July 20, 2015

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
REPORT TO CONGRESS ON POWER AFRICA

The Committee directs the USAID Administrator to submit a report to the Committee not later than 90 days after enactment of this act describing the objectives of Power Africa; criteria and metrics for measuring progress; and steps taken to: a) promote reforms in energy governance; (b) promote energy efficiency; (c) leverage private sector resources; and (d) increase energy access with distributed, mini, and off-grid related energy options. (FY2015 Report 113-195 accompanying S. 2499).

1. Objectives of Power Africa

Power Africa is a U.S. Presidential initiative launched in June 2013 by President Obama. Rooted in partnership, the initiative is working with African governments, the private sector and others to double the number of people with access to electricity in sub-Saharan Africa. Utilizing the combined expertise of many U.S. Government agencies, the World Bank Group, the African Development Bank, the Government of Sweden, host governments, and private sector partners, Power Africa is unlocking energy resources and building capacity in the region to enhance energy security, reduce poverty, and advance economic growth.

Recognizing that the level of funding needed to electrify the continent far outstrips what any government or donor can do alone, Power Africa supports an innovative, transaction-focused model that focuses on removing the barriers to successful power projects and promoting better governance of the growing power sector throughout sub-Saharan Africa. Power Africa strives to increase regional, cross-border energy trading, while also working with partner countries and regional mechanisms to meet critical energy needs and achieve energy security, while at the same time promoting sustainable development and improving lives across the continent.

Power Africa has made significant early progress towards its initial goals of adding 10,000 Megawatts (MW) and 20 million new connections for households and businesses in the first set of Power Africa partner countries -- Ethiopia, Ghana, Kenya, Liberia, Nigeria, and Tanzania. In August 2014, President Obama tripled Power Africa's goals to expand the reach across all of sub-Saharan Africa in pursuit of a new, aggregate goal of 30,000 MW of additional electricity generation capacity and increasing electricity access by at least 60 million new household and business connections. Power Africa seeks to strengthen the institutional and human capacity needed to attract investment on a long-term, sustainable basis and to effectively manage a growing power sector. Power Africa provides technical assistance and transactional support through regional and country-focused Transaction Advisors, who serve as impartial advisors to African partner governments and facilitate access to the full range of Power Africa tools.

The U.S. Government is committed to providing more than $7 billion in financial support, loan guarantees and grants to help advance Power Africa's goals. To date, Power Africa has leveraged more than $20 billion in private sector commitments for on-grid and off-grid projects, and an additional $9 billion in commitments from the African Development Bank, the World Bank Group and the Swedish Government.

U.S. Government agencies involved in Power Africa include:

- The **U.S. Agency for International Development (USAID)**, in addition to serving as the interagency coordinator, provides expert technical advice and transactional support for projects through transaction advisors located in sub-Saharan Africa. USAID also provides loan guarantees through the Development Credit Authority.

- The **Department of State**, through its Embassies and Consulates in virtually every country in sub-Saharan Africa, provides country risk analysis and additional perspective to potential investors. Ambassadors have considerable convening authority and can help ensure a level playing field for U.S. investors. The Embassy serves as a platform to support their activities and communicate with local interlocutors, particularly when other Power Africa agencies are absent from the specific country.

- The **Overseas Private Investment Corporation (OPIC)** provides financing and risk mitigation tools, including direct loans, guarantees, and political risk insurance to support U.S. private sector investment in sub-Saharan Africa.

- The **Millennium Challenge Corporation (MCC)** provides grants for power infrastructure projects and technical assistance to sustainably manage power systems and utilities.

- The **Export-Import Bank of the United States (Ex-IM Bank)** mitigates country and commercial risks for U.S. exporters by offering export credit insurance, loan guarantees and direct loans to private and public sector foreign buyers of U.S. capital equipment and services.

