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A light blue silhouette of the African continent is positioned to the right of the text "POWER AFRICA".

POWER AFRICA OFF-GRID PROJECT

**FINAL REPORT
2018–2023**



The Project has stayed adaptable, innovative, and close to the communities we serve—much like the off-grid technology it promotes.

DAVID THOMPSON, ACTING COORDINATOR, POWER AFRICA

DISCLAIMER:

This report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of RTI International and do not necessarily reflect the views of USAID or the United States Government. This report was prepared under Contract Number AID-720-674-18-D-00004 / AID-720-674-19-F-00005.

Photo Credit: Power Africa



Photo Credit: Irene Country Lodge

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After 20 years distributing PUE, this grant gave us the encouragement and opportunity to focus specifically on women in the farming community and to adapt our solutions to more directly target the problems they face.

GREGORY DENN, MANAGING DIRECTOR, PSS, KENYA

Photo Credit: Carla Visser

ACRONYMS AND ABBREVIATIONS

COIN Fund	Catalyzing Off-grid Investment Fund
DRC	Democratic Republic of Congo
FY	Fiscal Year
LPG	Liquefied Petroleum Gas
MFI	Microfinance Institution
NGO	Nongovernmental Organization
PAOP	Power Africa Off-grid Project
PAYGO	Pay-As-You-Go
PUE	Productive Use of Energy
RBF	Results-Based Financing
SHS	Solar Home System
U.S.	United States
USAID	United States Agency for International Development
USG	United States Government

PROJECT OVERVIEW

Power Africa is a United States Government-led partnership, coordinated by the United States Agency for International Development (USAID), that brings together the collective resources of over 170 public and private sector partners to double access to electricity in sub-Saharan Africa by 2030.

Contributing to this goal, the USAID-funded Power Africa Off-grid Project (the Project):

- Facilitated new off-grid electricity connections in sub-Saharan Africa
- Catalyzed new investment capital for energy projects in the region
- Improved off-grid energy policies and regulations for 12 African countries.

Duration: 5 years (November 13, 2018 to November 12, 2023).

Objectives

The Project aimed to accelerate private sector-led energy access by:

- Providing off-grid energy companies with tailored technical assistance to help them grow sustainably.
- Offering off-grid energy financiers and investors broad-based market intelligence to inform capital investments.

- Advising governments on policy frameworks that support the growth of the off-grid energy sector.
- Managing the Power Africa-funded Catalyzing Off-grid Investment Fund and awarding grants for piloting and scaling sustainable business models that increase energy access.

Partners

- RTI International implemented the Project in collaboration with Fraym, Norton Rose Fulbright, Practical Action Consulting, Tetra Tech, Institute for the Future, 60 Decibels, Top Consulting Incorporated (TCi), Sagana, DAI Magister Ltd., VIDA.place GmbH, Persistent Energy Capital AG, Enexus Finance, AltRaise Advisory, Delphos International, Ltd., Open Capital Group Limited, ECo LTD Group, Soft Landing International, Maverick Energy Consulting, Finergreen Africa, Maitri Capital Limited, DDS Sustainable Solutions UK Limited, Direct to Capital Limited, Solstroem ApS, Frankfurt School of Finance and Management, and MFR Credit Rating.
- Power Africa consists of 12 U.S. Government agencies; more than 170 private-sector partners; and 20 bilateral and multilateral development partners, key government institutions, and counterparts that work together to increase the number of people with access to power.

The Power Africa Off-grid Project (the Project) was a five-year program (November 2018 to November 2023), funded by USAID, to accelerate off-grid electrification across sub-Saharan Africa. RTI International implemented the Project in collaboration with Fraym, Norton Rose Fulbright (NRF), Practical Action Consulting, and Tetra Tech.

26 Countries of Operation

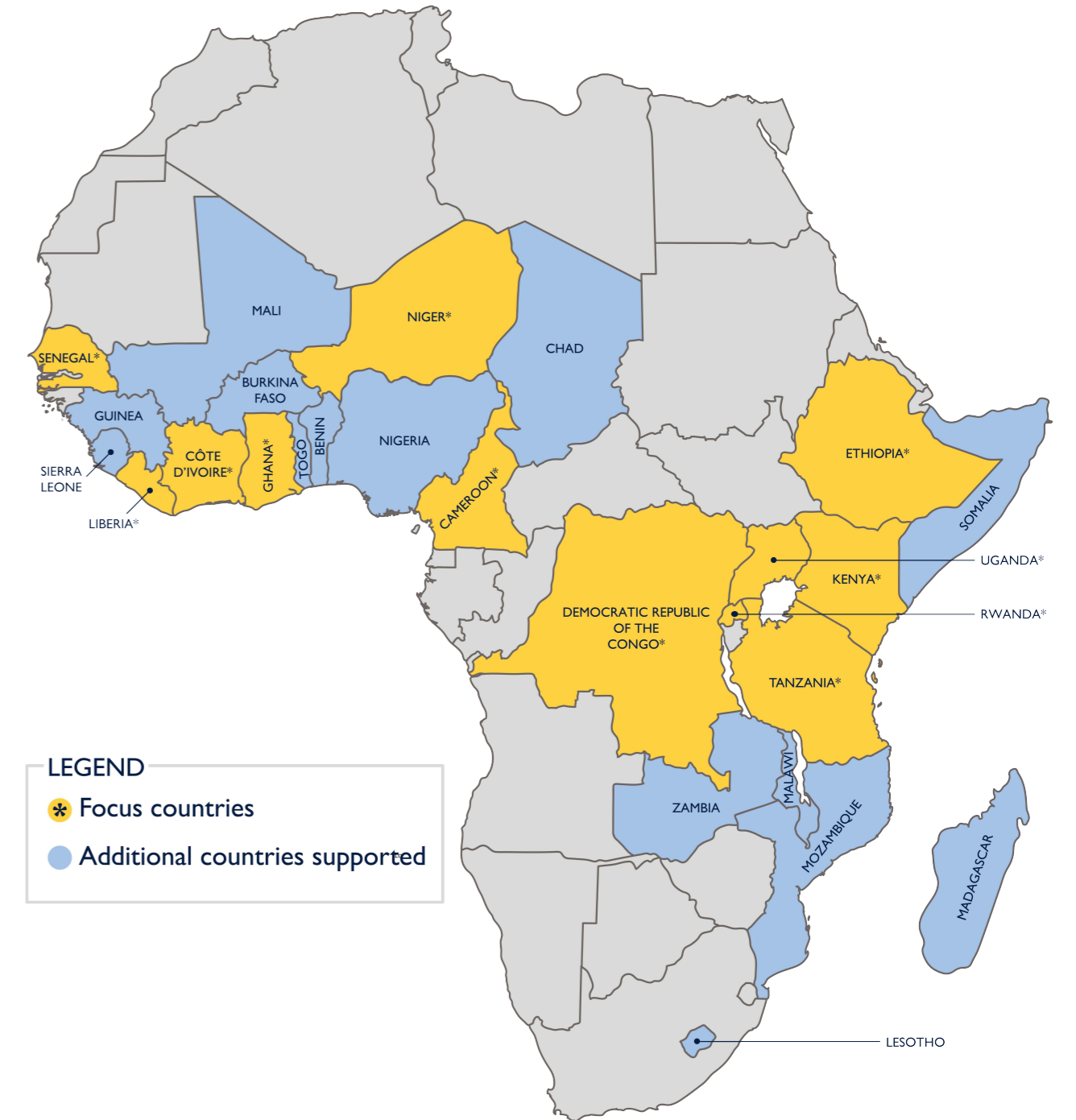
(12 Focus and 14 Non-Focus Countries)

The Project initially focused on ten countries in sub-Saharan Africa:

- Cameroon
- Côte d'Ivoire
- Democratic Republic of Congo (DRC)
- Ethiopia
- Ghana
- Kenya
- Niger
- Rwanda
- Senegal
- Tanzania

In 2020 and 2021, the Project included Liberia and Uganda, respectively, as focus countries.

The Project operated in focus countries through Lead Advisors, who were responsible for day-to-day activities and coordinated with the local USAID mission and other stakeholders. The Project also worked in 14 non-focus countries through its technical advisors and the Catalyzing Off-grid Investment (COIN) Fund: Benin, Burkina Faso, Chad, Guinea, Lesotho, Madagascar, Malawi, Mali, Mozambique, Nigeria, Sierra Leone, Somalia, Togo, and Zambia.



SUMMARY OF ACTIVITIES

WITH EXAMPLES OF ACTIVITIES BY WORKSTREAM

To achieve its objectives, the Project designed the unique *Beyond the Grid (BTG) 2.0 Sustainable Market Transformation Framework*.

The Project framework consisted of the following five specific focus areas:



Business performance:

Find tailored solutions for off-grid solar companies to improve sales.



Access to finance:

Catalyze capital for the off-grid energy sector.



Policy and regulations:

Advise governments on private-sector-friendly policy frameworks.



Market dynamics:

Commission and publish off-grid energy market research.



Cross-sectoral integration:

Identify and capitalize on opportunities to realize socio-economic benefits through clean energy.

All framework aspects included an ongoing focus on gender equality, to deliver the benefits of clean energy to women and men equally.

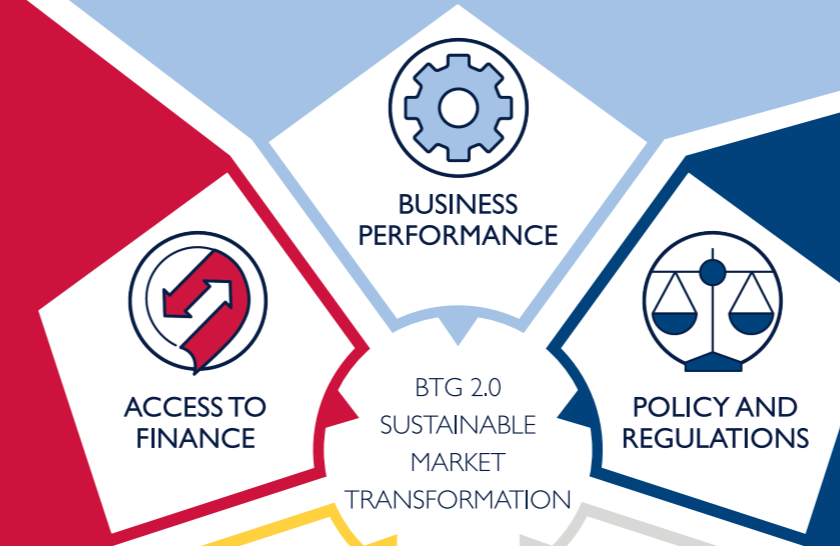
- Supported SHS, mini-grid, and PUE companies to access finance.
- Introduced off-grid companies to potential investors.
- Provided advisory support to lenders, donors, and investors.
- Supported microfinance and bank partnerships with the off-grid sector.
- Fed investor pipelines with off-grid opportunities.
- Increased the financial capacity of local financial institutions.
- Provided capital-raising support to off-grid companies.
- Supported the World Bank's Regional Infrastructure Finance Facility.

- Supported companies entering the market.
- Provided market intelligence and business development support to off-grid companies.
- Updated stakeholders on key market changes and opportunities.
- Supported U.S. companies entering a new country by providing tailored market intelligence.
- Mapped off-grid market resources and update stakeholders on key market changes and opportunities.
- Built the capacity of industry associations.
- Supported company expansion for last-mile distribution.
- Mapped new PUE distribution channels.

- Provided business advisory services to solar home system (SHS) and mini-grid companies.
- Supported companies to operate in underserved counties.
- Supported off-grid companies and associations with operations and partnerships.
- Supported SHS and productive use of energy (PUE) companies with distribution and retail strategies.
- Supported companies to improve their sales, operations, and offerings in non-focus countries.
- Supported the deployment of payment options for off-grid solar.
- Supported SHS companies to adopt and implement gender-inclusive practices.

- Supported off-grid companies to carry out activities through national solar associations.
- Supported off-grid sector associations and utilities on key activities.
- Supported tax exemption procedures for solar equipment.
- Supported the adoption, approval, and implementation of off-grid policies and government initiatives.
- Connected development partners, companies, and public institutions to promote the mini-grid sector.
- Strengthened institutional and regulatory framework for mini-grids and SHS companies.
- Supported rural electrification plans, programs, and policy and regulatory frameworks.
- Provided COVID-19 advocacy support to national solar energy associations.

- Supported local companies to integrate productive use of energy products.
- Supported female entrepreneurs and women's associations to adopt PUE.
- Supported the public and private sector to develop and implement gender strategies.
- Supported gender lens investing.
- Disseminated PUE studies and models.
- Collaborated with relevant USAID projects and partners on energy-agriculture projects and products.
- Supported healthcare facility electrification activities and assessments.
- Supported circular economy and e-waste initiatives.
- Collaborated with the Smart Communities Coalition and other USAID and U.S. Government projects in support of increasing energy access for refugees.
- Promoted healthcare facilities and schools as anchor customers.

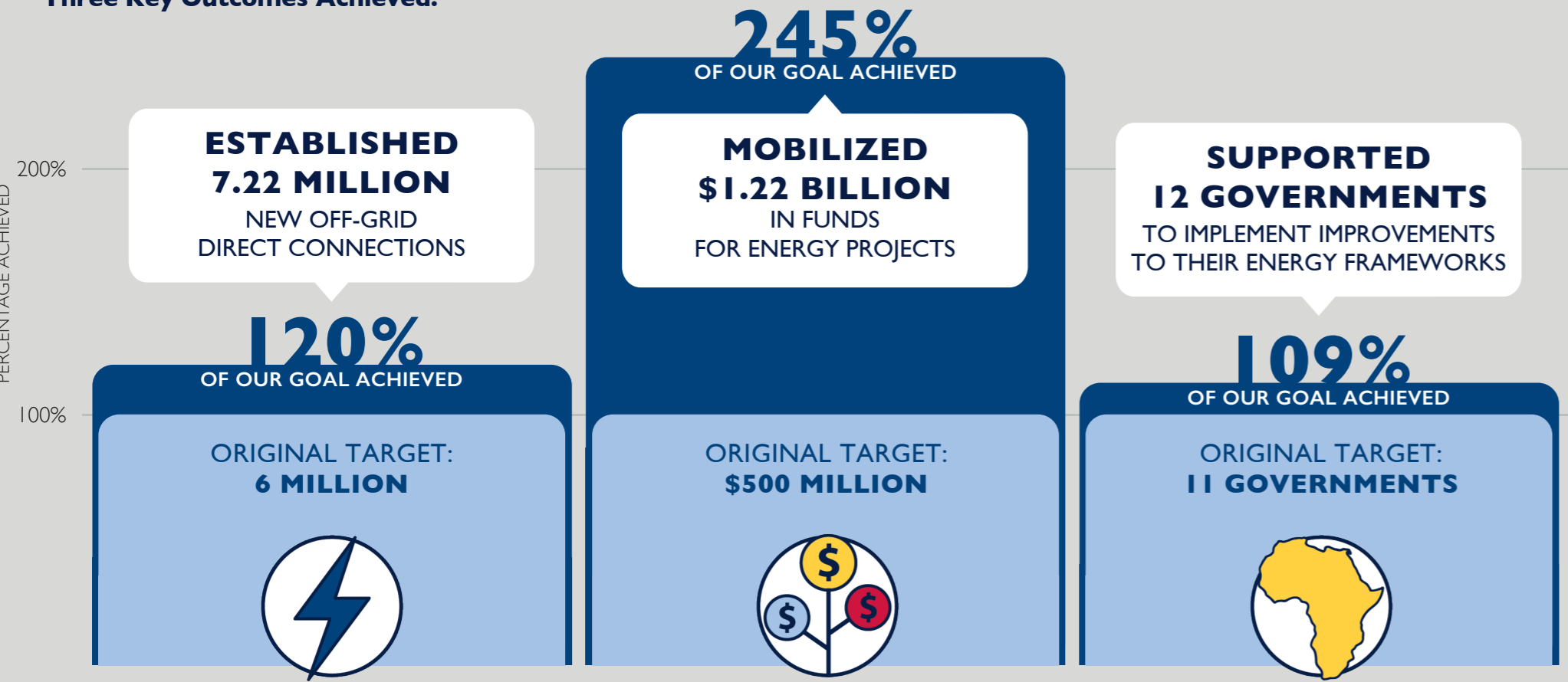


WHAT HAVE WE ACHIEVED?

This section presents the Project's results tracked against performance indicators, including 10 Power Africa standard indicators and 10 custom/contractual indicators.

Power Africa Off-grid Project surpassed all 20 of its life-of-project targets

Three Key Outcomes Achieved:



POWER AFRICA STANDARD INDICATOR	LIFE-OF-PROJECT TARGET	LIFE-OF-PROJECT RESULT	PERCENTAGE ACHIEVED
Number of new off-grid actual direct connections	6,000,000	7,223,118	120%
Number of new grid and off-grid anticipated direct connections at financial close	6,000,000	12,342,827	206%
Amount of investment mobilized for energy investment	\$500 million	\$1.22 billion	245%
Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented	57	78	137%
Number of productive-use off-grid devices or systems sold	16,515	92,155	558%
Number of supported investors, lenders, and foundations that introduce and expand off-grid-specific financial products and/or begin marketing to off-grid companies after receiving support	42	341	812%
Number of United States companies participating in PA projects/transactions	50	98	196%
Number of African governments that received PA support to implement improvements to their frameworks	11	12	109%
Number of healthcare facilities electrified	227	377	166%
Number of beneficiaries from electrified healthcare facilities	2,000,000	2,051,061	103%

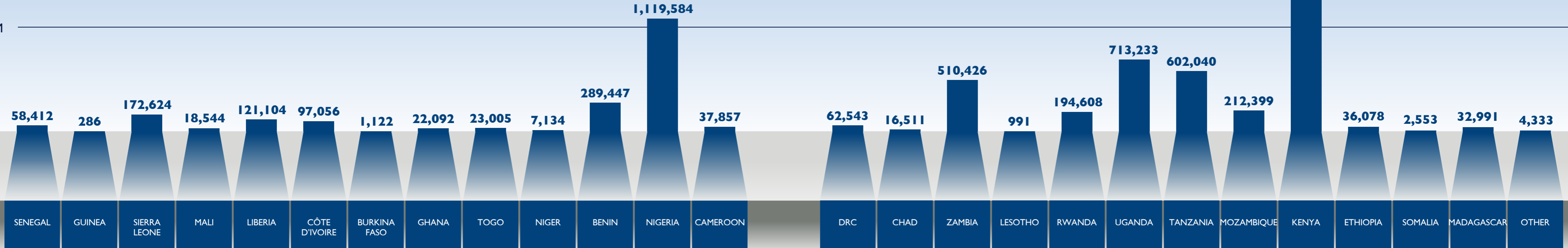
**ELECTRICITY ACCESS:
NUMBER OF NEW GRID AND OFF-GRID
ACTUAL DIRECT CONNECTIONS**

Actual direct connections reflect the actual number of new households and businesses that have access to electricity through on-grid connections, and off-grid solutions.

RESULT:
7.22 MILLION
TARGET: 6 MILLION
120% OF OUR GOAL ACHIEVED

DIRECT CONNECTIONS REPORTED

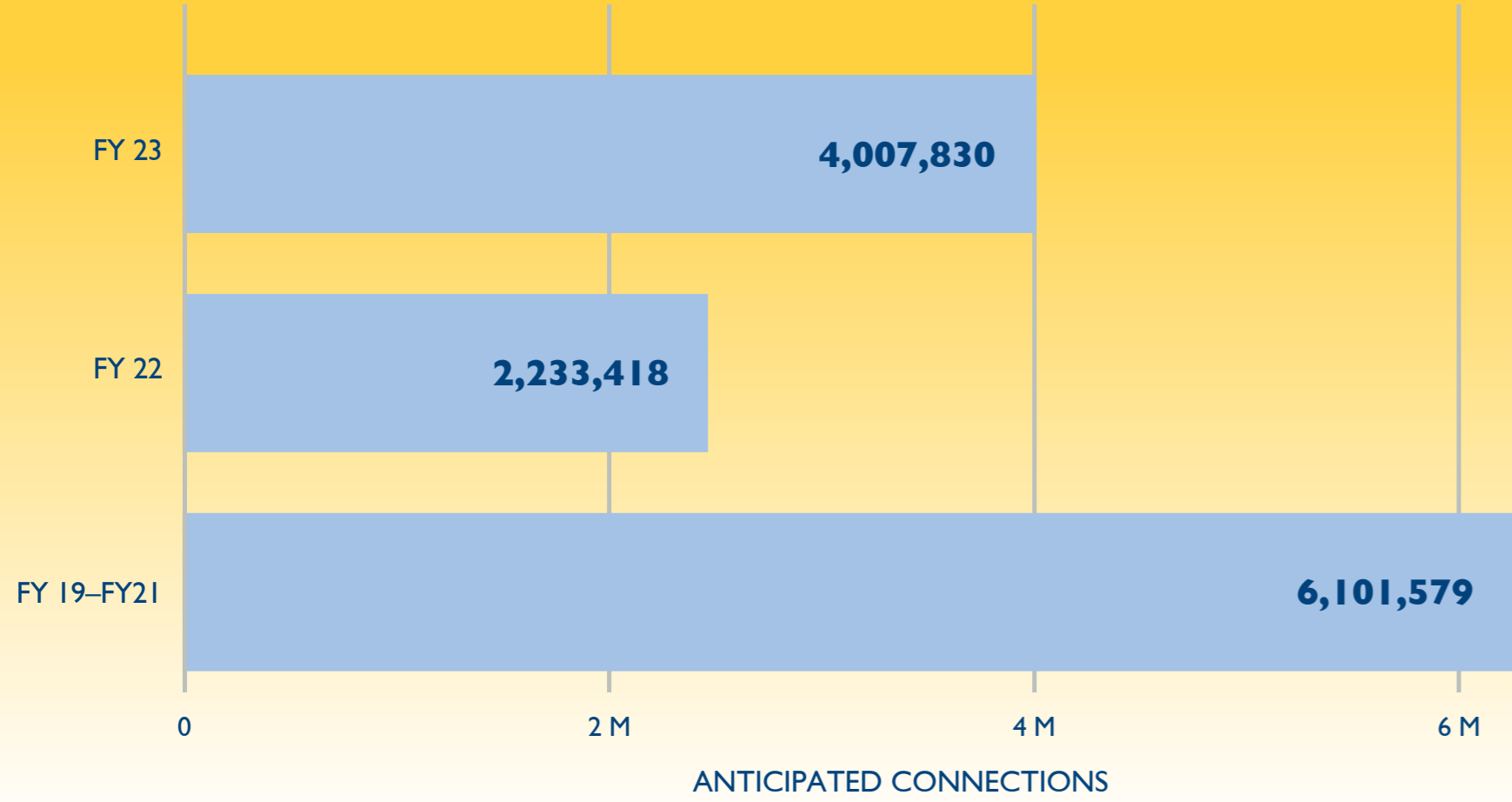
3 M
2 M
1 M



ELECTRICITY ACCESS:
**NUMBER OF NEW GRID AND OFF-GRID
ANTICIPATED DIRECT CONNECTIONS AT
FINANCIAL CLOSE**

Projected direct connections reflect the number of new households and businesses that are expected to have access to electricity through on-grid connections and/or off-grid solutions upon financial disbursement for a given activity.

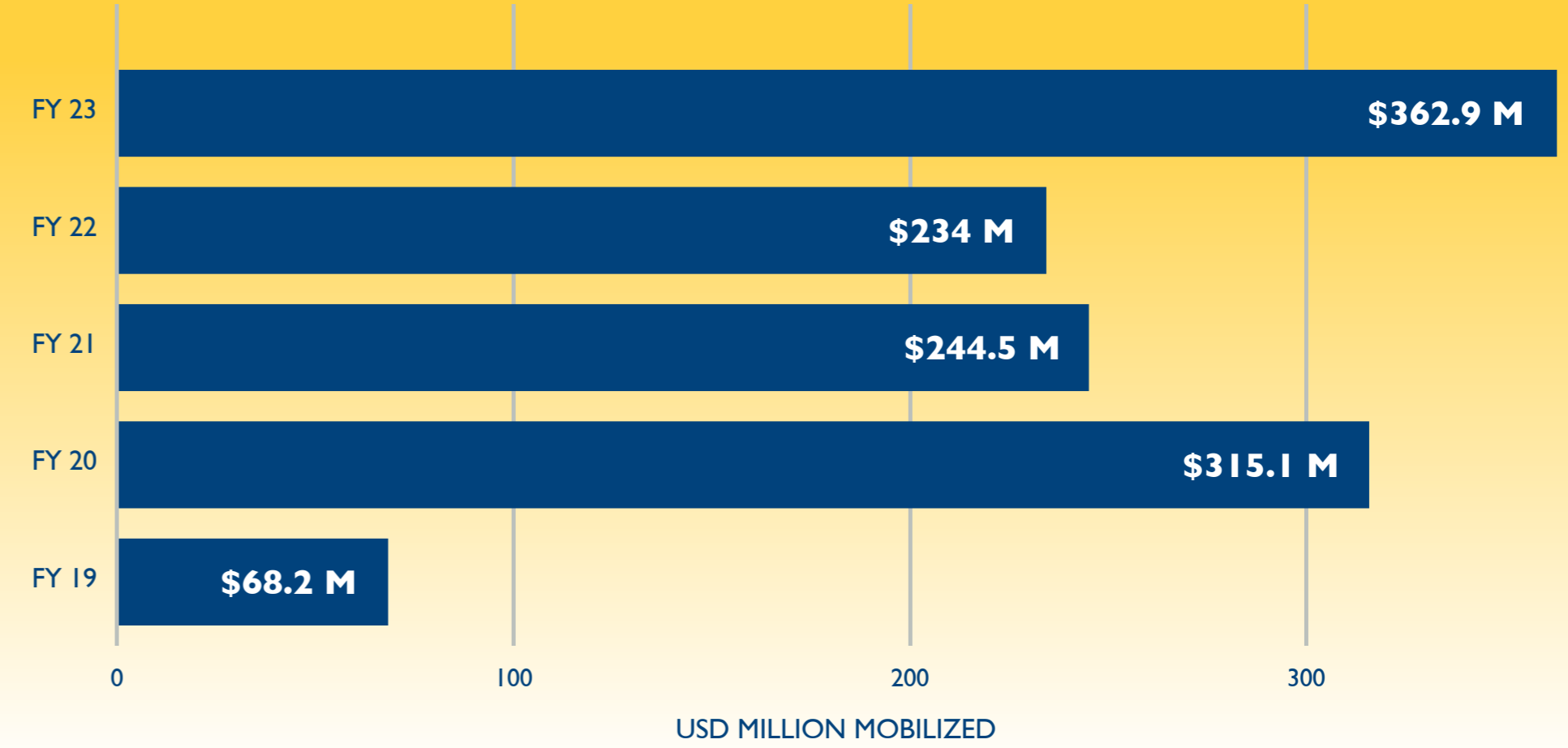
RESULT:
12.34 MILLION
TARGET: 6 MILLION
206% OF OUR GOAL ACHIEVED



AMOUNT MOBILIZED:
**AMOUNT OF INVESTMENT MOBILIZED FOR
ENERGY PROJECTS**

The total cost of power sector transactions that reach financial close, enabled by USG and/or Power Africa partner assistance.

RESULT:
\$1.22 BILLION
TARGET: \$500 MILLION
245% OF OUR GOAL ACHIEVED



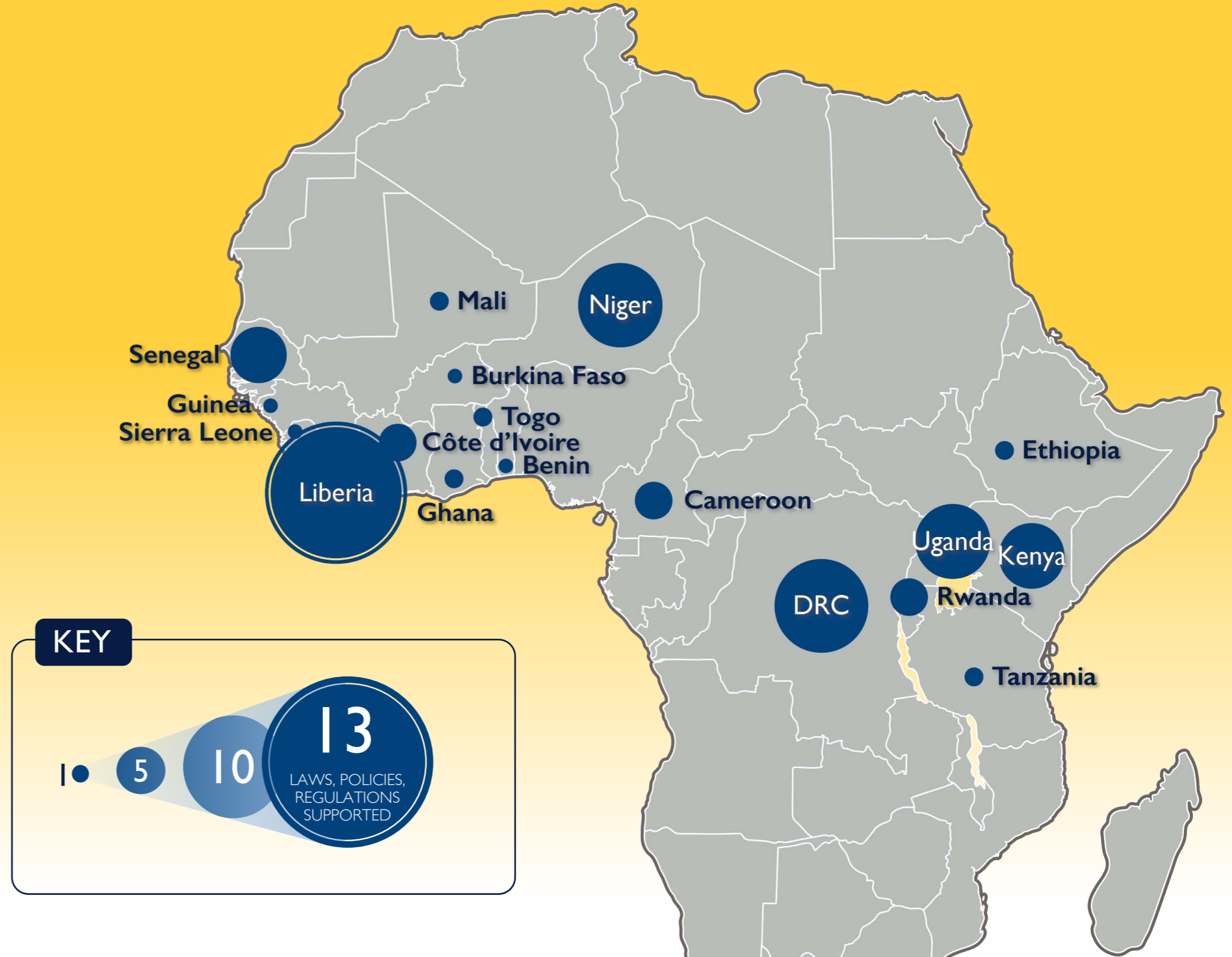
**POLICY REFORMS:
NUMBER OF LAWS, POLICIES, REGULATIONS,
OR STANDARDS TO ENHANCE ENERGY
SECTOR GOVERNANCE FORMALLY PROPOSED,
ADOPTED, OR IMPLEMENTED AS SUPPORTED
BY USG ASSISTANCE**

For Power Africa, reforms, laws, regulations, technical codes, and administrative procedures to be considered under this indicator would also include those that encourage investment in clean and cleaner energy, small scale and off-grid options, and/or support gender integration in the energy sector.

