

ANNUAL
Report 2019

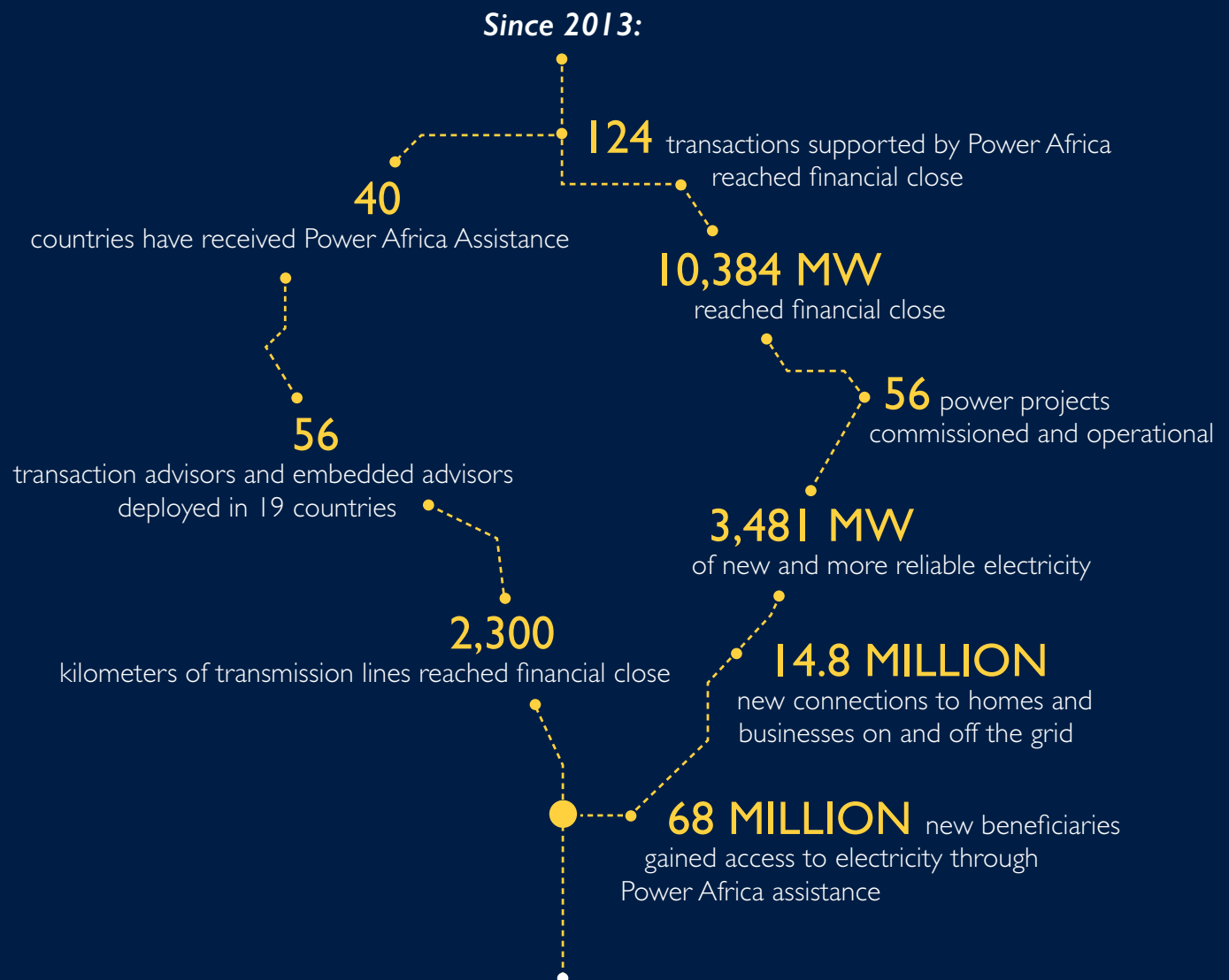
Lights On!

POWER AFRICA

By the Numbers



POWER AFRICA is committed to working with our partners to create **60 million connections** for first-time users, and generate **30,000 megawatts (MW)** by **2030**



Lights On!