- The **U.S. Trade and Development Agency (USTDA)** funds project planning and partnership building activities that help develop energy infrastructure in Africa. USTDA provides grants to African project sponsors that utilize U.S. industry expertise to perform feasibility studies, launch pilot projects, or provide technical assistance specifically tailored to a project's needs. USTDA also hosts reverse trade missions to the United States to introduce African project sponsors to the design, manufacture and operation of U.S. goods and services as they are planning energy projects.

- The **U.S. African Development Foundation (USADF)** with support from General Electric and USAID, awards $100,000 grants to African entrepreneurs for community-level energy projects across sub-Saharan Africa.

- The **U.S.-Africa Clean Energy Finance (ACEF)** initiative (implemented by USTDA and OPIC with funding from the U.S. Department of State) supports early-stage projects to catalyze private-sector investment in the renewable energy sector in sub-Saharan Africa.

- The **U.S. Department of Energy (DOE)** provides technical assistance to partner governments and the private sector to help bring cleaner energy solutions to sub-Saharan Africa, while also increasing the efficiency of government utilities. DOE also leverages the expertise at its network of leading national laboratories, as well as the Global Lighting and Energy Access Partnership (Global LEAP) -- the Clean Energy Ministerial's energy access initiative

Other donor partners and collaborations include:

- The **World Bank**, which committed $5 billion in technical and financial support, including loans and partial risk guarantees, for energy projects in Power Africa's six initial partner countries. To date, $2.34 billion in projects have been approved in the initial six partner countries and Power Africa is expanding collaboration with the World Bank across sub-Saharan Africa.

- The **African Development Bank (AfDB)** committed $3 billion in 2013 over 5 years, of which $1.27 billion in projects have been approved to date. Power Africa, through USAID, also provides support to:
    - **AfDB's African Legal Support Facility** to help African governments hire the highest quality international legal counsel available to represent the governments when negotiating critical Power Purchasing Agreements (PPAs) to ensure that partner governments are negotiating on a level playing field with large international companies.

- **AfDB's Sustainable Energy Fund for Africa** plays a catalytic role by addressing the barriers associated with deployment of renewable energy and energy efficiency technologies and improving the risk-return ratio by the private sector for small to medium sized renewable energy projects.

- The **Government of Sweden, through the Swedish International Development Cooperation Agency (Sida),** offers financing via development loans and guarantees (loan aid). Development loans consist of a donation from Sida and a loan on market conditions from a lender. Development loans can be combined with a guarantee issued by Sida to the lender for the borrower's obligations. Guarantees can also be issued by Sida without any connection to development loans (independent guarantees).

- The **African Union Commission's Geothermal Risk Mitigation Facility**, through grants for exploratory drilling, helps mitigate the risks and high costs associated with getting geothermal projects to bankability.

2. Criteria and Metrics for Measuring Progress

Power Africa's expanded goals reach across all of sub-Saharan Africa in pursuit of a new, aggregate goal of 30,000 MW of additional electricity generation capacity and increased electricity access by at least 60 million new household and business connections.

What is Power Africa monitoring?

Selected indicators to track Power Africa's progress and performance include:

1. Increased Access to Electricity: Number of beneficiaries with improved energy services due to US government assistance;
2. Generation Capacity Reached Financial Closure: Number of MWs of generation that achieved financial closure;
3. Transactions Reached Financial Closure: Number of transactions that have achieved financial closure;
4. USG Investment Leveraged: Total public and private funds leveraged by the USG for energy projects;
5. Private Sector Engaged: Number of private sector companies receiving services and support from USG agencies;
6. Greenhouse Gas Emissions Reduced: Greenhouse gas emissions estimated in metric tons of CO^2 reduced, sequestered and/or avoided as a result of the US government assistance; and
7. Policy Reform Supported: Number of policy reforms proposed, revised, adopted or implemented.

