



# Power Africa

## Off-Grid Energy Grants Portfolio

**Overview:** The Off-Grid Energy Challenge began in Nigeria and Kenya in 2013. It has now expanded to 9 countries (Ethiopia, Ghana, Kenya, Liberia, Nigeria, Tanzania, Rwanda, Uganda and Zambia). To date, USADF has funded 50 grants of up to \$100,000 each, totaling \$5 million dollars.

**Program Strategy:** The Off-Grid Energy Challenge is an open competition for energy entrepreneurs bringing off-grid energy solutions to unserved and underserved communities through self-sustainable and scalable business models.

**U.S. African Development Foundation**

Tom Coogan  
 Power Africa Director  
 Tel.: 202-233-8822  
 Email: TCoogan@usadf.gov

Grantee	Country	Year	Summary
Ethio Resource Group	Ethiopia	2014	<b>Sector:</b> Wind <b>Summary:</b> The project will be installing six 1-kilowatt wind turbine systems to power six micro-grids, which will be run and managed by Ethio Resource Group as a distributed energy services company. The installations will consist of six small wind electric generators and batteries for energy storage which will deliver power to 300 households, 20 enterprises and 1 health clinic.
Organization for Rehabilitation and Development in Amhara (ORDA)	Ethiopia	2014	<b>Sector:</b> Biogas <b>Summary:</b> The project will construct 470 biogas plants for cooking and lighting, provide training for proper operation and maintenance, and will also build the capacity of user cooperatives with the purpose of ensuring sustainable community project management. The project creates renewable energy access for 470 off-grid rural households living in Alefa district of Amhara region.
Sun Transfer Tech	Ethiopia	2014	<b>Sector:</b> Solar <b>Summary:</b> This project will sell solar home systems ranging in size between 20, 50 and 100 watt systems that will power a variety of appliances including light bulbs, radios, mobile chargers and solar TVs. These systems will be sold to over 325 rural households through an energy lending scheme, and empowering small solar entrepreneurs to sell, install, and provide after-sales service for the systems.
GM Clean Energy	Ethiopia	2015	<b>Sector:</b> Biogas <b>Summary:</b> GM Clean Energy will produce biogas stoves for use by off-grid, marginalized communities to cook injera, a major food staple consumed in Ethiopia. The grant from Power Africa/USADF will provide seed funding for the enterprise to scale up its operations, producing an initial batch of efficient stoves and establishing a rural distribution branch.
NewEnergy	Ghana	2014	<b>Sector:</b> Solar <b>Summary:</b> New Energy is utilizing solar-powered water pumping and purification technology to supply clean water to over 980 inhabitants of Nabogo. The project will be run as a social enterprise, in which a community-owned cooperative takes over the operation and management after sufficient training has been provided.



Grantee	Country	Year	Summary
Solar Light	Ghana	2014	<b>Sector:</b> Solar <b>Summary:</b> Solar Light Company is prototyping and piloting its “Sunana” solar powered mobile charging system in Accra, Sunyani, and Dawhenya. The Sunana unit consists of a solar panel divided into eight segments which can be “worn” on top of a trader’s umbrella, and will be targeting Ghana’s informal street vendors who often work for less than \$3 a day for long hours in the sun.
The Kumasi Institute of Tropical Agriculture (KITA)	Ghana	2015	<b>Sector:</b> Biogas <b>Summary:</b> KITA is procuring and installing a 20 kilowatt gasifier plant to convert the town of Papisasi’s biomass and agricultural residue into electricity. In addition, KITA will procure processing equipment including a palm kernel cracker, expeller, and oil squeezer to run on the produced electricity and allow the community to process its agricultural products less expensively and more efficiently.
KW Ventures	Ghana	2015	<b>Sector:</b> Solar <b>Summary:</b> K. W. Ventures will install two 1.7 kilowatt solar trailers with 100 portable battery packs in Dunkwah Obenkrom, in Southern Ghana. The project will bring electricity to 100 households in the area, a local school, and health center to meet their electricity needs.
Wilkins Engineering Limited	Ghana	2015	<b>Sector:</b> Solar <b>Summary:</b> Wilkins Engineering will design, install, and manage the operations of 100-watt and 200-watt home solar systems, solar street lamps, and a cold storage facility in the remote island community of Atigagome. The grant from Power Africa/USADF will provide startup capital to develop the business model in small island communities in Ghana, with the potential to replicate it in other island communities in the future.
Boma Safi Limited	Kenya	2014	<b>Sector:</b> Solar <b>Summary:</b> Boma Safi will address their distribution challenge of limited customer buying power by utilizing a “hub and spoke” model, in which rural energy hubs aggregate deliveries between the point of sale (typically rural savings and credit cooperatives), and central hubs. This method will be used to distribute solar lanterns to customers in five regions: Coastal, Lake Victoria, North Rift, South Rift, and Mount Kenya.
Kitui Industries Limited	Kenya	2014	<b>Sector:</b> Bio-diesel <b>Summary:</b> Kitui Industries Limited has invested in a bio-diesel plant that produces bio-diesel, which it uses to power its factory and vehicles. Kitui will produce and sell bio-diesel from cottonseed, and also sell multi-purpose diesel engines to farmers groups via a local MFI, which can be used to power small-scale agricultural processing.
SCODE Limited	Kenya	2014	<b>Sector:</b> Solar/Biogas <b>Summary:</b> SCODE manufactures its own high-efficiency forced-draft micro-gasifier stoves, and combines them with solar home systems assembled at their Nakuru workshop to give customers access to lighting, charging, and small appliances. SCODE is using a pay-as-you-go system for pre-financing 75-85% of the total costs of efficient cooking and lighting products to its clients, with repayment periods of 12 months on average.