A MESSAGE FROM THE ADMINISTRATOR OF THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID): **Lights On!**

In 2019, Power Africa's sixth year, we are seeing more **Lights On** across sub-Saharan Africa, as some 15 million new connections provide first-time electricity access to 68 million homes and businesses, which builds a critical foundation for each partner country's Journey to Self-Reliance.

Lights On is at the center of our mission because electricity improves lives and brings economic opportunity. Electricity enables access to refrigeration to store fish, milk, and vaccines. Electricity brightens the night and helps schoolchildren study. Electricity allows businesses to stay open later and makes communities safer.

We recently spoke to people living in areas where Power Africa works about the impact of electricity on their lives and communities. Here is what they told us:

"When you see children of parents who have solar home systems, almost all of them complete their education and are able to reach great positions, and it is all because they were able to study using electric light." – Parent from Ethiopia

"Thanks to electricity, life has improved, both for the health center and the wider community. For example, we now have refrigerators that preserve our vaccines." – Health worker from Ghana

These testimonials reflect the strength of the Power Africa partnership, which now includes 174 of the world's leading companies, multilateral development agencies, and partner governments all coordinated by USAID. Our most important partners are African governments, particularly those committed to advancing sector reforms. Together, we reduce barriers to investment and move projects from financial close to **Lights On**.

This year, we started implementing the updated *Power Africa 2.0 Strategy* to achieve our goal of 30,000 MW and 60 million connections by 2030. This new Strategy places more emphasis on transmission and distribution, improving the enabling environment, and leveling the playing field for competitive investment. In November, we advanced this Strategy with the launch of the *Power Africa Transmission Roadmap*, which prioritizes 18 projects, which represent 7,200 km of transmission lines, with the capacity to transport more than 11,000 MW of power and unlock regional trade. Transmission is critical, because without the ability to get power to people and businesses, investments in megawatt-generation are in vain.

Underpinning our efforts to turn more **Lights On** is a strong enabling environment with investment-friendly laws and regulations. We launched the Enabling Environment Tracker, an interactive tool that provides market information to our partners, including U.S. businesses that seek opportunities in Africa's energy sector.

We also continue to invest in the next generation of African energy-sector leaders by training energy lawyers through the Vance Center and graduating 74 women from 33 countries through the Young African Leadership Initiative (YALI) "Young Women in African Power" leadership program.

Power Africa is making a difference across all sectors, from health and education, to gender and agriculture. With **Lights On**, and with every new connection, comes dignity, self-reliance, and economic promise for individuals, businesses, and communities.



MARK GREEN
Administrator for USAID

Turning the Lights On!

NEW POWER GENERATION

As of July 2019, **56** of Power Africa's **124** financially closed projects are up and running and turning more **Lights On** by producing **3,486 MW** of new electricity that transforms businesses, economies, and livelihoods.



PHOTO: NEOEN

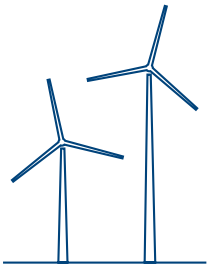


Scaling Solar Zambia BANGWEULU and NGONYE

DATE COMMISSIONED: April 2019 CAPACITY: 54 MW (Bangweulu) and 34 MW (Ngonye)
TECHNOLOGY: SOLAR

The Republic of Zambia is the first country in sub-Saharan Africa to participate in the World Bank/ International Finance Corporation (IFC) Scaling Solar program, an initiative to unlock private-sector investment for solar power in emerging markets. USAID provided \$2 million to IFC to support Scaling Solar Zambia, and the Overseas Private Investment Corporation (OPIC) provided a \$13 million loan to the Bangweulu project, developed in consortium by First Solar and Neoen. USAID also helped the Zambia Electricity Supply Corporation modernize its systems to bring renewables onto the national grid, and supported a competitive procurement process that resulted in one of the most-affordable solar tariffs in Africa, at just \$0.06/kWh and \$0.078/kWh. The Bangweulu and Ngonye projects are generating more than 88 MW of new renewable electricity, which means more **Lights On** in Zambia.

