



USAID
FROM THE AMERICAN PEOPLE



NIGER

OFF-GRID SOLAR ENERGY MARKET NIGER

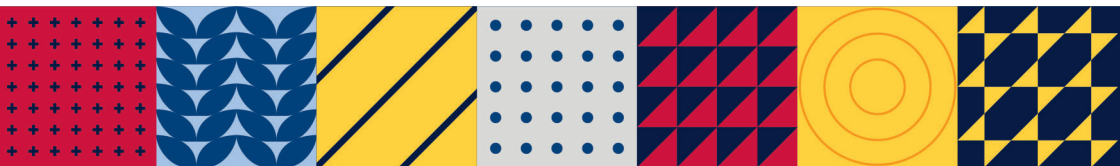
Summary Version of the 2019 Power Africa Off-grid Solar Market Assessment Report

Full report available online at: usaid.gov/powerafrica/beyondthegrid



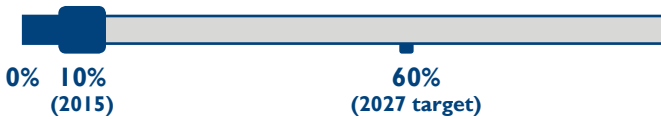
INVESTMENT OPPORTUNITIES

- Niger's gross domestic product (GDP) is anticipated to grow by nearly 5% annually over the next five years. **Continued economic and population growth will put additional demands on an already strained national grid and create new opportunities for expanding off-grid solar.**
- Over half of all households in Niger are too rural to be connected through grid extension, creating an opportunity for mini-grid development. **To catalyze private-sector investment, the Government of Niger (GON) recently finalized a new regulatory framework—the PERAN Decree—to formalize private-sector mini-grid business models and financing mechanisms.**
- Agriculture accounts for approximately 40% of GDP in Niger and is one of the country's largest export sectors, but Niger is a net food importer due to crippling droughts. **Off-grid productive-use equipment, such as solar water pumps, could help increase agricultural productivity.**
- Mobile money is used by less than 9% of adults in Niger and access to consumer financing is low. **Expansion of banking via mobile money and increasing access to loans through pay-as-you-go (PAYGO) schemes can facilitate more household participation in the off-grid solar market.**
- Over 1.7 million Nigeriens live in communities that are likely too remote or not dense enough for grid or mini-grid electrification, highlighting the important role of solar home systems in Niger. **Institutional and regulatory reforms underway have the potential to de-risk and accelerate investment in the SHS and mini-grid markets and open up new opportunities, particularly in northern Niger.**



ON-GRID AND OFF-GRID ELECTRIFICATION

Actual access rate vs. electrification target



Main provider of electricity. The Nigerien Electricity Company (Société Nigérienne d'Electricité [NIGELEC]) owns all transmission and distribution (T&D) infrastructure in Niger and approximately half of the in-country generation assets. In addition, four independent power producers (IPP) provide additional domestic generation, though most electricity is imported from Nigeria (67 percent in 2017).



Plan to increase electricity access. Developed with support from World Bank/IDA, Niger's National Electrification Strategy (NES) is made up of three pillars: grid extension in southern regions of the country; mini-grid development for communities outside of the grid's reach; and solar home systems for remote areas lacking the load density to support a mini-grid. Two World Bank-funded projects are currently targeting 30-percent rural electrification by 2030 and adding 330,000 new grid connections.



Constraints to rural electrical grid extension. NIGELEC struggles to fund maintenance of the existing T&D infrastructure, which causes delays in building out new connections. Additionally, 60 percent of the off-grid population is out of reach for traditional grid extension. The Nigerien Rural Electrification Promotion Agency (Agence Nigérienne de Promotion de l'Électrification en milieu Rural [ANPER]) is responsible for rural electrification strategy.

