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COUNTRY AND REGION FIELD REPORT

ANGOLA

Enabling Environment Update

Electrification and Transmission Assistance Kicks Off: The USAID Southern Africa Energy Program (SAEP) has officially kicked-off support to the distribution company, Empresa Nacional de Distribuição de Electricidade (ENDE) and the transmission company, Empresa Rede Nacional de Transporte de Electricidade (RNT) to frame electrification planning and develop the Angolan transmission system. Support to ENDE will establish an Electrification Management Unit (EMU) to improve distribution of the company's capacity to manage system expansion. Support to RNT will include the creation, operationalization and management of a Project Management Office (PMO) that will oversee the design and construction of the Central-South transmission line as well as potentially portions of the Angola–Namibia (ANNA) Transmission Interconnector project. The African Development Bank (AfDB) is providing project funding to both RNT and ENDE.

Power Africa completes work to help RNT advance \$480 million transmission line package to AfDB board: Power Africa implementer SAEP recently completed work with Angolan state-owned transmission company RNT to advance the \$480 million Huambo-Lubango transmission line to the AfDB board for loan approval. During the month of November, SAEP worked to establish the PMO and a dedicated Project Implementation Unit (PIU) to manage the implementation of the planned 343-kilometer 400 kV transmission line that will connect Angola's central and southern power grids, in addition to a 400/220/60 kV substation, and 220 kV substation. SAEP also prepared RNT to provide the necessary procurement, environmental, and resettlement documentation needed to bring the project to the AfDB board. The AfDB board is likely to consider the \$480M transmission line at its meeting on December 13, 2019.

BENIN

Enabling Environment Update

Gender Program Opportunity: On November 1, 2019, the Government of Benin announced Manitoba Hydro International (MHI) as the new managers of the state utility Société Béninoise d'Énergie Electrique (SBEE). The existing management of SBEE has expressed interest in engaging with West Africa Energy Program (WAEP) to increase customer connections and implement gender programs. SBEE has also been considered a strong candidate for selection into the next cohort of Engendering Utilities partnership program.

BURUNDI

Note: Burundi is under the U.S. Government (USG) Trafficking in Persons (TIP) Act restrictions and, as a result, until further notice, USAID has suspended all activities on which it has been working with the government in the power sector.

CHAD

MW/Generation Transaction Update

Power Africa's partner, the African Development Bank (AfDB), through its Desert-to-Power solar project in Chad, has approved funding for the development of a 35 MW solar plant by a private developer. The project is expected to reach financial close in the next couple of months, with support from the West Africa Energy Program (WAEP).

COTE D'IVOIRE

MW/Generation Transaction Update

IFC-Scaling Solar to support 2 x 30 MW solar projects in Cote d'Ivoire: On October 17, 2019, the Government of Côte d'Ivoire and the International Finance Corporation (IFC) signed a convention for

IFC's assistance to carry out a feasibility study, financing, and advisory support for the construction of two 30 MW solar power plants in Touba and Laboa, totaling 60 MW.

Hybrid Solar-biomass 36 MW project announced by Dekel Agri-Vision Plc and Green Enesys Holdings Ltd.: The UK company, Dekel Agri-Vision Plc, announced in December 2019 the signing of a Joint-Venture Agreement with Green Enesys Holdings Ltd., a European renewable energy company, to develop a hybrid solar and biomass plant with a capacity of up to 36 MW in Côte d'Ivoire. The project is envisioned to comprise of a 30 MW solar PV plant and a 5-6 MW biomass plant using feedstock from Dekel's palm oil activities in Ayenouan (100 km east of Abidjan). The hybrid project should allow Dekel to reduce costs of palm oil production and generate revenue from the potential sale of electricity to the grid.

Distribution / On-Grid Connections Update

National Assembly approved the Revolving Fund for the Electricity for all Program: On October 29, 2019, the National Assembly approved a bill to establish a Revolving Fund for the Electricity for All Program. The Government expects to attract more than \$100 million into the Fund (including from donors) and get universal access to electricity by 2025.

Off-Grid Connections Update

Rockefeller Foundation and Duke University scoping visit for their Future Grid Africa (FGA) program: From September 15-19, 2019, Rockefeller Foundation, Albright Stonebridge Group (ASG), and Duke University visited Côte d'Ivoire to undertake a strategic study to better understand the energy market in the country. The Rockefeller Foundation is launching Future Grid Africa (FGA), a facility to enable public-sector champions and private-sector partners to scale up integrated electrification approaches that support a range of on-grid and off-grid systems in priority markets. The Rockefeller Foundation is considering Côte d'Ivoire as one of its potential pilot countries for FGA's launch (other options are Ethiopia and Uganda). The discussion points included the current state of the energy sector, particularly in the off-grid space, off-grid energy access, particularly in rural areas, and improved policy and access to financial tools to accelerate capital flows and/or improve electricity services.

Enabling Environment Update

2019 National Energy and Oil Seminar: The Minister of Petroleum, Energy and Renewable Energies, Abdourahmane Cissé, proceeded on November 18, 2019 in signing an agreement with the French School of Petroleum (Institut Français du Pétrole), creating the Ecole Supérieure du Pétrole et Energie (ESPE) in Côte d'Ivoire. With the ESPE, it will no longer be necessary for Ivorian students (level BAC + 5) to go abroad for high-level training in the oil sector. The training will last 14 months and will be in English with options to lead to two (2) specialized Masters, one in oil upstream (exploration-production of hydrocarbons) and one in oil downstream (hydrocarbon processing and distribution of petroleum products).

Key Power Africa Partner Update

4th Korea-Cote d'Ivoire Energy Forum: The Korean Embassy in Côte d'Ivoire held the 4th Korea-Cote d'Ivoire Energy Forum on September 26, 2019 in Plateau. This meeting provided an opportunity for energy sector participants to share Korean and Ivoirian policies on renewable energies and discuss ways of cooperation.

ESWATINI

Enabling Environment Update

Energy Efficiency to Reduce Eswatini Water's Electricity Costs. USAID Southern Africa Energy Program (SAEP) supported the Eswatini Water Services Corporation (EWSC) energy efficiency audit to identify opportunities to reduce electricity costs of water supply, which represents about 20% of the total cost of water in Eswatini. In October 2019, SAEP presented the Energy Improvement Roadmap and supporting recommendations to EWSC Managing Director, Ms. Jabulile Mashwama, and senior managers. EWSC has started implementing recommendations, including forming an Energy Efficiency

Committee to oversee the implementation. As a result, EWSC will save approximately USD \$85,000 per year (without any capital expenditure) by adopting SAEP's short term recommendations. EWSC expects the energy savings and capacity reduction from the energy efficiency program to reduce total supply costs by over USD \$400,000 and an energy savings of 200 MWh if all the proposed initiatives are adopted.

ETHIOPIA

MW/Generation Transaction Update

Corbetti and Tulu Moyo Geothermal Projects: The Government of Ethiopia (GOE) and Ethiopia Electric Power (EEP) instructed legal advisor, Clifford Chance, are planning to revise the Corbetti and Tulu Moyo project Power Purchase Agreements (PPAs) and Interconnection Agreements (IA). This action will reflect the recent scope reduction from 520 MW to 150 MW, the tariff escalation relative to the phases, payment responsibility in case of Political Force Majeure, and the acceleration of the close of these agreements. Project sponsors sent a revised PPA with changes outside of the agreed amendments; USAID East Africa Energy Program (EAEP) will continue to facilitate discussions between EEP and Clifford Chance to resolve all outstanding issues hindering the implementation phase.