POWER AFRICA PARTNERS INVOLVED: OPIC, World Bank Group/IFC, First Solar, Enel, USAID



Kenya LAKE TURKANA WIND POWER PROJECT

DATE COMMISSIONED: March 2019 **CAPACITY:** 310 MW **TECHNOLOGY:** WIND

The Lake Turkana Wind Power Project (LTWPP), the largest grid-connected wind farm in sub-Saharan Africa, is turning **Lights On** in the Republic of Kenya. The African Development Bank (AfDB) provided financing and a partial risk guarantee. Power Africa provided technical support through the USAID-funded Grid-Management Support Program and, once LTWPP came online, developed a plan for real-time data-exchange between the wind farm and the national grid-control center to ensure smooth operation of the grid.

POWER AFRICA PARTNERS INVOLVED: Anergi, Standard Bank, Nedbank, AfDB, USAID



Cenpower Ghana KPONE INDEPENDENT POWER PLANT

DATE COMMISSIONED: June 2019 **CAPACITY:** 350 MW **TECHNOLOGY:** NATURAL GAS

The Kpone Independent Power Plant (KIPP) is among Ghana's most fuel-efficient thermal-power stations and critical to turning **Lights On** and meeting the Republic of Ghana's growing demand for electricity. Developed by Cenpower Generation Company Limited, KIPP accounts for approximately ten percent of Ghana's total installed capacity and is among the largest private independent power producers in the country. USAID provided direct transaction advisory support to the Electricity Company of Ghana and helped attract investors to finance the transaction. The plant employs at least 70 people full-time during operation.

POWER AFRICA PARTNERS INVOLVED: African Finance Corporation, Development Bank of Southern Africa, GE, InfraCO, Investec, Rand Merchant Bank, Standard Bank, USAID

Turning the Lights On!

MAKING CONNECTIONS



PHOTO: RYAN KILPATRICK / USAID

PERSONAL CONNECTIONS: POWER AFRICA'S EXPERTS IN THE FIELD


Over the past six years, Power Africa provided USAID-funded technical assistance to support the energy sector in 40 countries. Power Africa takes a demand-driven approach with a robust "boots on the ground" presence of dedicated power experts situated around the continent. Many provide direct advice to private-sector companies and governments alike on specific transactions. Others are embedded in utilities, regulatory agencies, and ministries, where they work to improve operational standards and staff capabilities.

Power Africa has hundreds of staff and advisors based in more than 30 countries, which allows for a technical reach anywhere in sub-Saharan Africa.


POWER CONNECTIONS: BUILDING TRANSMISSION INFRASTRUCTURE


Power Africa and our partners have helped more than 2,300 km of transmission infrastructure reach financial close. In 2018, Power Africa partnered with the Republic of Korea (ROK), who committed to invest \$1 billion in transmission-related infrastructure and to build at least 1,000 km of transmission lines in sub-Saharan Africa. To date, the ROK has invested a total of \$215 million in projects in the United Republic of Tanzania and the Federal Democratic Republic of Ethiopia that will result in 422 km of new transmission lines, as well as the construction and/or expansion of seven substations by 2023.

FINANCIALLY CLOSED MW BY TECHNOLOGY



WIND
2,451 MW
 Financially Closed
 Transactions: **23**



NATURAL GAS
4,042 MW
 Financially Closed
 Transactions: **18**


HYDRO
1,493 MW
 Financially Closed
 Transactions: **24**


BIOMASS
114 MW
 Financially Closed
 Transactions: **4**


GEOHERMAL
158 MW
 Financially Closed
 Transactions: **1**


SOLAR
1,816 MW
 Financially Closed
 Transactions: **48**


HEAVY FUEL OIL
316 MW
 Financially Closed
 Transactions: **6**

POWER AFRICA GENERATION PROJECTS

FINANCIALLY CLOSED | LIGHTS ON (COMMISSIONED)

SÉNÉGAL 383 MW

Solar
Scaling Solar I - Kahone
Scaling Solar Touba
Senergy 1
Senergy 2
Ten Merina Ndakhar

Wind
Taiba N'Diaye Wind Farm

Heavy Fuel Oil
Cap des Biches
Cap des Biches Expansion

GUINEA 50 MW

Heavy Fuel Oil
Tè (Kipe) Power Project

CÔTE D'IVOIRE 352 MW

Natural Gas
Azito Power Plant Phase III
CIPREL IV Expansion

LIBERIA 89 MW

Hydro
Mein River Hydro Pilot
Mount Coffee Hydropower Plant Project

BENIN 127 MW

Liquefied Petroleum Gas
Genesis Maria Gleta

NIGERIA 3,034 MW

Natural Gas
Azura-Edo
Egbin Power
First Independent Power/Afam
First Independent Power/Elema
First Independent Power/Omoka
Sapele Power
Olorunsogo I
Omotosho I
Ughelli Power