RESULT:
78
TARGET: 57
137% OF OUR GOAL ACHIEVED

COUNTRY	NUMBER OF POLICIES/ REGULATIONS/STANDARDS SUPPORTED
Benin	1
Burkina Faso	1
Cameroon	4
Côte d'Ivoire	4
DRC	9
Ethiopia	2
Ghana	2
Guinea	1
Kenya	7

COUNTRY	NUMBER OF POLICIES/ REGULATIONS/STANDARDS SUPPORTED
Liberia	13
Mali	2
Niger	10
Rwanda	4
Senegal	6
Tanzania	2
Togo	2
Uganda	8

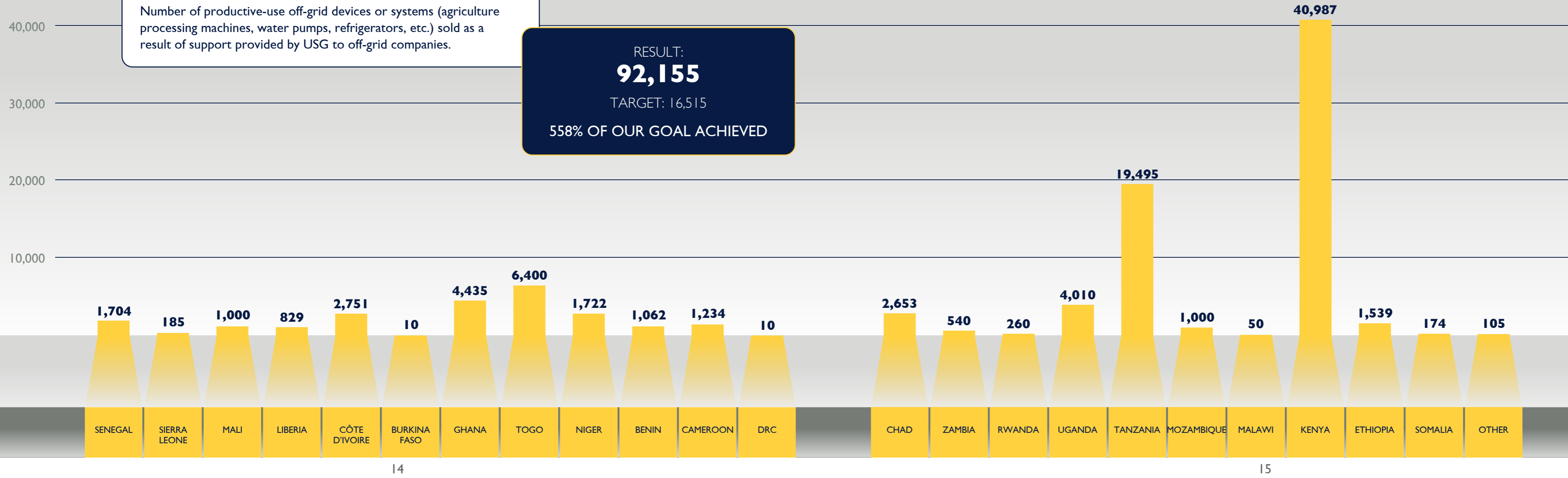


NUMBER OF PRODUCTIVE-USE OFF-GRID DEVICES OR SYSTEMS SOLD AS A RESULT OF USG/POWER AFRICA ASSISTANCE

Number of productive-use off-grid devices or systems (agriculture processing machines, water pumps, refrigerators, etc.) sold as a result of support provided by USG to off-grid companies.

RESULT:
92,155
TARGET: 16,515
558% OF OUR GOAL ACHIEVED

PUE PRODUCTS SOLD



14

15

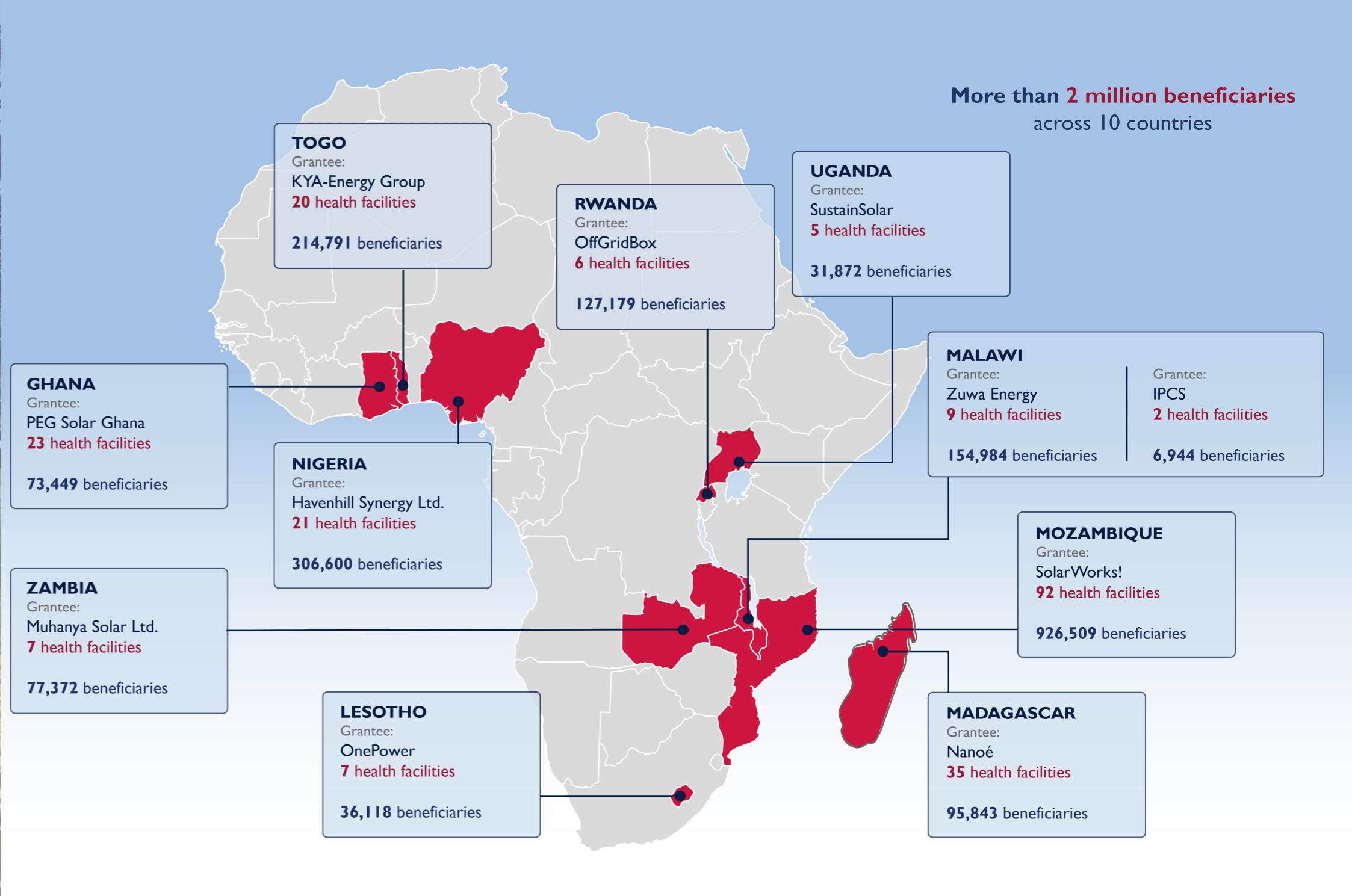


NUMBER OF BENEFICIARIES FROM HEALTHCARE FACILITIES ELECTRIFIED

Total number of beneficiaries with access to an electrified healthcare facility. The healthcare facilities should have improved solar off-grid electrical energy production equipment and related electrical installations to guarantee the supply of essential services.

RESULT:
2,051,061
 TARGET: 2,000,000
103% OF OUR GOAL ACHIEVED

Photo Credit: Carla Visser



HIGHLIGHTS OF ACCOMPLISHMENTS AGAINST ANNUAL WORK PLANS



BUSINESS PERFORMANCE

INDIVIDUAL IMPACTS

Support for a unified commercial model for [redacted] to accelerate connections in [redacted] countries. This support helped the company to develop a leaner and more efficient company structure, align its operations in each country, and ensure that best practices were shared, replicated, or adapted across countries. This support resulted in improved sales in all of [redacted]'s [redacted] countries of operation, **leading to hundreds of thousands of new connections.***

A market assessment for [redacted], in Uganda, contributed to increased sales. With the Project's business-performance support and market intelligence, [redacted], a distributor of solar home systems in [redacted], leveraged a new, focused strategic approach to guide its expansion to Uganda. Consequently, the company recorded steady sales growth in the period following the Project's assistance.

Sales-strategy support to [redacted] Uganda increased its sales by 60 percent. The Project's business-performance support helped [redacted] assess its sales approach and develop a more efficient and effective strategy to reduce costs and employ local sales agents. During the period after PAOP provided this sales-strategy support, the company increased its sales by 60 percent.

Support for developing a gender action plan and adopting gender-inclusive policies and practices helped [redacted] unlock a \$[redacted] million investment from the CDC and qualify as a 2X Challenge investment. Also, as a result of PAOP support over 12 months, [redacted]

experienced a 14 percent increase in female leadership and a 30 percent decrease in employee turnover. Revenue growth of 60 percent during the same period can be correlated to the adoption of gender-inclusive practices and increase in female leadership based on a well-established [business case](#).

Companies developed, piloted, and refined new business models and approaches to accelerating energy access. The Project advised companies to adopt pay-as-you-go (PAYGO) financing models, develop bankable business plans to improve the cost-effectiveness of their operations, optimize risk-management practices, and more. In FY 2022, the Project developed, published, and disseminated a [PAYGO Guide for Off-grid Energy Companies](#) and a [PAYGO Credit Risk Management Guide](#).

Cross-work-stream support helped [redacted] close \$[redacted] million in financing and expand its activities in West Africa with 500 new sales agents. The Project shared policy and regulatory information, helped [redacted] process its products through the Government of Cameroon, connected it with candidates for leadership positions, informed its market strategies in 30 off-grid areas of Cameroon, and introduced it to the telecommunications company [redacted] to mobilize a network of sales agents. The Project's legal advisory support helped [redacted] raise \$[redacted] million to expand its operations in Cameroon, Mali, Niger, and Senegal. As a result, [redacted] Business Development Manager [redacted] shared, "I would like to thank you for introducing us to [redacted] and its distribution network. Today we remember that **thanks to this partnership, we have an average of 500 active [redacted] agents** responsible for selling [redacted] products."

* Highlights throughout the report show major results and outcomes.



Photo Credit: ENGIE Energy Access



[As a result of Power Africa's support] insights have sprung up which point to critical success factors and how and where we can gain more efficiencies and scaling power across our markets by replicating best practices already embedded in some countries. Getting this down on paper so clearly lets us move from reliance on insights held by a few through direct experience to a tangible knowledge bank that senior leaders can use to make critical organizational decisions in the future.

[redacted], HEAD OF CREDIT OPERATIONS, [redacted]



In 2022, with Power Africa’s help, [REDACTED] piloted a community-driven sales structure to reduce costs and achieve sustainable growth. Through this model, [REDACTED] works with local networks, such as savings groups and cooperatives, to promote solar products and drive sales. The model relies on local “sales ambassadors” recruited from within the community and assigned to specific customer profiles, to promote and explain [REDACTED]’s products.

Photo Credit: [REDACTED]



BUSINESS PERFORMANCE

SYSTEM-LEVEL IMPACTS

86 partnerships brokered in West Africa. In West Africa, the Project identified parties with aligned interests and facilitated introductions between 86 off-grid energy companies and private investors, resulting in productive, mutually beneficial partnerships. Consequently, Project-supported transactions in West Africa have totaled more than \$___ million, contributing to PAOP surpassing life-of-project targets.

Support for expansion into new markets. Thanks to the Project’s targeted insights, companies such as [REDACTED] and [REDACTED] expanded their operations and reach across West Africa and southern Africa. In FY 2020, the team supported the Ethiopian company [REDACTED] to win a \$ [REDACTED] Feed the Future grant and pursue its mini-grid license application, resulting in Rensys becoming one of two companies to receive a mini-grid license for Dek Island.

Rapid Project-led information-sharing, coordination, and advocacy efforts enabled solar companies in 10 countries to operate as essential services during COVID-19 lockdowns.

- **Essential service designation.** In FY 2020, at the onset of the pandemic, the Project contributed to efforts to designate the off-grid sector as an essential service, encourage the suspension of disconnections, and more. As of the end of FY 2020, governments effectively designated off-grid companies as essential services in all the Project’s focus countries where such a designation was necessary for these companies to operate (Liberia and Tanzania had no such need).
- **Recommendations for governments and donors.** The Project shared recommendations among key sector-wide stakeholders to

minimize pandemic-related economic hardships through payment relief for off-grid customers; deferrals of taxes, duties, and levies for off-grid companies; exemptions on public health-related energy equipment; mobile money and transaction fee suspensions; and donor-funded subsidies to alleviate company default rates.

- **GOGLA coordination, information sheets, blogs, and updates to companies.** The Project quickly developed, published, and disseminated six information sheets on priority topics, as identified by off-grid companies, and two blogs (one on the sector’s role and another on lessons from the Ebola response). Many companies said they found the information sheets very useful and **changed their operations, to some extent, after reading them.** The Project regularly provided policy and regulatory updates for GOGLA’s COVID-19 Policy Tracker for the off-grid solar sector in Africa. Also, the Project participated in weekly meetings related to the [REDACTED] Fund spearheaded by [REDACTED] and GOGLA, as well as the Technical Assistance Working Group associated with these efforts.

The Project directly supported 23 companies to adopt gender-inclusive policies and practices toward increasing women’s employment in the sector, including in leadership positions, and increasing women’s access to energy products and services. The support included disseminating the Project’s gender-assessment tool and developing a gender action plan based on the findings of the assessment. The Project shared other resources to promote good practices by companies, and provided on-demand and tailored advisory support. The Project developed a market-focused gender strategy for Simusolar, based on research on the agricultural PUE needs of female farmers in Simusolar’s market. The strategy developed for Simusolar informed the Project’s creation of a general use roadmap for sector stakeholders to develop a market-focused gender strategy to increase the uptake of agricultural PUE by women.



BUSINESS PERFORMANCE

23 gender action plans implemented across sub-Saharan Africa. Overall, PAOP’s support to companies on gender inclusion raised awareness about the business case for gender equality and the importance of tailoring marketing and sales strategies to women customers, based on an understanding of their energy needs and barriers to access. Companies also recognized the imperative of incorporating gender considerations into their financing strategies. **PAOP directly supported 13 companies in West Africa and 10 companies in East Africa to adopt gender-inclusive policies and practices toward increasing women’s employment, including in leadership positions, and increasing women’s access to energy products and services.**

The companies included:

- | | | |
|--------------------------------|----------------------|-----------------------|
| 1. █████ (PUE) | 10. █████ (SHS) | 20. █████ (SHS) |
| 2. █████ (SHS) | 11. █████ (Investor) | 21. █████ (Investor) |
| 3. █████ (SHS) | 12. █████ (SHS) | 22. █████ (Mini-grid) |
| 4. █████ (SHS) | 13. █████ (SHS) | 23. █████ (Mini-grid) |
| 5. █████ (PUE) | 14. █████ (MFI) | |
| 6. █████ (Investor) | 15. █████ (Investor) | |
| 7. █████ (Investment Facility) | 16. █████ (PUE) | |
| 8. █████ (SHS) | 17. █████ (Investor) | |
| 9. █████ (Mini-grid) | 18. █████ (Investor) | |
| | 19. █████ (PUE) | |



I am the one who persuaded my husband to purchase the product, although he also needed it. Since this product has been of help to us, my husband now trusts my ideas, even in choices of other things.

Photo Credit: Kat Harrison

FEMALE SOLAR HOME SYSTEM USER, KENYA

 ACCESS TO FINANCE

INDIVIDUAL IMPACTS

Application assistance in West Africa helped companies win tens of millions in funding. The Project worked closely with companies to identify and prepare financial applications for grants and other sources of funding. In West Africa, among other examples, the Project’s application assistance through various opportunities successfully led to the following grant funding: \$2.5 million in Burkina Faso, \$7.2 million in Liberia, \$1.8 million in Sierra Leone, and \$1.2 million in Côte d’Ivoire.

Legal support to [REDACTED] \$ [REDACTED] million facility could lead to 2.5+ million connections. In FY 2021, the Project extended legal support to [REDACTED] in Kenya, one of the largest companies in the off-grid energy market, which was raising significant debt to fund its expansion. Thanks to this funding, [REDACTED] expects to deploy 2.5+ million connections.

Regulatory and grant support enabled a U.S. Government-funded \$1-million feasibility study to develop 100 rural mini-grids for 192,000 people in Côte d’Ivoire. In 2020, when the Côte d’Ivoire government sought mini-grid development opportunities, the Project proposed funding through the U.S. Trade and Development Agency, which expressed interest in receiving a grant application within two weeks. The Project worked rapidly with the Ivorian government to review and translate the grants agreement into French, facilitate approvals and leadership commitments from ministry staff, finalize the selection of sites, and draft terms of reference. As a result, USTDA officially approved the funding. The Project then supported the parties to draft a request for proposals, and helped arrange the list of USG contractors to participate in the bid. The study assesses 100 unelectrified rural communities, with a

potential 32,000 connections that will benefit 192,000 people.

“ We have worked over the past two years with our partners, including USAID/Power Africa, to develop an Off-grid Action Plan for rural areas. It is time to implement that Off-grid Action Plan, and this grant from U.S. Trade and Development Agency is critical to take a concrete step forward toward this implementation.

[REDACTED], CÔTE D’IVOIRE MINISTRY OF PETROLEUM, ENERGY, AND RENEWABLE ENERGIES



The Project developed and launched innovative financing mechanisms and products, including:

- [REDACTED]’s asset-based financing of PUE
- [REDACTED]’s local currency hedging facility
- [REDACTED]’s carbon credit strategy
- [REDACTED]’ receivables aggregation financing platform

Photo Credit: SunCulture



ACCESS TO FINANCE

The Project supported several large-scale facilities in local currency, with the promise of future replicability, including:

- **Legal and technical assistance to [REDACTED] enabled a trailblazing \$[REDACTED] million multi-currency receivables-financing facility.** In FY 2022, Solar Frontier Capital Limited and d.light jointly announced the establishment of a new \$[REDACTED] million financing vehicle, [REDACTED]. The financing structure promises to improve energy access for nearly **three million people in Kenya** and accelerate [REDACTED]'s expansion in the region. [REDACTED] includes partial financing from a \$[REDACTED] million facility, which [REDACTED], [REDACTED], [REDACTED], and [REDACTED] jointly finance. The Project provided [REDACTED] with legal assistance and technical advice for the transaction, and continued to support [REDACTED]'s efforts to expand the facility in other markets through similar transactions across East and West Africa. It is still relatively unusual for any sector in Sub-Saharan Africa to raise these types of debt with this type of structure, so this transaction serves as a proof of concept. Further, few companies have the capacity to raise and, more importantly, take on this type of leverage; therefore, the facility demonstrates the level of maturity reached by leading companies in the sector.
- **[REDACTED] Kenyan-shilling-denominated \$[REDACTED]-million sustainable-securitization transaction unlocked capital to fund clean energy at scale.** In FY 2023, [REDACTED] closed a \$[REDACTED]-million facility that is **expected to provide clean-energy access for one million customers.** The Project advised [REDACTED] on the design strategy of the securitization, including review and options for structuring, with the goal of setting the groundwork for [REDACTED] to attract large institutional investors and reduce investment hurdles.

- **End-to-end capital-raise support over three years was catalytic, with [REDACTED] closing a \$[REDACTED]-million deal in FY 2021 and a \$[REDACTED] million equity raise in FY 2023.** [REDACTED] is a DRC-based company whose urban solar photovoltaic mini-grids and utility-scale solar metro-grids cater to both commercial and industrial (C&I) and residential customers. In FY 2021, the Project provided [REDACTED] with capacity-building support, technical assistance, financing opportunities, and introductions, as the company explored partnerships with investors. In FY 2021, [REDACTED] announced the award of \$[REDACTED] million in debt and equity to [REDACTED], which has supported the company's growth throughout eastern DRC. The Project supported this deal by providing end-to-end capital-raise technical assistance. In FY 2023, the Project supported a [REDACTED] of \$[REDACTED] million, marking the end of three years of Project support. The capital **enabled the construction of 13+ MWh in projects** and potentially contributed to attracting further investments in DRC.
- **Access-to-finance coaching, treasury management services, portfolio quality support and interim leadership support.** From FY 2020 through FY 2023, the Project provided to companies and investors a range of targeted, custom-tailored, short-term technical assistance related to interim Chief Operating Officer and Chief Financial Officer services, coaching, treasury management, fundraising assistance, carbon credit strategies, credit rating, and gender lens investing. End-to-end transaction-focused support focused on support areas such as legal structuring, financial modeling, investor pitch decks, shareholder agreements, capitalization tables, management accounts.



The financial model [PAOP] helped create has been really useful when speaking with investors. The support given for the pitch deck creation has helped us prepare to meet with investors. The coaching session [PAOP] conducted has given our management team the confidence to meet with investors and pitch our company and funding needs. We are so thankful for the support because we know it will help us mobilize the funding needed to grow our company.

LAURA CORCORAN, CHIEF BUSINESS DEVELOPMENT OFFICER, APTECH AFRICA

- **Local company [REDACTED] and U.S. company [REDACTED] partnered to raise \$[REDACTED] million in capital in frontier West African markets.** [REDACTED] comprises two sister companies with operations in Mali: the African company [REDACTED] and the U.S.-based company [REDACTED]. In 2020, the Project pitched to investors [REDACTED] and [REDACTED]. The joint venture [REDACTED], which resulted in \$[REDACTED] million in grant, debt, and equity from [REDACTED], [REDACTED], and [REDACTED]. The Project further supported [REDACTED] with its financial modeling and structuring

challenges. The Project's introductions, insights on commercial structures, valuation recommendations, and other transaction-related support led to a financial close of \$[REDACTED] million. This milestone investment for West African solar markets will help [REDACTED] develop and expand its services in Burkina Faso, Côte d'Ivoire, and Mali. This transaction **demonstrates the value of localization of Africa-based entities developing West African markets, as [REDACTED] is a 100-percent African company and the development finance institution [REDACTED] is based in Africa.** Since FY 2020, [REDACTED] has successfully reached financial close on other transactions, including an \$[REDACTED] million debt facility in FY 2023 that the Project helped structure.

- **Grant and capital-raising support to [REDACTED] unlocked multiple funds.** [REDACTED] is an SHS distributor in Senegal that sells solar kits and digital products, with educational content. In FY 2021, the company closed a \$[REDACTED] million transaction to expand its PUE products, and secured an additional \$[REDACTED] million USAID Development Innovation Ventures (DIV) grant to support deployment of its offerings in DRC and increase access to finance through PAYGO data scoring in Senegal. The Project supported both the investment and grant win, notably by providing on-the-ground due-diligence assistance in Senegal, treasury management and Chief Financial Officer support, an introduction into the PUE market, and support for agricultural value chain projects. With this investment, [REDACTED] **estimates 20,000+ connections achieved from the expansion of its solar product range to PUE solar kits, to help customers develop businesses and generate income in rural areas.**



Photo Credit: Baobab+

“ Thank you for your advice and support throughout the long and heavy [grant] selection process. It was a great and decisive help for us to identify the opportunity, better understand DIV's expectations, and the right project that would make sense for the both of us, and finally, find solutions to the issues raised along the way. [REDACTED], CHIEF MARKETING AND SALES OFFICER, [REDACTED]

 ACCESS TO FINANCE

SYSTEM-LEVEL IMPACTS

Tens of millions granted to off-grid energy companies in five countries. Power Africa is a partner of the [Beyond the Grid Fund for Africa \(BGFA\)](#), managed by the Nordic Environment Finance Corporation (Nefco), implemented by the Renewable Energy and Energy Efficiency Partnership (REEEP), and funded by the Government of Sweden. PAOP technical experts dedicated substantial time and effort to supporting the process of awarding grants, from beginning to end, in five countries: Burkina Faso, DRC, Liberia, Uganda, and Zambia. The Project's role included promoting the opportunity widely across the sector; advising BGFA leaders on criteria and evaluation-process improvements; helping certain companies apply by supporting their applications, proposals, and business plans; evaluating other companies' prequalification-phase and final submissions; and providing due-diligence support. As a result, BGFA awarded tens of millions in funding, including \$ [REDACTED] million to Liberian companies [REDACTED], [REDACTED], and [REDACTED].

Project-moderated event in DRC led to \$122 million in pledged donations to electrify 400,000 households. In FY 2022, as a result of a roundtable organized by the USAID Mission in DRC, the Project, and the national off-grid energy agency, **a total of \$122 million was pledged by donors to the Mwindia Intermediary Fund, which aims to electrify 400,000 households** in DRC. Contributions came from USAID through the Alliance Garamba Project; Sweden through Beyond the Grid Fund for Africa; the World Bank; REDD+ (Reducing Emissions from Deforestation and Forest Degradation) National Fund, funded by the Government of Sweden; the Japan International Cooperation Agency; and the French

Development Agency (*Agence Française de Développement* [AFD]).

Four funds realized results from the Project's significant gender lens investing support. For several years, the Project delivered customized gender-lens-investment training to several funds, for example, in 2022 to [REDACTED], [REDACTED], and [REDACTED]. This support mobilized capital for off-grid companies that either achieve Power Africa's objectives for gender equality or agree to take measurable steps to meet these standards as well as Power Africa's objectives to increase women's participation in the sector and improve women's access to clean-energy technology. As of the end of 2023, the following four funds achieved results from PAOP's significant gender-lens-investing support:

1. [REDACTED]
2. [REDACTED]
3. [REDACTED]
4. [REDACTED]

\$ [REDACTED] million off-grid climate fund benefited from PAOP's legal support and gender lens investing expertise. In FY 2022, the Project began advising the \$ [REDACTED] million [REDACTED], a blended-finance climate fund managed by [REDACTED]. This fund expects to deploy \$ [REDACTED] million for mini-grids, SHS, and PUE in sub-Saharan Africa, with a strong focus on gender. PAOP assisted the fund with transaction documentation, condition-precedent closure, and local legal advice. The Project provided gender-lens-investing training to [REDACTED] management and staff, as well as representatives from impact investor [REDACTED]. [REDACTED] requested that the Project train its team to apply a gender lens throughout the investment process, which contributed to the results.

 ACCESS TO FINANCE

Several funds have benefited from Project support:

- **\$ million**. In FY 2021, the Project supported the Eastern and Southern African Trade and Development Bank (TDB), which manages the \$ million off-grid fund debt fund called . The Project offered support in several areas, including pipeline development, transactional support, market analysis, and introducing and appraising off-grid businesses. also requested the Project’s help to understand carbon offset/credit markets, set up carbon-finance programs, and identify guarantees options for its \$ million facility. The facility comprises a credit line and a \$ million concessional technical assistance credit.
- **\$ million**. In FY 2021, awarded two investments, through their East Africa-focused , to off-grid companies. in Rwanda received \$, and in Zambia received \$. The Project shared leads with for its and offered access-to-finance support for its \$ million , which provides debt, equity, and revenue-based financing to companies.
- **launched with Project support, starting with a \$ million transaction.** In FY 2021, the Project provided significant support to launch , an unprecedented partnership of governments, foundations and investors, managed by . The Project’s technical assistance involved gender mainstreaming and legal advisory support to manage closing this complex fund with multiple lenders. The Project supported the legal process of assessing and identifying the optimal financing structure to handle multiple providers and types of capital, and assisted the fund to comply with Green

Climate Fund gender requirements. Reaching its first close of \$ million in 2021, began disbursing concessional loans to off-grid solar companies affected by the COVID-19 pandemic. As of the end of the Project, the fund provided unsecured **working-capital lending to support small and medium-sized enterprises** in the sector. The fund’s climate finance provisions **aim to reduce 1+ million tons of carbon dioxide equivalent in emissions.**

- **\$1+ million Fund.** In FY 2021, the Project supported , an umbrella for the Ugandan private sector, which was implementing a \$1-million+ COVID-19 relief fund on behalf of . The Project provided technical assistance with evaluating applications and helped develop a methodology to disburse awards while the rest of the relief funding came in.
- **\$1+ million for in Tanzania.** In FY 2021, building upon well-established results-based financing (RBF) mechanisms and structures, this fund supported the recovery of firms throughout Tanzania, while broadening RBF incentives to include economic impact parameters relevant to the post-lockdown period. From 2020 to 2021, opened with approximately \$ million in RBF incentives available to the private sector, to stimulate solar and small SHS markets in mainland Tanzania. The Project supported discussions on sector-wide recovery needs, ticket sizes for the grant, potential beneficiaries from its current pipeline, and new organizations. The Project also provided intelligence on market trends and opportunities in the sector.

Microfinance institution (MFI) webinars attracted 200+ unique participants. In FY 2020, the Project produced and led five live, hour-long webinars for microfinance institutions (MFIs) in the series “An Introduction to Renewable Energy Financing in Sub-Saharan Africa,”

which attracted **more than 200 unique participants.** The sessions were [recorded as a YouTube playlist](#). Topics included identifying loan opportunities, developing energy loans, evaluating MFI readiness, researching the industry and market, developing products, launching and monitoring a pilot, selecting products and partners, working on memoranda of understanding, developing a rollout strategy and business plan, preparing for launch, and monitoring and assessing a rollout. The Project shared tools to help MFIs better understand the needs and sizes of their market segments and develop better energy-financing products. Following the webinar series, PAOP reached out to several interested MFIs to support their development of energy-financing products. As a companion resource to these webinars, the Project released [Microfinance Loans for Increasing Access to Off-Grid Solar Products](#), which guides companies, MFIs, and local banks on providing loans for off-grid solar products.

Widespread adoption of Financial Modeling Tool. In FY 2021, the Project launched its open-source [Financial Modeling Tool](#) together with supplementary training material, and assisted three companies seeking to update and improve their financial modeling methodology, profitability analysis, and fundraising: SHS provider NovoMoto, PUE financier EnerGrow, and mini-grid developer Sunkofa. Experience gathered from this in-depth support informed further development of the modeling tool. PAOP hosted two webinars to introduce companies to the tool, demonstrate its features, and advise on best practices in financial modeling for capital-raising processes, **with 317 and 226 participants**, respectively. Following the webinars, Differ Group, a Norwegian early-stage equity investor, quickly introduced the tool and adjusted it for two of its portfolio companies.

Africa Enterprise Challenge Fund’s **portfolio companies had found the tool useful**, and asked if the Project could hold a session with

investees to explain how to use it. In Ghana, SNV’s Renewable Energy Development and Acceleration Project **requested its portfolio to use the tool.** In Kenya, **used the tool for the portfolio of its World Bank-funded facility**, the Kenya Off-Grid Solar Access Project. **also incorporated the tool into its training program,** for last-mile distributors. In FY 2022, the Project helped two Ugandan companies—, a PUE financier, and , an off-grid company—to model their finances using the tool. The Project helped the companies improve their financial modeling, analyze profitability, and build a fundraising strategy. secured a grant from the during PAOP support.

“PAOP’s support on our financial model and market mapping has really helped us refine our model and access a grant. We are now in initial conversations with two equity investors as a result.”
 , CHIEF EXECUTIVE OFFICER



POLICY AND REGULATIONS

INDIVIDUAL IMPACTS

In Kenya, the Project supported the off-grid industry's efforts to preserve value-added tax (VAT) exemptions in FY 2020 and advised the Finance Bill of 2022. The Tax Laws (Amendment) Bill, 2020 and the Finance Bill, 2020 proposed the revocation of key VAT exemptions that had enabled the growth of the off-grid solar industry. With support from the Project, the sector was successful in advocating for the Government of Kenya to **strike the deletion of the exemptions from the Tax Laws Bill** before its passage.

In FY 2022, the Project assisted the Kenya Renewable Energy Association (KERE) by reviewing the draft Finance Bill (2021) and proposing amendments (e.g., extending allowances to mini-grid generation investments to serve the government's goal of promoting rural electrification in off-grid areas), which the government accepted. As a result, the Government of Kenya **published a new Finance Bill (2022)** which reinstated the exemptions. The association collated the concerns and petitions of various stakeholders, which PAOP reviewed and submitted to the Departmental Committee on Finance of the National Assembly.

