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TANZANIA

OFF-GRID SOLAR ENERGY MARKET TANZANIA

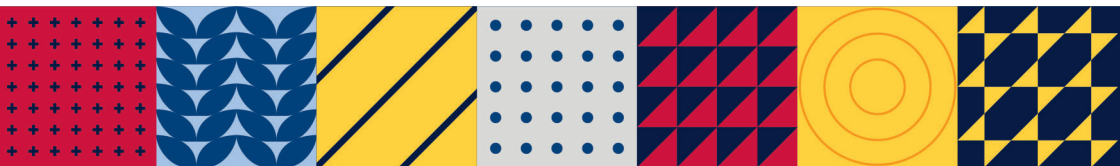
Summary Version of the 2019 Power Africa Off-grid Solar Market Assessment Report

Full report available online at: [usaid.gov/powerafrica/beyondthegrid](https://www.usaid.gov/powerafrica/beyondthegrid)



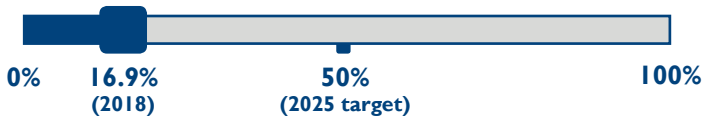
INVESTMENT OPPORTUNITIES

- Tanzania is one of the largest and most populous East African countries, second only to Kenya. Its GDP topped \$52 billion in 2017 and grew at 7% in the last decade. **The country has abundant wind and solar resources, and the Tanzanian government has committed to implement reforms in order to meet new demand with low-cost solutions.**
- Around two-thirds of Tanzanians live in rural communities, making mini-grids an important solution for meeting electrification targets. **Tanzania's regulatory environment encourages low-cost investment in mini-grids through a technology-agnostic feed-in-tariff, but access to finance and quality issues with imported products present barriers.**
- Agriculture accounts for nearly a quarter of Tanzania's GDP and more than half the population relies on farming, livestock, or fishing for income. **Productive-use off-grid solar products for drying, pumping, irrigation, cold storage, and solar fishing lanterns can improve agricultural productivity and add value at all levels of supply chains.**
- Fifty-five percent of Tanzanians have access to mobile money platforms. Some traditional banks have partnerships with off-grid companies to provide financing and MFIs are showing increasing interest in connecting Tanzanians with off-grid solar products. **Still, access to finance is a challenge, especially for low-income consumers, making innovation in the financial sector an important step to accelerate off-grid adoption.**



ON-GRID AND OFF-GRID ELECTRIFICATION

Actual access rate vs. electrification target



Main provider of electricity. The state-owned utility TANESCO is responsible for the full electricity supply chain in mainland Tanzania and sells electricity to the Zanzibar Electricity Corporation. Private companies, called independent power producers (IPPs), run power plants larger than ten megawatts under purchase power agreements. As of June 2017, Tanzania's total installed power capacity was 1,457 megawatts.



Plan to increase electricity access. More than 80% of densely populated areas around Dar es Salam, Arusha, and Kilimanjaro have grid access, but in rural regions, access rates are much lower. TANESCO has added access to over 800,000 customers since 2012 for a base of 1.2 million but is still working to reach 15 million people who live near the grid but remain unconnected. The Rural Energy Authority (REA) plans to increase rural household connectivity to 50% by 2025 and 75% by 2033.



Constraints to rural electrical grid extension. Approximately 17% of rural Tanzanians have access to electricity. Currently operating off-grid companies struggle with technical capacity in operating mini-grids. Grid access remains unaffordable in the eyes of many low-income Tanzanians, making affordable off-grid products a potential alternative, but access to finance is a significant barrier for many. Solar is also most popular in rural areas. In the rural region of Lindi, for example, 75% of electrified households in the rural region use solar energy.