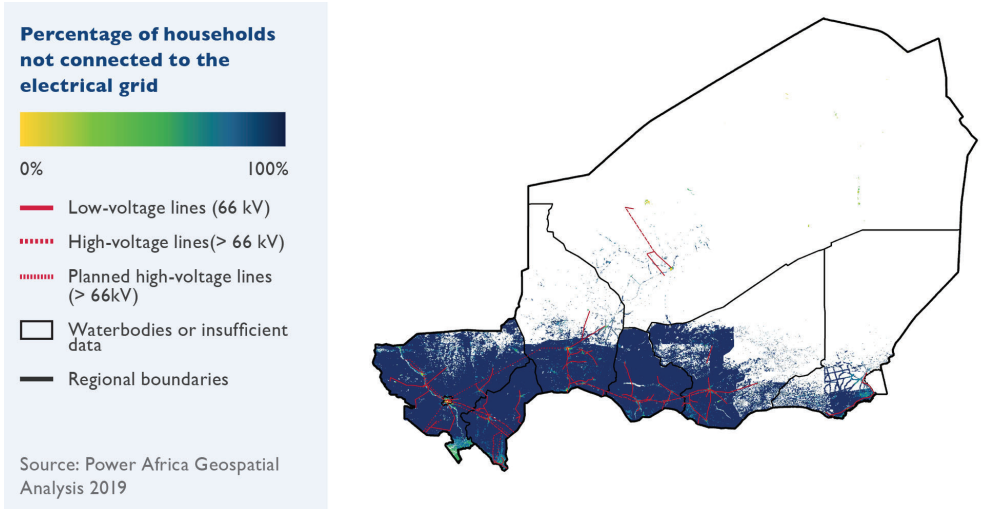


Policy and regulation. The Regulatory Authority of the Energy Sector (Autorité de Régulation du Secteur de l'Énergie [ARSE]) regulates the electricity sector, and the Ministry of Energy coordinates and implements energy policy in Niger. Under the Electricity Act of 2016, certified solar products are exempt from import duties and VAT to encourage the adoption of solar technology.

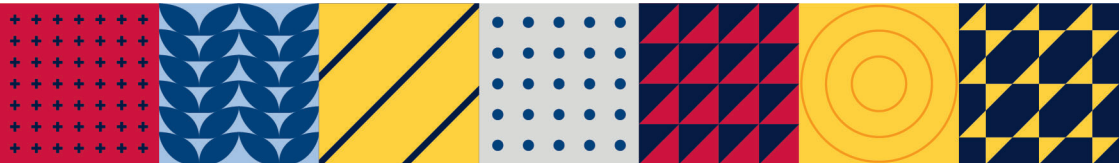


Associations. The National Association of Solar Professionals (Association des Professionnels d'Énergie Solaire [APE-Solaire]) was founded in May 2013. Most solar companies in Niger are either members of or in the process of joining APE-Solaire. APE-Solaire's primary activity is to participate as a stakeholder in GON's ongoing development of policy and regulation of solar energy.

Geospatial analysis of households without electrical grid access, Niger, 2019



KEY STATISTICS	
GDP	\$8.12 billion
GDP growth potential	4.8%
Population size	21.5 million
Population density	17 people per km²
Population growth rate	3.8%
Household size	6.9
Rate of urbanization	4.3% (2015—2020)
Urban Rural population	Urban: 16.4% Rural: 83.6%
Languages	French and 8 dialects



SHS AND PICO-SOLAR

Early efforts to develop a private pico-solar market have met mixed results. Most active pico-solar deployments in Niger still follow a donor- and government-driven approach, typically involving subsidies to keep equipment prices low. Although the formation of APE-Solaire has brought together the off-grid industry in Niger, the business cases and economic environment are challenging for private SHS companies.

ANPER is implementing SHS projects with financial support from several development partners. These projects are targeting 352 villages for SHS distribution. ANPER is keen to engage local authorities to maintain the systems, which will include training and partnership with the system suppliers. Another major project is the Regional Off-Grid Electrification Project (ROGEP), which receives funding from the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE). ROGEP, which is a multi-national program that aims to foster a regional market for SHSs, has selected Niger to pilot innovative models of electrifying health posts. The first pilot includes 25 health posts.