Uganda's new energy policy and PUE roadmap built on the country's vision for universal access to sustainable, affordable, and quality energy services for all Ugandans by 2040. In FY 2023, the Cabinet of Uganda approved the Revised Energy Policy for Uganda, 2023, replacing the Energy Policy for Uganda, 2002, which had guided the progressive expansion of investment in SHS, mini-grids, and PUE for the previous 20 years. During Renewable Energy Conference 2022, the Ministry of Energy and Mineral Development acknowledged the Project's

support in providing comments and suggestions on the energy policy. The Project also contributed to the ministry's new strategy for its **National Renewable Energy Platform** as well as its **National PUE Roadmap**, launched in July 2023, which focuses on how the government can facilitate greater deployment and uptake of solar-powered agricultural systems (e.g., water pumps and clean cooking devices) and sets clear policy actions and activities to spur electricity demand and economic development. These documents **increased awareness among key stakeholders and set timelines for the establishment and implementation of PUE strategies.**

USAID and Power Africa received a nomination for Development Partner of the Year at the Renewable Energy Conference 2022 in Uganda, which recognized the work of the Project and the East Africa Energy Program to develop an RBF for SHS, review MEMD's new energy policy, share knowledge, support local companies and the government, and disburse mini-grid and health facility electrification grants.

Mini-grid tariff reviews in Tanzania empowered the regulator. Starting in FY 2020, the Project assisted Tanzania's mini-grid sector to navigate regulatory and tariff hurdles. In early 2021, the Minister of Energy compelled all independent power producers, including mini-grid developers, to begin charging a potentially unfeasible tariff. PAOP worked with stakeholders and the government to advocate for a uniform sector-wide tariff determination with the new Minister of Energy, which resulted in support for reversing the tariffs. The government reassessed tariffs via public-private meetings with developers of the established mini-grid sites. By the end of FY 2022, **three mini-grid developers received approval for the new tariffs** for which they had advocated. The government's more flexible approach to tariffs represents significant progress for the off-grid industry, suggesting that the tariff-approval process is now completely in the hands of the regulatory authority. **Developers can now negotiate cost-effective tariffs** for existing and future sites, and these **tariff reforms have unfrozen much-needed donor funding** (e.g., a locally managed facility under the Rural Energy Fund) for Tanzania's mini-grid sector.

New solar equipment exemptions in Niger. In 2020, in Niamey, PAOP provided technical assistance and financial sponsorship for the Ministry of Energy's Validation Workshop for the Renewable Energy Decree. During the workshop, parties validated two draft renewable energy decrees: a process for requesting import duty exemptions for solar equipment, and terms and conditions for obtaining, renewing, and withdrawing accreditation for solar photovoltaic equipment providers, installers, and importers. The workshop also informed customs officers about the details of new exemptions for solar equipment. PAOP introduced discussions on the value-added tax (VAT) exemption and demonstrated how it could accelerate the SHS market. The workshop resulted in an **amendment to the 2017 policy, which added solar pumps and accessories, solar generators, and other equipment to the**

list of equipment eligible for duty waivers.

The Government of Côte d'Ivoire advanced new, forward-looking regulations. Starting in 2019, the Project held consultations with six ministries in the Government of Côte d'Ivoire, facilitated participatory workshops with the private sector and development partners, and performed due diligence. In FY 2020, the Ministry of Energy officially adopted and released the new Renewable Energy Policy, Off-grid Electrification Action Plan, and associated regulations for mini-grids and other off-grid activities. Within a year, the off-grid energy sector saw positive effects, such as a renewed confidence among development partners. For example, after delaying their support due to lack of an enabling regulatory framework, the European Union and German partners released \$118 million through *Kreditanstalt für Wiederaufbau* (KfW). As another direct impact, **national renewable energy associations and the Ministry of Energy established a highly constructive platform for discussions** to address remaining policy and regulatory barriers to private-sector investment in SHS and mini-grids.

Cross-ministerial awareness-raising and coordination resulted in solar equipment duty and value-added tax (VAT) exemptions in Senegal. In 2020, the Project facilitated several meetings with the National Renewable Energy Agency, Senegalese Agency of Standards, Ministry of Petroleum and Energy, and Council of Professionals of Renewable Energies to coordinate policy and regulatory modifications. The Project led discussions between stakeholders on critical distinctions between tax categories and helped define eligibility lists for types of renewable energy equipment. The Project, African Clean Energy, and the Tony Blair Institute coordinated the review of terms of reference for the drafting of solar-equipment importation guidelines and a list of renewable energy equipment applicable for import duties and/or VAT waivers. Within a year, the Government of Senegal announced the final signature of the adapted bill



POLICY AND REGULATIONS

on VAT exemptions, which in part aims to boost off-grid renewable energy access rates as part of the push for universal electricity access by 2025. The Project coordinated and organized a workshop to raise awareness among public sector stakeholders and explain the operationalization of the decree. **The VAT exemption contributed significantly to SHS and PUE connections reported by off-grid energy companies.**

The Government of Liberia passed new, favorable technical regulations, guidelines, and standards for solar products. In FY 2023, the Government of Liberia adopted **Technical Regulations for Solar Energy Products**, which establish a process for controlling the quality of imported or manufactured solar products. Liberia’s Minister of Commerce and Industry signed the **Pre-Verification of Conformity Import Guidelines for Solar Products**, which establish a process for importers to apply for quality certification so that their products can proceed through Liberian customs, with the potential to suspend import duties. The Project drafted the first iteration of these regulations and guidelines and participated in validation and adoption sessions. These activities facilitated the Government of Liberia to implement **Executive Order #107**, which suspends import duties on quality-verified solar products. In FY 2023, the Minister of Commerce and Industry officially launched the National Electrotechnical Committee, and the Government of Liberia officially endorsed **Technical Standard IEC 62257-9.8** governing solar photovoltaic systems.



On behalf of the Executive Director of the Rural and Renewable Energy Agency, we write to inform you that [...] the President of the Republic of Liberia has signed Executive Order No. 107 suspending import duty on quality-verified off-grid solar photovoltaic products. This wouldn’t have been possible without your support and technical assistance.

LIBERIA RURAL AND RENEWABLE ENERGY AGENCY



Photo Credit: SolarWorks!



[The Project] is really doing good work and creating a perfect enabling environment for companies like SolarWorks! to grow in the challenging rural health sector.

MARTIN VAN BEUSEKOM, ASSOCIATE BUSINESS DEVELOPER, SOLARWORKS!
(HEALTH FACILITY ELECTRIFICATION GRANTEE IN MOZAMBIQUE)

 POLICY AND REGULATIONS

SYSTEM-LEVEL IMPACTS

The Project proactively shared legal information for data-protection bills across East Africa in the interest of supporting PAYGO companies. In FY 2020, the Project worked with international PAYGO companies to map all data touchpoints within each organization, to understand how data protection bills affect their work. The Project finalized four legal memos regarding data-protection regulations in Kenya, Rwanda, Tanzania and Uganda, and how these might affect PAYGO companies. The data protection bill in Kenya, in particular, had the potential to negatively affect PAYGO companies in East Africa, prompting PAOP to provide a strong legal opinion and circulate documentation across sectoral stakeholders. In each of these countries, **subsequent data protection legislation did not negatively affect the sector.**

The Government of DRC rapidly established an off-grid energy enabling environment with nine key policies and regulations. In FY 2021, the Government of DRC pivoted to open its doors to greater international donor support and rapidly build an enabling environment for off-grid energy. Following this shift, the Project supported the following policies and regulations: **Termsheet Operationalization of Mwindi Fund; Technical Standards for Solar Products; Pilot Electrification Project of Mining Communities; ANSER's (the national association's) Local Energy Access Plan; ANSER's Gender Policy and Action Plan; Customs Exemptions on Solar Kits; Draft Decree Defining Administrative, Technical and Financial Files of Applications for Permits to Operate in the Electricity Sector; Draft Decree on**

Mechanisms and Procedures for the Interconnection of a Regional Network and an Isolated Network in the Electricity Sector; and Simplified Procedures for Awarding the Operation of Isolated Electrical Networks. The Project assisted the government's initial steps in adopting and sharing drafts, assisted the renewable energy agency to organize meetings, and helped develop these key documents.

PAOP supported 78 laws, policies, regulations, or standards proposed, adopted, and/or implemented to strengthen the enabling environment of the energy sector. In all:

- 71 were proposed
- 40 were adopted, and
- 34 were implemented.

Of the 78 laws, policies, etc., the Project supported some of them across multiple stages. For more information about these activities, please refer to the Project's FY 2023 Annual Report.



Photo Credit: Emily Allen



This strategy, supported by Power Africa, outlines ANSER's commitment to gender equality in the workplace and in communities. It guides the agency to prioritize women's empowerment and improved economic and health outcomes.

IDESBALD CHINAMULA, DIRECTOR GENERAL OF ANSER, DRC

MARKET DYNAMICS

INDIVIDUAL IMPACTS

Uganda market analysis helped [redacted] reach new market segments and increase its customer base. [redacted] applied PAOP insights on market opportunities to hone its services and target critical market segments. The company's **sales increased significantly** in the period after receiving the Project's support.

“The analysis conducted by Joseph and his team [Power Africa contractors] was detailed and comprehensive. It provided us with updated information and data on the sector landscape, which is proving useful as we implement our strategies for the next few years.”

[redacted], CHIEF EXECUTIVE OFFICER, [redacted]

\$4.6 million in funding awarded to 18 companies, based on insights leveraged from the [Off-grid Solar Assessment Report for 14 Underserved Counties in Kenya](#). In FY 2021, the Project—along with

the Kenya Off-Grid Solar Access Project, USAID Kenya and East Africa, and the Kenya Ministry of Energy—introduced a report documenting the findings of an off-grid solar market assessment of 14 underserved counties of Kenya: Garissa, Isiolo, Kilifi, Kwale, Lamu, Mandera, Marsabit, Narok, Samburu, Taita Taveta, Tana River, Turkana, Wajir, and West Pokot. PAOP led development of the brief, supported SNV (the Netherlands Development Organization) and the Kenya Ministry of Energy to promote the Kenya Off-Grid Solar Access Project (KOSAP), and hosted a webinar to share the findings. Among other impacts of this activity was **\$4.6 million in funding deployed by the World Bank to 18 off-grid and clean cooking companies**, in partnership with SNV.

Companies have begun electrifying refugee camps. In FY 2020, the Project shared with [redacted] and [redacted] several opportunities to fund mini-grids in refugee camps, including one through Mercy Corps, funded by the [redacted], for the design, implementation, and operation of mini-grids across the Jijiga area of the Somali region of Ethiopia. As a result, [redacted] **won the contract for a mini-grid feasibility study** in the area. During implementation, the Project supported Mercy Corps, [redacted], [redacted], and the United Nations High Commissioner for Refugees on regulatory aspects to navigate the mini-grid licensing process.

In FY 2022, to assess energy access and the potential market for off-grid solar products in refugee camps, the Project **conducted surveys of 622 households** at three camps in Rwanda (Kiziba, Mahama, and Mugombwa), including respondents from DRC and Burundi. The studies **identified end-user interest in solar products and PAYGO mobile-money plans, as well as opportunities for subsidies.**



Photo Credit: Neil Thomas

“The off-grid solar market assessment series by Power Africa is very helpful in driving deeper understanding of markets where we have no current business activity. The reports were the most exhaustive and complete review of the potential markets for the industry I have seen.”

[redacted], SENIOR VICE PRESIDENT, [redacted]

 MARKET DYNAMICS

The Project developed the [Distribution Partnership Tool](#) to guide reaching underserved markets. The Project designed a resource guide to help off-grid solar companies in sub-Saharan Africa identify and partner with last-mile distributors to reach underserved markets.

SYSTEM-LEVEL IMPACTS

Support for 20 off-grid energy associations, and support for the creation of four new associations. In addition, the Project connected and communicated with 18 other associations in peripheral sectors, on economic growth and energy nexus activities. For more information on how PAOP supported the Association of Off-Grid Electrification Professionals of Cameroon (APELCA), see its [impact story at the end of this report](#).

Three nascent markets developed with significant business advisory support and 45 new policy and regulatory frameworks. In 2018, the off-grid energy markets of Benin, Sierra Leone, and Côte d'Ivoire were nascent, but as of 2023 had matured significantly, thanks in part to the Project's targeted business advisory services to SHS, mini-grid, and micro-grid companies, as well as 45 successful policies and regulations. This resulted in an increased number of connections in rural and peri-urban areas, and new mini-grids built or under construction in West Africa with the participation of the private sector.

Detailed market assessments in 12 countries published, with accompanying fact sheets. Off-grid companies and other stakeholders widely praised Power Africa's [off-grid solar market assessments](#), particularly those for Côte d'Ivoire, DRC, and Niger, which previously had much less in the way of published market information. Several companies

reported that the market assessments directly affected their critical decisions to enter new markets and new countries, or to further scale up their operations.

GOGLA published PAOP insights in its bi-annual sales and impact reports. On an ongoing basis, the Project provided country-level insights to GOGLA. The association's reports containing this information **reached a wide international audience of investors, companies, and other stakeholders that used them to inform their operations, strategies, and technical offerings.**

SHS results-based financing (RBF) pilot in Rwanda catalyzed a \$-million nationwide program. In 2020, Energising Development (EnDev) and the Rwandan utility Energy Development Corporation Limited launched the [Pro Poor Results-Based Financing pilot program for SHS](#) in five districts in Rwanda. These targeted subsidies resolved serious affordability challenges by **supporting more than 22,000 households to obtain access to electricity, with more than 15,000 of these in the lowest socioeconomic category** defined by the government. The \$-million pilot was funded by Power Africa and the United Kingdom's Department for International Development, and designed by the Project, EnDev, and the World Bank. The success of SHS RBF led to the Government of Rwanda **receiving \$ million in World Bank funding** for a nationwide program that uses the pilot as a blueprint. PAOP provided the World Bank with technical assistance throughout the design phase, and directly funded modifications to the software, which enabled and expedited funding. The program's success demonstrates that targeted technical assistance and a relatively small amount of funding for a pilot and software infrastructure can multiply impacts. Since 2020, **several other sub-Saharan Africa governments have developed similar RBF pilots and programs, some of which drawing on Rwanda's success.**

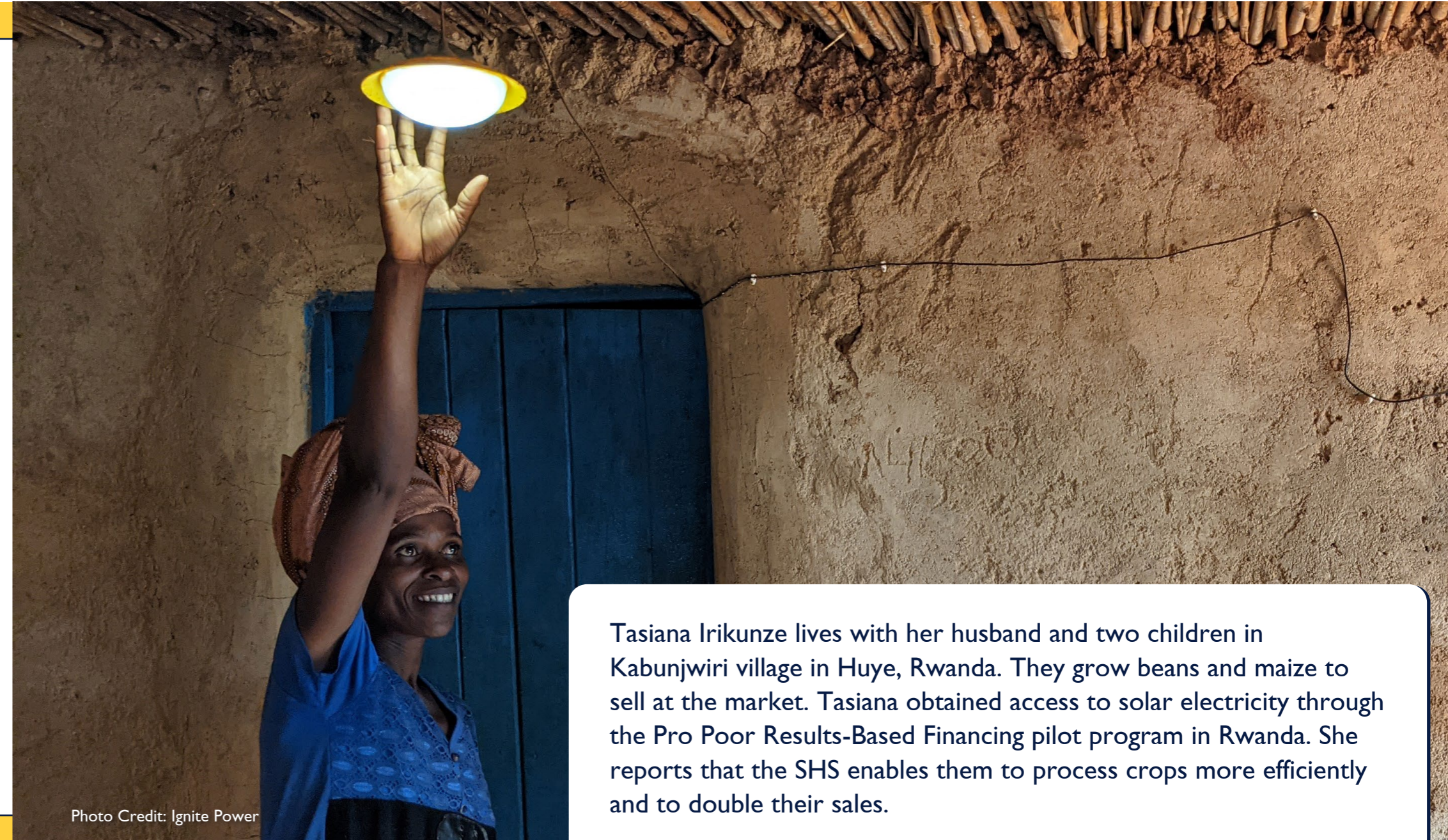


Photo Credit: Ignite Power

Tasiana Irikunze lives with her husband and two children in Kabunjwiri village in Huye, Rwanda. They grow beans and maize to sell at the market. Tasiana obtained access to solar electricity through the Pro Poor Results-Based Financing pilot program in Rwanda. She reports that the SHS enables them to process crops more efficiently and to double their sales.



CROSS-SECTORAL INTEGRATION

INDIVIDUAL IMPACTS

PUE companies █████ and █████ in Côte d'Ivoire have transformed agriculture. The Project's individualized support to companies has resulted in better access to PUE at the energy-agriculture nexus, thus increasing the climate resilience of rural communities and smallholder farmers. Two Ivorian companies stand out in this regard:

- In 2023, █████ rapidly established itself in the Côte d'Ivoire market as a solar irrigation provider. The Project advised Greeno's two-year rapid business strategy and market strategy; introduced it to ministry officials, associations, and women's agricultural cooperatives; and guided its entry into the █████ region, where Greeno estimates it can **sell more than 2,000 solar pumps**. With this support, the up-and-coming company has already made significant strides toward its target of 25,000 sales in Côte d'Ivoire by 2025, with the **potential to impact more than 1.5 million family farms** involved in both cash crops and subsistence farming.
- After the Project's business, market, and financial coaching, the Ivorian solar-pumping startup company █████ raised \$█████ through investors and donors to **build the first factory of irrigation systems in █████**. The Project's assistance to █████ involved developing plans and applying for funding to pilot water-pumping tech for female farmers across ten villages; exploring new business models to supply drinking water; expanding its business into ten administrative regions of Côte d'Ivoire; and deploying its low-cost irrigation and well-drilling services, which **will add 7,500 additional connections over a three-year period**.

Grants under contract led to clear outcomes among women in off-grid communities in Kenya. Through the COIN Fund, Power Africa provided \$100,000 to four PUE companies in Kenya to promote the uptake of PUE among women customers. Three of the four companies were required to develop gender action plans as a deliverable, and the fourth company delivered a case study on developing tailored financing for women customers. One grantee, Agsol Limited, **completed a case study on financing women solar-milling entrepreneurs in Africa, and will use its insights to develop gender-targeted financing solutions** and accelerate the widespread adoption of the Agsol MicroMill. Another grantee, Ecobora Limited, **completed its gender action plan, conducted 224 surveys on PUE performance and women's needs, provided PUE business-model training to 926 women, and sold three solar freezers to kiosks in remote areas.**

Grants under contract brought new clean energy technologies and sustainable business models in Liberia. The four grantees under the sixth COIN Fund grant window (Ecopower, Easy Solar Liberia, LEN Two, and Liberia Engineering & Geo-Tech Consultants) successfully completed all activities, including deploying devices and testing new fee-for-service business models. Activities included introducing PUE equipment such as solar dryers, freezers, water pumps, irrigators, and generators, as well as other offerings such as solar community charging stations, icemakers, and fishing lights.

For information on the impact of Power Africa's healthcare facility electrification grants, see the [impact story at the end of this report](#).



Photo Credit: Power Africa



The grant offered technical expertise and support to help adapt and customize the PUE technology to the specific requirements and conditions of Liberia's market. This involved assessing the local energy infrastructures, regulatory framework, and consumer needs to ensure a successful implementation.

PATRICK TAMIA TEWULEH, PRESIDENT AND CEO, LIBERIAN ENERGY NETWORK TWO INC. (PUE GRANTEE IN LIBERIA)



Photo Credit: Carla Visser



After 20 years distributing PUE, this grant gave us the encouragement and opportunity to focus specifically on women in the farming community and to adapt our solutions to more directly target the problems they face.

GREGORY DENN, MANAGING DIRECTOR, PSS, KENYA



CROSS-SECTORAL INTEGRATION

Gender strategy adopted by Government of DRC energy agency.

In FY 2022 and 2023, the Project strengthened the capacity of managers and staff of the Government of DRC's National Rural and Peri-urban Electrification and Energy Services Agency (ANSER) on strengthening gender inclusion institutionally and integrating gender equality while planning and implementing rural energy projects. The Project advised the agency to draft and adopt a strategy to promote and monitor gender equality in the organization and its projects in rural and peri-urban areas in DRC. In FY 2023, the Director General of ANSER **formally adopted the strategy during a validation workshop**. For more information, see [Power Africa's blog](#).

The Project managed, supported, and promoted clean cooking through financing opportunities.

- In FY 2020–2021, the Project administered a COIN Fund grant window called Distributed Electricity Services and Modern Cooking Fuel Delivery. Three grantees, Bboxx Capital Kenya, LivelyHoods in Kenya, and Solar Kamerun Technology (Solkamtech) in Cameroon, received funding to introduce a new product or business model, such as combined liquefied petroleum gas (LPG) and SHS products. **LivelyHoods sold 903 LPG/SHS bundles, Bboxx sold 488 LPG/SHS bundles, and Solkamtech sold 1,254 LPG/SHS bundles.**
- In FY 2022, for a Beyond the Grid Fund for Africa (BGFA) clean-cooking grant window in Zambia, the Project supported the fund manager, Nordic Environment Finance Corporation (Nefco) by sharing information that USAID gathered on clean cooking in Zambia.
- In FY 2023, the Project supported the World Bank to review

materials for and inform interested parties about a workshop introducing its new results-based financing mechanism for off-grid renewable energy and clean cooking, which it will start implementing after the end of the Project.

The Project advanced an innovative energy–agriculture model to benefit 20,000 farmers, provided targeted PUE market strategies to the local PUE developer, and increased sales among farmers.

- In 2020, PAOP helped the [redacted] introduce solar-irrigation technologies to farms, through its innovative farm hubs. By studying farmers' use of its solar pumps, [redacted] found that solar-powered pumps compared favorably—in terms of customer experience and economics—with those powered by fossil fuel/diesel. Through the farm hub model, [redacted] developed a one-stop shop for agricultural services, managed by private service providers, that offers a range of quality products and services to local smallholder farmers. The model includes the use of digital tools in the framework of value-chain projects. In Senegal, [redacted] **implemented 13 farm hubs, supporting nearly 2,000 smallholder farmers in rural areas.**
- In FY 2021, with the Project's assistance, [redacted] partnered with three PUE suppliers: [redacted], [redacted], and [redacted]. [redacted] ran a six-month pilot around the towns of Kayar, Keur Mbir, and Mboro (80 percent of vegetable crops in Senegal are grown in this region), involving 18,000 smallholder farmers. The PUE suppliers trained interested agripreneurs on solar water pumps and energy systems. As a result, **1,500 farmers in the network expressed their interest in solar water pumps**, for which [redacted] has seen increased demand. Among those interested, in 2022, **55 farmers bought solar water pumps, totaling \$ [redacted] in value.**



CROSS-SECTORAL INTEGRATION

Six companies received remittances support. In FY 2020, the Project launched remittance support to six companies in West Africa, including [REDACTED], [REDACTED], [REDACTED], [REDACTED], [REDACTED], and [REDACTED], all of which have either recently launched remittance platforms for their off-grid products or are developing such platforms. The Project developed a factsheet on launching and continuing remittances during the COVID-19 pandemic, mapped organizations and key contacts for the Senegalese diaspora, and began reaching out to diaspora organizations to gauge their interest in remittance payments for off-grid products.



We are pleased to inform you that the training program's impact has been significant, with solar installers now better prepared to meet the energy needs of their communities and drive positive change.

[REDACTED], GLOBAL HR, LEGAL, AND COMPLIANCE LEAD, [REDACTED]

SYSTEM-LEVEL IMPACTS

The Project contributed to notable impacts across five PUE supply chains:

1. **Solar cold storage, freezing, and refrigeration systems.** PAOP's market intelligence informed the business decisions of manufacturers such as [REDACTED]. The Project brokered partnerships between these companies and national distributors, allowing their products to achieve extensive market penetration. In Senegal, PAOP organized a public-private workshop by which Senegal's Department of Rural Equipment informed the design of its cold-chain programs, by learning about the cold-storage rooms and technological innovations of three companies—[REDACTED], [REDACTED], and [REDACTED].

The UNDP and United Nations Capital Development Fund (UNCDF) created a food security program to reduce post-harvest losses through solar-powered cold-chain services in Nakuru and Meru counties, with the support of Kenya's Ministry of Environment and Forestry. PAOP advised these parties on Kenyan cold storage markets and connected them with cold-storage providers [REDACTED] and [REDACTED]. A multi-government-funded climate-finance initiative to accelerate carbon-neutral development, the Nationally Appropriate Mitigation Actions (NAMA) Facility, evaluated the cold-storage initiative and funded it with \$27 million.

2. **Solar water-pumping systems.** In FY 2022, the Project provided input into the design of a mobile solar pumping and irrigation initiative under the Feed the Future Hinga Weze program, which supported more than 200,000 farmers in ten districts across Rwanda in agriculture and nutrition. In FY 2021, the Project shared market intelligence to Feed the Future Innovation Lab for Solar Irrigation and the USAID Mission in Mali and supported applications to its grant. As



As with the previous support from your side, we have appreciated the information and the linkages for our work in solar irrigation in Mali. The competition for the sub award was strong, with several good candidates. Your information related to the finance context and banking for smallholders in Mali was particularly helpful in enabling us to assess the proposals. Also, the connection between [REDACTED] and [REDACTED] would not have happened without your network.

NICOLE LEFORE, DIRECTOR, FEED THE FUTURE
INNOVATION LAB FOR SMALL SCALE IRRIGATION

a result, two sub-awards went to [REDACTED] (a [REDACTED] supplier) and [REDACTED] (an [REDACTED] supplier).

3. **Solar greenhouses.** In 2023, the Project promoted the Niger-based Benalya Group's solar greenhouse regionally, provided deep technical support, and supported its participation in the Great Green Wall initiative of the United Nations Convention to Combat Desertification. For more information, see the [impact story at the end of this report](#).

4. **Solar sprayers.** In FY 2020, the Project conducted a study and developed a market entry strategy to inform [REDACTED]'s plan to distribute its battery-stick-equipped agricultural solar sprayer products across outgrower networks in Burkina Faso, Cameroon, Côte d'Ivoire, Mali, Senegal, and Togo, across the cotton, horticultural, cereal, and cocoa value chains. Partnerships that the Project helped build in Cameroon paved the way for [REDACTED] to penetrate Chad markets. The Project undertook a market study to identify the value-chain potential for Solar Village products in Senegal, including introducing in-country partners to establish distribution value chains for horticultural and cotton sectors.

5. **Solar agricultural processing technologies.** In FY 2023, Liberia Engineering and Geo-Tech Consultants, a COIN Fund grantee, successfully marketed a food-preservation method using its solar dehydrators (i.e., solar dryers) to farmers.

[REDACTED] manufactures and distributes equipment in Kenya, Lesotho, and Uganda. [REDACTED]'s products include the [REDACTED], a solar-biomass hybrid stove that enables users to cook with less fuel and generates electricity for mobile charging and lighting. In FY 2022, PAOP helped the company close a \$[REDACTED] million equity round by helping develop and review fundraising materials, making introductions to investors, providing legal support for the transaction, drafting and reviewing equity-transaction documents, and providing business-performance support for [REDACTED] operations in Kenya and Uganda.

In FY 2021, with grant funding via the research services of Efficiency for Access, the Project analyzed data and customer feedback from various pilots for [REDACTED]'s micro-mills so as to propose strategies for its business model.



Photo Credit: Gisela Ngoo



The technical support and [services] that PAOP provided have been of great value to Simusolar in tackling areas outside our competency but critical for realizing our intent and mission of inclusivity. Over several years, we have received guidance, direction to resources, and thought partnership in thinking about our gender strategy. This informal (not contracted) technical assistance set the foundation for a formal project that PAOP provided with USAID support: establishing a market gender strategy serving smallholder farmers. There is no way we could have undertaken such a comprehensive and expert analysis and strategy creation without that support.

MICHAEL KUNTZ, CO-FOUNDER AND CO-CEO, SIMUSOLAR

 CROSS-SECTORAL INTEGRATION

The Project’s study informed gender-inclusive programming across the sector. In FY 2022, the Project published [Reaching Women, Unlocking Value: How Gender Inclusivity Boosts Customer Satisfaction for Off-Grid Solar Products](#). The Project provided the surveyed companies—Deevabits Green Energy (Kenya), Altech Group (DRC), and Mwezi (Kenya)—with tailored recommendations for gender inclusivity. The Project’s summary of findings from a study of 899 people has helped inform how clean-energy companies and investors can reach more women. The Project also published [Increasing Women’s Access to Productive Use of Energy for Agriculture: A Roadmap for Developing a Market-focused Gender Strategy](#) based on a strategy developed for Simusolar. This contains several tools for off-grid companies, such as guidance for focus-group discussions, questionnaires for key informant interviews, and a template for a gender action plan.

Market-focused gender strategy and roadmap developed by Simusolar. While many applied-research efforts across the sector focus on increasing women’s participation in the workforce, the Project recognized the need for more research on market approaches to increasing access to energy among women, as end-users. The Project’s support for the Simusolar case study helped companies understand the consumer needs and barriers unique to women, and translate these observations into evidence-based strategies for PUE companies to better reach and serve the female market segment.

Innovative PUE Catalogs spanning five East African and six West African countries have informed and connected companies and investors across value chains. PAOP compiled information packages on PUE technologies and solutions currently available in the

market. In FY 2021, the Project made this interactive digital resource available to manufacturers, distributors, suppliers, and other stakeholders. With the full landscape of off-grid PUE companies available in one resource, sector players were better able to optimize their partnerships, supply chains, and products. Technologies featured include solar water pumps, cold-storage solutions, egg incubators, and agro-processing solutions. The catalog supports the uptake of PUE technologies in the agricultural sector and demonstrates how greater adoption of PUE appliances can stimulate the development of various economic sectors in East Africa (Ethiopia, Kenya, Rwanda, Tanzania, and Uganda) and West Africa (Cameroon, Côte d’Ivoire, DRC, Ghana, Niger, and Senegal). French versions are also available. The Project also produced a [launch video](#) with more details.

Healthcare facility electrification support benefited the sector before, during, and after the pandemic. The Project conducted healthcare facility electrification support since the beginning of the Project in Q1 of 2019 and made its mark more widely as the COVID-19 pandemic marked a shift in donor and stakeholder priorities. The Project demonstrated sector-wide leadership across sub-Saharan Africa in the following ways:

- Technical support, with thousands of health facilities electrified over the life of the Project and more anticipated to be electrified in the coming years (e.g., In FY 2021, the Project helped a Benin-based company win [redacted] funding to electrify 15 rural health facilities, plus \$ [redacted] million in equity.).
- COIN Fund grants, through which more than 2 million people in 10 countries now have access to electrified healthcare services.
- Information sharing with partners, including USAID healthcare facility electrification programs.

COIN FUND GRANTS

Throughout the life of the Project, the COIN Fund helped bolster the off-grid sector across sub-Saharan Africa, with \$6,093,180 distributed to 32 grantees across seven grant windows.