Hydro
Kainji Power-Jebba Hydro Power Station (Privatized Asset)
Kainji Power-Kainji Hydro Power Station (Privatized Asset)

NAMIBIA 107 MW

Solar
Alcon Consulting Services (Pty) Ltd*
Aloe Investment No.27 (Pty) Ltd.
Camelthorn Business Ventures No. 2 (Pty) Ltd.
Ejuva 1
Ejuva 2
Hardap Solar
HopSol Power Generation (Pty) Ltd.
Metdecci Energy Investments (Pty) Ltd.
Momentous Solar One (Pty) Ltd.
NCF Energy (Pty) Ltd.
Osona Sun Energy (Pty) Ltd.
Sertum Energy Namibia (Pty) Ltd.
Tandii Investment (Pty) Ltd.
Unisun Energy (Pty) Ltd.

Wind
Ombepo Energy (Pty) Ltd.

MALI 90 MW

Heavy Fuel Oil
Albatros Energy

BURKINA FASO 33 MW

Solar
Centrale solaire photovoltaïque de Zagtoui

GHANA 550 MW

Natural Gas
Amandi Energy
Kpone Independent Power Plant

CAMEROON 420 MW

Hydro
Nachtigal Amont
Hydroelectric Project

RWANDA 124 MW

Biomass
HQ Peat Power (Akanyaru)

Solar
Gigawatt Global Agahozo-Shalom Youth Village Solar Project
Kigali Genocide Memorial

Hydro
Keya
Rwaza I

Heavy Fuel Oil
Rwanda Thermal Project

UGANDA 136 MW

Hydro
Achwa 2 HPP
Kyambura
Lubilia Power Project Muvumbe
Rwimi
Sindila/Butama SHP
Siti Inyamwamba
Siti II
SM Hydro Limited
Waki Power Project

Solar
Soroti I & II
Tororo South & North

MALAWI 72 MW

Hydro
Nkula A Rehabilitation

Solar
JCM Salima Solar

SOUTH AFRICA 3,180 MW

Solar
Aggenys Solar
Bokamoso Solar Park
De Wildt Solar Park
Droogfontein 2 Solar Park
Dyason's Klip 1
Dyason's Klip 2
Firefly Investments
Greefspan PV Power Plant II
Karoshhoek Solar One
Kathu Solar Park CSP
Kaxu Solar One
Konkoonsies II Solar
Loeriesfontein Orange Solar
Sirius Solar PV Project One
Waterloo Solar Park
Xina Solar One
Zeerust Solar Park