To date, data collection has been primarily limited to USAID, MCC, OPIC, Ex-Im Bank, USADF, and USTDA activities in the original six focus countries. Effective monitoring and evaluation is critical for tracking the achievements of the expanded initiative as Power Africa increases the number of countries in which it operates and the types of activities it conducts. In the future, monitoring will include data collection in all countries with Power Africa activities through a variety of monthly, quarterly and annual reports.

How is Power Africa evaluating progress towards achievement of objectives?

Power Africa is also developing a robust evaluation plan to assess and document in more detail the results of activities and the impact of Power Africa's model. This will include designing an impact evaluation that will require the ongoing use of monitoring systems such as smart meters, satellite surveys, and field-based surveys to collect data on power generation, access, utilization, system reliability, and other metrics to measure the strength and sustainability of power sectors in countries across sub-

Saharan Africa. Lastly, the findings from relevant documents, annual reports and impact or performance evaluations will inform the design of future programs and activities and will be used to improve the implementation of existing Power Africa activities. Evaluation questions may include, but will not be limited to:

1. Has access to electricity increased as a result of Power Africa assistance?
2. Has the electricity quality and reliability increased as a result of Power Africa interventions?
3. Are Power Africa's policy reform efforts leading to a more sustainable and reliable power sector?
4. Is Power Africa's transaction support increasing the likelihood that power projects successfully reach financial close and commissioning?

3. Steps taken to promote (a) reforms in energy governance, (b) energy efficiency, (c) leverage private sector resources and (d) increase energy access with distributed, mini, and off-grid related energy options.

a) Reforms in Energy Governance

Power Africa works to remove political, regulatory and administrative barriers to power project development and promote improved governance of sub-Saharan Africa's growing power sector. These efforts focus on creating a sound investment climate, promoting electricity trade, securing commercially viable distribution to end-users, and ensuring that power sector improvements contribute to broader social, environmental and economic development goals. Key enabling factors for a sustainable power sector include:

- Strong, transparent legal and regulatory frameworks;
- Financially viable utilities;
- Cost-reflective tariff structures;
- Technical and commercial efficiency;
- Clear and transparent procurement processes;
- Strategic and integrated power sector planning and development processes;
- Regional and cross-border electricity trade; and
- Gender equality and female empowerment.

In response to local challenges and opportunities, Power Africa and host-country governments have mutually agreed to work towards sets of country-specific objectives and activities that reflect these principles.

<u>Examples of Key Activities</u>

- <u>Building capacity to negotiate PPAs</u>: Host-governments often lack the capacity and experience to draft and negotiate power purchase agreements (PPAs). This can impede transactions and hinder sector development. Power Africa support, including long-term embedded advisory services to host-government entities and workshops on PPA annotation and negotiation, builds capacity to draft and execute strong PPAs. In November 2014, Power Africa, with the Commercial Law Development Program and the African Legal Support Facility, launched the "Understanding Power Purchase Agreements" handbook, providing an overview of PPAs and insight into how to overcome common challenges.
- <u>Strengthening regional power pools</u>: Power Africa is supporting regional power pools to promote electricity trade, achieve economies of scale, and optimize the use of energy resources. Power Africa is working with the East Africa Power Pool (EAPP) to help power planners and grid operators understand how to accommodate and dispatch intermittent renewable resources and to develop formal wheeling agreements and procedures that will facilitate electricity trade. In West Africa, Power Africa supports seconded staff and an embedded Transaction Advisor to help the West African Power Pool (WAPP) extend and interconnect the regional network, and help key regional power projects reach financial close.