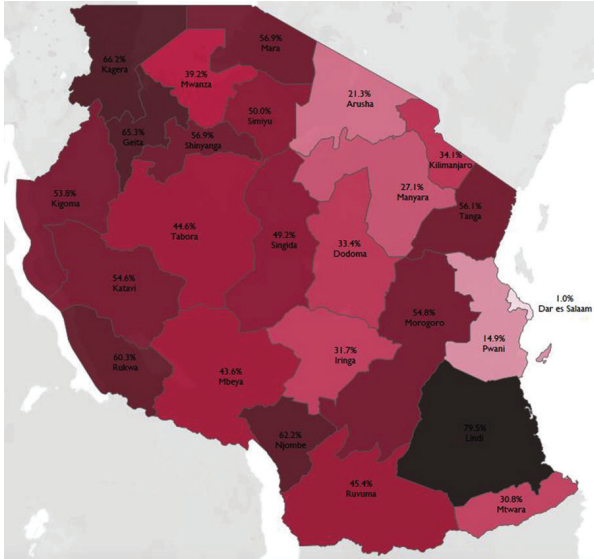


Policy and regulation. Tanzania's Ministry of Energy oversees the energy sector, while the Energy and Water Utilities Regulatory Authority (EWURA) is the technical and economic regulator of electricity and water. TANESCO is Tanzania's state-owned utility in charge of generation, transmission, and distribution of electricity. The REA promotes modern energy access in rural areas.



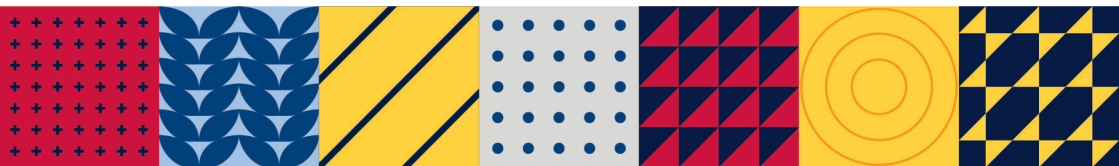
Associations. The Tanzania Renewable Energy Association (TAREA) is a nonprofit grant-making organization with more than 700 local, international, corporate, professional, and student members. TAREA promotes the accessibility and use of renewable energy technologies in Tanzania.

Map of Tanzania



Source: Rural Energy Agency

KEY STATISTICS	
GDP	\$52 billion
GDP growth potential	7% over 10 years
Population size	57.3 million
Population density	63.4 people per km2
Population growth rate	2.8%
Household size	4.9
Rate of urbanization	5% (2015 – 2020)
Urban Rural population	Urban: 33% Rural: 67%
Languages	Swahili and English



SHS AND PICO-SOLAR

There are eight active pico-solar companies in Tanzania, serving all market segments with solar lanterns, SHSs, and charging stations. Most are located outside larger cities.

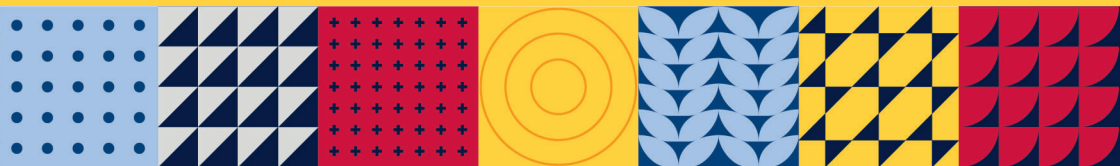
Consumer Finance. 56% of Tanzanians have access to financing products and services, and 55% have access to mobile money platforms, which companies can successfully pair with PAYGO offerings for solar products. Tanzania also has a rapidly developing microfinance sector, and there is growing interest and opportunity for MFIs to partner with off-grid solar companies to distribute solar products. The Tanzania Association of Microfinance Institutions (TAMFI) and the Savings and Credit Cooperative Union League of Tanzania, Ltd. (SCCULT) are two active organizations supporting microfinance in the country. The two organizations plan to provide solar-sector training to their members.

Commercial Finance. Some local financing institutions that have renewable energy credit lines, including the Tanzania Investment Bank (financing partner to REA) and Bank of Africa (AFD renewable energy facility). Other banks have a direct relationship with off-grid companies, such as the Mobisol partnership with CRDB Bank.

Productive Use. More than half of Tanzanians rely on farming, livestock, or fishing for income and subsistence, making agriculture the most promising target sector for productive use solar. Off-grid solar technologies can support improved agricultural productivity through solar-powered irrigation, milling and grinding, cold storage, and fishing lights.

MINI-GRID

Tanzania has 109 mini-grids that serve more than 180,000 customers, providing 157.7 megawatts of installed capacity from hydropower, biomass, hybrid, fossil fuel, and solar PV systems. Tanzania has a progressive SPP regulatory framework. In 2008, Tanzania adopted a new regulatory framework to encourage low-cost investment mini-grids. The framework created a feed-in tariff which is technology-neutral. In 2015, a policy revision encouraged more solar and wind development. In June 2017, the EWURA approved a third-generation mini-grid framework aimed at enhancing the enabling regulatory environment.