Biomass
Ngodwana Energy Project

KENYA 617 MW

Biomass
Cummins Baringo

Wind
Kipeto
Lake Turkana

Solar
Garden City Mall Solar System
Malindi Solar

Geothermal
KenGen Olkaria V

TANZANIA 672 MW

Natural Gas
Kinyerezi I
Kinyerezi I Expansion
Kinyerezi II

Hydro
Tulila
Luponde Hydropower Project
Rusumo Hydropower Project

Solar
Kigoma Solar Power

Biomass
Kilombero Hybrid Project

ZAMBIA 208 MW

Hydro
Itezhi Tezhi

Solar
Scaling Solar Zambia Round 1-Bangweulu
Scaling Solar Zambia Round 1-Ngonye

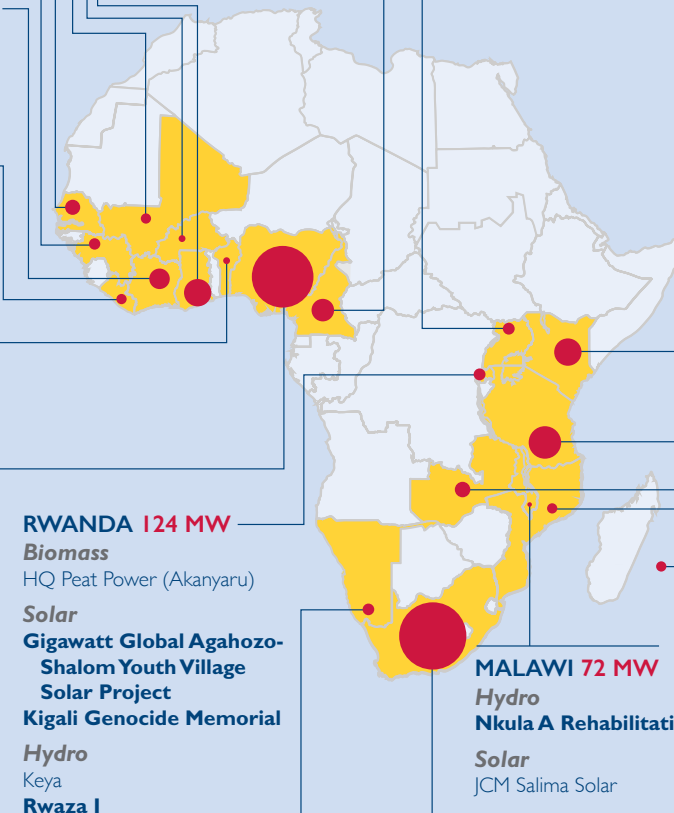
MOZAMBIQUE 81 MW

Natural Gas
Central Térmica de Ressano Garcia (CTRG)*
Kuvananga Energia

Solar
Mocuba

MAURITIUS 60 MW

Heavy Fuel Oil
Redevelopment of St. Louis Power Station



Cumulative data through July 31, 2019

*Power Africa support provided post-financial close

The Development Impact OF ELECTRICITY

Connecting to the Grid

TOTAL ON-GRID CONNECTIONS: 886,995

Across the continent, Power Africa works with electricity transmission and distribution companies to improve electrification planning, enhance performance, and implement upgrades that improve operations and financial sustainability. These improvements are critical for utilities to turn and keep **Lights On** and connect more people to the grid.

Of these new on-grid connections Power Africa helped establish since 2013:

496,723 are in Nigeria, where USAID worked with distribution companies to cut losses, increase revenues, and connect more residents to the grid.

10,796 are in Ethiopia, where a USAID-funded pilot project with the Ethiopian Electric Utility (EEU) increased revenue-collection by 24 percent, and new geospatial planning tools are advancing EEU's goals of tripling access to electricity over the next five years.

178,543 are in Uganda, where USAID collaborated with The National Rural Electric Cooperatives Association (NRECA) and the Ugandan Rural Electrification Agency to roll out a low-cost wiring design that reduces the price to connect households to the grid by 40 percent.



PHOTO: JUWON JAMES

Samuel is a poultry farmer in Kabusa in the Republic of Nigeria. When he relied on kerosene to operate his equipment, he struggled to maintain his farming business. Following upgrades to the power grid in Kabusa, Samuel now has **Lights On** and access to stable electricity. As a result, his poultry business is thriving, and he started a profitable ice-block business. Across the community, new power-reliant businesses like milling machines and welders are springing up, bringing jobs and opportunity to Kabusa.



PHOTO: HENOK KIDANE WELDEMELAK

Elisa owns a restaurant in Tulu Dimtu in the Federal Democratic Republic of Ethiopia. Before her community was connected to the grid, residents relied on a single communal power line left by construction crews, but the line was not reliable or adequate to connect appliances and run a business. Thanks to a new reliable grid connection, Elisa has **Lights On**, and can now preserve produce in her freezer, which reduces food waste. Her business is now profitable, and Elisa now sends her children to a better school and dreams of opening a bigger restaurant.



PHOTO: GLORIA BIRUNGI FOR POWER AFRICA

Baraza Stephen, his wife, Annet Nyawere, and the rest of their family celebrate after their home in the Republic of Uganda was wired for electricity, which allowed them to turn **Lights On** for the first time. Their household is part of a pilot project that NRECA, a Power Africa partner, created at USAID's request. The family is excited that the children will be able to study at night.

Beyond the Grid

TOTAL OFF-GRID CONNECTIONS: 13,893,236

Working with a diverse network of partners, Power Africa's Beyond the Grid (BTG) program has helped establish nearly 14 million off-grid household and business connections.