Grantee	Country	Year	Summary
<b>Sollatek Kenya Limited</b>	Kenya	2014	<b>Sector:</b> Solar <b>Summary:</b> Sollatek addresses the constraints local coastal fishermen are facing by working with already-existing Beach Management Units (BMU) to create and run solar centers to power freezers, phone charging stations, and portable solar lantern rentals. USADF funded Sollatek to identify and train 15 BMUs on business management, bookkeeping, and solar product sales. Sollatek will install 15 solar charging centers in these rural communities and transition the ownership and management of the systems to the BMUs.
<b>Rafode Limited</b>	Kenya	2015	<b>Sector:</b> Solar <b>Summary:</b> Rafode is a micro-finance organization that will expand its revolving loan fund to reach at least 1,000 fisherman and vendors who currently do not have access to the grid. Many fisherman use expensive kerosene lamps to fish at night, cutting their earnings in half each day and this technology will enable the fishermen to use efficient, effective, safe and affordable solar powered lights for fishing.
<b>Ambalian Limited</b>	Kenya	2015	<b>Sector:</b> Wind <b>Summary:</b> In the rural pastoralist region of Bubisa, northern Kenya, Ambalian will replace diesel-powered generators currently being used to power water pumping with a locally assembled wind turbine system. Ambalian will then locally fabricate three local content components (blades, lattice structures and controllers) to be used for expansion of locally produced wind turbines in the region.
<b>Alternative Energy Inc.</b>	Liberia	2014	<b>Sector:</b> Solar <b>Summary:</b> Alternative Energy Inc. will install mini off-grid solar systems for 90 households, 5 classrooms in 1 school, 1 clinic/drugstore, 11 shops, and 5 streetlights in Galama Town. This will greatly benefit the town and it's 2,750 residents, who currently have no access to basic energy services and rely on towns at least 25 miles away to purchase kerosene for homemade lamps and dry cell batteries.
<b>Ecovillage Community Improvement Association, Inc.</b>	Liberia	2014	<b>Sector:</b> Solar <b>Summary:</b> Ecovillage will deploy a 50 kW off-grid solar mini-grid, which will include DC to AC inverters and a distribution network with direct connections for households and businesses within 1 kilometer radius, and 2 small kiosks for affordable pay-as-you-go battery charging. Businesses and households with a direct connection will pay a small monthly fee and discounted power will be provided for schools and security lighting.
<b>Liberia Engineering and Geo-Tech Consultants Company</b>	Liberia	2014	<b>Sector:</b> Solar <b>Summary:</b> Liberia Engineering & Geo-Tech Consultants Company is currently providing electricity at a small scale to 13 households using a fuel based generator in the town of Totota, central Bong County. This project expands these activities by constructing a stand-alone PV 25 KW solar plant to serve 50 households through a mini grid, for which households will pay a small monthly fee based on metered usage of electricity.
<b>Ginphed Nigeria Limited</b>	Nigeria	2014	<b>Sector:</b> Biogas <b>Summary:</b> Ginphed is constructing a bio-digester to convert animal manure into biogas to be used for electricity generation, which would be sold to farms and agro-processing cottage industries in the surrounding communities. Currently, many farmers rely on cottage industry processing for their farm produce, but electricity from the national grid is unreliable and much processing is fueled either by firewood or by expensive diesel-powered generators, which cuts significantly into profit margins.

