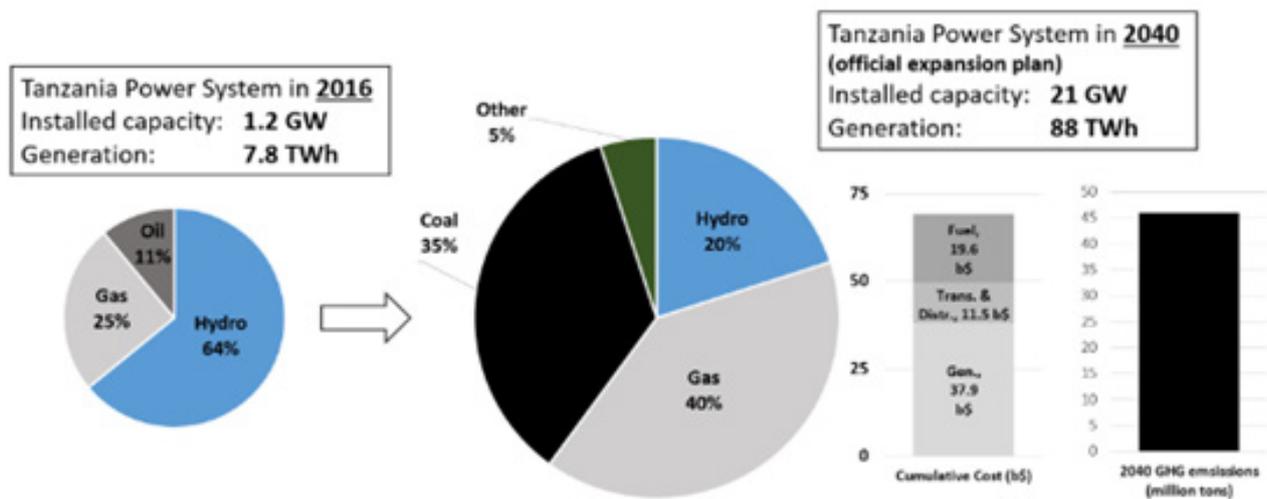
2.0 Road to Clean Energy by 2050

Tanzania is capable to achieve clean energy because as a country we are endowed with diverse renewable energy resources, ranging from biomass and mini-hydro to geothermal, solar and wind. The challenge comes in implementing a cost-effective way to achieve that. In April 2022, the Norwegian Embassy in Tanzania released a report on clean energy transition in Tanzania. The aim of the report is to highlight the viable models and strategic actions Tanzania can take to achieve universal connectivity and clean energy by 2050. According to the report, over the next decades Tanzania faces two fundamental energy challenges: one is achieving universal access to affordable, reliable, sustainable, and modern energy services by 2030, as set out in the United Nation's Sustainable Development Goal 7; and second is increasing the supply of electricity to fuel economic growth and improve livelihoods while avoiding a lock-in to polluting fossil fuels.

Current efforts by the Government of Tanzania includes producing energy from renewable sources like natural gas, wind and solar power. There are also investment in hydropower projects including the Julius Nyerere Hydropower Project (JNHPP) which is expected to produce 2,100MW upon its completion as well as the envisioned Ruhudji and Rumakali hydropower projects anticipated to produce 358MW and 222MW, respectively. Also, the Tanzanian Government supports solar development within the country by removing VAT and import taxes on the main solar components (panels, batteries, inverters, and regulators). Solar resources in Tanzania are especially present in the central region, and they are being exploited for both off-grid and grid-connected solutions. Solar Home System (SHS), well developed, most regions covered equivalent to 16 MW; Solar mini-grid development in Lake Victoria (2MW) & others areas.

The report by Royal Norwegian Embassy in Tanzania recommends 5 strategic actions to ensure a successful clean energy transition by 2050, which include;

Implement a path to cost-reflective tariffs, and strengthen TANESCO operations. There is a need to review current tariffs to allow for increased spending on maintenance and economically viable



Tanzanian power system in 2040 according to the official expansion plan

investments, while also boosting investor confidence in the sector. Meanwhile, in order to improve operational efficiency and quality of supply, TANESCO should be provided with the technical assistance required to benefit from regional best practice for utility operations, including the operationalisation of new digital tools.

Develop formalized and institutionalized process for generation expansion planning within the Ministry of Energy. Given the ambition to increase private sector participation it is deemed appropriate that the responsibility for planning and procurement of new generation capacity is embedded formally within the Ministry of Energy.

Run international auctions to increase investments in low-cost variable renewables. Running large-scale international auctions for procurement of wind power and solar PV would be the best way to bring much needed private investment to boost the generation capacity in the Tanzanian power system.