Solar Lanterns: **9,290,174**

Micro-grids: **16,453**

Solar Home Systems: **4,254,176**

Other Off-Grid Solutions: **332,433**

Highlights from Power Africa Beyond the Grid:

- Power Africa brokered a new partnership between Stella Futura and the Christian Health Association of Ghana that will bring electricity and turn **Lights On** at 345 health facilities.
- Working with Senegalese financial institution *Locafrique*, USAID helped source transactions and promote negotiations that resulted in four, \$1 million loans, which supported a new market for local banks to invest in the off-grid sector.
- Through the Smart Communities Coalition, USAID brings private-sector resources to refugee settlements in Kenya and Uganda by providing targeted technical assistance to off-grid companies, while the U.S. African Development Foundation (USADF) provides seed grants to companies to expand off-grid services to these populations.

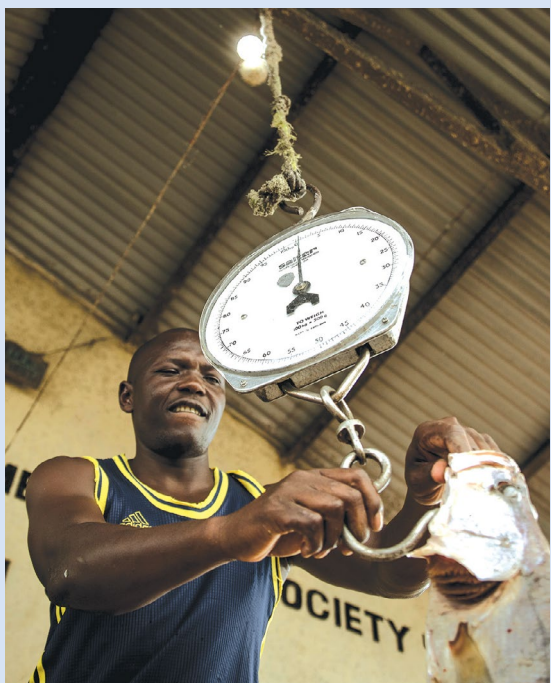


PHOTO: ISAAC MUNYAKA

Joseph is the leader of a fishing cooperative on Ringiti Island in Kenya. His community depends on fishing for its livelihood. Last year, the U.S.-based Renewvia Energy, a partner of the U.S. Trade Development Agency (USTDA), commissioned a mini-grid that turned the **Lights On**, which enabled Ringiti's fishermen to work at night, thus tripling their incomes. With the profits, one cooperative will buy extra engines and a refrigerator. There are broader benefits, as well: Joseph can provide more-nutritious food for his children, businesses across the community stay open later, and safety at night has improved.



PHOTO: PAUL ABAYA

Susana is a midwife in central Ghana. Black Star Energy, an off-grid solutions company that USAID supports, recently electrified her rural community with a solar mini-grid installation. With access to electricity, Susana's ability to provide critical care for pregnant mothers has improved dramatically. Previously, she performed nighttime deliveries while holding a flashlight in one hand; with electricity she has **Lights On** to see, and can use both hands to provide better care. Susana's clinic can refrigerate vaccines for newborns, which allows her to deliver effective interventions to stop childhood diseases like tetanus, measles, and tuberculosis.