Grantee	Country	Year	Summary
<b>Quintas Renewable Energy Solutions</b>	Nigeria	2014	<b>Sector:</b> Biomass <b>Summary:</b> Quintas is developing a 500 kilowatt biomass power plant which will take advantage of Ofosu community's agricultural and forestry residue, including sawdust from the four sawmills in the area, which have an abundance of sawdust and currently rely on expensive diesel to power their mills. The power plant will include a steam turbine, generator, and gasifier with combustor--with electricity being paid for through pre-paid meters.
<b>Sky Resources</b>	Nigeria	2014	<b>Sector:</b> Solar <b>Summary:</b> Sky Resources is developing a small solar micro-grid in Nawqu in Anambra State, for which users will pay on a per-use basis, supplying electricity for up to 75 small and micro businesses. The village will benefit from the project because it has a small but thriving small and medium enterprise community which currently relies on costly and unreliable diesel for much of its energy needs, which significantly increases enterprise operating costs.
<b>Topstep Nigeria</b>	Nigeria	2014	<b>Sector:</b> Solar <b>Summary:</b> Due to increasing demand, Topstep is expanding their current solar maize mill processing station, expanding the existing processing capacity to 1,400 metric tons of maize per year by installing 5 processing stations located near the farmer's fields. Each station will have 3 high quality milling machines powered by solar energy as well as portable batteries charged and available for farmers to use at their homes for a fee.
<b>Ajima Farms and General Enterprises Nigeria Limited</b>	Nigeria	2015	<b>Sector:</b> Biogas <b>Summary:</b> Ajima Farms is constructing a biogas plant that will convert poultry, livestock, and other waste sourced from Ajima Farms and from other surrounding poultry farms into biogas. The biogas will fuel a biogas generator that will produce electricity for a mini-grid connected to households and small businesses.
<b>Kunak Community Healthcare Foundation</b>	Nigeria	2015	<b>Sector:</b> Solar <b>Summary:</b> Kunak will construct a meat and fish market building, which will be powered by a 7.5 kilowatt solar PV system to power lights, fans, and refrigeration equipment for the local vendors. The building will be used by vendors in the Yakowa market, who currently have no reliable refrigeration units or product storage areas for fish and meat.
<b>Dassy Enterprise</b>	Rwanda	2016	<b>Sector:</b> Solar <b>Summary:</b> Dassy Enterprise will install solar cold storage for 40 dairy and livestock processing units, as well as solar lighting and chargers for off-grid farmers in the Gishwati Highlands. By providing solar lights to 900 low-income residents, installing solar-powered cold storage for 40 farms groups, and providing 5 businesses with solar-powered hot water heaters, Dassy will strengthen the dairy and farming value chains in the Gishwati Highlands through reduced spoilage and product loss.
<b>RENERG Limited</b>	Rwanda	2016	<b>Sector:</b> Solar <b>Summary:</b> RENERG Limited will install a 30 kilowatt solar micro-grid to generate electricity for 120 households in Muganza Community in Banda Cell, a small village 20 miles from the national grid. The micro-grid will reduce the community's reliance on kerosene lamps and candles for light, which present health, environmental, and safety issues and hamper educational and business opportunities in the community.

Grantee	Country	Year	Summary
Serve and Smile Limited	Rwanda	2016	<b>Sector:</b> Solar <b>Summary:</b> Serve and Smile will sell 1,110 solar home systems to rural households in eight districts across Rwanda. After 12 months, Serve and Smile is expected to have sold 1,110 solar home systems to residents of eight different districts across Rwanda, allowing customers to pay a small deposit at the time of purchase and pay off their balance in installments to a local agent.
Jamii Power Limited	Tanzania	2014	<b>Sector:</b> Solar <b>Summary:</b> Jamii Power Limited is a private company registered in Tanzania in 2012. USADF has funded Jamii to expand its existing 11 kilowatt solar mini-grid in remote northern Tanzania to 33 kilowatts, and also to field-test and deploy a new smart meter prototype, which will give mini-grid operators the capacity to remotely monitor current, limit loads, cluster metering, and detect non-technical losses.
L's Solution Limited	Tanzania	2014	<b>Sector:</b> Solar <b>Summary:</b> L's Solution will install and operate a 12-kilowatt solar PV power plant that will supply electricity to over 120 households, businesses, health centers, and schools. The solar mini-grid will provide first time access to electricity to residents in rural Samunge village, which falls within the border of Ngorongoro National Park and is about 60 km from the national grid.
Lung'ali Natural Resources Company (LNRC) Limited	Tanzania	2014	<b>Sector:</b> Hydro <b>Summary:</b> USADF has funded LNRC to establish a revolving credit facility for households to pay a small upfront connection fee to their 2.4 Megawatt hydroelectric dam, and then repay the loan in quarterly installments over time. Currently, many households cannot afford the connection fees of up to \$500 to connect to the distribution network.
Space Engineering	Tanzania	2014	<b>Sector:</b> Solar <b>Summary:</b> USADF funded Space Engineering to develop a 40 kW hybrid solar-biomass power plant, to use a combination of biomass gasification (rice husks and maize cobs) and solar to power the community of Mbeya 24 hours a day. For Mbeya's 500 households currently without electricity, the electricity from this project will be distributed through a mini-grid to households, schools, a health center, and local businesses.
Benedictine Sisters of St. Gertrude Convent Imiliwaha	Tanzania	2015	<b>Sector:</b> Hydro <b>Summary:</b> The Benedictine Sisters of St. Gertrud Convent, Imilwaha, have developed a 317 kilowatt small hydroelectric power plant project, based on their experience running a similar power plant for the past three decades. The hydroelectric plant will allow rural households to access low-cost, sustainable electricity for the first time. However, many households cannot afford the connection fees of up to USD 500 to connect to the distribution network. USADF has funded the creation of a revolving credit facility for households to pay a small upfront connection fee, and then repay the loan in quarterly installments over time.