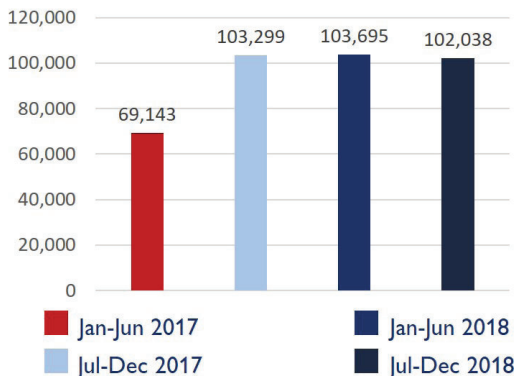


MARKET INTELLIGENCE USING GOGLA DATA

Sales and investment data from the Global Off-Grid Lighting Association (GOGLA) provide details about the off-grid solar sector in Tanzania.

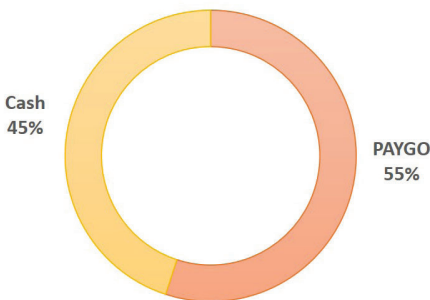
Sales of pico/SHS units

Jan 2017 - Dec 2018



Sales by business model

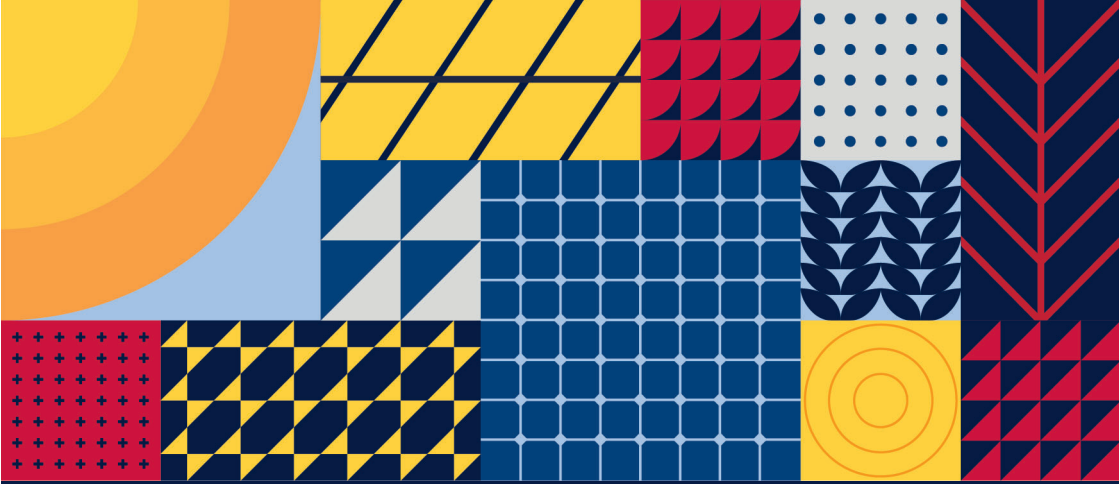
Jul-Dec 2018



From mid-2014 until late 2017, portable solar lanterns with single lights or single lights with mobile charging (0–3 watt-peak [Wp]) sold the most, followed by SHSs (11–100 Wp). Most portable solar lantern products sold on a cash basis, while PAYGO sales dominated the SHS segment. As PAYGO and end-customer financing expands, SHS unit sales, although still smaller than lantern and pico-solar product sales, will likely continue to grow steadily.

2018 was a positive year for fundraising in the East African solar off-grid sector, with growth in debt investments mainly driven by development finance institutions. Debt was also raised through banks and crowdfunding platforms, which saw major increases. Off-grid transactions also grew dramatically from 36 in 2017 to 107 in 2018.





Power Africa aims to achieve 30,000 megawatts of new generated power, create 60 million new electrical connections, and reach 300 million Africans by 2030.



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