Geothermal Risk Mitigation Facility (GRMF) Grant Progress: The Alalobeda drilling project has received approval for a grant from the African Union Commission (AUC) for a Geothermal Risk Mitigation Facility grant (GRMF). The EAGP team of consultants traveled to Ethiopia to work alongside EEP to prepare the final documents and resubmit before moving on to the negotiation stage of the GRMF grant. The team compiled all necessary documents the AUC requested, finalized the procurement and financial plans and established a plan for EEP's team members to compile the remaining documents.

Metehara Solar PV (100 MW): The preferred bidder, Enel Green Power, initiated the land lease agreement from EEP and commenced discussions on finalizing the project documents (PPA, IA, and Government Letter of Support). The remaining issues to be resolved are the tariff and convertibility guarantee. Recently, EEP's Chief Executive Officer (CEO) reached out to Enel Green Power to renegotiate the tariff submitted. Enel Green Power is expected to be in Ethiopia to discuss negotiations in December 2019.

IFC Departs Scaling Solar Procurement of 250 MW of Solar Projects: After the International Finance Corporation (IFC) withdrew its term sheet as a result of the National Bank refusing to guarantee foreign exchange (FX) convertibility, the Gad and Dicheto Solar projects were awarded to Saudi Arabia's ACWA Power with a 2.526 cents per kWh tariff. Out of five bidders, four qualified bidders were disqualified who used the IFC term-sheet.

400 MW New Solar Deals: The GOE issued requests for quotes (RFQs) for Mekele, Humera, Welenchiti, and Weranfo solar PV projects. Fifteen companies have been shortlisted by the Ethiopia Public Private Partnerships Office (PPP) Board of Directors and qualified for the next stage. The PPP Board plans to issue the request for proposal (RFP) for the projects in late December 2019 or early January 2020. Three out of the four projects have existing feasibility studies from EEP.

Rehabilitation of Existing Hydro Power: EEP's CEO and EEP's Hydro Power Plant Management Team requested support for the optimization study for Gibe I (184 MW), Gibe II (420 MW) and Gibe III (1870 MW), Fincha - Amerti (97 MW) and Melke Wakena (153 MW). EAEP reviewed the existing environmental impact studies for the 5 hydropower plants and is currently preparing a qualified transaction analysis explaining why the projects should be included as Power Africa projects. Power Africa is preparing an environmental and social impact review and completing the hydro supplement analysis to assess all potential risks of U.S. Government involvement.

Transmission Update

Support to EEP in Power System Expansion Master Plan and System Integration Studies: EAEP launched RFPs for two studies that will assist EEP in planning future generation, transmission, and distribution projects. As a result, EEP will improve its operational and technical performance and regain profitability through improved services.

Distribution / On-Grid Connections Update

Countrywide Geospatial Platform Launched: The National Rural Electrification Cooperatives Association (NRECA) is supporting the Ethiopian Electric Utility (EEU) to launch a geospatial platform in December 2019. The platform will be available to EEU staff and other interested partners. The country wide geospatial platform identified National Expansion Projects which can be achieved with the existing system and additional system upgrades, including budget estimation for both scenarios. The platform has also identified projects which are appropriate for mini-grids and/or other alternative electrification solutions.

EEU Turnaround Plan: RTI's M2C team presented EEU's overall Diagnostic Report to EEU management and a Turnaround Plan for the utility to address issues presented. The Plan provides concrete initiatives and actions to improve and optimize EEU's operational activities. EEU management endorsed the Plan and expressed commitment to work with East Africa Energy Program (EAEP) team towards its implementation. The Plan covers the main functional areas for utility performance improvement, including establishment of energy accounting system, commercial cycle optimization and commercial loss reduction plans.

Off-Grid Connections Update

Ethiopia Solar Energy Remittance Pilot design: The USAID Power Africa Off-grid Program (PAOP) Team provided a concept note to key stakeholders with potential models as well as an explanation of benefits for the remittance pilot design, details about Pay As You Go (PAYGO) service integration and an overview of stakeholders' potential roles. The project's remittance specialist is working on the first remittance pilot with the companies Little Sun and Solar Development, which are developing the e-commerce website and a concept note for the pilot. PAOP team is supporting the companies with relevant information, possible delivery models, and providing inputs on marketing strategies, pilot design cost breakdown structures, and finalizing the pilot document.

Ensuring access to Finance: PAOP team met with the World Bank to discuss financial support toward the energy sector, including forex access (scheduled to start late 2020). The World Bank discussed the possibility of channeling money through the project as a challenge fund for productive use of energy companies. PAOP team met with USAID, Power Africa, and the World Bank to discuss the possibility of setting up a challenge fund for Ethiopian solar companies to solve the forex issues. PAOP team has agreed to support the implementation of the upcoming new World Bank award program.

Support to Off-Grid Companies: The PAOP team introduced U.S. company, Angaza, to two local mobile money operators, CBE Birr and Amole, in order to increase the number of payment modalities for PAYGO companies in Ethiopia. In addition, PAOP introduced them to distribution channels such as Cooperatives and Productive use business options.

Enabling Environment Update

Ethiopia Women in Energy Network (EWiEn) launched: The USAID East Africa Energy Program (EAEP) supported the official launch of Ethiopian Women in Energy (EWiEn) on October 15, 2019. Participants included government officials, EEP CEO, the EEE and development partners such as GIZ and the World Bank Group. EWiEn's main goal is to provide networking opportunities, mentoring and professional connections for women in the Ethiopian energy sector. Power Africa provides event support and training to network members and associated entities.

First International Symposium on Geothermal Energy in Ethiopia: Ethiopia's first geothermal symposium to mobilize exploration and development was organized by the Addis Ababa Science and

Technology University (AASTU) and supported by Power Africa in collaboration with Tulu Moye Geothermal (TMGO). The event was well attended with over 220 delegates from institutions, academia, development partners, civil society and private sector from Africa, Europe and the United States.

Key Power Africa Partner Update

US Energy Association (USEA): The US Energy Association (USEA) is organizing an Executive Exchange in the US as part of USEA-Ethiopian Electric Utility partnership, funded by USAID. USEA will be hosting a delegation of 10 Senior Ethiopian Electric Utility (EEU) executives in Washington, DC from December 11-13, 2019. The delegation will meet with American utilities and discuss their experience and best practices in utilities structure optimization and governance.

National Association of Regulatory and Utilities Commissionaire (NARUC): As of November 2019, NARUC/Energy Regulatory Partnership Program (ERPP) has placed two female interns with the Ethiopian Energy Authority as part of the Women in Energy Regulation Internship Program. The program allows interns to acquire the basic skills and institutional knowledge needed to pursue a career in the sector and become strong candidates for employment within the host commission, other regulatory agencies, and regulated entities such as electric utilities. It seeks to create career pathways for women in the energy sector, focusing on areas where women are most underrepresented, such as engineering.