Leverage off- and mini-grid solutions to realize universal connectivity by 2030. Ensuring universal connectivity in Tanzania by 2030 is still a monumental challenge, and one that cannot realistically be solved leveraging only the resources of the government and its development partners. It is therefore recommended that the full force of the private sector is reenlisted in deploying modern mini-grids to areas that realistically will not be served by grid extension before 2030.

Take holistic approach to grid extension and strengthening, by moving responsibility for planning and execution of rural grid extension to TANESCO. It is recommended that the mandate of Rural Energy Agency (REA) remain as fund manager only, charged with utilising the Rural Energy Fund to finance/ subsidise initiatives in the rural energy space, including electrification efforts by TANESCO and the private sector.

2.1 CSOs efforts towards clean energy

The role of CSOs in the transition to clean in Tanzania has remained steady and remarkable. The Tanzania Renewable Energy Association in collaboration with its member organization has contributed on this transition across different levels and scale. TAREA has contributed on advocating for conducive environment in terms of policies, regulations, and finance schemes that facilitates scaling up access to clean and renewable energy and energy efficiency technologies in the country. Some of the successful works includes VAT exemptions on solar and wind technologies, Retention of VAT exemptions on solar technologies, development of a checklist for Environmental Impact Social Assessment for the solar photovoltaic project below or equal to 1MW in the year as implemented by the National Environment Management Council (NEMC), in 2018; development of renewable energy curriculum by the Tanzania Vocational Education and Training Authority (VETA) as well as contributing on development of Net Metering Scheme in the year 2018 and a review of the electricity installation law to accommodate informally trained artisans in the year 2019 in collaboration with Energy and Water Regulatory Authority (EWURA) in 2019 and 2020 respectively.

Tanzania Traditional Energy Organization (TaTEDO) has also contributed in this endeavour using its knowledge centre, policy advocacy and project implementation. TaTEDO has managed to mainstream gender into the Upscaling Access to Integrated Modern Energy Services for Poverty Reduction. This project aimed at addressing the general lack of experience on to how gender could be incorporated into energy projects by providing technical and financial assistance to mainstream gender approaches into energy access projects. Also, TaTEDO has managed to contribute on scaling up access to sustainable energy technologies and services, promoting and demonstration productive use of energy through social entrepreneurship (revenue generating activities) by creating business model and principles, market characterization and values (competition, diversification, entrepreneurship, innovation and a focus on the bottom line).

FORUMCC has also conducted different activities spearheading the transition to clean energy. Among the key milestones FORUMCC achieved was on the studies commissioned to gauge and interrogate financial investments in the efforts to accelerate prosperity of clean energy by financing extraction of renewable energy potentials in Tanzania. This was done through studies which were conducted to track climate finance on the Energy sector in the 2016/17-2018/19 financial years. The focus of this study was to assess the level of financing, identify existing gaps and budget changes for Renewable Energy. Specifically, the study targeted to provide status on climate finance in energy sector for 2016/2017 – 2018/2019 in reference to the findings from a study of the same previously conducted in 2013/14 – 2015/16. The study also envisioned to compare levels of investment between renewable and non-renewable energies; and develop tools and evidences which will be used for accountability advocacy for improved renewable energy investment. In the transition to clean and sustainable energy. In a broader perspective, FORUM has been bringing in the aspects of climate change and promotion of transparency and stakeholders' engagement in planning and resources allocation for clean energy transition. FORUMCC also brings vast experience on advocacy work which is one of its core mandates in this regard, and it has been done it at from local, national, regional and at global levels.

FORUMCC also have been engaging women through capacity building on socio-economic activities as linked to transition to clean energy and the responses to the impacts of Climate change when implementing Accountable Climate Actions and Finance Transparency Initiative (ACATI). In this project, FORUMCC trained a total of 12 women groups, of 10-15 members each on manufacturing charcoal from waste as an alternative to tradition charcoal making. The training enhanced women capacities in implementing Renewable energy-linked activities and other small businesses with alternatives options to survive.

2.2 Government and Private sector collaboration

In order to achieve clean energy by 2050, approximately USD 100 billion in investments is required to meet Tanzania's growing energy demand. This is far greater than the funds available from public sources, such as the rural electrification levy, direct allocations over the national budget, and direct support from development partners. This gap can only be bridged by private investments and lending, as well as by private-public partnerships.

The Government of Tanzania should put policies that attract private investments in the energy sector. There should be a balanced, transparent and predictable framework for private sector participation by attracting private investment in generation and mini-grids. This will provide the long-term capital investment needed in the energy sector.

3.0 Conclusion

Achieving universal connectivity and clean energy in Tanzania by 2050 is possible. However, it needs collective efforts from the government, development partners, private sector and civil society organizations.

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