- Reducing utility losses: Power Africa is helping African utilities reduce technical and commercial losses, ensuring their ability to attract investment, maintain infrastructure, and improve service quality. Examples of support include workshops with the US Energy Association (USEA) on metering, billing, and loss reduction, and collaboration with MCC on the extensive energy efficiency component within its second Ghana Compact.
- Supporting development of natural gas regulations: Power Africa supports development of critical natural gas regulations to ensure that natural gas resources can be utilized safely and efficiently. In Ghana, this includes providing assistance to the Ministry of Petroleum in initiating gas deliveries through the Western Corridor Gas Infrastructure Project, developing the Gas Master Plan, and integrating international best practices into the industry's technical, commercial, and financial activities.
- Strengthening regulatory frameworks for small-scale and renewable power producers: Power Africa supports development of regulatory frameworks that accelerate clean energy deployment and provide potential investors with the certainty and clarity they need. In Tanzania, Power Africa has helped develop renewable feed-in tariffs, which fed into Tanzania's larger framework to incentivize and regulate small-scale power producers, making the country a leader in off-grid and mini-grid development.
- Achieving clear and transparent procurement processes: In Tanzania, USAID provided critical support to the government in procuring new gas-fired generation through competitive bidding, building capacity to replicate and sustain such practices in the future.

b) Energy Efficiency

Power Africa recognizes that while new power generation and associated infrastructure are critical to bridging the gap between energy supply and demand, the role of energy efficiency programs, policies and investments are critical to:

- Providing a least-cost energy resource that can be deployed quickly; and
- Allowing every megawatt generated to deliver more services to consumers.

Power Africa is taking steps now to promote energy efficiency and is focusing on three broad outcomes:

- **Affordable energy resources**. Specific Power Africa activities include:
    - Financing to assist with purchasing efficient equipment, including industrial and power generation equipment;
    - Technical assistance on the design of new appliance standards and labeling policies to provide consumers with more efficient products (standards) and information on the efficiency of products. For example, through the Super-Efficient Equipment and Appliance Deployment initiative, the Department of Energy has provided technical analysis to numerous countries on the design of new appliance equipment standards.

- **Access to energy resources**. Specific Power Africa activities include:
    - Technical assistance on the benefits of national rural electrification policies that incentivize and mainstream highly efficient off-grid appliances.
    - Department of Energy (DOE) is expanding the Clean Energy Solutions Center's 'Ask an Expert' Program, with support from the U.S. Department of State and Australia's Department of Industry and Science. The Solutions Center is designed to meet the needs of countries looking to implement clean energy policies through fast, high-quality, and no-cost expert technical assistance.

- **Efficient energy infrastructure**. Specific Power Africa activities include:
    - Financing to assist with efficient transmission and distribution system infrastructure;
    - Feasibility study to develop a roadmap for the development of a comprehensive plan for implementing smart grid technologies in a utility territory; and

- Technical assistance to develop a framework and design for smart grid modernization, including technology and system recommendations for a utility-wide rollout that could reduce commercial and technical losses.

Power Africa is actively developing opportunities to partner with the private sector and international donor partners to further improve energy efficiency in sub-Saharan Africa.

c) Leverage Private Sector Resources

With high economic growth rates across sub-Saharan Africa, private sector interest in the region is robust. However, these optimistic economic growth rates are contingent upon the successful addition of new power across the region to meet the burgeoning demands of businesses, governments and citizens alike. To help realize the energy sector growth demands and utilize the strengths of the private sector, Power Africa has created a partnership model to leverage private sector resources and interest by creating an ecosystem for African energy infrastructure development.

To date, over 100 private sector partners have pledged to provide a range of human, financial and technical resources to advance sustainable power sector development and increase generation of cleaner power across sub-Saharan Africa. Power Africa partners with the private sector to utilize the range of tools and resources, to capture knowledge about policy and regulatory environments to facilitate deal development, facilitate communication between private sector partners and U.S. Government teams on the ground, and share partners' best practices to inform and improve power deals that promote Power Africa's megawatt and access goals.

d) Increase Energy Access with Distributed, Mini, and Off-Grid Related Energy Options

To help accelerate progress on Power Africa's access goals, a strategy to work "Beyond the Grid" was launched in June 2014. Through Beyond the Grid programs, Power Africa will support millions of people who are not connected to national power grids gain access to reliable, sustainable electricity through off-grid and small-scale energy solutions.