Short-Term Technical Assistance on Off-Grid Regulatory Frameworks: In November 2019, NARUC signed a task order to complete short-term technical assistance with EEA to provide an implementation roadmap and technical workshop on issuing off-grid licenses. The work will begin in January 2020 with a stakeholder meeting and will be followed by a technical workshop in the spring of 2020.

Energy Sector Update

Financial Health of the Utilities: East Africa Energy Program (EAEP) is supporting the transition of EEP's financial reporting system from Ethiopian Generally Accepted Accounting Principles (GAAP) to International Financial Reporting System (IFRS). EAEP works closely with EEP's IFRS Project Team and the external experts contracted by EEP (PwC and Fairfax Transaction Advisors) to undertake the valuation of assets and IFRS implementation and provide critical analysis of the project plan and timetable.

GHANA

MW/Generation Transaction Update

CenPower/Kpone (350 MW): The project's Gas Supply Agreement (GSA) is still awaiting clearance from Electricity Company of Ghana (ECG). ECG is reportedly delaying the approval of the GSA in order not to implement the post payment security under the PPA.

Early Power Stage-1 (194 MW): Sponsors finalized the payment security for the fuel supply agreement and the tax concession. The project is currently working with lenders to meet financial close, with a Commercial Operation Date (COD) for phase 1, anticipated in mid-January 2020.

Amandi Energy (192 MW): The reliability testing on gas is expected to begin by the end of October, but has been delayed as the Gas Connection Agreement and the GSA with Ghana National Gas Company (GNGC) are still in negotiation.

Karpowership Relocation Project: The onshore and offshore gas pipelines have been completed, and purging is underway before natural gas can be introduced. The Karpowership-GNPC GSA is still under discussion.

Mainstream/Actis (Ayitepa 150 + 75 MW Wind): The project offered a revised tariff (US\$0.089/kwh, flat 25 years) based on new turbine technology and financing assumptions. The Power Purchase Agreement

(PPA) amendment has been completed, but the Put Call Option Agreement has stalled due to the moratorium from the Ministry of Finance (MOF).

Fuel Supply Situation: Gas supply has been steady over the period. Ghana's domestic gas is mainly supplied to the Volta River Authority (VRA) plants, Takoradi Power Company (TAPCO) and Takoradi International Company (TICO), and the Ameri plant at Takoradi in the west. The rest is supplied to Tema via the reverse flow of the West Africa Gas Pipeline (WAGP) and co-mingled with Nigerian gas to fuel the IPPs (SAPP and Cenit) and VRA plants (TTI and TT2)

LNG / Mini-LNG imports: Arbitration is reportedly underway between the sponsor of the West Africa Gas Limited project (Sahara Energy) and the Government of Ghana (GoG) to determine the final amount of termination damages, with Sahara claiming over \$1 billion. For the other Tema LNG deal, Ghana's Senior Minister has issued a letter to GNPC to unbundle the infrastructure from the gas supply contract. The GoG continues to face \$25 million in monthly penalties because it is only consuming 140 million standard cubic feet per day (MMscfd) out of the 170 MMscfd take-or-pay volume. It is accumulating arrears to ENI, but the Sankofa partners have not drawn on GNPC's letter of credit to avoid calling World Bank's Partial Risk Guarantee.

Distribution / On-Grid Connections Update

Millennium Challenge Compact (MCC)-Ghana Power Compact: The GoG decided to terminate the concession agreement between ECG and the private operator, Power Distribution Services (PDS) on October 19, 2019. As a result, MCC will de-obligate \$190 million (Tranche 2) and will not consider Ghana for the regional compact. Tranche I fund (\$308 million) will be used for ongoing distribution infrastructure upgrades (bulk supply points and line bifurcation), energy efficiency projects, and, potentially, increases to reliable power access in significant urban marketplaces.

The National Renewable Energy Laboratory (NREL): NREL's distribution systems expert visited Ghana in November 2019 to carry out a one-week training session with ECG engineers/system planners on the analysis of the impacts of distributed photovoltaics (DPV) on network stability. NREL also met with the system planning staff of the Northern Electricity Company (NEDCO). NREL is training ECG and NEDCO to design their own open-source software tools to model DPV impacts that they will use to produce their own studies by March 2020 and September 2020 respectively.

Off-Grid Connections Update

Mini-Grid Feasibility Studies Completed: Tuatara has completed the feasibility study in 54 communities in the Afram Plain South District. The consultant is awaiting data from the Ministry of Energy (MoEN) and from 5 existing mini-grids to carry out a comparative analysis on the economic component of the study and finalize the report.

PAYGo Solar for Health Clinics: PAOP, in partnership between Stella Futura (SF) and Christian Health Association of Ghana (CHAG), coordinated an initial energy and operational audit carried of health centers. As a result of the audit, SF will install the PAYGO solar energy systems on five CHAG centers, with additional support to be provided to assist with operational updates.

Crosscutting: PAOP facilitated the formation of a partnership between Hatoum Trading (a solar irrigation pump distribution company), Vision Fund (a financial institution), and RMG (an agricultural inputs supplier) to design a solution package and submit an application for the FTF Innovation Lab grant for small-scale irrigation. The package seeks to provide seed funds, identify farmers, define the specific location for implementation and provide access to market for farm produce through the various partners.

Enabling Environment Update

The Public Utilities Regulatory Commission (PURC) Tariff Increase: The Ghana PURC increased the electricity tariff by 11.17% in July 2019 and applied the Automatic Adjustment Formula (AAF), which resulted in a 5.94% increase in October 2019. This second adjustment was to manage the exchange rate

depreciation, since the revenues are collected in Ghana Cedis, but the purchase agreements are in USD, and inflation. As a result, tariffs have increased by 17.11% on average for consumers in all customer classes over 2019.

Energy Sector Financial Modeling

- **Energy Sector Recovery Program (ESRP):** USAID arranged a meeting of the Energy Sector DP Working Group with the Ministry of Energy to present the ESRP to the Group. The public version of the ESRP has been developed and is available on the EC website. The Energy Sector Task Force (ESTF) holds regular meetings to track the implementation progress of the program.
- **Financial Modeling:** The 2018 Power Sector Cash Flow Model update is ongoing. The team is still awaiting data from some sector agencies.
- **IPP Renegotiation:** The renegotiation process, as announced by the Finance of Minister, has commenced. GoG has engaged two London-based law firms to carry out this assignment. The IPPs have been categorized into the following groupings to facilitate discussion: 1) project finance IPPs (Cenpower, Amandi and Early Power), 2) emergency plants and other IPPs (Karpowership, Aksa and SAPP), and 3) RE plants and the LNG & Gas contracts. The tentative timeline to arrive at a conclusion with each IPP is three months from the first engagement.

Integrated Resource and Resilience Plan (IRRP): the project is now in closeout phase and only has a skeletal staff in place. Project close out phase is on track.

- **Integrated Power Sector Master Plan (IPSMP):** The 2019 update of the IPSMP (first prepared in 2018) has been presented to the Energy Commission for finalization and subsequent upload on their website as the custodians of the plan.
- **Additional Analyses:** (a) The report for the *Capital-cost Benchmarking for New Generation* in Ghana has been finalized. (b) *The Advanced Metering Infrastructure (AMI) Data Analysis* has been finalized. (c) The report on *Smart Grid Market Potential* has been developed and shared with GRIDCO, PDS and NEDCO. (d) The final report on the energy audit carried out at the Ghana Water Company Limited (GWCL) has been finalized and shared with USAID for review and subsequently submitted to GWCL.