Grantee	Country	Year	Summary
<b>SESCOM Kibindu Biomass Micro-Grid Project</b>	Tanzania	2015	<b>Sector:</b> Biomass <b>Summary:</b> SESCOM is installing a 20 kilowatt micro-grid powered by biomass (primarily maize cobs) in rural Kibindu village in eastern Tanzania. By replacing diesel and kerosene energy with access to a biomass gasifier-based grid, households that currently spend 30% of their monthly income on lighting will experience significant cost savings that can be used to improve livelihoods and reduce poverty.
<b>Maasai Pastoralist Solar School Micro-Grid Project</b>	Tanzania	2015	<b>Sector:</b> Solar <b>Summary:</b> USADF has funded MPDO, a Tanzanian non-profit organization, to install solar PV systems at seven Maasai schools in rural northern Tanzania, providing reliable electricity to students, teachers, and the surrounding community. They will establish an off-grid energy credit fund in the community for further expansion in areas where population density is low and reaching pastoralist communities is difficult.
<b>Watumia Umeme Cooperative Society Masimbwe Micro-Grid Project</b>	Tanzania	2015	<b>Sector:</b> Solar <b>Summary:</b> WUCS is working with a technical partner to install a 10-kilowatt solar micro-grid in Masimbwe, which will provide households with solar power and replace kerosene and firewood as primary fuel sources. USADF has funded the cooperative to create a solar micro-grid for thirty houses and one micro-enterprise, to be run by the cooperative.
<b>GRS Commodities</b>	Uganda	2016	<b>Sector:</b> Solar <b>Summary:</b> GRS Commodities Limited will install an additional 40 kilowatts of solar generation capacity on the Ssese Islands of Lake Victoria. By adding an additional 100 households and 50 more businesses, the project will increase access to local and sustainable sources of electricity, foster business creation, and improve household income by providing energy that can be purchased for less than the price of fossil fuels currently being used.
<b>Green Heat Limited</b>	Uganda	2016	<b>Sector:</b> Solar <b>Summary:</b> Green Heat Limited will install 20 biogas digesters to pasteurize and store milk on farms in the Teso region of Eastern Uganda. By installing biogas digesters on farmland, Green Heat will enable farmers to use the manure from their own livestock to power milk pasteurization and cooling equipment. This will serve to strengthen the dairy value chain and reduce poverty through environmentally sustainable economic growth.
<b>OneLamp Limited</b>	Uganda	2016	<b>Sector:</b> Solar <b>Summary:</b> OneLamp Limited will create a mobile phone platform that allows rural households to purchase solar products, which can be delivered directly to their door. Using the existing transportation infrastructure, OneLamp Limited's mobile phone platform will allow low-income, off-grid households to access an on-demand service for clean energy products that can be delivered to their doorstep.

Grantee	Country	Year	Summary
Buntungwa Ventures Limited	Zambia	2016	<p><b>Sector:</b> Solar</p> <p><b>Summary:</b> Buntungwa Ventures Limited will sell solar home systems to 450 households in the satellite villages near Mansa, with an estimated total generation capacity of 28 kilowatts. They will use a Pay-As-You-Go business model, which allows consumers to steadily pay for their system over time.</p>
Muhanya Solar Limited	Zambia	2016	<p><b>Sector:</b> Solar</p> <p><b>Summary:</b> Muhanya Solar Limited will install a 20 kilowatt solar micro-grid in Sinda Village, in Zambia's Eastern Province. The micro-grid will provide energy to 60 families, a school, and small businesses in Sinda, which Muhanya hopes will provide an economic spark for the community and a blueprint for replicable micro-grids in rural areas in Zambia.</p>
SuperRich Limited	Zambia	2016	<p><b>Sector:</b> Solar</p> <p><b>Summary:</b> SuperRich will install three innovative hybrid hydro-solar systems on the Zambezi River, the first of 12 units which will ultimately have a generational capacity of 60 kilowatts. The systems utilize a unique floating turbine technology which floats on the surface of the river and does not require extensive civil works.</p>