COIN Window 1
West and Central Africa Market Entry and/or PAYGO Integration

Four grants awarded to expand off-grid energy operations and access in underserved geographic markets in **Cameroon, DRC, and Sierra Leone**.

COIN Window 2
Distributed Electricity Services and Modern Cooking Fuel Delivery

Three grants awarded to test and scale the supply of SHS and liquefied petroleum gas (LPG) cooking solutions, in tandem, to off-grid households and businesses in **Cameroon and Kenya**.

COIN Window 3
Catalytic Funding – Investment Products, Structures and Transactions for the Off-grid Sector

Five grants awarded to financial institutions to develop and deploy catalytic investment products, structures, and transactions tailored to help off-grid companies grow in **7 countries across sub-Saharan Africa**.

COIN Window 4
Solar Electrification of Healthcare Facilities in Sub-Saharan Africa

Nine grants awarded to increase access to electricity services for healthcare facilities in rural, peri-urban, and urban communities in **Madagascar, Malawi, Nigeria, and Uganda**.

COIN Window 5
Healthcare Electrification to Improve Maternal and Child Health Services

Two grants awarded to electrify healthcare facilities that provide maternal and child healthcare services in **Malawi and Uganda**. This grant program is dedicated to the memory of USAID Foreign Service Officer Madeline C. Williams of Minnesota. In her 28 years of distinguished service at USAID, Madeline devoted herself to improving the lives of people in underserved communities.

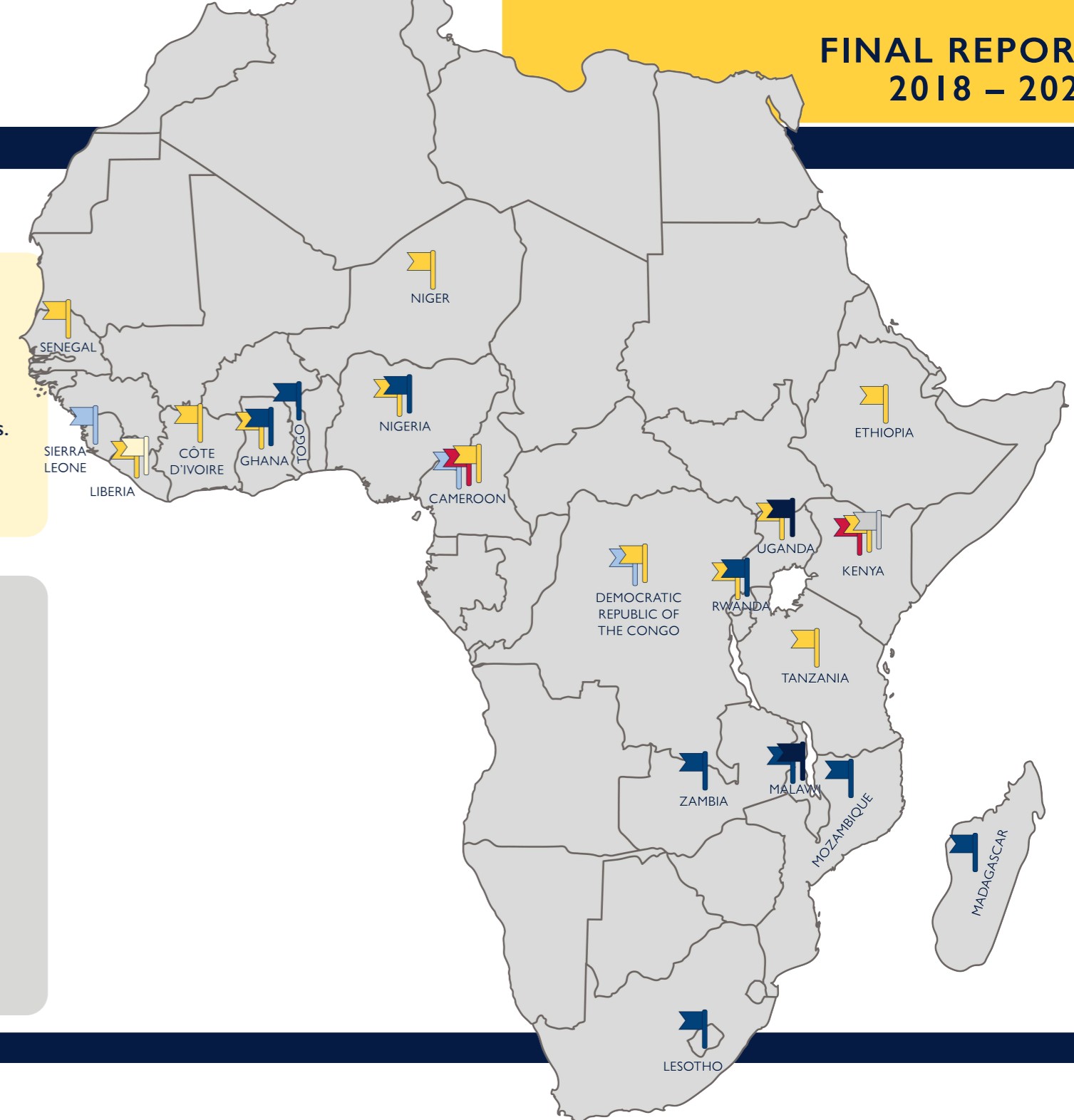
COIN Window 6:
Productive Uses of Energy in Liberia

Five grants awarded to support and promote clean energy technology for productive use by off-grid communities. Through this technology, the grant boosted productivity and **economic growth in the Liberian market**.

COIN Window 7:
Productive Uses of Energy in Kenya

Four grants awarded to promote the adoption and scale-up of off-grid technologies for productive use, especially among women, to boost **productivity, gender equality, and economic growth in the Kenyan market**.

This window was successfully implemented in four months (all grantees completed activities March–June 2023).



SUPPORT TO U.S. COMPANIES

Examples of activities and results include:

- Supported **SimpliPhi** and REIc to advance a successful proposal for more than \$900,000 in U.S. Trade and Development Agency (USTDA) funding for a mini-grid feasibility study in Cameroon.
- Supported **Weldy Lamont** to win a \$20-million deal in Senegal, resulting in approximately 500 U.S. jobs in 14 states.
- Supported [REDACTED] with end-to-end capital-raise support over three years with catalytic results: [REDACTED] closed a \$[REDACTED]-million deal in FY 2021 and a \$[REDACTED] million equity raise in FY 2023.
- Mapped stakeholders for [REDACTED], which manufactures [REDACTED] cold-chain storage equipment in Ghana, with COIN Fund grantee EcoPower distributing dozens of [REDACTED] freezers.
- Supported **OffGridBox** as a COIN Fund grantee; with market intelligence, such as information on local off-grid product suppliers and geographic information systems data; and on policy and regulatory aspects related to standards, utility compliance, and subsidy programs in Rwanda.
- Advised [REDACTED] about a PAYGO user interface it is developing for its solar refrigerator.
- Facilitated **SparkMeter** and Power:On winning a \$1 million USTDA grant in Benin and Mali in FY 2021 to field-test new information technology for grid and mini-grid management.
- Supported [REDACTED] with mini-grid market intelligence and introductions with the regulators in Liberia; in FY 2022, the Beyond the Grid Fund for Africa awarded [REDACTED] funding, which will result in more than 4,100 residential, commercial, and institutional energy service connections.
- Worked with [REDACTED], a foundation of [REDACTED] and an affiliate of [REDACTED], to finalize the tender for a community desalination plant on the coast of Kenya.
- Brokered a partnership between [REDACTED] and partners exploring providing cold-storage appliances to health centers in Tanzania and advised on its expansion into Rwanda and Cameroon.
- Helped [REDACTED] raise \$[REDACTED] million with legal and Chief Financial Officer services as well as small-scale activities such as building strategic partnerships with local distributors and other stakeholders in Niger.

MAP REDACTED

63 U.S. COMPANIES SUPPORTED

HIGHLIGHTS OF ACCOMPLISHMENTS

BY TOPIC

700+ LOCAL COMPANIES SUPPORTED

LOCALIZATION

The Project supported 700+ local companies. The following examples represent some of PAOP’s activities supporting local companies:

Locally owned companies successfully gained access to finance.

The Project promoted and supported the growth of locally owned companies through investment-readiness support, including financial management and/or financial modeling coaching for:

- █████ in Tanzania
- █████ in Tanzania
- █████ in Kenya
- █████ in Ethiopia
- █████ in DRC

Read more about how PAOP supported Deevabits Green Energy, Sun King, and their investors in the value-chain [impact story](#).

The Project assisted local companies to access international finance.

- █████ raised \$████ million for expansion in FY 2020 with new prospects and partnerships to grow in coming months. In FY 2019, the Cameroonian company █████ announced raising \$████ million, which the Project supported by introducing █████ to several investors, pitching the company, and more. In FY 2020,

the Project continued to advise and support █████ to certify its SHS products in Cameroon and sought to finance this certification through the European Union. With Project support, █████ closed a \$████-million debt facility with the European Union’s █████ to accelerate its expansion into rural Cameroon. The Project provided market intelligence during the due diligence phase, advised on ways to align █████’s and █████’s priorities, and coordinated interim Chief Financial Officer services and treasury-management support to █████.

- █████ raised \$████ through the █████ and \$████ through the █████. █████ is a Kenya-based, locally owned social enterprise to improve energy access and promote access to economic opportunities for women and youth. The company uses █████ for the last-mile distribution of PAYGO SHS products. █████ announced \$████ in financing for █████ to help it overcome the challenges of last-mile distribution. The Project supported this through its CFO coaching and treasury management support. The Project shared the █████ opportunity with █████ and, in addition to existing support, assisted the company to revise its business model, coached the team to present to investors, and supported its application to █████.

DECARBONIZATION

The Project supported a local energy-monitoring and energy-efficiency technology company to strengthen staff capacity and host a climate change webinar. In FY 2023, the Project supported developing a business plan and enhancing the skills of the Ivorian █████ employees to develop energy projects and obtain international finance. The Project also supported █████ to create a webinar on technological innovations for the energy transition in Africa, organized by the company’s Chief Executive Officer with the Ivorian Federation of Energy Efficiency, Renewable Energy, and Climate Associations (Fédération Ivoirienne des Associations en Efficacité Energétique, Energies Renouvelables, et Climat [FIACER]). The Project chaired the webinar that brought together 56 representatives of companies, development finance institutions, investors, and government agencies from across Benin, Burkina Faso, Côte d’Ivoire, Liberia, Kenya, and Togo to discuss how to address climate change through partnerships.

The Kenya National Treasury’s Draft National Green Fiscal Incentives Policy Framework will enable climate-friendly development. The Project reviewed and commented on the document, which prioritizes a suite of fiscal policies to promote clean energy in Kenya, with the following priorities: direct government planning, budgeting, and spending toward green production and consumption; a framework for fiscal incentives to attract private-sector investment for a low-carbon, resilient, and environmentally sustainable economy; and a framework to generate additional revenue streams for the Government of Kenya. In FY 2023, KERIA shared stakeholder comments and recommendations for inclusion in the final Green Fiscal Incentives Framework.

The Project supported successful funding for the Integrated Clean Cooking Strategy in Uganda. In FY 2023, the Clean Climate and Air Coalition (CCAC) confirmed the provision of \$75,000 in funding for the Government of Uganda’s Integrated Clean Cooking Strategy (ICCS), with the goal of achieving clean cooking targets in the country’s third National Development Plan (NDP III). The Project provided guidance on the concept and facilitated partner linkages with the Government of Uganda, USAID, CCAC, and U.S. Environmental Protection Agency (EPA).

Methodology developed by the Project for calculating greenhouse gas (GHG) emissions in monitoring, evaluating, and learning practices. The Project’s leaders developed a way to quantify not just the Project’s outputs but also its environmental outcomes. Based on GOGLA sales data and impact metrics, PAOP adapted a simplified formula for calculating GHG emissions effectively avoided from off-grid SHS sales and mini-grid installations through kerosene replacement and began applying it. Power Africa approved the methodology and its associated Performance Indicator Reference Sheets. The Project also developed a original methodology similarly correlating solar pump sales to GHG impact.

“We will be promoting this approach as best practice for all Power Africa mechanisms that report on these indicators.”

POWER AFRICA ON APPROVING THE PROJECT’S METHODOLOGY FOR CALCULATING GREENHOUSE GAS EMISSIONS

ECONOMIC GROWTH

The Project supported the International Rescue Committee to implement vocational training for 750 young women in energy. In FY 2021, USAID partnered with the MasterCard Foundation and Schneider Electric to launch a \$1.4-million public-private partnership, including \$500,000 in USAID funding, to **create employment opportunities for 750 young women** in Côte d'Ivoire's energy sector. The PRO-Jeunes project for women in energy sought to enable young women to generate income and assets through employment in the energy industry; expand women's access to technical education, strengthening their professional networks and access to resources; and reduce gender discrimination that prevents women's entry into the male-dominated Ivorian energy sector. The Project supported vocational training curricula design for three of PRO-Jeunes' focus areas: women's entrepreneurship skills, technical skills relevant to the energy sector, and safe economic empowerment.

U.S. company Weldy Lamont won \$20 million for mini-grids and off-grid electrification, and USTDA signed a \$900,000 grant to train the utility, resulting in approximately 500 U.S. jobs in 14 states. In 2019, the U.S. Export-Import (EXIM) Bank approved a commitment for the Government of Senegal to sign a contract with Weldy Lamont, financing a \$100-million electrification project. In January 2020, the EXIM Bank approved the commitment, of which \$20 million is dedicated to mini-grids and off-grid connections for rural communities. The electrification project will ultimately **connect an estimated 330,000 people in more than 400 Senegalese villages.** Weldy Lamont sourced from a large U.S. supply chain to procure U.S.-manufactured equipment and services, **resulting in approximately 500 U.S. jobs in 14 states.** U.S. Secretary of State Mike Pompeo visited Senegal for a signing ceremony with the EXIM Bank and Prosper Africa. The Project connected parties, facilitated discussions, and provided advisory support to these activities.

The Project supported one of Niger's largest horticultural federations to introduce PUE technologies. The Federation of Market Gardening Cooperatives of Niger (Fédération des Cooperatives Maraîchères du Niger [FCMN-NIYA]) is one of the largest horticulture federations, comprising **1,003 cooperatives and 107 unions across eight regions and 61 municipalities.** In terms of individual membership, the federation has **42,055 farm managers, including 14,410 women** (making up 34 percent of its members). FCMN-NIYA has a national reach and promotes small-scale irrigation sector across several value chains (e.g., onion, sesame, potato, tomato, and sorghum); provides commercial services and agricultural inputs (e.g., seeds and fertilizers); access to credit; and consulting and training. In FY 2022, the Project introduced PUE technologies to FCMN-NIYA, particularly solar water-pumping systems, solar dryers, and cooling solutions.

The Project supported a \$ million equity raise with Persistent Energy Capital, resulting in 6,000 jobs. In FY 2022, the Project provided end-to-end capital-raising assistance to , concluding with \$ million in equity raised. The company began using the funds to expand its operations and investments, which will **result in 280,000 household connections, create 6,000 jobs, and avoid 700,000 tons of carbon dioxide or equivalent.**

The Project helped coordinate participants in a USAID-funded capacity-strengthening and business-to-business learning program. USAID funds the Impact Champions for International Development program, which builds private sector employees' capacity to pursue strategic social benefits by deploying teams of highly skilled private sector employees to support Power Africa partner organizations with selected projects that solve challenges facing the organizations. In FY 2021, the Project contacted ten companies to explain and confirm their interest in and capacity to participate in the Impact Champions program and supported coordination between the program implementer and companies

across three cohorts. Employees formed **teams of 12–14 private sector consultants** to engage with partner organizations virtually for the ten- to 12-week programs related to business and strategic planning, marketing and outreach assistance, growth strategies, and information technology.

Promoting internships for women through Women in Energy Tanzania (WIET) program. In FY 2021, the Project supported Power Africa's East Africa Energy Program (EAEP), which implemented an internship program to onboard female interns and pair them with partnering energy companies. This opportunity gave young female students and graduates an opportunity to build their technical skills and increase their chances of securing employment within the energy sector, which will contribute to increasing the number of women engaged in the energy workforce in Tanzania. The Project shared this opportunity with several off-grid companies and supported EAEP and the companies with implementation. Both and participated in the program, and committed to hire the interns full-time in FY 2022.

SUPPORT TO DISPLACED COMMUNITIES

From FY 2019–2022, the Project supported the Smart Communities Coalition, a USAID public–private collaboration USAID that aims to transform operating models and bring private sector-led solutions to humanitarian contexts, including displaced and crisis-affected populations. Examples of activities and results include:

- In FY 2020, the Project developed a draft pilot playbook to communicate the lessons learned from the Uganda De-Risking PAYGO SHS grants pilot, with the grants resulting in the sale of 4,137 SHS and the creation of 285 jobs. A United States African Development Foundation (USADF) grantee Solar Freeze received an award of \$100,000 with which it distributed 60 solar-powered freezers on a PAYGO platform and trained 16 youth and six women.
- In FY 2022, the coalition published four lessons learned and best practices for refugee settlements and reported results, including 5,318 stakeholders with new or improved access to energy, 199 jobs created, and 3,331 clean energy products sold.

ENERGY–WATER NEXUS

The Project supported [REDACTED]'s PUE water purification solutions at schools and health centers. [REDACTED] is a startup company that develops PUE solar equipment, especially for water treatment. In FY 2020, it **deployed 51 PV solar-powered kiosks** with pumping and filtration for the sale of purified bottled water. It also **deployed 40 solar water-purification installations** at schools and health centers in Senegal. These technologies give students and patients access to treated, high-quality drinking water. With Project support, [REDACTED] began its market entry and partner outreach in Burkina Faso and Côte d'Ivoire.

U.S. Government grant-funded solar water pumping and irrigation activities supported many thousands of farmers. In FY 2020, with Project support, the USAID program Feed the Future awarded \$725,000 to Rensys in Ethiopia to deploy solar water pumps in Ethiopia and awarded PEG Africa funding in Ghana, which it leveraged in its partnership with a network of **5,420 female farmers**. PEG Africa and the cocoa network, Cocoa360, pursued partnership activities to connect PEG Africa to **8,000 farmers**. The Project connected PEG with Ecoms Trading (which has a **120,000-farmer network**) as well as partnership the Kusaug outgrower business network, which as more than **10,000 smallholder farmers**, the majority of which are women. Offering business-performance support, the Project also provided a training session to PEG on telesales, which **contributed to improving the team's sales conversion rate from eight percent to 15–20 percent**.

The Project advised on hydropower assessments in DRC. In FY 2023, the USAID Mission in DRC requested that the Project meet with the Government of DRC and Southern Energy about the company's **rehabilitation of a 5 MW hydropower plant and distribution grid** in

Bunia, northeastern DRC, as well as efforts to **connect 5,000 electric meters**. This electrification initiative aims to increase the plant's distribution capacity to 20 MW, and co-financing through the Mwindu Fund is expected to connect the surrounding villages. The Project coordinated with Southern Energy to advise on the assessment of electricity demand in the villages surrounding Bunia and estimate the costs of electrifying them.

Harnessing Hydropower in DRC webinar. In FY 2020, the Project presented the webinar, Harnessing Hydropower in DRC, informing the DRC mining industry and potential investors, funders, and service providers about hydropower's potential in the country, as well as challenges, opportunities, and best practices. There were **233 attendees**.

The Project supported a social-infrastructure electrification program by Green People's Energy, leading to six pilot projects for solar water pumping, healthcare facility electrification, and school electrification. In FY 2020, the German development agency, *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ), and the Ministry of Energy of Côte d'Ivoire signed an agreement to launch the Green People's Energy (*Grüne Bürgerenergie* [GBE]) initiative. The GBE project helps to deploy decentralized renewable energy for rural communities in sub-Saharan Africa. PAOP shared market information with GIZ and GBE, introduced the GBE team to the Ministry of Health and the Ministry of Hydraulics, and helped to develop two concept notes for **electrifying three healthcare facilities and three water-pumping systems**. After the concept notes were approved, PAOP helped to design and implement five of the pilots.

OFF-GRID ENERGY SECTOR RESILIENCE

Beyond coordinating action, developing knowledge products, and disseminating key information widely across sub-Saharan Africa, the Project supported sector-wide resilience through the COVID-19 pandemic through targeted activities, for example:

- **Bridge facility support for [REDACTED]'s \$[REDACTED] COVID-19 loan.** The Project supported the legal and financial structuring of [REDACTED]'s successful application to the Renewable Energy Performance Platform (REPP) dedicated COVID-19 bridge facility, to help the company cope with the effects of COVID-19 on its business. The facility allowed [REDACTED] to continue its operations in Côte d'Ivoire, Ghana, Mali, and Senegal, and boost sales.
- **COVID-19 advocacy support to Uganda Solar Energy Association.** Following a 42-day lockdown instituted by the government of Uganda, the Project supported and advised the Uganda Solar Energy Association (USEA) in drafting and reviewing requests to the Ministry of Energy and Ministry of Works for movement permits for off-grid companies. **As a result, 12 off-grid companies were granted movement permits** to allow them continue operations during the lockdown.
- **[REDACTED] \$[REDACTED] million [REDACTED] fund.** In FY 2021, [REDACTED] awarded two investments through their East Africa-focused [REDACTED] to off-grid companies, especially supporting businesses affected by the COVID-19 pandemic by injecting patient capital and recoverable grants, structured as zero-interest loans with flexible and customized repayment terms. The Project shared leads with [REDACTED] for its [REDACTED] and offered access-to-finance support for its \$[REDACTED] million

[REDACTED], which provides debt, equity, and revenue-based financing.

- **Individualized support to companies.** In FY 2021, the Project advised and assisted several companies with new challenges faced as a result of COVID-19. In Ghana, PAOP provided market intelligence and other support to [REDACTED], which designed and is testing a prototype SHS PAYGO device that can check a person's temperature, and plays voice recordings in local languages about COVID-19 preventative measures. In Uganda, the Project advised Malawi-based [REDACTED] on challenges related to sales, agents, and shipping of new products, and helped the company implement its new sales strategy. In DRC, PAOP assisted micro-grid company [REDACTED]—which faced the combined challenge of the COVID-19 pandemic and the resurgence of Ebola—in regulatory discussions with the National Agency for Rural Energy Services (*Agence Nationale des Services Énergétiques Ruraux* [ANSER]).

POWER AFRICA

DOWNLOAD

COVID-19 RESPONSE INFORMATION SHEET I
SAFE WORKING PRACTICES FOR OFF-GRID SOLAR COMPANIES

CLIMATE FINANCE

Assisted off-grid energy companies with carbon-finance strategies to secure carbon financing in Liberia, Senegal, Sierra Leone, and Tanzania.

- From FY 2022 to FY 2023, the Project provided carbon-finance strategy support to help two companies, [REDACTED] and [REDACTED], navigate carbon offset/credit markets and set up their own carbon-finance programs.
- In FY 2023, the Project introduced two suppliers of solar-powered water pumps, [REDACTED] (Senegal) and [REDACTED] (Tanzania), to Atmosfair, an underwriter and financier of carbon credits. Atmosfair can **pre-finance credits for carbon-offsetting projects.** [REDACTED] and [REDACTED] products have the strong potential to offset emissions, with these businesses capable of supplying 3,000 pumps of varying sizes through PAYGO financing over the next two years. The Project **strengthened the capacity of these companies on using revenue from carbon credits to cross-subsidize solar pumps for farms smaller than one hectare, where solar pumps can substitute for those powered by diesel.**

Supported the structuring of major climate finance funds throughout sub-Saharan Africa.

- [REDACTED] Fund.** Starting in FY 2022, PAOP began extending legal advice to this climate-focused blended-finance fund, which aimed to raise \$[REDACTED] million from the public and private sector and deploy \$[REDACTED] million to finance off-grid solar technology in SSA and incorporate gender mainstreaming. The Project also provided legal advice to a Luxembourg fund on local law, documentation, and closing-condition precedents. In FY 2023, PAOP continued to offer

legal advice, resulting in the fund securing a commitment from the U.S. Development Finance Corporation and reaching its first financial close of \$[REDACTED] million. PAOP’s conservative estimates suggest that even if the fund deploys only \$[REDACTED]-\$[REDACTED] million to develop off-grid solar energy, this investment **will yield approximately two million clean-energy connections.**

- [REDACTED] Fund.** In FY 2020, the Project helped close a transaction through which the EU-funded [REDACTED] made a \$[REDACTED] million investment in [REDACTED]. The Project had also supported the investor with a capacity-strengthening session for Investment Officers and support to pilot a gender-smart investing approach for the fund, which contributed to the fund satisfying 2X Challenge criteria, unlocking further funding. This investment furthers the fund’s aim to mobilize more capital in support of Sustainable Development Goal 7, which ensures access to clean and affordable energy. The investment will **contribute to the avoidance of 800,000+ tons of carbon dioxide per year, 4+ gigawatts of installed capacity, and the creation of approximately 6,500+ jobs over ten years.**
- [REDACTED] Fund’s [REDACTED] Fund and \$[REDACTED] million [REDACTED] Fund.** In FY 2021, [REDACTED] awarded two investments through their East Africa-focused Restart Fund to off-grid companies. [REDACTED] in Rwanda received \$[REDACTED], and [REDACTED] in Zambia received \$[REDACTED]. The Project shared leads with [REDACTED] for its [REDACTED] Fund and offered access-to-finance support for its \$[REDACTED] million [REDACTED] Fund, which provides debt, equity, and revenue-based financing.
- Climate finance webinar.** In FY 2021, the Project co-hosted a webinar with SunFunder, a leading off-grid financier, titled “Accelerating Climate Investment in Africa: Using Structured Finance to Scale Clean Energy Innovations.” The webinar brought together structured finance experts from the off-grid solar industry, and included a presentation by SunFunder and a panel discussion among

KawiSafi Ventures, PowerGen, SunCulture, Infraco Africa, and SunFunder. Power Africa delivered the opening remarks. The webinar had **more than 400 registered participants, with 165 participating live and providing positive feedback.**

- The [REDACTED] fund launched with Project support, starting with a \$[REDACTED] million transaction.** In FY 2021, the Project provided significant support to launch [REDACTED], an unprecedented partnership of [REDACTED] governments, foundations, and investors, managed by [REDACTED]. The Project’s technical assistance involved gender mainstreaming and legal advisory support to manage closing this complex fund with multiple lenders and helping the fund comply with Green Climate Fund (GCF) gender requirements. Reaching its first close of \$[REDACTED] million in July 2021, [REDACTED] began disbursing concessional loans to off-grid solar companies affected by the COVID-19 pandemic. As of the end of the Project, [REDACTED] **provided unsecured working-capital lending to support 87 small and medium-sized enterprises** in the sector. These funds help companies maintain solvency, staff, and products; position themselves for post-COVID-19 recovery; and include climate finance provisions that **aim to reduce 1.3 million tons of carbon dioxide equivalent** in emissions.

COIN Fund grantee SunFunder provided an \$11 million debt facility to SunCulture for climate-friendly food security solutions and PUE equipment. SunFunder is an investor and a grantee of PAOP’s COIN Fund Window 3: Catalytic Funding. In FY 2021, with COIN Fund support, SunFunder loaned \$500,000 to United Kingdom-based InspiraFarms for working capital to deploy solar-powered, agriculture-focused cold-storage solutions to address the challenge that post-harvest losses of fruits and vegetables account for approximately 40 percent unrealized sales. SunFunder finalized its second innovative financing structure through the COIN Fund, announcing an \$11 million facility for off-grid solar company SunCulture to expand its PUE activities. These solar

water pumps are a means to generate income and replace diesel-powered alternatives.

ELECTRONIC WASTE (E-WASTE) AND CIRCULAR ECONOMY

The following activities show the nature of the Project’s support to e-waste initiatives:

- In FY 2020, the Project supported the implementation of e-waste-recycling reform in Côte d’Ivoire by advising the Ministry of the Environment and Sustainable Development on a report related to operationalizing an economic tax decree.
- From FY 2021 through 2023, alongside the Government of Rwanda and Energising Development (EnDev), the Project contributed to e-waste and circular economy initiatives by producing a factsheet and reviewing a baseline survey.
- In FY 2022 and 2023, the Project assisted a BGFA grantee, [REDACTED], in Zambia to develop an e-waste management plan. The Project also conducted a baseline survey to assess the potential for an e-waste circular economy in Rwanda and supported two BGFA grantees to develop off-grid e-waste management plans.



“Power Africa’s wise and detailed advice on our proposal, during the complex application process [for funding], was crucial for the formulation and the credibility of this project. It significantly contributed to the success of our application.”

■■■■, FOUNDER, ZEMBO, ■■■■

Photo Credit: Carla Visser

TRANSPORT / ELECTRIC MOBILITY (E-MOBILITY)

E-mobility company ■■■■ generated capital. The company runs an electric vehicle network with a battery-swap business model, having facilitated more than 12 million battery rentals and displaced more than 8.9 million kilograms of carbon dioxide in its lifetime. The Project reviewed the company’s pitch deck over several rounds, provided executive coaching on fundraising, introduced it to investors and donors, and supported it to win opportunities, including \$■■■ million in equity from ■■■■ in FY 2021 and \$■■■■ million through ■■■■ in Liberia in FY 2022.

Uganda-based solar motorcycle rental company accessed \$■■■ million in capital. The climate-friendly e-motorcycle company ■■■■ raised \$■■■ million with the Project’s support. In FY 2022, the Project provided Chief Financial Officer services to support ■■■■’s \$■■■ equity raise from several investors to enable ■■■■ to supply more electric motorcycles on lease-to-own agreements in the local currency. As part of its funding, ■■■■ has **committed to reaching more female drivers.** Read more about ■■■■ in its [impact story at the end of the report.](#)

A new e-mobility association launched in Uganda. In FY 2023, with the support of the Project and the African Association for Electric Mobility and Development in Africa (AEMDA), a new e-mobility consortium in Uganda formalized its status as an association and officially launched, calling itself the Uganda Electric Mobility Association (UEMA). The Project has continued providing regular advisory support to the new association.

The Project provided the Kenyan electric-transportation company ■■■■ with Chief Financial Officer services. In FY 2023, having raised \$■■ million in equity, ■■■■ leveraged the Project’s support to develop an asset-finance strategy to raise additional capital within the next few years.

Thought leadership on how e-mobility companies can access more finance. In FY 2023, Power Africa published the blog [Scaling E-mobility in East Africa](#) with insights from the Access to Finance team about unlocking the future of the sector.

ENERGY STORAGE AND BATTERIES

■■■■, a solar storage company, raised \$■■ million. ■■■■ provides a rechargeable, swappable, solar-powered battery service. Its energy hubs charge battery packs for rural, last-mile customers to power lights and small appliances at home. In FY 2022, ■■■■ announced that it had raised \$■■ million in funding, after PAOP supported its financial analysis and procedures to manage cash flow and investments. ■■■■ has built 70 energy hubs, serving over 23,000 people in rural Tanzania. The company employs 140 women in the Tanzanian regions of ■■■■ and ■■■■. With this funding, ■■■■ **expects to add 10,000 new clients and more than 5,000 new customers.**

U.S. GOVERNMENT COORDINATION

The Project has frequently been involved in extending far-reaching support to other U.S. Government, USAID, and Power Africa agencies, programs, Missions, and initiatives, with the following examples:

- **Support to USG funding mechanisms.** In FY 2020, across multiple countries, PAOP encouraged and reviewed companies' applications to the **U.S. Trade and Development Agency (USTDA)**, including in Senegal (Winch), Liberia (Black Star Energy), and Cameroon (Privida). The Project also participated in the Investment Committee of the **West Africa Trade and Investment Hub (WATIH)**, reviewed two applications in DRC, and evaluated an SHS project. In FY 2022, The Project, the Government of DRC, and **USAID INVEST** (a mechanism for facilitating private-sector investment) discussed how to increase USAID INVEST's involvement in structuring the mini-grid component of the Mwinda Fund to attract private finance. The Project supported **Development Innovation Ventures (DIV)** to build partnerships with local entities. At the request of the **U.S. International Development Finance Corporation (DFC)**, the Project provided market intelligence about mini-grid and commercial and industrial companies and supported exchanges with InnoVent, SolarX, and Access SA in Mali. The Project also linked DFC with e-mobility and battery-rental projects, notably Mobile Power.
- **Sharing market, business, and management expertise.** In Burkina Faso, the Project provided an important concept note to the **USAID Office of Transition Initiatives (OTI)** regarding an intervention based on nano-grids, which would use healthcare centers as anchor loads and provide purified water. The Project proposed a contrasting approach that would include BGFA funding and support to the Government of Burkina Faso for a lighter approach to regulating

nano-grids. Project leaders assisted the **USAID–Orange Healthcare Facility Electrification Global Development Alliance** in Sierra Leone by helping negotiate the pricing offered by a solar company for three sites. Project experts gave key inputs on the proposed redesign of the program and advised the newly announced **Healthcare Electrification and Telecommunication Alliance (HETA)**, informing the business case against over-subsidization and suggesting leveraging tax payments against government payment risk.