Key Power Africa Partner Update

African Development Bank (AfDB): A joint mission by AfDB and the Swiss Economic Cooperation (SECO) Agency visited Ghana to meet with the ECG and the Ministry of Energy (MoEN) to finalize the design of the mini-grid and rooftop solar / net-metering project within the framework of the \$230 million Sustainable Renewable Energy Project (SREP) led by AfDB. USAID and GIZ met with the AfDB team to provide feedback on the design, and USAID offered to provide the analysis on the system stability impacts of RTS as part of its ongoing cooperation between NREL and the two Ghanaian distribution utilities.

GUINEA

MW/Generation Transaction Update

50 MW HFO Te Power Plant: The Te Power Plant being developed by Endeavor is under construction. It is expected to be commissioned in the first quarter of 2020. Once commissioned, this will be the first Power Africa-supported generation transaction in Guinea to reach financial close and commissioning.

450 MW Souapiti Dam: Construction by China International Water and Electric Corporation (CWE) is ahead of schedule. Originally estimated to be commissioned in 2021, the new estimated date for commission is 2020. With completion of the 450 MW dam, the government feels it is on course to reach its goal of 1,200 MW of additional power generation.

Transmission Update

The Gambia River Basin Development Organization (OMVG) 225 kV 1,677 km Transmission Line: The Guinean electricity utility, Electricité de Guinée (EDG), has reached a final agreement with the national electricity company of Senegal (Senelec) to trade electricity based on the OMVG transaction,

currently under negotiation. A proposed Power Purchase Agreement (PPA) tariff of US\$ 0.11/kWh (excluding transmission charges) is anticipated to be signed. The other participating countries, Gambia and Guinea Bissau, will sign PPAs in the coming weeks. West Africa Energy Program (WAEP) provided technical and legal advice to OMVG toward development of the PPA and the Technical Services Agreement to facilitate final signing by the countries. Assistance from USAID was critical to completing the transaction, to unlock 1,174 GWh and provide electricity access to 1.3 million people through the 1,677 km of 225 kV transmission line.

Enabling Environment Update

Electricite De Guinea (EDG) in Transition: EDG is currently in transition from the Management Contract (Veolia) to a team of competent Guineans assisted by a Consultant (World Bank). The new Board of Directors was appointed in August 2019 and a competitive recruitment of the top management team is ongoing (for 50 top positions). The selection of a management firm to provide technical assistance to the management team is at an advanced stage through the World Bank's funding. Critically improving the support to EDG is required to increase their creditworthiness as off-taker for Independent Power Producer's (IPP) generation.

New Solar Photovoltaic (PV) Grid Integration Study: The World Bank commissioned a solar photovoltaic (PV) grid integration study in October 2019 to support the Government of Guinea (GoG) on how to approach the increasing solar IPPs – currently targeted at 2,400 MW. The study assessed a) the capacity of the grid to absorb the intermittent solar energy, looking at the availability of enough spinning reserve in the network to manage rapid variations in solar PV generation, b) the capacity transmission system to evacuate solar energy, and c) the demand for new capacity and the economic dispatch electricity. The study's findings concluded that before 2022, no new concessions for solar PV projects should be granted in Guinea due to supply/demand constraints. There are two advanced IPPs deals in solar totaling 73 MW, including Solveo (40 MW) and BDG (33 MW), that signed PPAs with GoG and are expected to be commissioned in 2020. WAEP will collaborate with the World Bank in ensuring system planning and technical assistance is provided adequately to the government.

Mining Sector Demand Analysis for Guinea: Power Africa will continue to provide technical assistance to the Ministry of Energy and the Ministry of Mines in developing the mining sector energy demand centers through WAEP. Guinea's 2018-2019 generation and transmission master plan made provisions for the consumption from captive clients (mining companies included) but does not consider the connection of the mining sites to the transmission network.

Power Africa High Level Visit: The U.S. Ambassador to Guinea and Power Africa Coordinator paid a courtesy visit to President Alpha Conde on November 21, 2019. The President was appreciative of the work Power Africa's doing in Guinea and requested for additional support targeted towards improving solar PV integration into the grid and small-medium scale hydro power development.

KENYA

MW/Generation Transaction Update

Financial Close of Radiant and Eldosol Solar Projects: On September 24, European Investment Bank (EIB) announced that Radiant and Eldosol Solar (both 40 MW solar projects) have reached financial close. The USAID East Africa Energy Program (EAEP) provided technical support to both projects including securing the Government Letter of Support using the template from Kipeto wind, capacity building on solar PV PPAs for Kenya Power and Light Company's (KPLC) negotiation team, and the Grid Management Support Program that identified requirements for KPLC, Kenya Electricity Transmission Company (KETRACO), and KenGen to smoothly integrate intermittent renewables.

35 MW Symbion Geothermal Project Receives Generation License: Symbion (Power Africa private sector partner) confirmed approval of the generation license for the 25 MW Menengai geothermal plant. The developer is currently negotiating the wording of the Government Letter of Support with the lender,

TD Bank (Power Africa Development Partner), and the Government of Kenya. The project is expected to reach financial close by end of January 2020.

AfDB Withdraws Support for Lamu Coal Power Plant: The African Development Bank (AfDB) on November 13, 2019 announced that it will not fund the 1,050 MW Lamu Coal power plant, throwing the controversial project into further jeopardy. The Bank, which was expected to provide the partial risk guarantee (PRG) for the project stated in its announcement that it was taking environmental concerns seriously and would be focusing on renewable energy going forward. This new development further diminishes the possibility of the project taking off, coming closely after the project's Environmental and Social Impact Assessment (ESIA) was cancelled by the National Environmental Tribunal of Kenya in June 2019. The Ministry of Energy however seems to still expect the project to be developed, with Cabinet Secretary Charles Keter being quoted in the local media shrugging off AfDB's exit, stating that they expect the developer to identify new PRG providers and successfully develop the project.

Olkaria VI Geothermal Project (140 MW) RFQ Released: KenGen advertised an RFQ to build, own, operate, and transfer Olkaria VI geothermal plant under a PPP arrangement. EAEP is providing advisory assistance and capacity building on contract structuring for the PPA; and had previously supported KenGen in peer-review of the project's feasibility study carried out by K&M Advisors with World Bank funding.

Liquefied Natural Gas (LNG) Opportunities in Kenya: EAEP engaged Wartsila Development & Financial Services for opportunities to import LNG into Kenya. Power Africa is investigating opportunities for LNG conversion of some existing medium speed diesel power plants from running of Heavy Fuel Oil to LNG using floating storage and regasification units and associated storage facilities.

Delay for Kenergy Rumuruti 40MW Solar Project: EAEP confirmed that the financial close for Rumuruti Solar is delayed due to funding challenges for a critical section of the Nanyuki-Rumuruti 132 kV line. The completion of this line is a condition precedent for the plant's PPA and the project requires a primary Loan Agreement between the African Development Bank (AfDB) and the National Treasury, and a Secondary Loan Agreement, between the National Treasury and KETRACO. The National Treasury delayed sending the draft Secondary Loan Agreement to the Attorney General for legal opinion. As a result, the AfDB gave notice of its intention to cancel their primary Loan Agreement. EAEP is working with Kenergy Renewables, the developers for Rumuruti Solar, the AfDB, and KETRACO to assist stakeholders in bringing the project back on track.