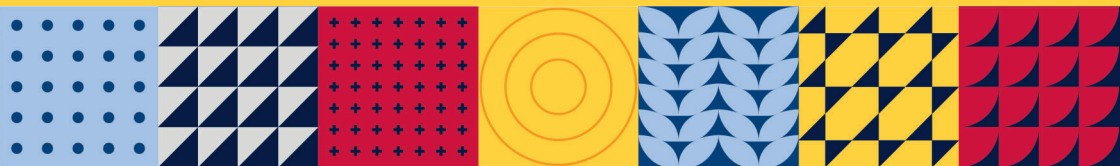
Productive Use. Approximately 80 percent of Nigerien households grow crops. The majority of smallholder farmers rely on rainfed irrigation, despite vast and untapped groundwater resources throughout Niger. Given the potential crop yield increases and land-use implications of groundwater access, solar-powered water pumps could be a boon to Niger's agricultural sector. Crops that require processing (e.g., millet, peanut, sesame) offer another opportunity for increased economic productivity from off-grid solar. However, because the market is still nascent in Niger, business models and financing have not matured to offer a diversity of options. Currently, all agriculture and productive-use companies except one offer only cash sales.

The primary government program that supports the adoption of agriculture and productive-use solar technology is the Investment Fund for Food Security in Niger (Fonds d'Investissement pour la Sécurité Alimentaire au Niger [FISAN]), which supports farmers adopting technology for agricultural economic development. The only regulation directly relevant to the productive-use solar sector in Niger is the exemption of solar pumps from import duties and VAT.

MINI-GRID

Niger is particularly well suited to mini-grids due to the dispersed nature of its population. NIGELEC was the only mini-grid developer in Niger. However, private-sector investment is growing. For instance, the Phanes Group has one mini-grid operation in Boki, Niger and more in the planning stages. Benalya and YANDALUX are also taking steps to enter the market, and international donors are funding mini-grid development and feasibility studies covering more than 500 potential mini-grid sites.

The current policy and regulatory environment in Niger is supportive of private companies entering the mini-grid market, but areas of uncertainty that must be addressed to accelerate growth in the market include private ownership, tariff structures, import restrictions, tax regimes, compensation for grid takeover, and quality control. Other barriers include labor-force shortages; no tax subsidies or exemptions for mini-grid development; low purchasing power of consumers; and low population densities. The most important policy development regarding mini-grids in Niger is the PERAN decree to establish clearer regulatory frameworks and business models for mini-grid development and operations.