- **USG interagency coordination.** In FY 2020, USTDA granted \$969,825 to Côte d'Ivoire's Ministry of Energy for a feasibility study for mini-grids to electrify 100 remote communities, the largest off-grid electrification project in Côte d'Ivoire to date. As part of the initiative, in partnership with the **Millennium Challenge Corporation (MCC)** and the **Millennium Challenge Account (MCA)** Côte d'Ivoire, the Project helped electrify 74–84 secondary schools in these off-grid communities by providing renewable energy-policy guidance, disseminating market intelligence, and informing the terms of reference for procurement. The Project played a major role in coordinating USG agencies. From FY 2021 and on, the implementers launched the feasibility study, and the Project continued the Ministry of Energy review the deliverables and coordinate with the USTDA consultant to implement off-grid energy reforms. After the study concluded successfully with **new mini-grids benefiting 192,000 individuals**, the Project helped USTDA advise and review the deliverables with the government. In FY 2023, the Project helped to organize and participated in a meeting between the U.S. Ambassador to Kenya, Margaret Whitman, and U.S.-affiliated off-grid companies working in Kenya on transparency in regulation and taxation; as a result, the USAID Mission in Kenya, with the Project's support, committed to exploring solutions to the issues the off-grid companies raised.



Photo Credit: Power Africa

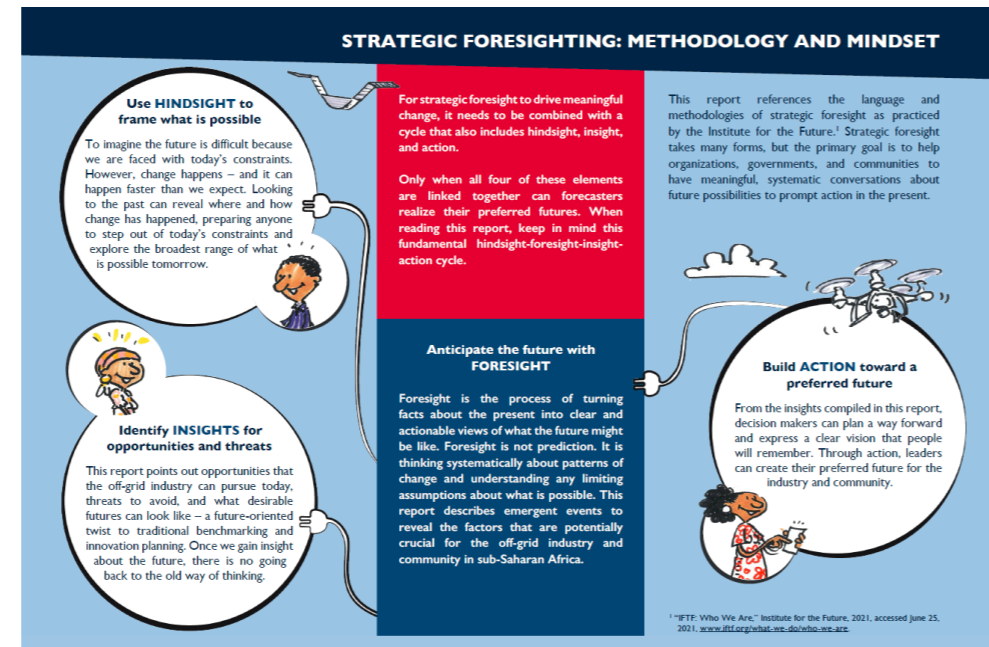
U.S. AMBASSADOR TO KENYA WITH REPRESENTATIVES FROM USAID, THE PROJECT, AND OFF-GRID COMPANIES OPERATING IN KENYA

THOUGHT LEADERSHIP

Duty and VAT Tracker. The Project developed a detailed tracker that includes all duties and VAT charged on a full range of solar products, including their Harmonized System (HS) codes, across 48 countries, including all of sub-Saharan Africa. The tracker includes country-specific contexts on exemptions, administrative fees, and more. In FY 2020, after receiving feedback from stakeholders, the Project finalized the tracker and shared it with GOGLA and other relevant stakeholders. In FY 2021, **GOGLA adopted and launched the tracker as an official tool on its website, and took over its management and upkeep.** In successfully passing on ownership to GOGLA, the Project has improved its sustainability after the life of the Project. The [tool is publicly available.](#)

110 knowledge products addressing critical gaps and needs in off-grid energy. The Project released 110 knowledge products over five years. For example, the Project released [Off-grid Solar Market Assessments](#) in multiple languages in focus countries, the [Financial Modeling Tool for PAYGO Companies](#) with two webinars and follow-up support offerings, bundling it with a suite of resources that guide internal financial management, enable scenario-based projections of company financials, introduce methods to guide company valuations, and model key aspects of PAYGO companies. Another example is the collection of [Productive Use of Energy Catalogs](#), analyzing and sharing information on the PUE equipment for agriculture, fishing, livestock, and poultry as well as manufacturers, suppliers, and other relevant institutions. As a result of sharing these resources across each country's PUE markets, stakeholders across the sector have reportedly connected with new partners, brokered business agreements, and expanded offerings.

Foresight Activity: The Future of Off-Grid Infrastructure in Africa. At the 2020 Global Off-Grid Solar Forum and Expo, the Project hosted a foresighting session, highlighting possible scenarios for the future of the off-grid energy sector in sub-Saharan Africa. The scenarios—developed by the Project in collaboration with Institute for the Future researchers, technologists, and social scientists—included opportunities at the intersection of off-grid energy and digital finance, micro-mobility, gender equity, and climate change. PAOP illustrated the scenarios, drivers of change, and signals of innovation in the [Power Africa Energy Foresight Report](#).



EXTRACT FROM THE POWER AFRICA ENERGY FORESIGHT REPORT



Foresight Activity with live illustration presented in 2020. The illustrations depict cultural, economic, technological, and environmental drivers and emergent signals that suggest disruptions and innovations that might become widespread.

Photo Credit: Power Africa

WHAT HAVE WE LEARNED?



BUSINESS PERFORMANCE

- **Target smaller and newer companies for business-performance support.** Larger companies are often not as interested in business performance support; smaller, in-country firms benefit the most.
- **Business performance support takes time, trust, and clear communication.** Companies that request support under this workstream highly value what they gain from the Project. However, developing a trusting relationship with the Project can be a lengthy process. Before the Project can provide targeted support, companies must first recognize and accept their needs and clearly articulate opportunities for technical assistance.
- **Focus on managing relationships and communicating frequently.** From Project onset, through the conclusion of activities, individuals leading technical assistance must work closely with both a company's in-country local team relevant regional and international teams. The Project must ensure that all parties clearly understand the steps that need to be taken, by when, and by whom.
- **Identify and broker new, mutually beneficial partnerships between entities.** This is one of the main practices that leads to new connections. The Project played a unique role brokering partnerships between manufacturers and suppliers, often cross-regionally, which led to new mutually beneficial partnerships.

- **Find light-touch ways to build and maintain relationships with supported companies.** The Project's lead in-country advisors adopted targeted techniques to communicate with companies, including dissemination of webinars, funding opportunities, studies, and market news. Stakeholders differ according to their needs and operating environments, but all can benefit from enriching their expertise and engaging in technical discourse. For many partners, the Project served as a key source of this information, and frequent information dissemination helped maintain relationships.
- **Adapt to the changing needs of supported companies.** It is likely that companies will need support over a longer period, and the type of support may change, so it's important for the support team to be flexible enough to change course in a rapid and efficient manner.
- **Effectively accelerating companies' market entry and expansion can yield good results.** The Project made special efforts to support both new companies and companies entering new markets, and these companies often see high levels of connections after one year. Market intelligence and geospatial mapping have proven valuable, as they help companies formulate strategies to maximize their potential sales and impact.
- **Revenue generation is the key to sustainability.** While supporting companies to develop profitable and self-sustaining business models and operational approaches, on their journey to self-reliance, the Project helped them focus on revenue-generating activities.



ACCESS TO FINANCE

- **Increased access to the right type and amount of capital, to fund capital-intensive off-grid businesses, is a key driver to scaling the sector.** Examples of the Project's high-impact capital-raising efforts include ██████ raising \$████ million through its ██████ facility and ██████ raising \$████ million for its ██████. These transactions demonstrate the ability of financial intermediaries focused on the off-grid sector to attract capital from a mix of established development finance institutions and new private investors. Such funding can address the medium- to long-term financing needs of the sector.
- **Raising capital for the off-grid sector is time-consuming and complex.** Companies tend to overestimate the momentum of investors, and their interest. Complex transactions often take a minimum of two years to close. Transaction costs are also very high, especially where capital is needed most (i.e., in fragile markets). Successor projects should therefore take a long view on supporting transactions, while balancing priorities, maintaining objectivity, and actively discussing relevant context.
- **Transactions are not easily standardized, especially across different markets.** Tailored and flexible financial advisory support for companies needs to be efficient, and upstream investment readiness is crucial.
- **Gender-lens investing yields results across multiple objectives.** Gender lens investing is highly effective both to correct gender disparities in the energy sector and advance Power Africa's goals of increasing connections and megawatts. It incentivizes leadership and participation among women in clean energy, which improves

business outcomes and returns on climate investments. Gender-smart climate finance places an emphasis on women as energy users and entrepreneurs, which helps mitigate the disproportionate effect of energy poverty and climate change on women.

- **Gender action plans and gender strategies improve businesses.** Investment strategies that encourage women's empowerment in the workplace and beyond yield better working environments for employees, access to untapped customers, better returns for companies, and other positive outcomes. The Project took every opportunity to support companies and investors to ensure more equitable and unifying policies and practices.
- **Certain innovative financial instruments are difficult to scale and replicate.** Due to this challenge, there is a large unmet need in the sector for tailored structuring support, which future programs can fill.
- **Prioritize unlocking finance through local banks for off-grid energy.** This sector is backed by international funds. Long-term, locally sustainable results can be achieved by supporting special credit lines for off-grid companies, which will contribute to the electrification of households.
- **Understand and leverage catalysts for off-grid finance.** These include: (1) lending groups – informal operators, (2) telecoms acquiring SHS companies and MG companies that drive prices down by subsidizing sales, (3) affordable data and connectivity, (4) integration with other product offerings, and (5) greater innovations in financing (e.g. PAYGO).
- **Promote country-specific grant funding.** Future projects should encourage donors to allocate grant funding for specific countries rather than regions, which allows for more targeted support and specific outcomes.

LESSONS LEARNED DURING IMPLEMENTATION



POLICY AND REGULATIONS

- **Policies and regulations must provide the right enabling environment to scale and accelerate energy access in targeted countries.** Energy access cannot be improved where conditions are not favorable. For example, mini-grid regulations should provide for transparent technical interconnection terms and compensation rules in case of national grid encroachment, as this makes investments more secure.
- **Rural electrification, no matter the technology, is not financially viable on its own.** Rural electrification requires support from the government through adequate and innovative business and financing models. Policymakers are still reluctant to channel funds to the private sector in the off-grid sector, but may find it much easier to subsidize grid expansion for utilities. Financial support includes fiscal incentives, capital expense (capex) subsidies, and operating expense (opex) subsidies. Transparent tariff guidelines are necessary to ease the process, from project preparation to tariff approval. Tariff policy must encourage cost-reflective tariffs for electricity, even if this means introducing a tariff-compensation mechanism through cross-subsidies to maintain equity between on- and off-grid customers.
- **Improve the transparency and simplicity of regulations to expedite mini-grid deployment.** Two important ingredients to fast-track mini-grid deployment are (1) transparent site allocation procedures for mini-grids and (2) simplified licensing procedures for mini-grid operators.
- **Promote unregulated, freely deployed, standalone solar systems.** Stakeholders should be supported to advocate for the non-regulation of standalone solar systems and for their free deployment across countries (i.e., no zoning).

- **Include safeguards against counterfeits and consumer protections in regulations.** Regulations on technical standards and quality must be coherent and comprehensive enough to combat counterfeits. This should be coupled with enhanced enforcement mechanisms to achieve proper consumer protection.
- **Maintain awareness of, and coordinate responses to, proposed policy and regulations that negatively affect the energy sector.** Policy and regulations outside the energy sector can threaten the business models and profitability of energy companies, especially those using PAYGO financial models. Examples of laws that directly or inadvertently harm the sector are those related to consumer data storage and protection, microfinance, micro leasing, and VAT regulations.
- **Advocate for the affordability of systems.** Increasing consumer demand for off-grid connections involves improving the affordability of these systems (e.g., through the government enacting incentives, policies, tax waivers, etc.).
- **Pursue one-on-one meetings with key government officials.** Decision-making in the sector is often political, so it is important to understand the individual perspectives of key officials and build on that knowledge. As an advisor, Power Africa can present approaches and business models that resolve perceived challenges, and pilot studies to address major questions.
- **Seek opportunities to engage with governments on new technology.** Governments benefit from Power Africa support because with every new technology, policy and regulatory environments need to catch up. Economies must be at a certain level to adopt new technologies, and there are often opportunities to present the latest innovations and advise early adopters.



MARKET DYNAMICS

- **Assess the value of studies and prioritize technical assistance.** To assess potential support and prioritize activities that deliver the greatest value, the Market Dynamics team should communicate directly with companies, investors, and other entities to identify the extent to which they require, and find value in, studies and market research. Providing these services can take significant resources and time.
- **Market dynamics support must be responsive and nimble.** At the onset of the COVID-19 pandemic, the immediate, decisive action the Project took to coordinate sector-wide efforts, alongside GOGLA and other key stakeholders, resulted in time-effective communications and broad concurrence about priorities and next steps. The Project's role was highly instrumental in helping governments and companies navigate uncertainties, and its communications helped governments make informed regulatory decisions (e.g., qualifying off-grid energy as an essential service) and helped companies sustain their businesses with reduced cash flows over multiple years.
- **Adapt support and guidance to ensure its relevance and value.** In an ever-changing landscape, market-related outputs and publications risk offering insights that are too vague to be applicable, or that leverage out-of-date market data. Guidance and support should adjust and adapt, even in the middle of an activity, to ensure relevance and usefulness.
- **Publish high-quality market intelligence.** The Project's market assessments benefited stakeholders in the sector, including off-grid energy companies; however, companies require high-quality market intelligence on a continual basis, as reports quickly go out of date.

- There is no one-size-fits-all solution across markets. Each market requires different interventions, due to different government regulations, access to technology and connectivity, predatory lenders, lack of trust in mobile money, literacy levels, and languages.
- **To be useful, market intelligence products and training materials require more than just a launch.** Targeted efforts are required to ensure the adoption of materials by key stakeholders (e.g., government agencies, financial institutions, etc.).
- **Local associations are effective coordinators and bridge builders.** The Project supported many companies through business associations, effecting change in governments by uniting multiple stakeholders in a single voice.
- **Innovative approaches, partnerships, and business models can transform markets for the benefit of hard-to-reach end-users.** Innovative end-consumer financing methods have the potential to facilitate affordable payment methods for off-grid energy products, and unlock new, previously unreachable customer bases in rural and underserved areas. For this reason, the Project actively pursued opportunities to support emerging PAYGO systems, partnerships with telecommunications companies, and mobile-money platforms.

LESSONS LEARNED DURING IMPLEMENTATION



CROSS-SECTORAL INTEGRATION

- **Ensure that technical assistance is sustainable by helping supported entities prioritize funding and dedicated staff.** To maximize the impact of gender strategies that serve the female market segment, provide long-term technical support, encourage defined, fully committed roles among internal staff, and allocate financial resources.
- **Establish linkages between PUE manufacturers and suppliers, and between suppliers and agricultural networks.** The Project promoted PUE by identifying and promoting potentially fruitful partnerships. PUE has a significant impact on local economic growth, poverty alleviation, and connections. Strategic partnerships can promote the speedier deployment and uptake of PUE technology.
- **Take a dual approach of targeted finance and assistance to develop the PUE sector.** Grants and concessional finance (e.g., the Project’s COIN Fund, PUE grants, and BGFA) catalyze growth in the PUE sector; however, it is necessary to provide concurrent and well-designed technical assistance to maximize the long-term impact of these funds. This technical support should include business plans, financial modeling, customer service training, aftersales service, and gender integration.
- **Bridge the unmet demand for gender-related technical assistance from investors.** The Project offered significant value via technical assistance to investors’ portfolios. Support for public and private sector investors is an effective strategy that contributes to Power Africa’s gender equality, connections, and access to finance objectives.
- **Advance PUE technologies to serve multiple purposes.** The semi-arid Sahelian region is home to about 135 million people, 75

percent of whom are involved in agriculture production. In the Sahel, packaged PUE solutions like the Benalya Group’s solar greenhouses, which the Project supported from FY 2021 to 2023, have the potential to improve food security by improving growing conditions for crops.

- **Understand how to optimize, complement, and finance health facility electrification efforts sustainably.** Future projects should find ways to meet the latent demand for distributed renewable energy applications at healthcare facilities, even grid-tied facilities. In the long run, the operation and maintenance of healthcare facilities cannot rely solely on government payments, and private-sector incentives can help bridge the gap. Pairing of revenue-generating activities with public infrastructure can cross-subsidize much-needed operations and maintenance activities.
- **Gender activities succeeded due to several factors.**
 - Efforts to promote gender equality in the clean energy sector by other development actors (e.g., DFIs).
 - Teamwork of Project advisors in identifying opportunities for gender integration (e.g., Access to Finance advisors identifying opportunities for gender lens investing through various funds, the Policy and Regulatory advisor identifying the opportunity for DRC’s National Rural and Peri-urban Electrification and Energy Services Agency to adopt a new gender strategy, and several lead in-country advisors identifying company-level opportunities).
 - Commitment of Project leaders to gender integration, which enabled greater leeway to innovate and pilot approaches, especially where budgetary allocations were required (e.g., Simusolar’s market-focused gender strategy).
- **Maximize the impact of healthcare facility electrification on the surrounding community.** The Project found community impacts

multiplied when pairing health facility electrification with additional equipment (e.g., fridges and autoclaves) and powering other services (e.g., staff housing, PUE).

- **Encourage participation across other government agencies.** Ministries and agencies in the agriculture, health, education, and transportation sectors can be critical for the successful implementation of PUE.

MANAGEMENT

- **Lead support locally through in-country advisors.** A key value-add of the Project was the trust lead in-country advisors cultivated over time with partners. Lead in-country advisors can take the pulse of the sector at all times, and serve as liaisons to coordinate support to stakeholders from the larger team.
- **The team’s collaborative approach has been effective, including experts specializing in cross-cutting technical topics with in-country experts.** Once a supported entity identified a specific challenge or need, the Project was prepared to advise on and carry out a range of highly specific activities. Key to the effectiveness of implementation of technical assistance was ensuring that the most broadly experienced experts led this guidance. Through this collaborative arrangement, beyond the standard technical assistance laid out in workplans, the Project’s flexible, demand-driven responses to sectoral needs have helped foster more enduring sector-wide growth.
- **Effective management requires persistent prioritization.** In line with its “open-door policy,” the Project communicated with a range of participants across the off-grid energy sector, including companies, investors, financial institutions, government institutions, and NGOs. However, due to high demand for Project support, leaders carefully

deliberated before dedicating significant time and resources, prioritizing support to companies with low risk and a strong potential for success, as well as markets with greater growth potential.

- **Guidance on quantifying connections can help newly supported companies.** Any practice that leads to sustainable increases in connections should be examined as a potential best practice. For example, when supporting early-stage companies, the Project encouraged them to quantify the cost of connections. While some companies did not initially welcome the exercise, they soon realized how it could generate insights to enhance their business models.
- **Plan grant timelines realistically.** Future projects should allow extra time for the sometimes lengthy process of finalizing agreements with facilities and/or the managing entities of a grant site and site assessments. Also, maintain flexibility in adapting to customs clearance for imported equipment and supply-chain delays due to unforeseen circumstances (i.e., COVID-19).
- **Prepare to adapt to grant implementation challenges.** Budgetary flexibility is important to account for price increases of components between the planning and implementation phases, remediation and capacity-building support that may be necessary after improper installation of equipment, and interventions for rewiring facilities to accommodate equipment.

HOW WE HAVE REFINED IMPLEMENTATION
OVER TIME

 BUSINESS PERFORMANCE

The Project's Business Performance approach initially relied on in-country advisors to build relationships, with a focus on market assessments to tailor support to various entities. Over time, the team's engagement became broader. Due to COVID-19 and evolving markets, the Project adapted by seeking new partnerships and integrating Business Performance support into other areas, such as access-to-finance assistance, gender activities, and PUE integration.

 ACCESS TO FINANCE

A significant proportion of the Project's key performance indicators come from support in mobilizing large transactions. In the Project's five years, this multifaceted workstream expanded and evolved, as companies worked with investors, financial institutions, crowdfunding platforms, and others to attract, raise, and receive capital. The Access to Finance team continued to explore individualized solutions in coordination with collaborating Project staff, a highly advantageous management approach. Examples of practices that developed over time were pitch-deck development, legal services, executive coaching, and other more targeted activities. These activities are not commonly offered by donors, and lay the groundwork for companies to invite and expedite new and greater levels of investment.

 POLICY AND REGULATIONS

The Project's approach to this workstream initially involved offering *ad hoc* support for policy issues, but evolved into proactively engaging stakeholders, initiating policy discussions, and advocating for more supportive enabling environments. This shift made policy and regulatory support integral to the Project's overall success, as more sector stakeholders recognized factors contributing to and detracting from the enabling environment.

 MARKET DYNAMICS

The Project's approach to its workstream evolved over time according to the needs of the private sector and market-relevant stakeholders. At the start, the Project prioritized establishing rigorous market and baseline information about each focus country. During the COVID-19 pandemic, the Project shifted rapidly to coordinate information across countries and markets, share and promote best practices through widely accessed outlets and industry associations (i.e., GOGLA), and supply companies with the information they needed to improve their resilience. As the lockdowns ended, the Project continued producing and disseminating tailored market intelligence to assist individual companies and investors, as well as producing market-oriented technical work products to raise awareness of good practices.

 CROSS-SECTORAL INTEGRATION

Gender

Early in the Project, key approaches and good practices were piloted with PEG Africa, which informed specific intervention points that the Project refined and delivered as a standardized approach to all 22 companies PAOP subsequently supported. Over time, the Project adjusted the implementation of gender baseline assessments, based on a tailored tool developed by the Project, and gender action plans according to previous efforts and contextual factors. Support for gender lens investing evolved in a similar fashion, by starting with a pilot and carrying forward lessons learned. Particularly relevant to the Project's approach to motivating gender action were: (1) the business case for gender equality and (2) the 2X Challenge by development finance institutions, as well as the accompanying criteria, tools, and guidance on good practices to promote women's participation in the energy sector.

Energy–Agriculture

The Project contributed to energy–agriculture activities through support to on-the-ground implementers and stakeholders at several levels. While this approach remained consistent over time on a case-by-case basis, supporting an entity at one level sometimes led to extending support to other entities on other levels, scaling support to activities more widely, and facilitating the involvement of new external partners. Examples of this support include assisting governmental bodies to promote PUE through policies, helping companies adopt new PUE technologies and business models, and raising awareness among farmers and agricultural networks about products and companies.

SUGGESTED RESOLUTIONS TO IDENTIFIED
CONSTRAINTS

CHALLENGES	SOLUTIONS
BUSINESS PERFORMANCE	
Obtaining buy-in from companies for business performance support took a lengthy amount of time.	Outline what business performance support entails, spend time meeting with each company to win its trust, and share examples of previous support and its usefulness to other companies. In future projects, Power Africa can allow for rapid deployment at start-up to fast-track relationship-building toward provision of this support.
Small and medium-sized off-grid energy companies lack business and operational capacity.	Provide continual business advisory services and capacity-strengthening support to off-grid energy companies. The Project led a series of capacity-building workshops, on-the-job training sessions, coaching assistance, and ongoing mentoring to promote off-grid energy sector partnerships, policy, and financing. In many cases, this capacity-strengthening support went hand in hand with mainstreaming gender into businesses and assisting women in management in renewable energy.
ACCESS TO FINANCE	
Lack of access to finance across many markets in sub-Saharan Africa limits companies' ability to scale and expand off-grid energy.	Advise and reinforce private sector investors and companies to offer and pursue more financial opportunities. The Project saw results from awareness-raising efforts about investment opportunities across networks of development finance institutions, and support to these networks to co-create new programs with specific access-to-finance opportunities targeting small and medium-sized companies.
An investment gap exists between capital available versus capital needed to close transactions toward reaching universal energy access goals.	Offer frequent, multi-pronged access-to-finance support, making more capital available and deployable for companies and funds across the sector.
Fundraising is an uncertain process significantly affected by external factors, such as sector performance.	Lead dedicated fundraising support that targets a broad range of capital providers. This includes upstream investment-readiness support that prepares companies to adjust to these external factors.
Technical-assistance needs can exceed a project's budget and capacity (e.g., needs involving complex capital structures).	Offer tailored support to a wide range of companies and investors, but also build more standardized financial support services targeting early-stage companies. Financial support to improve companies' overall financial management capacity and financial modeling increases their likelihood of raising capital.
POLICY AND REGULATIONS	
Off-grid energy markets across many countries lack subsidies.	Build stakeholder buy-in and government will to finalize duty and tax exemptions through decrees. Facilitate dialogue with governmental partners, associations, and other stakeholders about the past successes and benefits of subsidy programs.

CHALLENGES	SOLUTIONS
Governments often lack funding to endorse international standards and enforce regulations.	Plan programming to include more support for endorsements and regulation enforcement, and communicate the need for these among donors.
Companies face challenges navigating uneven tax regimes across geographies.	Stay up to date on the latest tax regimes, share expertise with partners, and advocate through the sector for better harmonization of tax regimes at the regional level.
Companies face limited information and poor communications about taxes that affect their products.	Simplify and disseminate widely existing tax information (e.g., duties, value-added taxes, customs clearance) to stakeholders. Share expertise and advice with companies.
Coordination among stakeholders is limited.	Improve and facilitate public-private dialogues, strengthen the technical and financial capabilities of national renewable energy associations, and set up coordination committees to enable dialogue between governments and development partners.
Policymakers have misperceptions about subsidizing private companies in the off-grid energy sector.	Continue to raise awareness and strengthen the capacity of policymakers, demonstrating the benefits and successes of past efforts.
MARKET DYNAMICS	
Published market data quickly loses accuracy, relevance, and usefulness.	Publish and regularly update initial market assessments.
There can be a lack of local market intelligence.	Facilitate capacity strengthening among, strengthen partnerships with, and encourage more involvement from development finance institutions to help reinforce the role that local companies play in energy sub-sectors (and downstream activities).
Mini-grids and PUE are relatively new in markets across sub-Saharan Africa.	Play a central role in these new markets to catalyze their growth. West Africa is a promising new market for PUE and mini-grids. From 2024 through 2030, PUE and mini-grid connections are forecasted to more than double.
CROSS-SECTORAL INTEGRATION	
Product affordability and end-user ability to pay limit access to PUE products.	Develop a solid understanding of local markets to help companies and local distributors optimize their business models. These models can include PAYGO integration, as a means to facilitate end-user financing of products, and partnerships with financing institutions. Strong partnerships across agricultural value chains and national agencies supporting the agricultural sector can enhance market penetration for these products.

CHALLENGES	SOLUTIONS
Standards, regulations, and tax irregularities remain critical barriers to deploying PUE technologies more widely. Application of duties and taxes is often inconsistent for PUE, leading to unpredictability and delays during dispute resolution.	Assist governmental partners and sector-wide advocates to develop policies conducive to more consistent exemptions and waivers for PUE appliances and equipment, to encourage their adoption and stimulate economic growth. Support regulatory and implementing agencies and authorities to apply these rules with greater consistency.
Quality standards are generally not in place for PUE appliances and equipment. As a result, companies in some markets suffer from low customer interest, due to low-quality products failing with no warranty or after-sales service.	Promote quality standards by supporting international quality-verifying entities, industry associations, and governments. Preventing low-quality products from entering the market can foster positive perceptions about PUE products, leading to greater adoption among customers.
MANAGEMENT	
Providing support to companies is a time-consuming process. In many cases, their staff cannot dedicate time to communicate with and receive Power Africa support, as they are busy managing their businesses.	Clearly explain the process for Power Africa support at the start of discussions, and ensure that more than one point of contact is available to dedicate time to regular catch-up calls and meetings. Support from in-country advisors is essential to building relationships with companies. A company's contracts team can assist by developing scopes of work that can be adapted easily and extended, as required.
Collecting certain data is difficult and time-consuming.	Use local experts located in each country to collect more accurate and useful data. Dedicate time, resources, and special attention to ensure quality before, throughout, and after the process of data collection.



Photo Credit: SolarWorks!

WHAT CAN BE REPLICATED & FURTHER DEVELOPED?