Akiira Geothermal Project Evictions: Following the reported November 3rd forced eviction of settlers on the land under the Akiira project concession, EAEP sent a team to the site to establish the facts on the ground. The team found out that there are conflicting reports about the true status of the settlers. Akiira and the government representatives insist that the inhabitants were illegal settlers hoping to receive compensation from the project. Historical GIS maps also confirm that there was no settlement on the land at the time Akiira received their concession. The settlers had been given a 7-day notice to vacate the land by the government officials and their structures were demolished upon expiry of the notice. The Power Africa Transaction and Reform Program (PATRP) provided early stage transactions advisory support to Akiira in 2014-16. The project also received OPIC Africa Clean Energy Fund (ACEF) grant in October 2015 and a USTDA grant for feasibility studies in September 2016.

Transmission Update

KETRACO PPP Transmission Projects Development Update: EAEP is supporting KETRACO in the development of the public-private partnership (PPP) transmission line pilots with the Africa50 Infrastructure Fund. KETRACO anticipates a Privately Initiated Investment Proposal (PIIP) method of procurement for the five pilot lines. EAEP will provide KETRACO with commercial advice and mobilize legal and financial advisory assistance as needed. When completed, the pilot lines will open the opportunity for private investment in a traditionally government-owned energy asset.

Distribution / On-Grid Connections Update

KPLC Appoints New CEO: Kenya Power on October 29 announced Mr. Bernard Ngugi as the new Managing Director and CEO, replacing Eng. Jared Othieno who had been heading the company on an acting capacity since June 2018. The KPLC Board also advertised all the top management positions reporting to the CEO- as the current team has also been acting since June 2018. The company wants to have in place a top management team by November 28 when they will be holding the Annual General Meeting.

KPLC CEO Support for Power Africa Loss Reduction Activities: Following his appointment, the new CEO has met the EAEP Loss Reduction team 4 times, with the first meeting taking place a few hours after his appointment. The CEO has expressed his support for the EAEP activities, and ordered that the new Field Enforcement Unit proposed by the EAEP carry out revenue protection and investigations activities report directly to him.

Off-Grid Connections Update

Support to USADF Grantees and Applicants: The USAID Power Africa Off-Grid Project (PAOP) has been supporting the U.S. African Development Foundation (USADF). The team provided support to Kenya USADF and Solar Freeze. Solar Freeze provides mobile cold storage units powered using renewable energy to smallholder farmers to help them reduce their post-harvest losses. The company received a grant under the Smart Communities Coalition USADF funding program to integrate PAYGO into a solar freezer and build a model for use in refugee camps. PAOP helped Solar Freeze find new partners and to fully understand the challenges of PAYGO integration.

Support to OPIC and d.light: PAOP is working with d.light (a U.S. solar home system company) on raising two debt facilities for Kenya, 1) an on-balance sheet facility with European Investment Bank for \$25 million and 2) an off-balance sheet receivables facility with African Frontier Capital and OPIC for \$20 million (but up to \$48 million). The support is provided through Norton Rose Fulbright, who have kicked off work on advising on both of d.light's debt-raising scopes. This will include developing a fund flow diagram, structuring the special-purpose vehicles/subsidiaries, and designing a documentation diagram.

Support for Market Entry into Underserved Counties: PAOP reviewed a number of technical proposals for the Kenya Off-Grid Solar Access Project's solar home system results-based financing. The project provided tailored guidance to Pawame on methodologies and sources for gathering and analyzing market intelligence for the 14 counties it currently serves in the North and South Rift Valley, Western, and Nyanza regions. Pawame is raising its Series A funding and has forwarded a preview of the proposal for PAOP's review. PAOP also reviewed Pawame's investor outreach list.

Ongoing Support for BBOXX's Market Expansion: In August 2019, PAOP provided BBOXX with market intelligence with respect to grid encroachment risk to SHS sales to reassure potential investors. The BBOXX team also benefited from PAOP's Underserved Counties Market Brief during a half-day planning session.

Support for Gender Inclusion:

- The **2X Challenge** and Gender Lens Investing webinar took place on November 7, 2019 with CDC, Findev, PEG, and PAOP participating (and GOGLA moderating/hosting). There were over 80 people who attended, which was a very promising turnout and showed interest from off-grid companies in the intersection of gender and finance.
- PAOP has received buy-in from **d.light** CEO for support to strengthen gender inclusion in the company, particularly with respect to creating a more gender-balanced management team. The CEO welcomed the support to undertake a baseline gender assessment and develop a gender action plan based on the findings.
- PAOP provided advisory services for a gender assessment of Amiran's Project Madaraka, which offers agricultural and clean energy credit facilities to smallholder and medium-holder farmers. Based on the assessment, PAOP provided recommendations for Amiran to strengthen gender

inclusion in the business model by taking steps to understand the needs of female customers as well as barriers to the uptake of the agricultural products offered, and in particular, to tailor marketing and training to women farmers.

Data Protection Bill: On November 7, the Government of Kenya passed the Data Protection Bill, 2019. PAOP carried out a legal analysis of this bill and others in Rwanda, Uganda, and Tanzania, and shared it with a group of stakeholders. PAOP is coordinating with DfID's Africa Clean Energy Program (ACE) to provide feedback to lawmakers to make new regulations more private sector friendly.

Powering Agriculture Roundtable Policy Meeting: PAOP took part in the one-day policy roundtable meeting on September 19 in Nairobi, organized by the USAID's Powering Agriculture Program. PAOP raised the policy issues that affect the energy-agriculture nexus in the East Africa region, that include: 1) the need for harmonized system codes for productive use of energy products to ensure a standard taxation regime in East Africa Community member states, 2) the need to have standards for such products, 3) the need to have a customs handbook, and 4) the need to build the capacity of customs officers to enable the consistent application of the taxes on such products.

Guidelines for Unlocking Africa's Mini-grids Market: The final draft of the Guidelines for Unlocking Africa's Mini-Grid Market, being developed by Tetra Tech, is currently being finalized following a validation workshop held in Arusha in October 2019. Once ratified by the African Union, member states will have the basis for creating an enabling environment for private sector engagement in the development of mini-grids to improve electricity access as well as rural productivity, an essential component of Journey to Self-Reliance (J2SR). The study was funded by Power Africa, through USAID's Scaling Up Renewable Energy Project (SURE)

Shell & Sumitomo Invest in Powergen: Shell and Sumitomo have taken a minority stake in Powergen. The pair will have a combined ownership of 15% after leading the most recent funding round alongside six other investors. Shell will get a seat on the board, with Sumitomo taking an observer seat. PAOP provided due diligence support to Sumitomo for this deal. Powergen has connected around 15,000 homes and business via its mini-grid installations in Kenya, Tanzania, Sierra Leone and Nigeria.