These solutions, which include standalone solar home systems, mini-hydro projects, and off-grid biomass systems, will increase energy security to households and businesses and help jump-start economic growth in communities that are currently cut off from national grid systems.

Power Africa's Beyond the Grid Strategy focuses on three areas:

- **Transactions.** Power Africa provides technical assistance, grants, and financing support for transactions to overcome the technical, financial, regulatory, or political obstacles that inhibit small-scale and off-grid projects.
- **Financing models.** By mobilizing private sector resources, including loan guarantees, project preparation grants, and financing, Power Africa is increasing the number and quality of projects, including home solar distribution networks and grid-connected solar projects.
- **Enabling Environment.** Power Africa addresses the legal, policy, regulatory, institutional, financial, and other barriers to off-grid and small-scale projects through targeted policy support to national and local government entities.

<u>Examples of key activities:</u>

- <u>Tulila Mini-Hydro</u>
  - In July 2014, Tulila Hydro-electric Plant LTD reached financial closure on a project to build, own and operate a run-of-river 5 MW hydropower power plant located on the Ruvuma River in Southern Tanzania. The project is being developed by the African Benedictine Sisters of St. Agnes Chipole Convent.
  - Power Africa's Transaction Advisor facilitated support letters to the lenders from Tanzania's Ministry of Energy and Minerals and TANESCO, a final hurdle to reaching

financial closure with few conditions precedents (CPs). These CPs included the transfer of all the project documents to a newly formed special purpose entity as well as confirmation by TANESCO that the Standardized Power Purchase Agreement (SPPA) will be extended from the original 15 years to a 20 year term. Construction of the Project is underway and completion is currently scheduled for Q2 2015.

- USADF-USAID Off-Grid-Challenge with GE Africa
    - This activity works to promote innovative solutions that develop, scale-up or extend the use of proven technologies for off-grid energy – reaching communities not served by existing power grids.
    - The $2.4 million challenge awards grants of up $100,000 each to 28 African companies and organizations providing off-grid solutions that deploy renewable resources and power local economic activities. Twenty-two winners were announced at United Nations General Assembly, demonstrating the broad range of innovative strategies that African entrepreneurs are developing to tackle local energy challenges.. Access to power is critical to spur economic growth and each winning project in this Challenge will help bring electricity to communities who have lived without reliable power.
- IFC Lighting Africa Kenya
    - This activity, focused on gender, seeks to involve women in the supply chain and address bottlenecks to their participation and identifying income generation activities undertaken by women that can be enhanced by improved or increased lighting.
    - Some of the activities being undertaken by the program to develop the market include ensuring the use of quality assured products, increasing consumer awareness, providing business development support to entrepreneurs, and engaging with lenders to commit to support this space
- Off-Grid Energy Access Investor Conference
    - The 3rd Off-Grid Energy Access Investor Conference was organized by the Global Off-Grid Lighting Association (GOGLA), Power Africa, and Deutsche Bank and took place on March 18th at Fordham Law School in New York City. Over 90 people were in attendance, including selected investors and more than 19 Power Africa Beyond the Grid private sector partners. Events like this provide companies an opportunity to network, understand Power Africa, and discuss financial needs, while providing investors with the platform to present their portfolio and requirements. The event addressed industry trends, financing challenges and business models, financing solutions by the U.S. Government and commercial and impact investors, and recommendations for further closing the financing gap by a range of financiers.
- Quality Assurance Framework Consultations
    - These consultations improve quality standards of mini-grid systems to serve consumers better in terms of safety, reliability, performance, and cost comparison. Quality standards can also help developers differentiate themselves in providing quality service and are important for financing as revenues and business projections are impacted by performance and reliability. A framework for evaluating the quality of service delivered by isolated and grid-connected mini-grids is under development in consultation with stakeholders through the National Renewable Energy Laboratory (NREL), the US Department of Energy (DOE).