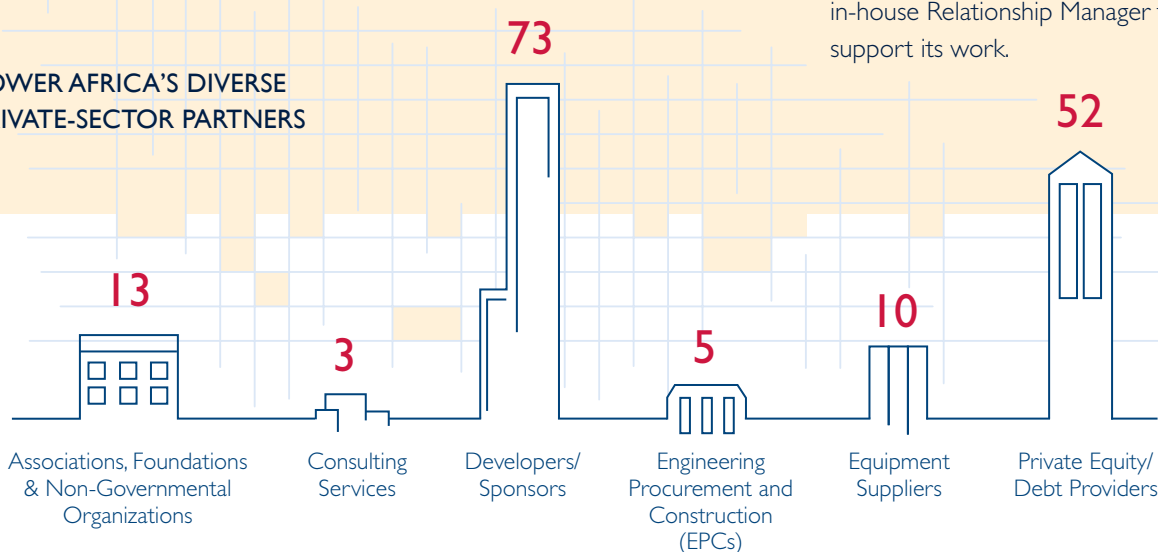
POWER of Partnerships

Power Africa is a U.S. Government-led partnership that brings together the collective resources of 12 U.S. Government Departments and Agencies, 18 development partners, and 156 private-sector partners to expand power supply, strengthen the energy-sector, and create connections to turn more **Lights On**.

Our newest development partner, the Eastern and Southern African Trade and Development Bank, committed to increase its energy-sector lending by \$400 million. In addition, the Republic of Korea, Japan, AfDB, and the World Bank pledged to provide financial support to expand and reinforce the transmission and distribution sectors, a priority under Power Africa 2.0.

We also added nine new private-sector partners, of which four are U.S. companies, a major contribution to implementing USAID's new Private-Sector Engagement Policy. Of Power Africa's 156 private-sector partners, 76 are U.S. companies. Each partner makes a concrete commitment to Power Africa's targets and receives the support of the full suite of Power Africa tools, as well as a dedicated in-house Relationship Manager to support its work.

POWER AFRICA'S DIVERSE PRIVATE-SECTOR PARTNERS



Partnership Highlights

FINANCING POWER PROJECTS WITH AFDB

The AfDB has contributed more than \$4.5 billion to support projects in collaboration with Power Africa, which surpassed its original \$3 billion commitment. The partnership includes a USAID-funded embedded advisor to the AfDB's Energy Complex, who helped bring the 420-MW Nachtigal hydropower project in the Republic of Cameroon to financial closure, which added 30 percent more installed capacity to the country and the potential to turn more **Lights On**. In addition, Power Africa recently signed a funding agreement with the AfDB to work collaboratively with the National Renewable Energy Laboratory, NRECA International, and other development partners on the next generation of the Sustainable Energy Fund for Africa 2.0. Power Africa also supported the first three rounds of the AfDB's Africa Energy Market Place, a tripartite platform to drive policy dialogue, accelerate reforms, and attract private investment.

BUILDING CAPACITY WITH KENGEN

USAID worked with KenGen, Kenya's generation company, to improve its capacity in geothermal resource modeling, management, and drilling of key skills required for development and effective management of geothermal power. The support enabled the company to secure two contracts, with a combined value of \$128 million, to drill geothermal wells. This success is a major milestone for KenGen in its efforts to diversify its revenue streams and become more sustainable.

CONNECTING RURAL ZAMBIA WITH THE KINGDOM OF SWEDEN

In 2018, the Swedish International Development Agency, in collaboration with USAID, helped connect 75,000 homes and businesses and created nearly 1,500 new jobs through its €20 million Beyond the Grid Fund for Zambia. Following on this success, Sweden is expanding the program to the Republics of Burkina Faso, Liberia, and Mozambique under a new €50 million Beyond the Grid Fund for Africa and will provide a second round of financing in Zambia.

Strengthening THE SECTOR

Power Africa works with governments to create strong enabling environments that foster private and public investment to help turn **Lights On**. Our assistance supports the development of resilient and least-cost power systems through utility and retail tariff reform, transparent

procurement processes, and robust legal and regulatory frameworks. Power Africa's efforts seek to ensure that the power sector contributes to national and regional agendas for environmental sustainability, economic and social development, and women's empowerment.