Support to U.S. Firms: PAOP is supporting GivePower in its startup in East Africa. GivePower is a nonprofit which spun off from SolarCity, a subsidiary of Tesla. In Kenya, PAOP has been supporting GivePower's Likoni project on the Kenyan coast. GivePower finalized the tender for a community desalination plant beside the Likoni Ferry that will provide clean water to residents. The GivePower team is going to revisit the Arubuko Forest project that will provide water to several smallholder farmers as well as support to a local watering hole for 120 elephants, 80 buffalo, and various other wildlife. PAOP provided GivePower with information on the Kenya Off-Grid Solar Access Project (KOSAP) and other potential partners implementing projects in areas with either brackish water or ocean water.

Enabling Environment Update

KenGen Organizational Health Assessment: KPMG has started work on the organizational health check assessment for KenGen. The review takes place at the mid-point of KenGen's 2015-2025 Corporate Strategy, and will review the company's finances, technical capacity, business models, and human resources capability in meeting its strategic objectives and identify areas of improvement. The Corporate Strategy was developed with PATRP assistance, as is the health check.

Energy Sector Capacity Building Support: On November 19, EAEP completed the validation exercise on capacity building gaps for Kenyan energy sector entities. All the energy sector parastatal and Ministry of Energy attended the workshop, with Geothermal Development Company and the Rural Electrification and Renewable Energy Corporation teams being led by their CEOs, as did the World Bank and GIZ representatives. The exercise harmonized development partner interventions with the gaps identified by the energy sector entities--EAEP facilitated the senior-level buy-in to validate results.

New Gender Policy launched in Kenya and Gender Dynamics Symposium: The Ministry of Energy (MOE) launched the new gender policy on November 1. The policy requires all utilities to institute or revise their respective gender policies with technical support from the MOE. The gender policy sets industry-wise standards for provision of equitable training and career development services. Additionally, the Energy Society of Kenya (ESK) hosted a gender symposium on November 20. The “Gender Dynamics and the Energy Value Chain” symposium brought together stakeholders to discuss the participation of women in all areas of the energy value chain.

Transmission Open Access Market Framework and Rule: In October 2019, the draft Transmission Open Access Framework and Rule for the Kenya Energy and Petroleum Regulatory Authority (EPRA) was completed. Once implemented, an open access regime will promote competition in the electricity sector by allowing various entities to have nondiscriminatory access to the transmission network. As mandated in the 2019 Energy Bill, EPRA must implement Open Access for Transmission.

Women in Energy Regulation Internship Program: EPRA’s second cohort of two interns under the Women in Energy Regulation Internship Program completed their term in September 2019. The program allows interns to acquire the basic skills and institutional knowledge needed to pursue a career in the sector and become attractive candidates for employment within the host commission, other regulatory agencies, and among regulated entities such as electric utilities. As a result of the most recent term, EPRA asked one of the two interns to stay on under their own sponsorship.

Energy Sector Updates

Aligning Geothermal Developments to Industrial Park Off-Takers: EAEP is supporting the Oserian Two Lakes Industrial Park with a feasibility study for technical and economic assessment of their existing grid through the United States Energy Association (USEA). The USEA’s feasibility study bids are under evaluation with expected award in December and six months to complete the work. Additionally, EAEP is hosting a Geothermal Industrial Park conference in March 2020 in Kenya to bring all stakeholders together and identify opportunities and challenges for large scale roll-out. EAEP anticipates participation from Prosper Africa, U.S. Private sector through AMCHAM, Kenyan Ministry of Energy, Kenyan Ministry of Industry, the Nakuru County government, and KenGen.

American Chamber of Commerce Kenya (AmCham) Business Summit 2019: The EAEP team took part in the AmCham 2019 Business Summit on November 4-5 in Nairobi, and helped to organize and participate in a Renewable Energy Forum along with the U.S. Trade and Development Agency (USTDA), Kipeto Wind and the Principal Secretary Ministry of Energy. Other participants were from Virunga Power and CrossBoundary Forum participants emphasized the importance of private sector consultations in the implementation of Kenya’s Energy Act 2019, and this will be communicated to the Energy Act Implementation Task Force in which Power Africa represents all development partners.

Key Power Africa Partner Update

Quarterly Meeting with MOE and Development Partners: On November 18, Power Africa participated in the quarterly energy sector meeting hosted by the MOE and development partners. MOE reported that the Cabinet Secretary approved EAEP’s David Mwangi to represent development partners on the “Task Force for Implementation of the Energy Act 2019” and the letter of appointment will be sent soon.

MADAGASCAR

Off-Grid Connections Update

Off-Grid Developer Secures Funding for Mini-Grid Project. ANKA Madagascar (previously “EOSOL”), a mini-grid developer, has secured funding to begin building and operating mini-grids in 54 different villages in southern Madagascar. The project is the result of a national call for tenders that ANKA won in 2018 in part due to the USAID Southern Africa Energy Program’s (SAEP) prior support in building a robust project finance model for use in tender submissions, identifying fundraising needs, and securing private investment. Project construction is expected to begin in December 2019, where ANKA aims to

produce, distribute and sell electricity to rural communities. Focus will be on productive uses – especially agricultural processing activities and small industry – in order to create added value at the local level and boost the increase in purchasing power. As a result, an estimated 11,000 household connections are expected in the next seven years, impacting the lives of over 52,000 people.

MALAWI

MW/Generation Transaction Update

Malawi's 350 MW Hydropower Project Reaches Major Milestones. The Mpatamanga Hydropower Project has made progress towards financial close, estimated by December 31, 2021. With USAID Southern Africa Energy Program (SAEP) support, the Government of Malawi and the IFC negotiated and agreed on commercial terms. Additional studies and due diligence reports required to make the project bankable were completed, including the project's environmental feasibility. On October 31, 2019, the Malawi Ministry of Finance authorized the development of Mpatamanga as a public-private partnership (PPP). This came after the PPP Commission Board of Directors had approved the PPP Feasibility Study, which USAID SAEP helped to draft. Once operational, towards the end of 2024, Mpatamanga's will offset expensive diesel generation and reduce the negative economic impact of load shedding during periods of under-supply. The public tender for a project developer is expected to launch by year-end.

Private Developer and the U.S. Advance Deal to Build a 26 MW Solar Power Facility. The 26 MW Nkhotakota solar PV project in Malawi secured USD \$36.7 million in financing from the Overseas Private Investment Corporation (OPIC), a US government agency. Phanes Energy Renewables Nkhotakota Limited, a United Arab Emirates-based solar energy developer, is developing Nkhotakota. The Nkhotakota solar power facility will be one of the first two projects spearheaded by Independent Power Producers (IPPs), a private sector breakthrough in Malawi and a top goal of the Millennium Challenge Corporation's (MCC) first compact. The USAID Power Africa Transactions and Reforms Program (PATRP) supported the Government of Malawi for the tender of the solar IPPs.

MOZAMBIQUE

Off-Grid Connections Update

FUNAE's Renewable Energy Projects Portfolio Hydro and Solar: Following the publication of the 2nd Project Portfolio supported by USAID Supporting the Policy Environment for Economic Development (SPEED+), the Energy Fund (FUNAE) identified four Solar Mini-Grid Projects out of the portfolio which will be implemented starting in 2020. These projects will be implemented in Maputo, Gaza and Zambézia Provinces. They amount to a total generation capacity of 170 kW and capable of providing electricity to 1,700 Mozambicans.

Enabling Environment Update

Grid Code: AfDB advanced with the publication of a tender for the revision and completion of the Grid Code based on Terms of Reference (ToR) prepared by USAID/SPEED+. The current grid code was approved in 2014 through a ministerial decree and was never implemented.