PERFORMANCE INDICATORS AND THEIR RELATIVE USEFULNESS

INDICATOR	RELATIVE USEFULNESS
Electricity Access: Number of new grid and off-grid anticipated direct connections at financial close; Unit: Number (PA/standard)	This is a notably useful indicator, as it has enabled Power Africa and Project leaders to extrapolate the estimated number of connections from transactions beyond the life of the Project, informing programming prioritization with a longer view on results and outcomes. For example, the ability to estimate connections beyond the life of the Project allowed PAOP to shift resources to health facility electrification activities, given that such efforts can be complex and span multiple years before realization. When transactions close, the dispersal of funds to investees and implementation of activities may not be immediate.
Number of new grid and off grid actual direct connections; Unit: Number (PA/standard)	<p>Project leaders see this indicator critical and useful both toward Power Africa’s overarching mission, and as a measure of progress across the off-grid energy sector as a whole. It should be the number-one indicator, but not the only important indicator, as it does not fully capture USAID’s goal of economic growth.</p> <p>Reporting connections on a delayed schedule improves accuracy. Since inception, the Project has taken a rigorous approach to validating the accuracy of connections, by systematically reporting these numbers one quarter after a given reporting period. This approach maximizes response rates and ensures greater accuracy, as a large proportion of companies modify their originally reported connections numbers after the fact. The Project strongly believes that a delayed reporting schedule for this indicator should be standardized as a best practice of all Power Africa implementing partners.</p> <p>Attribution on financial close. On October 11, 2021, the Project proposed a modification to the methodology on connection attribution from transaction support, which Power Africa approved, allowing PAOP to “frontload” its attribution of connections upon financial close, attributing in the same quarter 100 percent of a company’s resultant connections from access-to-finance support. This slight adjustment to the methodology has been highly practical, and is a replicable best practice for future implementers.</p> <p>Most companies do not report connections. The key limitation of this indicator is that it does not capture the Project’s actual totals achieved, because most companies do not share their connections. For all companies, reporting connections requires both confidence in Power Africa and extra administrative bandwidth, and in any case, sharing these numbers may not be in their best interest from a business perspective.</p>

INDICATOR	RELATIVE USEFULNESS
Amount Mobilized: Amount of investment mobilized for energy projects; Unit USD (million) (PA/standard)	This indicator provides a useful measure of Power Africa’s effective impact on African investments in off-grid energy. Incentivize prioritizing local transactions and companies. In future programming, Power Africa may consider further honing this indicator to help implementing partners prioritize inclusive support to all entities, of any origin, that close transactions and achieve connections of any size. The Project has consciously maintained an open-door policy to provide inclusive support to small and large, early-stage and mature, and local and international companies. However, to inform Power Africa’s design of targets that place a focus on localization in future programming, it may be worth developing multiple categorical indicators that incentivize implementing partners to exercise inclusiveness while pursuing both large and small off-grid connections and investments. The current indicator may inadvertently introduce perverse incentives among implementers, such as an inclination to dedicate more time and effort to larger, international companies largely headquartered outside of Africa, as they bring higher transaction and connection numbers. Likewise, to address the inclination to minimize support to smaller, local companies that cannot share their connections or yield higher totals, Power Africa may find value in designing future indicators to capture successful support both to larger and smaller companies.
Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented as supported by U.S. Government assistance; Unit: Number (PA/standard)	<p>This target is somewhat useful as an output indicator, but does not fulfill its potential to link with the Project’s top goals. There is no direct link in the Performance Indicator Reference Sheet to connections. In future revisions, the target could more comprehensively capture less-formal governmental outputs and support, international standards support, and more.</p> <p>Link legislative achievements to market impacts by collaborating with GOGLA and associations. To inform the design of future targets, Power Africa can explore how effective policy and regulatory interventions impact off-grid energy market sales and other indicators of improved economic prosperity, which GOGLA and local associations already capture. By collaborating and communicating systematically with GOGLA and its member associations, Power Africa can tie its interventions to wider impacts.</p> <p>One hidden limitation of this indicator is that certain governments may not be interested in direct interventions, in which case projects can pursue other relevant activities toward supporting the enabling environment.</p>
Number of productive-use off-grid devices or systems sold as a result of U.S. Government / Power Africa assistance; Unit: Number (PA/standard)	<p>The current indicator is not as useful as it could be. This was PAOP’s only indicator that tracked community-level economic growth; therefore, it should rank higher in importance. Project leaders view PUE as critical to poverty reduction; once the Project was within reach of its targets, the team was able to shift its focus toward supporting more PUE-related income-generating activities, in line with localized, community-level USAID development goals.</p> <p>Use PUE as a measure of economic growth. Power Africa may consider designing and applying a methodology to calculate the economic growth potential of each category of PUE equipment in the market. Such an approach could build upon the information in existing technical knowledge products generated by the Project, such as PUE Catalogs.</p> <p>Use PUE as a measure of carbon dioxide-equivalent emissions reduced, avoided, or sequestered. Linking PUE equipment sales to existing methodologies for GHG emissions reduction would help Power Africa collect important information to drive programmatic priorities. These renewable energy products serve as a means of climate change mitigation and adaptation. It may be worth exploring/adopting a standard methodology to calculate the climate impact of different sizes of solar pumps, irrigators, sprayers, food-processing units, cold-storage units, and others.</p>

INDICATOR	RELATIVE USEFULNESS
Number of investors, lenders, foundations, etc. supported by Lead Advisors; Unit: Number (Custom)	This target measures outputs, but is not a useful measure of impact. It does not provide meaningful information beyond the total number of financial institutions engaged.
Number of supported investors, lenders, foundations etc. that introduce off-grid specific financial products and/or begin marketing to off-grid companies after receiving support; Unit: Number (Custom/Contractual)	This indicator may not be useful or meaningful to capture, as most institutions have already explored creating financial products and marketing them to off-grid companies, and it is beyond the purview of a project to develop financial products for these institutions. PAOP's greatest impact has been helping stakeholders raise capital and understand business models, technical issues, and markets.
Number of off-grid companies that access market information / intelligence in the off-grid sector; Unit: Number (Custom)	This indicator could be more useful. While it roughly shows Power Africa's outputs, it does not convey the Project's net outcomes across markets, and should specifically capture the Project's successful interventions. Power Africa could further define the significance of a single interaction with a company, e.g., whether a project is disseminating information en masse or targeting a specific company with deeply tailored research. To further contextualize the scarcity of monitoring and evaluation-related responses, Power Africa could also request that projects report the ratio of companies that report versus those that do not. Power Africa could further define this indicator by categorizing intelligence targeted toward the market as a whole (e.g., market assessments) as opposed to individual companies (e.g., intelligence to inform market entry). This could be combined and refined to include multiple sub-elements, with the indicator "Number of business intelligence and trade leads accessed by U.S. companies through Power Africa."
Number of off-grid companies receiving significant TA from Lead Advisors; Unit: Number (Custom)	This indicator is somewhat useful, as it provides important record-keeping to justify connections. All the companies reflected in these totals reported having received substantial technical assistance, which represents many hours of Project time and resources. However, advisors and staff also expended significant time and resources that do not count as significant, per se, because that support did not yield connections. As such, this indicator is similar to indicator 8 ("Number of OGCs that access market information/intelligence"), and could be combined and defined to have a more specific orientation with Power Africa's top goals.
Number of off-grid companies that increased their sales with new connections; Unit: Number (Custom)	This indicator has not been useful in practice, and USAID may consider removing it from future projects. While the indicator has potential value, lack of reporting by companies makes it difficult to assess impact.
Number of grants supported under COIN Fund that are successful, Unit: Number (Custom)	This target measures the number of grants closed, but is not a useful measure of impact. It does not provide any meaningful information beyond the total number of grants issued. COIN Fund grants are in many cases intended to pilot-test new business models, innovative financial mechanisms, and scalable technologies in new markets and contexts; measuring their success according to these long-term goals is a complex, qualitative question worthy of in-depth study before and after implementation.

INDICATOR	RELATIVE USEFULNESS
Number of technical knowledge products shared with Power Africa Coordinator's Office and key partners that promote Off-grid energy best practices, lessons learned, and evidence; Unit: Number (Custom)	This indicator is not useful or meaningful beyond tallying the Project's total number of technical outputs. It does not speak to the quality, usefulness, benefits, and outcomes of these knowledge products, as evaluated by their primary audiences. The indicator also does not capture the fact that several companies leveraged the Project's financial modeling toolkit and integrated it into their operations. Likewise, the indicator does not capture how the Project shared its original VAT/duty tracker with GOGLA to enable its widespread usage and long-term sustainability. A more descriptive and instructive indicator might measure off-grid energy sector entities' uptake, use, and adoption of such resources and tools. Future projects might explore surveying stakeholders to evaluate the utility of work products and provide qualitative feedback on their impact.
Number of national policies reviewed to include enabling environment impacting the off-grid sector; Unit: Number (Custom)	This indicator is not necessarily useful or descriptive as a total count of policies reviewed. Many national electrifications plans and comparable policies only refer to the off-grid sector and geographies with vague language. It is worth noting that this indicator overlaps with "Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented as supported by U.S. Government assistance."
Number of African governments that have received Power Africa support—and subsequently improved—with the drafting/refining and implementation of critical laws, policies, regulations, or standards impacting the off-grid sector; Unit: Number (Custom)	This is a useful indicator toward the goal of maximizing the number of governments supported. It measures policy and regulatory activities in a way distinct from "Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented as supported by U.S. Government assistance." However, it would be ideal to combine this indicator with "Number of African governments that receive PA support to implement improvements to their frameworks."
Number of African governments that receive PA support to implement improvements to their frameworks; Unit: Number (Custom/Contractual)	This indicator is useful. It would be ideal to combine it with the previous indicator, "Number of African governments that have received Power Africa support—and subsequently improved—with the drafting/refining and implementation of critical laws, policies, regulations, or standards impacting the off-grid sector."
Number of business intelligence and trade leads sent to U.S. companies through Power Africa; [1] Unit: Number (PA/standard)	This is a useful indicator, but could be combined and refined as a sub-element of a market intelligence indicator that also includes "Number of off-grid companies that access market information/intelligence in the off-grid sector."

RECOMMENDATIONS FOR FOLLOW-ON WORK THAT MAY COMPLEMENT COMPLETED WORK

INDICATOR	RELATIVE USEFULNESS
Number of U.S. companies participating in Power Africa projects/transactions; Unit: Number (PA/standard)	This is not a useful indicator. While it may be slightly easier to calculate in terms of life-of-project tracking, it is challenging to monitor quarterly. The language and implications regarding projects and transactions could be clearer and more precise.
Number of healthcare facilities electrified. Unit: Number (PA/standard)	This is a very useful indicator that PAOP recommends using in future programs. If applicable, to specify the nature of Power Africa support, this indicator could be divided between facilities electrified through grants and through technical assistance.
Greenhouse gas emissions reduced, sequestered, or avoided: Greenhouse gas (GHG) emissions, estimated in metric tons of carbon dioxide-equivalent (CO ₂ e) reduced, sequestered, and/or avoided as a result of U.S. Government assistance. Unit: metric tons of CO ₂ e (PA/standard)	This is a very useful indicator. Project leaders developed and submitted a methodology to attribute (a) off-grid solar photovoltaic systems ranging in size from 0 to 50+ watt peak (e.g., SHS), (b) mini-grids, and (c) solar photovoltaic pumps replacing diesel pumps in the PUE sector. The formula for (a) and (b) was adapted and simplified from a GOGLA methodology, with the formula for (c) represents the Project's original thought leadership. Future projects may explore methodologies for calculating emissions avoided systems and equipment beyond these categories. The Project especially recommends that future Power Africa projects explore establishing methodologies to understand carbon dioxide-equivalent reduced, sequestered, or avoided in relation to categories of PUE products (e.g., mills, sprayers, dryers, fridges, etc.). Future programs may also apply similar methodologies to collect data based on e-mobility and transport sales.
Number of beneficiaries from electrified healthcare facilities. Unit: Number (PA/standard)	This is a relatively useful indicator, in conjunction with “Number of healthcare facilities electrified.” However, it is important to exercise caution, because the catchment area of a facility is often only a vague estimate of a community’s population, and may not necessarily reflect actual visiting patients.

Additional off-grid indicators to consider in future programs

The Project recommends considering the inclusion of the following indicators in addition to those selected above:

- Number of local entities supported to access finance
- Number of women-owned and led entities supported
- Number of gender action plans or equity strategies developed or implemented
- Amount mobilized through gender lens investing
- Amount of anticipated income generation resulting from PUE equipment sales
- EG.12-7: Projected greenhouse gas emissions reduced or avoided from adopted laws, policies, regulations, or technologies related to clean energy as supported by USG assistance (currently a USAID indicator)



BUSINESS PERFORMANCE

Build upon previously successful work with supported companies, especially targeting smaller, newer, and local companies for this support, because they benefit the most. Focus on accelerating market entry and expansion through dedicated activities, as these efforts often result in more connections. Serve a role as an information hub and connector by providing networking opportunities between off-grid energy sector entities and brokering mutually beneficial strategic partnerships that can serve unmet needs, access new geographies, and enter new markets. Analyze the operations and business models of supported companies to look for opportunities to improve their sales strategies, after-sales service, gender equity, staffing, marketing, and product offerings. Offer capacity-strengthening, coaching, and training support to company leaders and through national energy associations, international industry associations, and peripherally related associations.



ACCESS TO FINANCE

Tailor technical assistance to the needs of the rapidly maturing off-grid market and tap into new climate funding sources. Investors need support with fundraising, capital deployment, structuring, and innovations on financial products and structures (e.g., climate finance, securitization, and local currency). Companies need hands-on financial support to access the capital they need to scale (e.g., Chief Finance Officer services, financial management, legal advisory support, portfolio quality improvements, and fundraising support). Continue to prioritize sector-wide initiatives, as Power Africa knowledge products such as the Financial Modeling Tool have been widely adopted across companies and investment portfolios. Plan to provide support focused on removing key barriers for companies to access finance and for investors to deploy capital. Ensure that technical assistance is focused toward closing transactions. Ensure that grants under contract include windows focused on small-scale finance initiatives, and launch requests for proposals in the early stages of the program. Through these grants, support the development and scaling of innovative finance structures and products integrating climate-finance-related concepts such as carbon credits, carbon-credit-backed Special Purpose Vehicles, and local currency hedging products. Grant windows could also focus on expanding sources of financing.

Ensure that the team has a mix of corporate, project finance experience that includes finance strategy, fundraising, structuring, pipeline development,

matchmaking, and industry training. Build roles and processes on the team for managing relationships, monitoring deliverables, leveraging third-party advisors, and providing follow-up support. Procure third-party advisory support as needed to address specific technical needs of supported partners and entities. Third-party support may include upstream-investment-readiness support for securing early/earlier-stage capital as well as capital for local companies. Types of legal transaction support, for example, may entail facility structuring, transaction closing, research on the legality of new climate-finance funding structures, legal reviews of large, more mature companies with off-balance sheet structures.



POLICY AND REGULATIONS

Make efforts to promote quality standards, safeguard against counterfeits, and improve the affordability of solar systems. To expedite mini-grid deployment, promote and support policies and regulations that improve the transparency of allocation procedures and simplify the licensing of procedures for operators. Champion modern, innovative, and more efficient technologies for government use (e.g., smart meters and digital procurement platforms), including assisting relevant partners to promote and implement them. Offer to organize, facilitate, and contribute to public-private dialogues that drive enabling environment transformation. Contribute recommendations to national and regional planning and policy efforts for rural off-grid electrification, and advocate for subsidies, incentives, and waivers that facilitate the financial viability of rural off-grid electrification.



MARKET DYNAMICS

Establish the expertise of USAID and Power Africa programs at startup by assessing baseline market information with detailed analyses and widely sharing insights. Publish, disseminate, and provide follow-on support based on tailored resources for key market-related topics and geographies in multiple languages according to the needs of the sector. Partner with GOGLA and other industry leaders to offer extensive support, align and communicate with teams and activities that share objectives, and conduct mutually beneficial market information gathering and sharing. Share the best practices from previous activities in one country with companies, associations, and governmental stakeholders leading similar activities in other countries. Ensure that all outputs entail a longer process of follow-up with stakeholders by continually offering support, as most supported stakeholders benefit from more thorough support beyond the initial publishing of market intelligence products and training materials. Pursue innovations and explore their scalability across markets. Lead activities proposing and championing solutions to reaching last-mile customers and electrifying underserved communities.



CROSS-SECTORAL INTEGRATION

Gender

Dedicate significant efforts to identify new funds for potential gender lens investing support, for which there are many opportunities across the sector. Offer gender training and advisory support to funds and development finance institutions to improve the gender equity provisions of their portfolios of investees and offer supplemental technical assistance. Continue technical advisory support to entities which the Project has already supported, for example, with DRC's National Rural and Peri-urban Electrification and Energy Services Agency (ANSER) to continue the process of implementing the Gender Strategy and Action Plan. Develop guidance and tools to support gender integration into rural electrification project planning, development, and monitoring as well as capacity strengthening. Follow up with previously funded grantees, such as the Kenya-based COIN Fund PUE grantees, to provide further support, as needed, to reach women customers with PUE.

Energy-Agriculture

Identify gaps at each level of local value chains and provide the tailored technical assistance based on stakeholders' needs. Inform support at other levels, study and focus facilitating PUE as a means to resolve the challenges of and generate greater yields and incomes among smallholder farmers. Help local stakeholders communicate their interests with governmental bodies to inform policy improvements. Dedicate activities in workplans to engaging with, surveying, and providing technical assistance to end-users. In designing future projects, beyond measuring only outputs of project support (e.g., the number of PUE products distributed), examine how key performance indicators can reflect the real impacts from the end-users' adoption of PUE technology. Understanding distinctive local contexts and addressing end-user needs across regions and supply chains requires keen insights into local perspectives through on-the-ground engagement with the end-users themselves. Alongside support to the companies, provide side support to local communities through the companies or other stakeholders.

**HIGHLIGHTS:
GENDER-RELATED
INTERVENTIONS**

The starting point for all gender-related interventions in the Project was Power Africa’s overarching gender goal: to meet the energy needs of women while creating opportunities for women throughout the energy sector value chain. Opportunities to advance this goal were identified under each work stream—business performance, access to finance, policy and regulatory, market intelligence, and energy–agriculture—as well as through the COIN Fund.

Gender integration was aligned with Project targets “Number of new grid and off grid actual direct connections” and “Amount of investment mobilized for energy projects.” In this way, gender equality was not an add-on to the Project but key to its success. Informed by the business case for gender equality, the Project aimed to contribute to these targets and deliverables by leveraging gender equality as an enabler of increased connections and investments into clean energy in sub-Saharan Africa. With this approach, the Project was also able to play a role in promoting awareness of women as necessary stakeholders in a clean energy transition and not only as poor beneficiaries of development support.

The Project promoted the business case for gender equality among off-grid companies and climate funds to create demand for tailored Project support, which included drafting gender action plans and supporting the adoption of good practices toward progress on targets related to women’s employment, leadership, inclusive policies, and female customers’ energy access needs. Twenty-three companies tapped into this form of technical assistance.

The Project supported private investors to develop and apply a gender lens to their investments in the sector. Development Finance Institutions also approached the Project for support to offer technical assistance to their investments in order to meet the 2X Challenge criteria. Gender lens investing is highly critical both to correct gender disparities in the energy sector and advance Power Africa’s goals of increasing connections and megawatts. It incentivizes leadership and participation among women in clean energy, which improves business outcomes and returns on climate investments. Gender-smart climate finance places an emphasis on women as energy users and entrepreneurs, which helps mitigate the disproportionate effect of energy poverty and climate

change on women. The Project shared learnings on gender lens investing in a case study and webinars. The Project also supported Power Africa to promote gender lens investing with and amongst partners during one annual Partner’s Week.

Some highlights from the Project’s gender integration work, including into the policy and regulatory, and energy and agriculture workstream, as well as into the COIN Fund are provided below.

Four funds realized results from the Project’s significant gender lens investing support. For several years, the Project delivered customized gender-lens-investment training to several funds, for example, in 2022 to [REDACTED], [REDACTED], and [REDACTED]. This support mobilized capital for off-grid companies that either achieve Power Africa’s objectives for gender equality or agree to take measurable steps to meet these standards as well as Power Africa’s objectives to increase women’s participation in the sector and improve women’s access to clean-energy technology. As of the end of 2023, the following four funds achieved results from PAOP’s significant gender-lens-investing support:

1. [REDACTED] – Informed gender mainstreaming and compliance with GCF gender requirements for this \$ [REDACTED] million partnership between [REDACTED] governments, foundations, and investors, managed by [REDACTED] to support 87 small and medium-sized enterprises in the sector.
2. [REDACTED] – Provided gender-lens-investing training to [REDACTED] management and staff, as well as representatives from impact investor [REDACTED] to deploy \$ [REDACTED] million for mini-grids, SHS, and PUE in sub-Saharan Africa, with a strong focus on gender.
3. [REDACTED] – Provided a gender lens investing framework for deal screening, underwriting, and monitoring and evaluation, which are being applied to all [REDACTED] investments. This includes an innovative provision for investees to develop a gender action plan, with Power Africa’s support, within 90 days of signature.
4. [REDACTED] – Helped the investor raise \$ [REDACTED] million and strengthened capacity of Investment Officers and support to pilot a gender-smart investing approach for the fund, which contributed to the fund satisfying 2X Challenge criteria, unlocking further funding.

Grants under contract led to clear outcomes among women in off-grid communities in Kenya. Through the COIN Fund, Power Africa provided \$100,000 to four PUE companies in Kenya to promote the uptake of PUE among women customers. Results included the uptake of PUE by 96 new customers (65 women) and 4,789+ potential new customers introduced to PUE (2,276+ women) in four-month Kenya PUE grant window. Three of the four companies were required to develop gender action plans as a deliverable, and the fourth company delivered a case study on developing tailored financing for women customers. One grantee, Agsol Limited, completed a case study on financing women solar-milling entrepreneurs in Africa, and will use its insights to develop gender-targeted financing solutions and accelerate the widespread adoption of the Agsol MicroMill. Another grantee, Ecobora Limited, completed its gender action plan, conducted 224 surveys on PUE performance and women’s needs, provided PUE business-model training to 926 women, and sold three solar freezers to kiosks in remote areas. The project also provided 30 marginalized women groups with 30 solar powered pay-as-you-go freezers for their solar kiosks, through which they were able to stock their agricultural produce and increase their revenues and shared profits.

Support for developing a gender action plan and adopting gender-inclusive policies and practices helped [REDACTED] unlock a \$ [REDACTED] million investment from the CDC and qualify as a 2X Challenge investment. Also, as a result of PAOP support over 12 months, [REDACTED] experienced a 14 percent increase in female leadership and a 30 percent decrease in employee turnover. Revenue growth of 60 percent during the same period can be correlated to the adoption of gender-inclusive practices and increase in female leadership based on a well-established business case.

The Project directly supported 23 companies to adopt gender-inclusive policies and practices toward increasing women’s employment in the sector, including in leadership positions, and increasing women’s access to energy products and services. The support included disseminating the Project’s gender-assessment tool and developing a gender action plan based on the findings of the assessment. The Project shared other resources to promote good practices by companies, and provided on-demand and tailored advisory support. The Project developed a market-focused gender strategy for Simusolar, based on research on the

agricultural PUE needs of female farmers in Simusolar’s market. The strategy developed for Simusolar informed the Project’s creation of a general use roadmap for sector stakeholders to develop a market-focused gender strategy to increase the uptake of agricultural PUE by women.

23 gender action plans implemented across sub-Saharan Africa. Support to companies on gender inclusion raised awareness about the business case for gender equality and the importance of tailoring marketing and sales strategies to women customers, based on an understanding of their energy needs and barriers to access. Companies also recognized the imperative of incorporating gender considerations into their financing strategies. PAOP directly supported 13 companies in West Africa and 10 companies in East Africa to adopt gender-inclusive policies and practices toward increasing women’s employment, including in leadership positions, and increasing women’s access to energy products and services.

The Project helped ANSER draft, adopt, and implement its Gender Strategy. In Q4 of FY 2022, the Project helped the Government of DRC’s rural and peri-urban electrification agency ANSER to draft and adopt a strategy to promote gender equality in the organization and its projects in rural and peri-urban areas in DRC. The Strategy comprises commitments and actions to strengthen gender equality within ANSER institutionally, and to integrate gender considerations into project planning and implementation. During a validation workshop in October 2022, the Director General of ANSER formally adopted the strategy. Since then, the Project developed the terms of reference for an internal Gender Committee to oversee its implementation. The Project has also shared a gender-inclusive recruitment checklist with the Gender Committee and a template for a sexual-harassment policy. Also in line with the Gender Strategy, ANSER has defined eight new project indicators to track and measure the effect of the Agency’s rural electrification projects on women.



IMPACT STORIES



Photo Credit: Carla Visser

“I feel so secure when I’m being called when a mother comes in at night. Power has really made me feel so free. It makes my work so easy.”

JACQUI, MIDWIFE, BUGANA, UGANDA

POWER AFRICA’S \$3 MILLION IN GRANTS ELECTRIFY 227 OFF-GRID HEALTHCARE FACILITIES, HELPING 2 MILLION PEOPLE LEAD HEALTHIER LIVES

“**You have to improvise to save life,**” remarked Brenda, sitting outside Namatale Healthcare Center on Buvuma Island in the Ugandan waters of Lake Victoria. As Namatale’s medical-records officer, Brenda recalled the working conditions at the clinic before Power Africa grantees [SustainSolar](#) and [Equatorial Power](#) equipped the facility with its solar-energy system and water purifier. At night, staff held torches between their teeth or lit candles to attend to mothers giving birth. Despite its location near the shore of a vast lake, the clinic’s only sources of safe drinking-water were rainfall and jerrycans brought over long distances from the mainland.

Today, “there is a great change,” noted Samuel, a nursing assistant at Namatale clinic. “The laboratory is functioning well. Any time—at night, or even at midnight—whoever comes in, the light—everything is just clear. You can do something: writing, examining patients, suturing, delivery.” The round-the-clock services that lighting and electricity have brought to Namatale are saving precious time for patients. “They do appreciate the services,” Brenda illustrated:

A woman had an accident. She got a cut [on her head]; she was bleeding seriously. When she came, she was helped. The bleeding stopped and they [the facility’s staff] cared for her—she got treatment. Then she said the following morning: “Thank you so much. I was to die. If I was to cross the water to go for services in Jinja, I would have died on the way. Now I’m alive because of the service here. It’s near.”

To help the clinic make the most of its solar array, Power Africa’s grantees also installed refrigerators, autoclave sterilizers, incubators for infants, and a water-purification facility. “Everybody knows they can get clean water here; they collect water,” Samuel said. “Our water is purified well from our power.”



BRENDA, MEDICAL-RECORDS OFFICER AT NAMATALE.

Photo credit: Carla Visser

Uganda’s islands pose unique challenges for patients and electricity utilities alike. Nevertheless, the clinics in these areas share many of the difficulties experienced at off-grid healthcare centers across the continent. Common issues are a lack of lighting which hinders night-time care, long travel times to better equipped healthcare facilities, and vaccine shortages due to unreliable refrigeration. These limitations are one reason the highest mortality rates for [mothers](#) and [children younger than five](#) occur in the world’s least-electrified regions. Although the challenges are longstanding,

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STAFF AT NAMATALE HEALTHCARE CENTER, UGANDA.

Photo credit: Carla Visser

issues are a lack of lighting which hinders night-time care, long travel times to better equipped healthcare facilities, and vaccine shortages due to unreliable refrigeration. These limitations are one reason the highest mortality rates for [mothers](#) and [children younger than five](#) occur in the world’s least-electrified regions. Although the challenges are longstanding, effective methods to solve them have only begun to emerge. A traditional healthcare-electrification model is to donate solar systems to clinics, an approach that has often neglected the monitoring and maintenance required to keep the equipment running. In 2020, Power Africa requested proposals from the private sector to offer reliable, long-term power provision for off-grid healthcare. Later that year, Power Africa awarded [\\$2.6 million in grants](#) to nine companies to pilot their business models to



SAMUEL, NURSING ASSISTANT AT NAMATALE, WITH AN INCUBATOR POWERED BY THE CLINIC’S SOLAR-ENERGY SYSTEM.

Photo credit: Carla Visser



JEAN-PIERRE, BUGANA’S FACILITY MANAGER.

Photo credit: Carla Visser



“
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MME MOLAPO, LOCAL CHIEF, TLHANYAKU, LESOTHO

supply cleaner, more reliable energy to clinics. With this grant yielding 220 electrified healthcare centers in nine African countries, Power Africa followed it with a [\\$363,000 grant](#) to electrify services for mothers and children, electrifying seven additional facilities in Malawi and Uganda.

“Let’s go to Bugana”: Patients and staff enjoy enhanced care and convenience

On top of more advanced care, electrified clinics also offer psychological benefits because of improved security, convenience, and staff morale. All these advantages are evident at Bugana Healthcare Center, which Uganda’s Ministry of Health has upgraded from a Tier II to Tier III facility thanks to Power Africa’s grant. “Now with stable power and vaccines in place, we are able to schedule our vaccine days and our mothers come and get what they expected to get without any inconveniences,” said Jean-Pierre, Bugana’s facility manager.

Situated in Uganda’s Namayingo District, Bugana serves approximately 15,000 people, some living in island communities ten kilometers away by boat. Today, the clinic’s solar-energy systems power more advanced services which save patients up to 40 kilometers in travel distances. Bugana now employs 16 additional healthcare staff, offers 24-hour care, processes up to ten times more rapid diagnostic tests a month, and has seen ten times the number of expectant mothers delivering each month. For Jacqui, a midwife at Bugana, reliable energy has been essential to her and her patients’ wellbeing. “I’m also happy, as staff, having power around. I feel so secure when I’m being called when a mother comes in at night. Power has really made me feel so free. It makes my work so easy.” With the sense of security that lighting brings, mothers are seeking the facility’s services around the clock. “They come anytime,” said Jacqui. “Every time is good for them, even during the night hours because of the power supply and we,



AMBASSADOR BREWER, CENTER-LEFT, WITH MME MOLAPO—TLHANYAKU’S CHIEF—AND REPRESENTATIVES OF POWER AFRICA AND ONEPOWER LESOTHO.

Photo credit: Carla Visser

the staff, being around. [...] Mothers feel so free coming anytime.”
With clean, reliable power enabling higher-tier care for Uganda’s island residents, it is no surprise that, in the words of a local leader, “the community advised themselves, ‘Let’s go to Bugana,’ because there is good service for our people.”



Photo Credit: Carla Visser

ZEMBO'S MOTORCYCLE-TAXIS LEAD THE CHARGE IN AFRICAN E-MOBILITY

"When you go to a Zembo swapping station, it takes less than two minutes to get a fully charged battery and be on the road again," says Constant, one of the first e-motorcycle drivers in Kampala. For drivers, time is money.

A resident of Kampala, Uganda's capital and most populous urban center, Constant lives alongside 1.7 million people, 65 percent of whom are of working age. Every day, this workforce of more than 1 million take to the streets, using the safest, most affordable means of transportation available. At the top of the list, according to the latest survey by the Government of Uganda, are two-wheeled vehicles, including hundreds of thousands of motorcycle-taxis. Locals have come to rely on these motorcycle-taxis, or boda bodas, for their compact size and maneuverability across a terrain of hills and floodplains, rugged road conditions, dense traffic congestion, and unpredictable circumstances.

With Uganda's population growing by three percent each year, demand for boda bodas is on the rise, and ferrying riders from point A to B has become Uganda's second-most-common profession. Drivers are predominantly young men, and studies estimate that some 750,000 people in Kampala depend on their income. Contributing to the boda boda boom, mobile-phone apps like SafeBoda, Uber, and Bolt have streamlined the pickup process and facilitated cashless mobile-money payments for riders. Boda bodas have become so prevalent, and so fundamental to the flow of daily life, that authorities have helped develop the once-informal sector by building new infrastructure, including an intercity electric corridor, and accelerating efforts to train and register drivers.

Unfortunately, as the world faces a global climate-change crisis, the vast majority of boda bodas still run on fossil fuels. The carbon dioxide they discharge is detrimental to both the earth's atmosphere and local air quality, contributing to Kampala's ranking as the fifth most polluted city in Africa (according to IQ Air's 2020 World Air Quality Report), while the

clamor of their engines exacerbates the city's noise pollution. To address these challenges, with Power Africa's support, local business Zembo Motorcycles has been fast-tracking the transition of Kampala's transport sector toward renewable energy, one boda boda at a time.

Driving toward net-zero emissions

Since the founding of Zembo in 2017 by two engineers, Étienne Saint-Sernin and Daniel Dreher, its flagship electric motorcycle has become more than just a climate-friendly alternative; it has inspired confidence in Ugandan drivers and riders alike and surpassed traditional gasoline-powered vehicles in several notable ways:

1. Zembo e-motorcycles effectively mitigate climate and air quality risks, as they emit no greenhouse gases, particles, or pollutants, and their 27 lithium-ion battery-charging stations largely run on solar power.
2. In contrast to the cacophony of an internal combustion engine, an e-motorcycle is virtually noiseless, benefiting anyone within earshot of roads.
3. While the superheated exhaust pipes of gasoline-powered motorcycles' put riders at risk, e-motorcycles operate at safe temperatures and emit no fumes.
4. Traditional motorcyclists lose precious time at the pump and have to endure soaring gasoline prices, but e-motorcyclists incur only minimal costs and no delays during two-minute pit stops at Zembo's battery-swapping stations.
5. Fuel-powered vehicles are subject to market shocks and price hikes, while Zembo's mix of hybrid energy sources is resilient and sustainable.
6. With one affordable initial down payment, aspiring drivers can start their careers with a two-year pay-as-you-go agreement and warranty,

after which they assume ownership of the vehicle.

7. E-motorcycles offer a number of user-friendly features, such as a dashboard to monitor the 60-kilometer (~37 mile) range of each battery, charging ports for mobile phones, anti-theft wheel-locking remotes, company-controlled remote shutdown and tracking capabilities, and disc brakes for increased safety in wet conditions.
8. Under a battery-as-a-service model, Zembo retains ownership of all its high-capacity batteries and ensures the circular economy by monitoring battery lifecycles, maximizing battery utility, and repurposing battery components according to environmental best practices.

With this environmentally and economically valuable product and business model, Zembo has continued to expand its customer base and operations, facilitating the transition of the 90 percent of drivers in Kampala that do not own an electric vehicle. Zembo e-motorcycles have been a boon to boda boda drivers, who demonstrate a 60 percent increase in profits upon ownership. In partnership with the government, Zembo has broadened its network of conveniently located charging stations to rural villages, creating more green jobs, ushering more young professionals into the energy sector, and increasing ridership. What's more, in early 2023, the Ugandan government announced its historic plan—a first in the region—to offer its citizens the opportunity, at no cost, to replace their gasoline-powered motorcycles with electric ones.

Unlocking finance to transform the transport sector

In late 2020, Power Africa helped Zembo secure more than \$790,000 in grant funding from USAID's Development Innovation Ventures. The company acknowledged that Power Africa's "wise and detailed advice on our proposal, during the complex application process, was crucial for the formulation and the credibility of this project. It significantly contributed to

the success of this application."