When Women Lead IT'S GOOD FOR BUSINESS

GRADUATING WOMEN ENERGY LEADERS

Power Africa graduated 74 women from 33 countries selected from more than 1,000 applicants for the Young Women in African Power Leadership Training that USAID established. A collaboration with the Young Africa Leadership Initiative (YALI), this program matches Power Africa's technical expertise in the energy sector with programs to enhance leadership skills, bolster entrepreneurship, and connect young African women leaders with one another, and with other energy sector professionals.

INVESTING IN EQUALITY BETWEEN WOMEN AND MEN IN GHANA

USAID supported the solar home systems company PEG Africa in implementing a Gender Action Plan. Over the course of a year, PEG Africa increased the number of women in leadership roles by 14 percent, and women managers by 44 percent, and reduced the pay gap by 24 percent. These changes corresponded with a 60-percent jump in revenue and a 26-percent increase in net profits. These changes also qualified PEG Africa for a \$12.5 million local-currency investment from Canada Investment Fund for Africa LP (CDC) under the 2X Challenge for Gender Equality.

ENGENDERING UTILITIES

USAID's innovative Engendering Utilities program works directly with 17 electricity utilities in 14 developing countries to improve equality between men and women and women's economic empowerment, and to boost business performance of the utilities. In 2019, the Engendering Utilities added new partner utilities in Ghana, Liberia, Malawi, and Mozambique, and continues to work with utilities in Kenya and Nigeria.



PHOTO: USAID SOUTHERN AFRICA ENERGY PROGRAM

U.S. INVESTMENTS Turn Lights On in Africa

U.S. PRIVATE-SECTOR INVESTMENT

Power Africa supported the Lesotho Electricity Company (LEC) in procuring the country's first large-scale renewable independent power project: a 20-MW solar photovoltaic plant. **OnePower**, a U.S.-owned company, was successful in the competitive tender despite competition from other foreign developers at the same site. USAID provided transaction and legal advisory assistance to LEC around the negotiations of the Power Purchase Agreement, which kept the first-of-its-kind project on track. USTDA awarded a grant to OnePower to allow Boston-based **CDM Smith** to conduct feasibility studies in preparation for construction.

Through support from USTDA, **Renewvia Energy** – an Atlanta, Georgia-based company – is now among the most competitive U.S. solar enterprises in Africa. Last year, Renewvia commissioned two, pilot, solar mini-grids on remote islands in Kenya. Renewvia engaged U.S. manufacturers to supply materials for the mini-grids, including Power Africa partner **SparkMeter**, which supplied low-cost smart meters manufactured in Virginia. The two mini-grids serve hundreds of households and local businesses, and Renewvia is supplying 300 new meters to the pilot sites to meet customer demand. Renewvia is replicating this success at other sites in Kenya and Nigeria.



DID YOU KNOW?

The **U.S. Department of Commerce** supports U.S. companies in Africa by breaking down barriers to trade and providing export promotion services. The Department's Advocacy Center assists U.S. companies as they compete for foreign procurements leading to significant U.S. exports and supporting U.S. jobs. Since 2013, U.S. companies working in sub-Saharan Africa's energy sector signed 12 contracts with an export value of \$2.22 billion.

U.S. GOVERNMENT INVESTMENT

In Rwanda, **USADF** provided \$150,000 in grant funding and support services to **DASSY Enterprise**, which enabled the company to boost sales of solar home systems, solar refrigerators, and solar-powered water heaters. DASSY also secured a bank loan in 2018, which propelled it to become one of the first companies to offer solar irrigation and solar refrigeration to farmers in Rwanda. The return on USADF's investment continues, as DASSY has expanded operations to Malawi.

In Sénégal, **the Overseas Private Investment Corporation** financed two Power Africa projects that collectively will increase the country's power-generation capacity by 25 percent. In addition to providing financing and political risk insurance to support the construction and expansion of the 85-MW combined-cycle thermal-power plant in Cap des Biches, OPIC is financing the construction of the Parc Eolien Taiba N'Diaye wind-power plant, which will add 158 MW of power.

In December 2018, the **Millennium Challenge Corporation** signed its second compact with the Government of Sénégal to strengthen the power sector to meet growing demand for reliable electricity. The \$550 million Sénégal Power Compact will support the improvement of the high-voltage transmission network in and around Dakar, increase access to electricity in selected rural and peri-urban areas of the South and Central regions, and enhance the performance of the power sector through improving the enabling environment and building capacity.

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