ARENE's Leadership appointed: On July 31, 2019, the Council of Ministers appointed Paulo António da Graça to the position of Chairman of the Board of Directors of the Energy Regulatory Authority (ARENE). Under the ARENE law, ARENE will be run by a Board of Directors of between three and five members. The Council of Ministers (the Cabinet) will appoint the chairperson of the board, while the Minister of Mineral Resources and Energy (MIREME) will appoint the other members.

Key Power Africa Partner Update

Get-Invest: On November 20th, the Mozambique Ministry of Mineral Resources and Energy (MIRMEME) co-hosted the launch event of the Renewable Energy Preparation Facility organized by the Delegation of the European Union in Mozambique. The Project Preparation Facility for renewable energy projects will provide support through i) Energy Resource Center to build capacity to MIREME and ARENE and; ii) Get-Invest to boost private sector investment in renewable energy sector.

NIGER

Off-Grid Connections Update

Power Africa and Niger’s Rural Electrification Agency Working to Deliver Modern Energy Access to 270,000 Households: A USAID/Power Africa-funded Mini-Grid Feasibility Study, commissioned for Niger’s rural electrification agency (ANPER), has progressed well since the project start in January 2019, achieving substantial progress on site surveys, site technical analysis, and economic analysis in the first 11 months of activities. The project team, led by Power Africa small business partner ECODIT, has visited 69 sites across Niger to collect detailed energy use, productive use, and willingness to pay information from rural Nigeriens. For each site, the team is conducting a demand assessment, developing a preliminary energy system and distribution grid design, and calculating the Capital Expenditure (CAPEX) and Operational Expenditure (OPEX) cost factors to determine the financial viability. Additionally, the project has developed a sustainable business model report for the sites and has begun work on a financial plan analyzing financial feasibility. The project is on track for completion within the originally envisioned timeline by July 2020 and will result in actionable data that ANPER can utilize to run a procurement and obtain financing for 69 private mini-grids to meet critical rural electrification targets.

NIGERIA

MW/Generation Transaction Update

Nigerian Gas Flare Commercialization Program (NGFCP) closer to launching RFP: USAID Nigeria Power Sector Program (NPSP) has conducted Peer Review meeting on the Request for Proposal (RFP) document, met with Oil Producers Trade Section (OPTS) -- representing Producers -- and reviewed the program’s commercial agreements in Washington D.C. with representatives from the Ministry of Petroleum Resources, the Department of Petroleum Resources (DPR), and World Bank. The meeting accomplished:

- Restructuring of the NGFCP decision making process. Plan was approved by Minister.
- Prepared the RFP document, RFP “Commercial Agreements Guide” for national and international counsel, and “Qualified Applicants and Producers” information.
- Completed review of the Flare Site Data as submitted by Producers which resulted in defining which Flare Sites could be regarded as Tier 1, and Tiers 2, 3 and 4. Tier 1 accounts for 300 million standard cubic feet per day (mmscf/d).
- Recommended an approach to resolving the issues of Producers that hold waivers to flare sites (accounts for approximately 100 mmscf/d).
- Recommended discussions with each of the companies that are stakeholders from the previous Accelerated Gas Development Program and that have Gas Sales and Purchase Agreements (GSPAs) with Federal Government of Nigeria (FGN) related to specific flare sites.
- RFP documentation is prepared to 95% completion, with the expectation that the RFP will be issued at end of January 2020.

Facilitating divestiture of Niger Delta Power Holding Company (NDPHC) generation assets (4,500 MW): NPSP provided the NDPHC board of directors with an analysis of options to divest the NDPHC generation assets to improve their efficiency and ensure return on government investment. NPSP and partner McKinsey met with the Special Advisor to the President of Nigeria on Infrastructure, the NDPHC Managing Director, and the Bureau of Public Enterprises (BPE) Director General as part of the assessment. NPSP presented the analysis to the NDPHC board (chaired by the Vice President of Nigeria) at a meeting on November 21, 2019. NPSP presented its independent view on the relative valuation ranges of different privatization options, as well as non-monetary considerations for each alternative. In addition, NPSP presented a set of pre-requisites that investors have said they would require in a privatization transaction of the NDPHC.

Transmission Update

Achieved 100% payment of Market Operator (MO) invoices by distribution companies (DISCOs): NPSP provided the MO, a division within Transmission Company of Nigeria (TCN), with a strategic planning report on recommendations for improving payments to the MO. NPSP then provided the required training and direct assistance to implement these actions, resulting in the DISCOs paying 100% of invoices from the MO.

TCN advertises procurement for an audit of TCN's Market Operator and System Operator: NPSP provided the Market Operator with a strategic planning report on feedback mechanisms for improving the Market Operator's processes based on the Market Rules with which market participants are mandated to comply. Based on these recommendations, TCN initiated the first step of performing the mandated yearly audit of the Market Operator and System Operator.

Creating a dynamic fixed-asset registry: The lack of an up-to-date electronic asset management system makes it difficult for TCN to monitor and regularly conduct maintenance of its assets, scattered throughout the country. The current TCN Fixed Asset Register (FAR) is static and is only used for accounting purposes, making it inappropriate for asset monitoring and assessment, maintenance, and replacement. To address this challenge, NPSP provided an advisor to support TCN in properly monitoring and managing transmission assets through the deployment of an updated and dynamic FAR. A "roadmap" has been created to guide TCN in completing a process to monitor their fixed assets. The road map plan includes software to manage the data, staff training and manuals, and project management tools.

Breaking new ground in capturing substation assets for TCN's FAR and providing on-site substation training for transmission engineers across seven sites in Lagos: As part of NPSP's technical assistance to TCN to complete inventory of key regulatory assets for tariff calculation, NPSP initiated on-site technical training for engineers from the Transmission Service Provider. The training involves visiting seven substation locations in Lagos to effectively record asset data and conduct a condition assessment of substation equipment, required for populating the asset register tool NPSP is developing for TCN.

Boosting system operations to improve grid reliability: To improve the Nigeria electrical grid's overall performance, stability, and efficiency, NPSP conducted a current-state analysis of TCN's System Operations and benchmarked TCN against international best practices. NPSP briefed senior TCN leadership on findings and recommendations as well as responded to a request from TCN's Independent System Operator to review Nigeria's grid code, market rules, and TCN's operating procedures. NPSP also provided a transaction and procurement advisory expert to lead the development of procurement guidelines and a pricing framework for transmission line maintenance contractors.

Supporting increased transmission payments: To bolster transparency and compliance with financial reporting standards, NPSP is supporting TCN's implementation of the Uniform System of Accounts guidelines issued by Nigerian Electricity Regulatory Commission (NERC). This support began with an assessment exercise to identify gaps within TCN's processes, data, human capital, technology systems, and infrastructure, all of which support transactions and financial reporting. NPSP produced an implementation roadmap to align with the Uniform System of Accounts regulation and utilized the assessment to build TCN internal capacity by training finance and accounting staff and providing guidance during financial reporting periods.