Since then, Power Africa has provided continual advisory support for Zembo's business and financial practices, playing an especially instrumental role in guiding the company to obtain further equity. In late 2021, this assistance resulted in a successful investment of more than \$3 million from three European investors: InfraCo Africa, DOB Equity, and Mobility 54. Zembo stated its appreciation for Power Africa's "field-oriented advice, corresponding to real needs we have in daily operations, financial organization, training of the accounting and finance team, and structuring of our processes."

The road ahead

Having successfully unlocked more than \$3.7 million in funding with Power Africa assistance, Zembo is well on its way to expanding its current fleet from 200 to 2,000 motorcycles, adding more than 60 battery stations, and reaching more female drivers. The company's expansion translates into greater job creation for youth, higher incomes for boda boda drivers, healthier quality-of-life conditions for Kampala, and a better carbon footprint for the world.



SAM, E-MOTORBIKE RIDER, KAMPALA, UGANDA.

Photo credit: Carla Visser



ZARA, ZEMBO FINANCE AND OPERATIONS OFFICER,
KAMPALA, UGANDA.

Photo credit: Carla Visser



Photo Credit: Deevabits

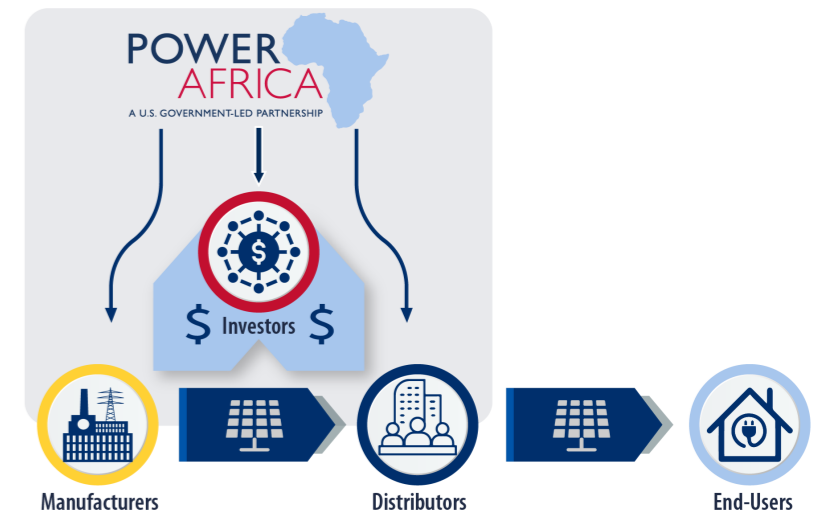
“ Since the solar power came, the clinic offers more services and more people from the community visit the clinic for check-ups and when they are ill..
MME MOLAPO, LOCAL CHIEF, TLHANYAKU, LESOTHO

FROM FACTORY TO VILLAGE: ADVANCING THE OFF-GRID ENERGY VALUE CHAIN

After seven years as a sales agent for Deevabits Green Energy in eastern Kenya, Teresa Muini is known to the off-grid communities she visits, and the women’s club she leads, as Mama Taa (“light-bringing mother”). Muini recently sold a Sun King Home 120 solar home system (SHS) to Peter Musyoki, a husband and father of three children, and recalls the family’s reaction to turning on the unit as being “overjoyed by the presence of light,” so much so that they recommended the product to friends and family.

With their new SHS, everyone in the Musyoki household realized quality-of-life improvements: Peter and his wife could listen to radio news and charge their mobile phones, their children could study after dark without costly kerosene lighting, and the whole family could enjoy the benefits of nighttime lighting for security. It was a transformative moment for the Musyoki family, and a moment that more and more Africans are experiencing every year. Power Africa is helping to bring that moment to more than half of the 471 million people in sub-Saharan Africa who still lack electricity, as well as the 1.4 billion people across the continent who stand to benefit from the promise of solar technology.

Tracing the Musyoki family’s SHS backwards from its point of sale offers a glimpse into Power Africa’s role as a pivotal change-maker. Before reaching end users, SHS products are subject to multi-scale coordination across the value chain—from investor to manufacturer to distributor to last-mile sales agent. Power Africa is involved in all these processes, supporting its partners to advance SHS quantity, quality, and delivery speed.



POWER AFRICA PROVIDES SUPPORT TO OFF-GRID ENERGY ENTITIES ACROSS THE VALUE CHAIN TO INCREASE ENERGY ACCESS

Deevabits Green Energy, the Local Distributor

Six kilometers from the nearest town, Kwa Mutuna, lies the Musyoki family’s hilly off-grid village of Nyumbani, where Deevabits Green Energy became the first local company to sell SHS. To travel to hard-to-reach communities like Nyumbani, Deevabits trains a commission-based sales force of over 450 people, mostly women and youth Village Solar Entrepreneurs. To date in 2023, this sales model has allowed the company to sell 30,000 solar products, with affordable pay-as-you-go options, to benefit more than 150,000 Kenyans. Power Africa has been supporting Deevabits since 2016 and since 2020 has fostered its growth by supporting gender integration and access to finance.

Gender integration. Equipped with Power Africa’s tailored recommendations for gender equality and inclusivity, Deevabits refined its internal policies and practices. Power Africa helped Deevabits survey female customers, to understand this customer base and develop a Gender Action Plan. Based on these survey results and 899 responses from multiple customers, Power Africa published [Reaching Women, Unlocking Value: How Gender Inclusivity Boosts Customer Satisfaction for Off-Grid Solar Products](#), a resource open to all companies and investors.

Winning three funding opportunities. With Power Africa support, Deevabits won financing from three separate funds to enhance its last-mile distribution, thus expanding its reach from 13 to 25 counties across Kenya. Power Africa:

- Introduced Deevabits to the [REDACTED], assisted with its business model enhancements and investor presentations, and supported the drafting of its winning application.
- Reviewed the company’s financial model, coached its leadership, brokered partnerships, and provided gender-mainstreaming recommendations to meet the requirements of the [REDACTED].
- Offered application assistance, resulting in Deevabits receiving an award under the [REDACTED].

Sun King, the Manufacturer

Before the Musyoki family purchased its SHS from Deevabits, the company procured the unit from a product designer and manufacturer called Sun King. This U.S.-based company is one of the largest distributors of SHS systems in sub-Saharan Africa, and its pay-as-you-go products have benefited more than 90 million people worldwide. Contributing to Sun King’s growth and expansion, Power Africa provided significant market intelligence; policy, tax, and import guidance; strategic partner introductions across the continent; and financing support. Notably,

Power Africa helped Sun King qualify for gender-lens financing under [2X Challenge accreditation](#), which enabled the company to close a \$[REDACTED] million transaction to expand its operations and mitigate legal and financial risks during the closing process for a successful \$[REDACTED] million transaction in Kenya.

“I would like to acknowledge the contributions of Power Africa in guiding us through the 2x Challenge process and helping us connect with the various [development finance institution (DFI)] lenders. We look forward to working with Power Africa to build on the great relationship we have. The DFIs are counting this under their 2X Challenge investment and we have committed to gender initiatives to promote women in leadership roles in our workforce.”

PURAV SHAH, ASSOCIATE MANAGER INVESTOR, SUN KING

The investors

Beyond helping companies like Sun King and Deevabits Green Energy, Power Africa recognizes that unlocking more investment is an essential ingredient to getting more SHS units into more homes. To this end, Power Africa provides technical assistance to investors to structure financial vehicles, perform due diligence on companies, and facilitate transactions. In this case, Power Africa supported the three funds in major ways:

- [REDACTED]. Across many funding rounds, Power Africa supported [REDACTED]’s market studies, introduced it to stakeholders, and clarified contract details to expedite contracts.

- [REDACTED]. Power Africa supported by developing a gender-lens investing framework for deal screening, underwriting and monitoring and evaluation, which [REDACTED] is applying to all [REDACTED] investments. This includes an innovative provision for investees to develop a gender action plan, with Power Africa’s support, within 90 days of signature.
- [REDACTED]. Power Africa helped structure and enact this \$80-million fund and helped it to comply with the gender requirements of the Green Climate Fund, which resulted in raising \$[REDACTED] million. [REDACTED]’s loans, prioritizing businesses with women leaders, helped [REDACTED] small firms maintain solvency, staff, and products as they recovered from the economic effects of COVID-19. Power Africa also developed an Environmental and Social Governance (ESG) tool, including climate-finance provisions to reduce 1.3 million tons of carbon dioxide equivalent in emissions, and strengthened the capacity of [REDACTED] senior leadership and staff in gender lens investing. As a result, [REDACTED] has received more than 500 applications.

System-level impacts

Deevabits and Sun King represent just two of the 604 companies that Power Africa Off-grid Project has helped to resolve challenges, accelerate sales, and expand customer reach. Likewise, [REDACTED], [REDACTED], and [REDACTED] are just three of the 362 investors and financial institutions that Power Africa Off-grid Project has supported over the past five years, with executive coaching, portfolio management support, and more. Not only is Power Africa’s support individualized to particular investors, manufacturers, and distributors; its guidance has effected system-level change on a wider scale, resulting a better enabling environment for SHS to flourish. Each strategic optimization set in motion by Power Africa ripples across the value chain, enabling more households, like that of the Musyoki family, to enjoy the benefits of SHS.



Photo credit: Deevabits



I am very grateful to you for all the multifaceted support Power Africa has given. We salute the professionalism and dedication that you have demonstrated through our various SHS activities and PUE projects.

MOULAY BACHIR BENDEKKEN, PRESIDENT, THE BENALYA GROUP, NIGER



NIGER'S LOCALLY OWNED BENALYA GROUP LAUNCHES SOLAR GREENHOUSES FOR DESERT AGRICULTURE

As a young child in Agadez, Niger, Moulay Bachir Bendekken contracted polio. It took years of orthopedic care before he could walk on crutches – which, from the age of seven, was how he made his daily two-mile journey to school. Although his family had no formal education, Moulay excelled as a student; so much so that after graduating from high school, he went on to study electrical engineering, electronics, and information technology. The aptitude and the resilience he cultivated in childhood prepared him well for the business world, which he entered with a desire to “start small but see big.”

After Moulay's first two entrepreneurial ventures, he founded [the Benalya Group](#) in 2010, a company focused on the energy, agriculture, and water sectors. Dedicated to social responsibility and results-based management, the Benalya Group has become a leading provider of energy solutions in Niger.

Benalya operates in the solar energy sector under the banner of Benafsol, and offers an array of solutions for off-grid power generation. Its products include solar lighting and home system kits from U.S.-based distributor Sun King, and larger systems for cooling and targeted practical applications. The company prides itself on its customer support; it is not only a contractor, but a partner. For example, when asked by a customer to install a pump to supply water to cattle, the company not only installed the pump, but recommended that the customer grow alfalfa as animal feed. When contracted to install 115 solar streetlights, the company proposed – within the same budget – installing standard streetlights on direct-current mini-grids, which could also power a pump to provide drinking water to the nearby community. Benalya also provides productive use of energy (PUE) solutions for water treatment, water pumping, drilling, irrigation, and food processing, including integrated solutions such as its innovative solar greenhouse.

In Niger, off-grid products are in high demand, with the Benalya Group selling hundreds of products every month. Niger has one of the lowest electrification rates in Africa; nearly 84 percent of its population lives in rural areas, but [less than four percent](#) of rural households have access to electricity.

The solar greenhouse

In 2021, the Benalya Group conceptualized and won support for its pioneering PUE activity, the Sahel Solar Greenhouse Project (Projet Serre Solaire du Sahel), a fully integrated solution for agricultural production in the sandy plains of the arid Sahel region. The concept won co-funding through a grant from Energy Saving Trust (EST) under the Efficiency for Access (EforA) [Research and Development Fund](#), and was supported by agronomists from two implementation partners, the nongovernmental organization [N-DEV](#) and the Institute of Radio Isotopes (l'Institut des Radio-Isotopes [IRI]). Customizable to sizes of 200m², 500m², or more, each greenhouse leverages 100 percent solar energy, allowing for control of indoor temperature in the range 26 –30 C—enabling all-season agricultural production in Niger's hot (typically 55 C) climate. The greenhouse's solar energy powers a water pump, misting system, air blowers and ventilation, smartphone-compatible data-recording interface, and other customizable electronic devices to control temperature, humidity, sunshine, wind, and pests.

Equipping locals with the means to cultivate rice and other garden crops, in conditions that would otherwise be challenging, increases incomes, nutrition, food security, and climate resilience. In 2017, 20 percent of the Nigérienne population faced food and nutritional security issues,

with women and rural residents disproportionately affected. The solar greenhouse allows for consistent agricultural yields per square meter throughout the year, dry and rainy season alike.

Over the course of 15 months beginning in 2021, the Benalya Group trained 134 women in the use of its product, and provided specialized training to 23 women in greenhouse nursery production. These women participated in the planting and production of 110,000 tomato plants (especially suited to drying and storage) in partnership with the German development agency GIZ’s Promotion of Productive Agriculture (PromAP) program.

Power Africa has supported the Benalya Group with its solar greenhouse project from beginning to end, helping the team draft its winning concept note; facilitating meetings with EST, local mayors, and women’s groups; providing information on integrated technology; mapping stakeholders with a participatory market-system-development approach; and advising on water access, business model, and commercialization, customer payment plans, and the first greenhouse test. In support of the grant, Power Africa also responded to EST’s request to contextualize water availability in the Sahel by supplying EST with Niger’s national Strategy for Small-Scale Irrigation (Stratégie de la Petite Irrigation au Niger [SPIN]) and United Nations reports on local water resources.

In 2023, Power Africa facilitated working sessions to support the Benalya Group’s grants under the Efficiency for Access Coalition (EforA), capturing impacts of the greenhouse pilot projects, assessing approaches to upscale its success, and improving the agricultural practices for youth and women. Power Africa also supported the Benalya Group’s successful efforts to be selected for the [Great Green Wall](#), an initiative of the United Nations Convention to Combat Desertification (UNCCD).

Five years of Power Africa support

Power Africa’s partnership with the Benalya Group dates back to 2018, when USAID coordinated meetings between Benalya and a telecommunications company for a potential pay-as-you-go (PAYGO) partnership to reduce the upfront cost of solar products. The partners have since implemented a PAYGO platform, designed by the U.S. company Angaza, which has made Benalya’s products more affordable for low-income communities. In 2020, Power Africa helped the Benalya Group install solar systems across seven off-grid localities, under the Government of Niger’s Light Up Niger Rural Communities initiative. In 2021 and 2022, Power Africa continued to assist the company by brokering new partnerships (for example, with microfinance institutions, donor programs, and compatible companies) and providing insights on the off-grid market, business performance optimization, new sources of funding, and PUE product development.

The growth of the Benalya Group demonstrates Moulay’s hard work and determination, while the company’s integration of multiple product lines into holistic solutions is a testament to its successful localized awareness and leadership. For the solar greenhouse project, off-grid Sahelian communities can now cultivate previously ungrowable, highly nutritious, income-generating crops year-round, while 134 local women are now well-versed in sustainable growing practices. These achievements underpin Power Africa’s commitment to assisting local companies in nascent markets, so that “start small and see big” can change lives in lasting ways.

“I am very grateful to you for all the multifaceted support Power Africa has given. We salute the professionalism and dedication that you have demonstrated through our various SHS activities and PUE projects at the Benalya Group. Your consistent positive attitude has made a huge difference in our business. One of the notable successes of your collaboration with our company is the \$100,000 grant that we received from the Energy4Efficiency R&D Fund to develop the solar greenhouse project in Niger. Your firm commitment throughout the development of the concept note, detailed proposal phase, and finalization of the grant agreement was greatly appreciated and has made it possible to carry out today this innovative and highly relevant project for Niger.”

—MOULAY BACHIR BENDEKKEEN, PRESIDENT,
BENALYA GROUP



MOULAY BACHIR BENDEKKEEN DISPLAYS HIS COMPANY’S SOLAR HOME SYSTEM PRODUCTS NIGER.

Photo credit: Benalya Group

HOW CAMEROON'S NEW ASSOCIATION UNIFIED AND EMPOWERED THE OFF-GRID ENERGY SECTOR

The end of 2020 marked a new beginning for off-grid energy companies in Cameroon, with the launch of the Cameroon Association of Off-grid Electrification Professionals (Association des Professionnels de l'Électrification hors réseau du Cameroun), or APELCA. Since then, among its other accomplishments, APELCA has helped the Government of Cameroon pass more-informed national policy and regulations—a testament to how associations can achieve more collectively than any single company can achieve on its own.

The transformative potential of associations

Associations are a boon to a country's enabling environment and to all companies that operate within it. Internally, association members can productively network with fellow members, and business-to-business matchmaking often leads to mutually beneficial partnerships. Externally, member companies enjoy easy access to an extensive range of partnerships with investors, donors, nongovernmental organizations, academic institutions, and businesses outside the sector.

Associations offer their members opportunities for knowledge sharing and capacity building, through open discussions at meetings and third-party trainings. They circulate news and connect members with global industry associations, such as GOGLA. Associations also serve as mouthpieces for public awareness raising and governmental advocacy. They aggregate and communicate member and end-user priorities and ideas so as to foster innovation, investment, and market expansion. Wherever associations form, cross-ministerial governmental officials come to rely on them as a first point of contact when crafting and fine-tuning policies and regulations, organizing participatory stakeholder feedback, and designing electrification strategies and programs. Finally, associations facilitate sector-wide

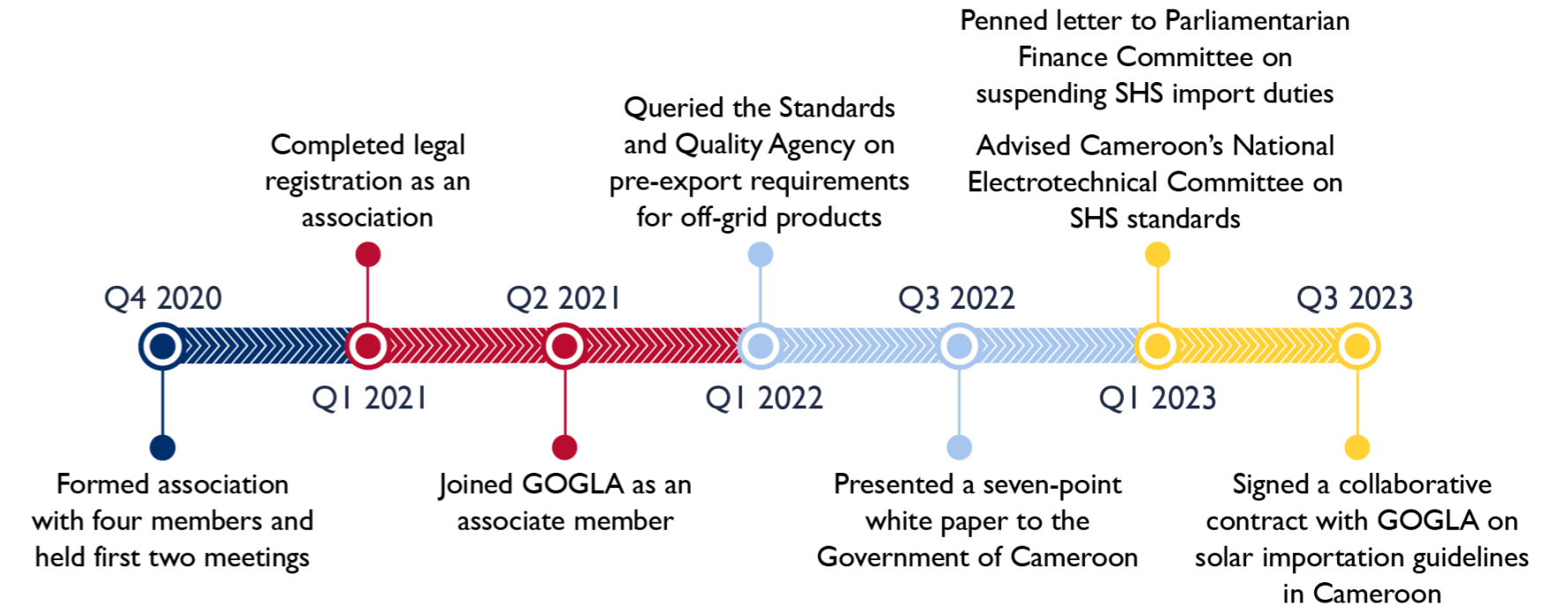
coordination during crises such as COVID-19, and can help address supply-chain challenges to advance energy access in off-grid communities.

Power Africa's support to APELCA

Since the association's inception, Power Africa has helped APELCA grow, prosper, and endure. It started in 2020 when the local Cameroonian company upOwa sought Power Africa's support to facilitate its first meeting with members Canopy, Renewable Energy Innovators Cameroon (REIc), and Solkamtech, and a second meeting with GOGLA. Power Africa equipped APELCA with the resources to draft its constitution, drawing from similar associations in Kenya and the Democratic Republic of Congo. After guiding APELCA's office setup, Power Africa advised the association on value-added tax exemptions, harmonized system codes, and customs duties. This guidance informed APELCA's letter to Cameroon's national regulatory agency on customs requirements, with clarifications that would benefit all international off-grid energy product imports. Thereafter, Power Africa shared new business opportunities with APELCA's growing membership, including calls for productive use of energy (PUE) solutions for large-scale farms and medical caravans in rural areas.

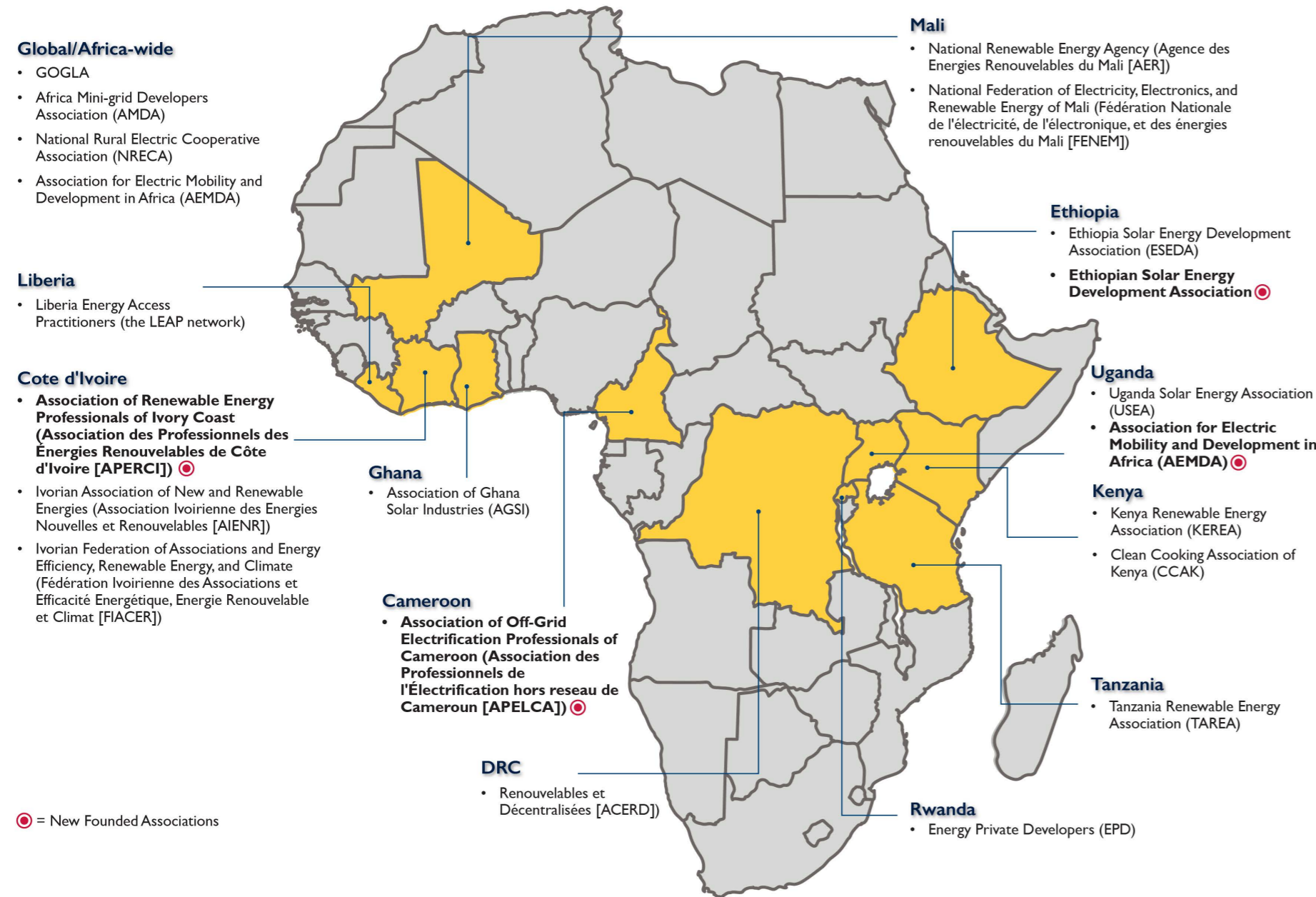
In 2022, after two years of development, APELCA coordinated, published, and disseminated its most in-depth work to date—an off-grid electrification white paper with seven propositions to improve the enabling environment, accelerate electrification, and boost PUE integration in Cameroon. The white paper includes information on product standards and quality, taxes and customs duties, regulations, local funding, mini-grid development support, advocacy, and off-grid energy provisions in Cameroon's national electricity access policy. In 2023, the association's agenda included further advocacy for an import-duty waiver, importation guidelines for solar products, a resolution for quality standards, and collaboration with

GOGLA and the United Nations Industrial Development Organization. Power Africa supported APELCA to negotiate and sign its first collaborative contract with GOGLA to develop importation guidelines in Cameroon and establish a consultative platform to facilitate public-private dialogue.



20 off-grid energy associations across sub-Saharan Africa

Since 2019, Power Africa has similarly supported 20 off-grid energy associations in Sub-Saharan Africa, including four that were newly founded (see map on next page).



Enduring, self-sustaining support structures

Off-grid energy companies and their end users have realized tangible benefits as a result of Power Africa's efforts to unify, coordinate solutions, and broker effective partnerships through associations. By belonging to associations, not only are companies better able to build their networks, but they can also enhance their service delivery and offerings, increase their capital and connections, and explore new feasibility markets. Associations stabilize the off-grid sector and help local companies cope with unpredictable market events, supply chain challenges, and climate change impacts. As the indispensable support structures that associations afford their members are self-sustaining with or without Power Africa's support. For this reason, as APELCA continues to reinforce its members' efforts to reach the 60 percent of communities in Cameroon without electricity, its influence and impact will grow accordingly.



AFRICA GREEN MAGAZINE'S [FEATURED VIDEO ABOUT APELCA](#) INCLUDES THE WORDS OF POWER AFRICA OFF-GRID PROJECT'S LEAD CAMEROON ADVISOR, MAXIME KAMDEM.





PUBLICATIONS

DIRECTORY OF PUBLICATIONS: 2019–2023

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Off-grid Solar Market Assessment: Cameroon	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Cameroon-MarketAssessment-Final-Digital_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Côte d'Ivoire	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-CIV-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: DRC	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-DRC-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Ethiopia	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Ethiopia-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Ghana	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Ghana-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Kenya	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Kenya-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Niger	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Niger-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Rwanda	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Rwanda-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Senegal	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Senegal-MarketAssessment-Final_508.pdf	Market assessment	English
Off-grid Solar Market Assessment: Tanzania	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Tanzania-MarketAssessment-Final_508.pdf	Market assessment	English
Brief: Off-grid Solar Energy Market: Cameroon	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Cameroon-English.pdf	Market brief	English
Marché de l'Energie Solaire Hors Réseau: Cameroun	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Cameroon-French.pdf	Market brief	French

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Brief: Off-grid Solar Energy Market: Côte d'Ivoire	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-CIV-English.pdf	Market brief	English
Marché de l'Energie Solaire Hors Réseau: Côte d'Ivoire	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-CIV-French.pdf	Market brief	French
Brief: Off-grid Solar Energy Market: DRC	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-DRC-English.pdf	Market brief	English
Marché de l'Energie Solaire Hors Réseau: République Démocratique du Congo	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Cameroon-French.pdf	Market brief	French
Brief: Off-grid Solar Energy Market: Ethiopia	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Ethiopia-English.pdf	Market brief	English
Brief: Off-grid Solar Energy Market: Ghana	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Ghana-English.pdf	Market brief	English
Brief: Off-grid Solar Energy Market: Kenya	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Kenya-English.pdf	Market brief	English
Brief: Off-grid Solar Energy Market: Niger	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Niger-English.pdf	Market brief	English
Marché de l'Energie Solaire Hors Réseau: Niger	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Niger-French.pdf	Market brief	French
Brief: Off-grid Solar Energy Market: Rwanda	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Rwanda-English.pdf	Market brief	English
Marché de l'Energie Solaire Hors Réseau: Rwanda	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Rwanda-French.pdf	Market brief	French
Brief: Off-grid Solar Energy Market: Senegal	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Senegal-English.pdf	Market brief	English

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Marché de l'Énergie Solaire Hors Réseau: Senegal	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Senegal-French.pdf	Market brief	French
Brief: Off-grid Solar Energy Market: Tanzania	2019	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Market-Assessment-Brief-Tanzania-English.pdf	Market brief	English
USAID/Power Africa Announces \$2.6 Million in Healthcare Electrification Grants to Solar Energy Companies in Nine Countries in Sub-Saharan Africa	2020	https://powerafrica.medium.com/usaid-power-africa-announces-2-6-c003fa75f004	Blog	English
USAID/Power Africa Announces more than \$1,000,000 in Catalytic Grants to Expand Access to Finance for Off-Grid Solar Companies in Sub-Saharan Africa	2020	https://powerafrica.medium.com/usaid-power-africa-announces-more-than-1-000-000-in-catalytic-grants-to-expand-access-to-finance-d6a0fd96363e	Blog	English
USAID/Power Africa announces \$550,000 in Grants for Companies to Bundle Off-Grid Electricity and Modern Cooking Fuel Solutions	2020	https://medium.com/power-africa/usaid-power-africa-announces-550-000-in-grants-for-companies-to-bundle-off-grid-electricity-and-4cb1e3b11e	Blog	English
New USAID/Power Africa Grants Expand Electricity Access in West and Central Africa	2020	https://medium.com/power-africa/new-usaid-power-africa-grants-expand-electricity-access-in-west-and-central-africa-14e68658614c	Blog	English
Serving and Supporting Off-grid Customers During COVID-19	2020	https://powerafrica.medium.com/serving-and-supporting-off-grid-customers-during-covid-19-8b371c81c58	Blog	English
Power Africa Supports Tanzania-based Solar Company to Fuel Livelihoods of Rural Farmers and Fishers	2020	https://powerafrica.medium.com/power-africa-supports-tanzania-based-solar-company-to-fuel-livelihoods-of-rural-farmers-and-fishers-1d23e3eaaebd	Blog	English
Powering a Response: Off-Grid Solar's Role in a Pandemic	2020	https://powerafrica.medium.com/powering-a-response-off-grid-solar-role-in-a-pandemic-98287bbae890	Blog	English

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Off-grid solar companies draw on Ebola lessons to respond to COVID-19	2020	https://powerafrica.medium.com/off-grid-solar-companies-draw-on-ebola-lessons-to-respond-to-covid-19-aea4bda7926d	Blog	English
Industry networking, catalytic grants and thought-provoking illustrations — Contributing to the development of the global off-grid solar market	2020	https://powerafrica.medium.com/industry-networking-catalytic-grants-and-thought-provoking-illustrations-contributing-to-the-b26d8aa43a58	Blog	English
"Energizing Voices — Rekik Bekele, Founder and CEO of Green Scene Energy PLC"	2020	https://powerafrica.medium.com/energizing-voices-rekik-bekele-founder-and-ceo-of-green-scene-energy-plc-4bd269611645	Blog	English
New Off-Grid Solar Market Assessments Provide Guidance for Expansion of Energy Access in Sub-Saharan Africa	2020	https://medium.com/power-africa/new-off-grid-solar-market-assessments-provide-guidance-for-expansion-of-energy-access-in-d39be256e9c1	Blog	English
Information Needs Drive Demand for Off-Grid Solar Products	2020	https://powerafrica.medium.com/information-needs-drive-demand-for-off-grid-solar-products-984cd316bfc0	Blog	English
Info Sheet 1: Safe Working Practices	2020	https://www.gogla.org/sites/default/files/documenten/20200512_covid-19_info_sheet_1_-_safe_working_practices_508.pdf	COVID-19 info sheet	English
Info Sheet 2: Strategic Staff Practices	2020	https://www.gogla.org/sites/default/files/documenten/20200521_covid-19_info_sheet_2_-_strategic_staff_practices_508.pdf	COVID-19 info sheet	English
Info Sheet 3: Supporting Customer Practices Information	2020	https://www.gogla.org/sites/default/files/documenten/20200529_covid-19_info_sheet_3_-_supporting_customer_practices_508.pdf	COVID-19 info sheet	English
Info Sheet 4: Adjusting Operational Practices	2020	https://www.gogla.org/sites/default/files/documenten/20200520_covid-19_info_sheet_4_-_adjusting_operational_practices_508.pdf	COVID-19 info sheet	English