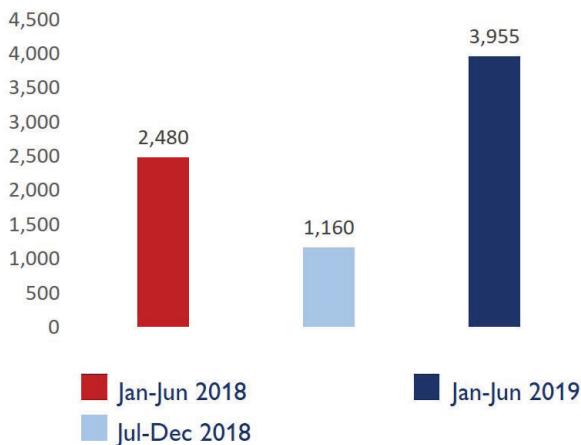


MARKET INTELLIGENCE USING GOGLA DATA

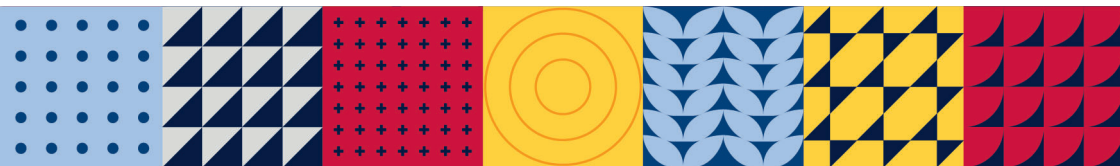
Sales and investment data from the Global Off-Grid Lighting Association (GOGLA) provide details about the off-grid solar sector in Niger, though data are limited. GOGLA reports fewer than 7,500 quality-certified products sold between January 2018 and June 2019. GOGLA does not report revenues, but most of these sales are pico-solar lanterns purchased with cash. Total system sales from PAYGO totaled only a few hundred U.S. dollars.

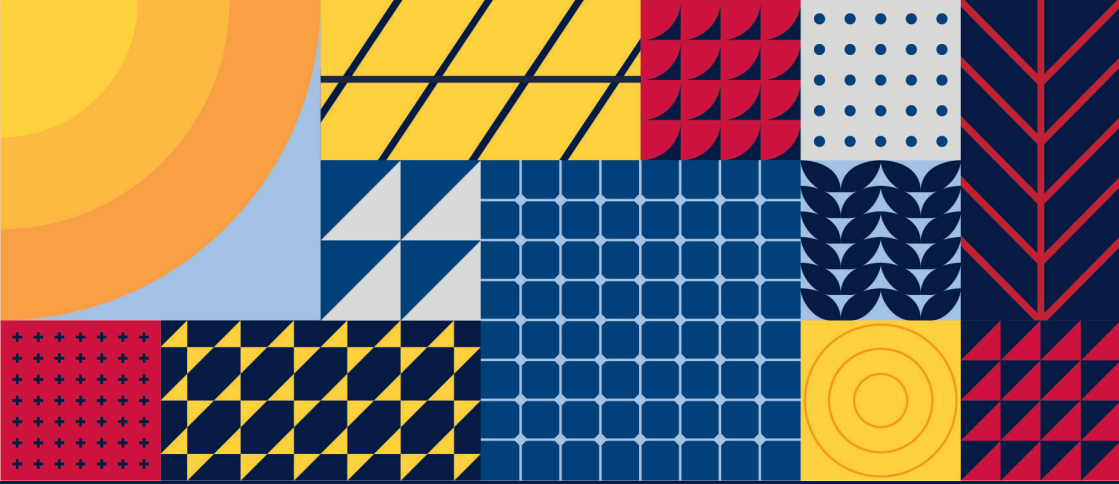
Sales of pico/SHS units

Jan 2018 - Jun 2019



Despite low sales volumes—which are perhaps 20 percent to 25 percent of sales registered in Burkina Faso or Mali—there are good reasons to expect an acceleration in 2019 and particularly 2020. Since mid-2018, the NESAP has helped to drive progress in the government to address key barriers to pico-solar market development. First, the government is developing and implementing quality standards for imported solar products. Second, NESAP has established credit lines with banks, including the Nigerien Bank Corporation (Société Nigérienne de Banque [SONIBANK]), the Sahara Bank Group for Investment and Trade (Banque Sahélo Saharienne pour l'Investissement et le Commerce [BSIC]) and one microfinance institution, Capital Finance, for pico-solar and SHS companies. Third, as of September 13, 2018, pico-solar systems are exempt from both general import duties and value-added tax (VAT). In parallel, both Orange Niger and Airtel Niger have worked out technical challenges related to accepting PAYGO payments for solar products. As of June 2019, Oolu Solar is integrated with Orange Niger and the Benalya Group/Benafsol with Airtel Niger.





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.



usaid.gov/powerafrica



PowerAfrica



PowerAfricaUS



Power-Africa

The information presented in this brief is not official U.S. Government information and does not represent views or positions of United States Agency for International Development (USAID) or the U.S. Government. The statements included here should not be construed as investment advice on behalf of either particular securities or overall investment strategies.