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Info Sheet 5: Supply Chain Practices	2020	https://www.gogla.org/sites/default/files/documenten/20200610_covid-19_info_sheet_5_-_supply_chain_practices_508.pdf	COVID-19 info sheet	English
Info Sheet 6: Financial Runway Practices	2020	https://www.gogla.org/sites/default/files/documenten/20200612_covid-19_info_sheet_6_-_financial_runway_practices_508.pdf	COVID-19 info sheet	English
Off-grid Solar Market Assessment: Liberia	2020	https://www.usaid.gov/sites/default/files/2022-05/PAOP-Liberia-MarketAssessment-508-final.pdf	Market assessment	English
Investor Pitch Book	2020	N/A	Pitch book	English
Assessment of Current and Potential Off-grid Productive Use of Energy Products: Liberia	2020	https://www.usaid.gov/sites/default/files/2022-05/PAOP-PUE-Assessment-Report-Liberia-508-compliant.pdf	PUE assessment	English
Productive Use of Energy Catalog: Cameroon	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Cameroon.pdf	PUE catalog	English
Utilisation Productive Hors Réseau de l'Énergie: Catalogue: Cameroun	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Cameroon-FR.pdf	PUE catalog	French
Productive Use of Energy Catalog: Côte d'Ivoire	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-CotedIvoire.pdf	PUE catalog	English
Utilisation Productive Hors Réseau de l'Énergie: Catalogue: Côte d'Ivoire	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-CotedIvoire-FR.pdf	PUE catalog	French
Productive Use of Energy Catalog: Ethiopia	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Ethiopia.pdf	PUE catalog	English
Productive Use of Energy Catalog: Ghana	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Ghana.pdf	PUE catalog	English

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Utilisation Productive Hors Réseau de l'Énergie: Catalogue: Ghana	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Ghana-FR.pdf	PUE catalog	French
Productive Use of Energy Catalog: Kenya	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Kenya.pdf	PUE catalog	English
Productive Use of Energy Catalog: Niger	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Niger.pdf	PUE catalog	English
Utilisation Productive Hors Réseau de l'Énergie: Catalogue: Niger	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Niger-FR.pdf	PUE catalog	French
Productive Use of Energy Catalog: Rwanda	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Rwanda.pdf	PUE catalog	English
Productive Use of Energy Catalog: Senegal	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Senegal.pdf	PUE catalog	English
Utilisation Productive Hors Réseau de l'Énergie: Catalogue: Sénégal	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Senegal-FR.pdf	PUE catalog	French
Productive Use of Energy Catalog: Tanzania	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Tanzania.pdf	PUE catalog	English
Productive Use of Energy Catalog: Uganda	2020	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-PUE-2020-Catalog-Uganda.pdf	PUE catalog	English
Power Africa Healthcare Electrification Grant to Solar Companies	2020	https://www.youtube.com/watch?v=60RjmRsIKG8	Video	English
Microfinance Webinar 1: Developing an Appropriate Loan Product for Renewable Energy	2020	https://www.youtube.com/watch?v=dRZfWahQDQ0&list=PLHQxb1b97Kr6Amxvqk_JyPWE9XtlZ3hUN&index=2&t=20s	Webinar	English
Microfinance Webinar 2: Dev. Partnerships with Renewable Energy Product Manufacturers & Distributors	2020	https://www.youtube.com/watch?v=e9JRamwcnvc&list=PLHQxb1b97Kr6Amxvqk_JyPWE9XtlZ3hUN&index=3&t=4s	Webinar	English

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Microfinance Webinar 3: Best Practices for Working with Microfinance Institutions in Energy Finance	2020	https://www.youtube.com/watch?v=CwUdKGKYH0A&list=PLHQxb1b97Kr6Amxvqk_JyPWE9XtIz3hUN&index=4&t=1s	Webinar	English
Microfinance Webinar 4: Developing an Energy Finance Product	2020	https://www.youtube.com/watch?v=y6Um_BICPhk&list=PLHQxb1b97Kr6Amxvqk_JyPWE9XtIz3hUN&index=5&t=2s	Webinar	English
Microfinance Webinar 5: Rollout of Renewable Energy Finance Products	2020	https://www.youtube.com/watch?v=zc6KMAxjHs8&list=PLHQxb1b97Kr6Amxvqk_JyPWE9XtIz3hUN&index=6&t=4s	Webinar	English
Translating Vision into Investment: Power Africa's Financial Modeling Tool for Off-grid Solar Start-ups	2021	https://powerafrica.medium.com/translating-vision-into-investment-power-africas-financial-modeling-tool-for-off-grid-solar-42ed79795a1f	Blog	English
Working to Advance Gender Equality and Women's Empowerment in the Off-grid Energy Sector	2021	https://powerafrica.medium.com/working-to-advance-gender-equality-and-womens-empowerment-in-the-off-grid-energy-sector-b49550e1e19c	Blog	English
Turning lights on in remote DRC: How Power Africa and PAYGO financing are changing lives in underserved communities	2021	https://powerafrica.medium.com/turning-lights-on-in-remote-drc-how-power-africa-and-paygo-financing-are-changing-lives-in-4505efce32b1	Blog	English
Gender Smart Investing – Addressing the Gender Gap in the Off-grid Energy Sector in sub-Saharan Africa	2021	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-Gender-Smart-Investing-Feb-2021.pdf	Case study	English
Pro Poor Results-Based Financing: Increasing Off-grid Access to Electricity in Rwanda	2021	https://www.usaid.gov/powerafrica/document/pro-poor-results-based-financing-increasing-grid-access-electricity-rwanda	Case study	English
Off-grid Solar Market Assessment Report for 14 Underserved Counties of Kenya	2021	https://www.usaid.gov/powerafrica/document/power-africa-grid-solar-market-assessment-report-14-underserved-counties-kenya	Market assessment	English

TITLE	YEAR PUBLISHED	LINK	TYPE OF PUBLICATION	LANGUAGE
Productive Use of Energy Catalog: DRC	2021	https://www.usaid.gov/sites/default/files/2022-12/Off-grid_Productive_Use_of_Energy_2021_Catalog_DRC.pdf	PUE catalog	English
Productive Use of Energy Catalog: Liberia	2021	https://www.usaid.gov/sites/default/files/2022-12/Power-Africa-PUE-2021-Catalog-Liberia.pdf	PUE catalog	English
PAYGO Guide for Energy Access Companies	2021	https://www.usaid.gov/powerafrica/document/power-africa-paygo-guide-grid-energy-companies	Report	English
Financial Modeling Tool for PAYGO Energy Access Companies	2021	https://www.usaid.gov/powerafrica/document/power-africa-paygo-financial-modeling-tool	Tool	English
Distribution Partnership Tool— Developing the Route to Market: A Tool for Expanding Off-Grid Solar Product Distribution	2021	https://www.usaid.gov/powerafrica/document/power-africa-distribution-partnership-tool	Tool	English
Off-grid VAT and Duty Tracker	2021	https://www.gogla.org/policy-knowledge-hub/off-grid-vat-and-duty-tracker	Tool	English
Demonstration of Power Africa's Financial Modeling Tool for PAYGO Energy Access	2021	https://www.youtube.com/watch?v=TI-k8vZMafI	Video	English
Delivering Cleaner, “Smarter” Cooking Systems to Underserved Communities in Kenya	2022	https://powerafrica.medium.com/delivering-cleaner-smarter-cooking-systems-to-underserved-communities-in-kenya-9abb563d0d38	Blog	English
Promoting Cleaner, More Reliable Lighting and Cooking Systems Improves Lives for Women in Kenya	2022	https://powerafrica.medium.com/promoting-cleaner-more-reliable-lighting-and-cooking-systems-improves-lives-for-women-in-kenya-c882702e354d	Blog	English
Cultivating Change: Increasing Women's Access to Off-Grid Productive Use of Energy for Agriculture	2022	https://powerafrica.medium.com/cultivating-change-increasing-womens-access-to-off-grid-productive-use-of-energy-for-agriculture-ed28fc218bb4	Blog	English

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Bringing Cleaner, More Reliable Cooking Solutions and Electricity to Northern Cameroon	2022	https://powerafrica.medium.com/bringing-cleaner-more-reliable-cooking-solutions-and-electricity-to-northern-cameroon-97a91dfa1e0d	Blog	English
USAID/Power Africa Strengthens Maternal and Child Health Services in Sub-Saharan Africa with \$363,607 in Solar Energy Grants	2022	https://powerafrica.medium.com/usaaid-power-africa-strengthens-maternal-and-child-health-services-in-sub-saharan-africa-with-8abf4a46160	Blog	English
Leaving No One Behind: DRC's Rural Electrification Agency Commits to Gender Equality	2022	https://powerafrica.medium.com/leaving-no-one-behind-drcs-rural-electrification-agency-commits-to-gender-equality-4c0410b9f839	Blog	English
Power Africa Awards Grants to Scale Solar-Powered Productive Uses of Energy in Liberia	2022	https://powerafrica.medium.com/power-africa-awards-grants-to-scale-solar-powered-productive-uses-of-energy-in-liberia-79b5be41a5b7	Blog	English
Catalyzing Capital for Sustainable Growth in the Off-grid Energy Sector	2022	https://powerafrica.medium.com/catalyzing-capital-for-sustainable-growth-in-the-off-grid-energy-sector-dcdfcf33516d	Blog	English
Power Africa Off-grid Project Productive Use of Energy Fact Sheet	2022	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-Productive-Use-of-Energy-Fact-Sheet.pdf	Factsheet	English
Power Africa Off-grid Project Fact Sheet	2022	https://www.usaid.gov/sites/default/files/2022-05/PAOP_Fact_Sheet.pdf	Factsheet	English
Power Africa Off-grid Project Healthcare Facility Electrification Factsheet	2022	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-Off-Grid-Project-Health-Facility-Electrification-Fact-Sheet-20211204.pdf	Factsheet	English
Brief: Off-grid Solar Energy Market: Uganda	2022	https://www.usaid.gov/sites/default/files/2022-12/Power-Africa-Market_Assessment-Brief-Uganda.pdf	Market brief	English
Reaching Women, Unlocking Value: How Gender Inclusivity Boosts Customer Satisfaction for Off-grid Solar Products	2022	https://www.usaid.gov/powerafrica/document/power-africa-gender-inclusivity-brief	Market brief	English

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Assessment of Current and Potential Off-grid Productive Use of Energy Products: Côte d'Ivoire	2022	https://www.usaid.gov/sites/default/files/2022-12/Power-Africa-PUE-Assessment-Report-CIV.pdf	PUE assessment	English
Off-Grid Energy in 2030 - An Exercise in Foresighting	2022	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-Energy-Foresight-Report.pdf	Report	English
Supporting Off-grid Solar Startups with Financial Modeling: 12 Lessons	2022	https://www.usaid.gov/powerafrica/document/supporting-grid-solar-startups-financial-modeling-12-lessons	Report	English
PAYGO Credit Risk Management Guide	2022	https://www.usaid.gov/powerafrica/document/power-africa-paygo-credit-risk-management-guide	Report	English
Market-focused Gender Strategy for Simusolar	2022	https://www.usaid.gov/powerafrica/document/market-focused-gender-strategy-simusolar	Report	English
Increasing Women's Access to Productive Use of Energy for Agriculture: A Roadmap for Delivering a Market-focused Gender Strategy	2022	https://www.usaid.gov/sites/default/files/2022-05/Power-Africa-Gender-Strategy-Roadmap.pdf	Report	English
Microfinance Loans for Increasing Access to Off-grid Solar Products	2022	https://www.usaid.gov/powerafrica/document/power-africa-microfinance-loans-increasing-access-grid-solar-products	Report	English
Gender Inclusion Assessment Tool for Off-grid Energy Companies	2022	https://www.usaid.gov/powerafrica/document/gender-inclusion-assessment-tool-grid-energy-companies	Tool	English
Sales Training Materials for Off-grid Solar Companies	2022	https://www.usaid.gov/powerafrica/document/power-africa-sales-training-materials-grid-solar-companies	Training material	English
Financial Modeling Tool User Guide	2022	https://www.usaid.gov/powerafrica/document/power-africa-paygo-financial-modeling-tool-user-guide	User guide	English
Webinar: Accelerating Climate Investment in Africa: Using Structured Finance to Scale Clean Energy Innovation	2022	https://www.youtube.com/watch?v=MCfZF6qzgpQ	Webinar	English

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French Gender Inclusion Assessment Tool (Outil d'Évaluation de l'Inclusion du Genre Pour les Entreprises d'Énergie Hors Réseau)	2023	https://www.usaid.gov/powerafrica/document/outil-devaluation-de-linclusion-du-genre-pour-les-entreprises-denergie-hors-reseau	Tool	French
Scaling E-mobility in East Africa	2023	https://powerafrica.medium.com/scaling-e-mobility-in-east-africa-428d50e20c7d	Blog	English
Improving Livelihoods through Clean Energy	2023	https://powerafrica.medium.com/improving-livelihoods-through-clean-energy-f83f66ca4cc9	Blog	English
Catalyzing New Funding Opportunities for African Off-grid Solar Companies	2023	https://powerafrica.medium.com/catalyzing-new-funding-opportunities-for-african-off-grid-solar-companies-233fd0b88b83	Blog	English
Power Africa Awards Four Grants to Promote Productive Uses of Energy to Empower Kenyan Women	2023	https://powerafrica.medium.com/power-africa-awards-four-grants-to-promote-productive-uses-of-energy-to-empower-kenyan-women-cca5f44f64f2	Blog	English
Prioritizing Women's Leadership on Climate Change	2023	https://powerafrica.medium.com/prioritizing-womens-leadership-on-climate-change-84ea0621dff	Blog	English
Leaving No One Behind: DRC's Rural Electrification Agency Commits to Gender Equality	2022	https://powerafrica.medium.com/leaving-no-one-behind-drcs-rural-electrification-agency-commits-to-gender-equality-4c0410b9f839	Blog	English
Power Africa Awards Grants to Scale Solar-Powered Productive Uses of Energy in Liberia	2022	https://powerafrica.medium.com/power-africa-awards-grants-to-scale-solar-powered-productive-uses-of-energy-in-liberia-79b5be41a5b7	Blog	English



TABLES

SUPPORTED ASSOCIATIONS

COUNTRY	NAME	OFF-GRID ENERGY OR OTHER	NEW OR EXISTING	EARLIEST MENTION
Cameroon	Association of Off-Grid Electrification Professionals of Cameroon (Association des Professionnels de l'Électrification hors reseau de Cameroun [APELCA])	Off-grid energy	New	2020
CIV	APERCI Association of Renewable Energy Professionals of Ivory Coast (Association des Professionnels des Énergies Renouvelables de Côte d'Ivoire)	Off-grid energy	New	2019
CIV	AIENR Ivorian Association of New and Renewable Energies (Association Ivoirienne des Energies Nouvelles et Renouvelables)	Off-grid energy	Existing	2020
CIV	FIACER - Fédération Ivoirienne des Associations et Efficacité Energétique, Energie Renouvelable et Climat [FIACER]	Off-grid energy	Existing	2022
DRC	ACERD Congolese Association for Renewable and Decentralized Energy (Association Congolaise pour les Energies; Renouvelables et Décentralisées)	Off-grid energy	Existing	2020
Ethiopia	Ethiopian Solar Energy Development Association	Off-grid energy	New	2019
Ethiopia	Ethiopia Solar Energy Development Association (ESEDA)	Off-grid energy	Existing	2020
Ghana	Association of Ghana Solar Industries (AGSI)	Off-grid energy	Existing	2019
Kenya	Kenya Renewable Energy Association	Off-grid energy	Existing	2019
Kenya	Clean Cooking Association of Kenya (CCA-K)	Off-grid energy	Existing	2020
Liberia	Liberia Energy Access Practitioners (the LEAP network)	Off-grid energy	Existing	2020

COUNTRY	NAME	OFF-GRID ENERGY OR OTHER	NEW OR EXISTING	EARLIEST MENTION
Mali	AER National Renewable Energy Agency (Agence des Energies Renouvelables du Mali)	Off-grid energy	Existing	2020
Mali	National Federation of Electricity, Electronics, and Renewable Energy of Mali (Fédération Nationale de l'électricité, de l'électronique, et des énergies renouvelables du Mali [FENEM])	Off-grid energy	Existing	2020
Rwanda	Energy Private Developers (EPD)	Off-grid energy	Existing	2020
SSA	GONGLA	Off-grid energy	Existing	2019
SSA	Africa Mini-grid Developers Association (AMDA)	Off-grid energy	Existing	2020
SSA	African Association for Electric Mobility and Development in Africa	Off-grid energy	Existing	2023
Tanzania	Tanzania Renewable Energy Association (TAREA)	Off-grid energy	Existing	2019
Uganda	Uganda Solar Energy Association (USEA)	Off-grid energy		2020
Uganda	Association for Electric Mobility and Development in Africa (AEMDA)	Off-grid energy	New	2023
USA	NRECA National Rural Electric Cooperative Association	Off-grid energy	Existing	2020
Cameroon	ASCOVIME Association of Skills for a Better Life (L'Association des Compétences pour une Vie Meilleure)	Other	Existing	2022
Cameroon	SODECOTON Cameroon Cotton Development Association (Société de Développement du Coton du Cameroun)	Other	Existing	2022

COUNTRY	NAME	OFF-GRID ENERGY OR OTHER	NEW OR EXISTING	EARLIEST MENTION
CIV	APROMAC Association of Natural Rubber Professionals of Cote d'Ivoire (Association des Professionnels du Caoutchouc Naturel de Côte d'Ivoire)	Other	Existing	2020
CIV	AIPH Interprofessional Association of the Palm Oil Sector (Association Interprofessionnelle de la Filière Palmier à Huile) of Côte d'Ivoire	Other	Existing	2021
Ethiopia	Ethiopian Agricultural Transformation Agency (ATA)	Other	Existing	2019
Ghana	Association of Ghana Industries (AGI)	Other	Existing	2022
Ghana	Kwappa Cocoa Association	Other	Existing	2020
Senegal	Federation of Women's Associations of Senegal (Fédération des Associations Féminines du Sénégal)	Other	Existing	2019
Senegal	APSPD Association of Decentralized Financial Service Professionals of Senegal (Association Professionnelle des Systèmes Financiers Décentralisés du Sénégal)	Other	Existing	2020
Senegal	Association of Senegalese Mayors	Other	Existing	2020
Senegal	Senegalese Association of Normalization (Association Sénégalaise de Normalisation)	Other	Existing	2022
SSA	Christian Health Association	Other	Existing	2020
SSA	GSMA (GSM [Global System for Mobile Communication] Association)	Other	Existing	2020
SSA	Regional Association of Energy Regulators for Eastern and Southern Africa (RAERESA)	Other	Existing	2021
Tanzania	Tanzania Association of Microfinance Institutions (TAMFI)	Other	Existing	2019

COUNTRY	NAME	OFF-GRID ENERGY OR OTHER	NEW OR EXISTING	EARLIEST MENTION
Tanzania	Tanzania Independent Power Producers Association	Other	Existing	2019
Uganda	UNAPH Uganda National Association of Private Hospitals	Other	Existing	2020
Zambia	Churches Health Association of Zambia	Other	Existing	2020

U.S. COMPANY	CITY	STATE
TABLE REDACTED		

COIN FUND GRANTS

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
WINDOW 1: WEST AND CENTRAL AFRICA MARKET ENTRY AND PAYGO INTEGRATION GRANTS							
American Engineering Group (AEG) Congo	\$199,348	Non-U.S. (The organization is an affiliate of a U.S. entity called AEG International)	Democratic Republic of the Congo	Develop an offline Android application for PAYGO monitoring, evaluating, and learning efforts and create a defined distribution network of Firefly PAYGO sales agents and technicians, all with access to appropriate communication technologies	March 1, 2020–August 31, 2021	Improved Android PAYGO application, with a projected 4,600 off-grid connections in Year 1 (Y1)	Completed development of offline PAYGO application, SHS sales totaling 198 kits
Bboxx Capital RDC	\$199,360	Non-U.S.	Democratic Republic of the Congo	Introduce PAYGO solar energy solutions to DRC's Ituri and Grand Nord regions by establishing a distribution network and points of service for sales and customer support	March 1, 2020–August 31, 2021	Extended PAYGO solar energy solutions, with an estimated 6,000 off-grid connections in Y1	Opened 3 retail outlets, SHS sales totaling 2,539 kits
Ignite Power	\$198,142	Non-U.S.	Sierra Leone	Expand Ignite Power's clean energy distribution network to eastern Sierra Leone, and leverage partnerships with rural entrepreneurs, independent village agents, savings groups, local distributors of electronic products, and youth groups to serve rural off-grid communities	March 1, 2020–August 31, 2021	Expanded clean-energy distribution, with an anticipated 12,500 off-grid connections in Y1	Operation expansion activities completed, SHS sales totaling 3,542 kits

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
upOwa	\$191,225	Non-U.S.	Cameroon	Upgrade upOwa's PAYGO software and conduct area mapping of the East Region of Cameroon to adapt and replicate the company's marketing and distribution strategy to be region-specific. The marketing strategy adaptation will include upOwa employing sales and customer support staff from the East Region	March 1, 2020–August 31, 2021	Upgraded PAYGO software, with an anticipated 7,000 off-grid connections in Y1	PAYGO software upgraded and completed mapping activity; SHS sales totaling 3,401 kits
WINDOW 2: DISTRIBUTED ELECTRICITY SERVICES AND MODERN COOKING FUEL DELIVERY GRANTS							
LivelyHoods	\$215,041	U.S.	Kenya	Establish a credit program for households to obtain more affordable LPG cooking and SHS in urban locations and expand activities to peri-urban and rural areas where households typically have lower incomes.	July 1, 2020 – October 31 2021	Up to 900 combined LPG products and off-grid SHS connections in Y1 and Y2.	Established a credit program for households to buy LPG cooking products and SHS; sold 903 LPG and SHS bundles.
Bboxx Capital Kenya	\$249,904	Non-U.S.	Kenya	Assess how LPG cooking and SHS can be combined to offer more affordable modern energy to households in a viable manner. Evaluate how to use the existing infrastructure of the SHS business unit to leverage and maximize LPG sales.	July 1, 2020 – October 31, 2021	Improved access to combined LPG cooking solutions and SHS for an estimated 400 households and businesses.	Opened 2 of 2 LPG and SHS retail outlets and sold 488 LPG and SHS bundles.

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
Solar Kamerun Technology (Solkamtech)	\$84,913	Non-U.S.	Cameroon	Expand the PAYGO SHS distribution business model to include LPG cooking and use synergies to offer energy to households and small businesses in Northern Cameroon.	July 1, 2020 – October 31, 2021	An improved PAYGO system adapted to LPG cooking, and a projected 1,200 combined LPG and SHS off-grid connections.	Added LPG PAYGO to the business model and sold 1,254 LPG and SHS bundles.
WINDOW 3: CATALYTIC FUNDING GRANTS							
Helios Investment Partners	\$3,259	Non-U.S.	Cote d'Ivoire, Ghana, Nigeria, Rwanda, and Tanzania	Set up a blended financing structure and provide legal support to allow Zola Electric to attract capital for a COVID-19 response program	August 17, 2020–February 28, 2021	Providing electricity to 2,000 hospitals and more than 22,500 off-grid connections by August 2021	Grant closed February 2021 as expected COVID-19 support funding (grant/concessional capital) to enter the market was substantially delayed
Nithio Holdings Inc.	\$241,349	U.S.	Kenya, Nigeria, and Uganda	Cover legal fees related to setting up a receivables-warehousing facility and analyze receivables portfolios of select off-grid solar companies	August 17, 2020–August 16, 2021	Up to 45,000 estimated new connections to clean and reliable energy by investee companies	Product development completed

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
WINDOW 4: HEALTHCARE ELECTRIFICATION GRANTS							
Havenhill Synergy Ltd.	\$299,984	Non-U.S.	Nigeria	Electrify 21 urban, peri-urban, and rural healthcare facilities in Oyo State, Nigeria by deploying 210kWp solar systems using an energy-as-a-service business model.	September 25, 2020–September 24, 2021	21 healthcare facilities electrified, and improved provision of health services	21 healthcare facilities electrified and commissioned
KYA-Energy Group	\$450,450	Non-U.S.	Togo	Install standalone systems and hygienic solar-powered automatic hand-washers at 20 rural public health centers in Togo.	September 25–November 30, 2021	20 healthcare facilities electrified, with improved provision of healthcare.	20 healthcare facilities electrified and commissioned.
Muhanya Solar	\$209,996	Non-U.S.	Zambia	Collaborate with Churches Health Association of Zambia to establish solar electricity for lighting, medical equipment, computers, and internet services in 7 rural health facilities in Zambia.	September 25, 2020–January 31, 2022	7 healthcare facilities electrified, with improved provision of healthcare.	7 healthcare facilities electrified and commissioned.
Nanoé	\$238,939	Non-U.S.	Madagascar	Facilitate nano-grids to electrify 35 rural health facilities, unelectrified or partially electrified, in the Ambanja and Ambilobe districts and provide with energy-efficient appliances. The nano-grids also serve staff quarters	September 25, 2020–September 24, 2021	35 healthcare facilities electrified, and improved provision of health services.	35 healthcare facilities electrified and commissioned

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
OffGridBox	\$246,404	U.S.	Rwanda	Install 6 container-based solar PV solutions for communication technology, lighting, refrigeration, sterilization, and water purification for rural clinics.	September 25, 2020–February 28, 2022	7 healthcare facilities electrified, with improved provision of healthcare.	7 healthcare facilities electrified and commissioned.
OnePower	\$282,706	Non-U.S.	Lesotho	Electrify 7 rural healthcare facilities serving approximately 120,000 people and operate and maintain the connected mini-grid system.	September 25, 2020–June 30, 2022	7 healthcare facilities electrified, with improved provision of healthcare.	7 healthcare facilities completed and commissioned.
PEG Solar	\$348,963	Non-U.S.	Ghana	Facilitate access to electricity for 23 rural healthcare facilities in Ghana and install solar generator systems in partnership with the regional administrative government of Ashanti Region.	September 25, 2020–January 31, 2022	23 healthcare facilities electrified, with improved provision of healthcare.	23 healthcare facilities electrified and commissioned.
OffGridBox	\$246,404	U.S.	Rwanda	Install 6 container-based solar PV solutions for communication technology, lighting, refrigeration, sterilization, and water purification for rural clinics.	September 25, 2020–February 28, 2022	7 healthcare facilities electrified, with improved provision of healthcare.	7 healthcare facilities electrified and commissioned.
OnePower	\$282,706	Non-U.S.	Lesotho	Electrify 7 rural healthcare facilities serving approximately 120,000 people and operate and maintain the connected mini-grid system.	September 25, 2020–June 30, 2022	7 healthcare facilities electrified, with improved provision of healthcare.	7 healthcare facilities completed and commissioned.

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
PEG Solar	\$348,963	Non-U.S.	Ghana	Facilitate access to electricity for 23 rural healthcare facilities in Ghana and install solar generator systems in partnership with the regional administrative government of Ashanti Region.	September 25, 2020–January 31, 2022	23 healthcare facilities electrified, with improved provision of healthcare.	23 healthcare facilities electrified and commissioned.
International Power Control Systems	\$139,360	Non-U.S.	Malawi	Electrify maternal wards at two health facilities with modular, prepackaged energy technology	October 15, 2021–September 15, 2022	Two healthcare facilities electrified, with improved maternal and child healthcare services	2 MCH healthcare facilities electrified and commissioned
Sustainable Solar Systems	\$224,247	Non-U.S.	Uganda	Electrify five healthcare centers to provide reliable power for medical equipment and maternal and child healthcare services	October 15, 2021–September 15, 2022	Five healthcare facilities electrified, with improved maternal and child healthcare services.	5 MCH healthcare facilities electrified and commissioned
WINDOW 6: PRODUCTIVE USES OF ENERGY (PUE) IN LIBERIA							
Ecopower	\$128,205	Non-U.S.	Liberia	Set up franchises to distribute PAYGO and fee-for-service PUE equipment (solar dryers, freezers, and irrigation)	18-May-2022 – 30-June-2023	Scale up off-grid technologies for productive use to boost productivity and economic growth	All activities successfully completed

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
Easy Solar (Liberia)	\$177,933	Non-U.S.	Liberia	PAYGO water pumps, freezers, and generators introduced to new markets, and credit offerings for repeat customers	18-May-2022 – 30-June-2023	Scale up off-grid technologies for productive use to boost productivity and economic growth	All activities successfully completed
LEN Two	\$118,707	Non-U.S.	Liberia	Multi-pronged fishing lights system to scale a pilot in Bong County with community cold storage	18-May-2022 – 30-May-2023	Scale up off-grid technologies for productive use to boost productivity and economic growth	All activities successfully completed
Liberia Engineering & Geo-Tech Consultants	\$175,154	Non-U.S.	Liberia	Finance solar dryers and community charging stations with icemakers for SMEs	18-May-2022 – 30-May-2023	Scale up off-grid technologies for productive use to boost productivity and economic growth	All activities successfully completed
WINDOW 7: PRODUCTIVE USES OF ENERGY (PUE) USES IN KENYA							
Agsol	\$99,870	Non-U.S.	Kenya	Design and pilot pay-as-you-use model for solar mills, with a specific focus on financing female entrepreneurs	01-Mar-2023 – 30-Jun-2023	Improved operations and services to deliver solar-powered PUE products, and uptake of PUE products by women	Case study was successfully completed enabling the further development of gender-specific financing models

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
Ecobora	\$100,000	Non-U.S.	Kenya	Introduce a new revenue stream by adding solar coolers for sale and use in existing solar kiosks stocked with fast-moving consumer goods	01-Mar-2023 – 30-Jun-2023	Improved operations and services to deliver solar-powered PUE products and uptake of PUE products by women	Completed a Gender Action Plan, conducted 224 surveys on PUE performance and women's needs, provided PUE business model training to 926 female beneficiaries, and sold three solar freezers to kiosks in remote areas.
Rafode	\$100,000	Non-U.S.	Kenya	Increase access to PUE products through a lease-to-own financing model, primarily targeting primarily women customers	01-Mar-2023 – 30-Jun-2023	Improved operations and services to deliver solar-powered PUE products and uptake of PUE products by women	Provided finance access for PUE devices to 66 Clients, trained 86 beneficiaries on installation and maintenance of PUE devices.
Sidai Africa Kenya	\$100,000	Non-U.S.	Kenya	Introduce a new revenue stream and to explore cost-effective approaches to the marketing and sales of new PUE products, on a pilot basis	01-Mar-2023 – 30-Jun-2023	Improved operations and services to deliver solar-powered PUE products and uptake of PUE products by women	Trained 4,489 beneficiaries on PUE devices, reaching over 6,000 customers

GRANTEE NAME	TOTAL AMOUNT	ORG TYPE	COUNTRY	PURPOSE	PERIOD OF PERFORMANCE	ANTICIPATED IMPACT	IMPACT TO DATE
Sjedi Green Energy	\$150,000	Non-U.S.	Liberia	PUCs in farming communities with pay-to-use services such as milling, water pumps, washing machines, freezers, and dryers.	18-May-2022 – 21-July-2023	Scale up off-grid technologies for productive use to boost productivity and economic growth	Established initial PUC center with the goal of establishing five more in the coming months (pending equipment clearance)

**POWER AFRICA
OFF-GRID PROJECT**