Distribution / On-Grid Connections Update

Launch of Port Harcourt Electricity Distribution Company (PHEDC) revenue loss reduction program: NPSP began development of the PHEDC transformation plan to assist the company to address its exceptionally high aggregate technical, commercial, and collection (ATC&C) losses and non-existent distribution transformer (DT) metering that plague this distribution company (DISCO). NPSP proposed to PHEDC executives a plan to develop a DISCO-wide DT Metering Transformation Plan that will provide a road map for PHEDC to follow as they roll out transformation plan of best practices, policy, and reforms

throughout the DISCO. A formal letter of cooperation is now under review, and the NPSP team is meeting with the DISCO to plan which sections should be used as pilots and proofs of concept. NPSP has developed several job profiles for support staff within Port Harcourt and worked with Deloitte Nigeria to secure the appropriate resources.

Launched Meter Asset Providers (MAP) survey and initiated establishment of domestic meter production and import capacity: NPSP started development of a report detailing the domestic meter production and import capacity of Nigerian MAPs. NPSP staff developed a list of data requirements, survey questions, as well as data sources, and began the preparation of a digital questionnaire. The aim of the report is to establish a realistic benchmark of the industry's ability to respond to the MAP initiative, and to identify roadblocks hindering a larger rollout. The report will also provide candidate performance targets that DISCOs, MAPs, and NERC may consider under a program monitoring and results management framework.

Off-Grid Connections Update

Kicking off Productive Use Stimulation: Value Chain and Mini-grid Feasibility Study: Rocky Mountain Institute will conduct the study, which will define opportunities to electrify portions of agricultural value chains to boost agro-entrepreneur incomes and identify viable business models for mini-grids. The study will also define concrete pathways to deploy these opportunities.

Key personnel changes at Rural Electrification Agency (REA) could impact NPSP's off-grid strategic approach: The CEO of REA, Damilola Ogunbiyi, submitted her resignation on 29 October 2019, and the process of identifying her replacement is ongoing. Ms. Ogunbiyi is a well-established leader in the Nigerian power sector, and NPSP had a strong, productive relationship with her office.

Partnering with the private sector to develop an innovative electrification pilot: NPSP is working with Forte Oil and IHS to use gas stations and/or telephone companies as a mini-grid's primary anchor load that connects the surrounding communities to the grid. NPSP is supporting the development of the pilot as a viable business case to electrify communities. The pilot is important as a proof of concept that lowers risk for future investors.

Supporting Shell Nigeria to design/implement a commercially sustainable rural community electrification project in the Niger Delta: The Shell Nigeria project is the first sustainable corporate social responsibility initiative of its kind by an international oil company (IOC) and is a transformational model for other IOCs to follow to bring affordable power to thousands of Nigerians. The initiative seeks to establish a sustainable model for rural mini-grids.

Exploring expanded collaboration with USAID/Nigeria's Integrated Health Program: As part of NPSP's work to develop business and consumer markets in coordination with other USAID-funded programs, NPSP and USAID's Integrated Health Program launched discussions around a joint healthcare and electrification strategy centered on building momentum in the marketplace for electrifying primary healthcare centers.

Coordinated significant momentum within the off-grid sector: Through quarterly Off-Grid Stakeholders Meeting, NPSP has established a strong coalition of off-grid actors in Nigeria. These meetings are bolstered by NPSP's in-depth studies and assessments of the off-grid and donor landscape. NPSP has identified and worked on several initiatives based on stakeholder activity mapping covering all donors operating in the sector in Nigeria. Some of the significant results from donor coordination resulted in the following collaborations:

- REA and NPSP launched an initiative to identify potential investors for the off-grid sector and increase investor awareness around the various opportunities in the off-grid sector in Nigeria, with a focus on the now-launched Nigerian Electrification Program (NEP). This initiative also works to identify and implement strategies to reduce the time and resources/costs associated with financing mini-grid projects/solar home system companies – from origination to drawdown of

funding. It is also intended to support the financing of other follow-on programs, such as the Energizing Economies Initiative (EEI), Mini-Grid Acceleration Scheme (MAS), and Interconnected Mini-grid Acceleration Scheme (IMAS), as well as the off-grid sector at large.

- Working together with World Bank’s ESMAP team on NEP, NPSP supported the development of evaluation criteria and the evaluation of solar home system companies that submitted expressions of interest as part of the NEP tender.
- NPSP supported the EU’s Nigerian Energy Support Program (NESP) program implemented by GIZ. NPSP developed a platform for administration of grants under the MAS/IMAS programs.
- Working together with United States African Development Foundation (USADF)—All On Grant Program, NPSP supported mentoring of selected projects to improve their investment-worthiness and presentation pitches.

REA’s Project Implementation Unit (PIU): NPSP supports the development of a REA PIU consisting of a team of 21 advisors on-site in REA. These advisors work closely with NPSP and drive forward many of REA’s flagship initiatives.

- *Energizing Economies Initiative:* The program stimulates economic growth by electrifying economic clusters (e.g. local markets) of customers. To date, EEI has resulted in more than 19,000 connections across 16 markets throughout Nigeria. More than US\$14 million has been raised, including the first debt financing from a Nigerian bank, and more than 300 new jobs have been created due to electrification of shops within economic clusters. Nearly a third of these shops are owned by women.
- *Energizing Education Program:* Focused on providing solar generation capacity to Nigerian universities, this initiative includes both university lighting and a component that focuses on street lighting, providing much-needed lighting infrastructure to otherwise dark, high-traffic areas surrounding the university footprint.
- *Technical support across initiatives:* In turn, NPSP has relied on PIU technical assistance to NPSP initiatives. For example, NPSP enlisted the PIU to develop an RFP template for another U.S. Government-funded initiative, the North East Regional Initiative, which is developing a tender for solar installations in Borno State.

Project Management Manuals: Working alongside REA and the PIU, NPSP has developed manuals for REA to standardize procedural and project management aspects of off-grid projects. NPSP is ensuring that gender and social inclusion themes are emphasized throughout each manual. A sample of the in-progress manuals include the following:

- *Energizing Education Program Manual:* NPSP is developing a project management manual for the Energizing Education Program (EEP) that is structured similarly to the EEI manual. This manual will outline the EEP project development process.
- *Community Mini-Grid Manual:* The community mini-grid manual will seek to establish a standard, end-to-end process for developing community-based mini-grids. This will include sections on land-use, procurement processes, mini-grid management and maintenance, and additional constructive uses for electricity such as street lighting.

Enabling Environment Update

Positive meeting with Siemens Nigeria leadership on Power Africa support to the emerging Presidential Power Initiative (PPI): On November 6, 2019 the U.S. Chargé d’Affaires met with Siemens Nigeria leadership to brief them on U.S. Government and Power Africa engagement in Nigeria’s energy sector and offer support to ensure the success of PPI. The USAID/Nigeria Mission Director and Economic Growth and Environment representatives participated in the meeting, along with NPSP’s Chief of Party and Deputy Chief of Party (Technical). NPSP will continue to engage working-level contacts at Siemens and will assign four PPI advisors in the next several weeks. The donors intend to develop a “7 point” plan.

Advances in Integrated Energy Resource Planning (IERP) for Lagos State: With the goal to increase overall energy security in the state, NPSP completed a roadmap for drafting and implementing the Lagos

State IERP. Following endorsement by Commissioner of the Ministry of Energy and Mineral Resources, NPSP facilitated establishment of an IERP team with a technical head and local on- and off-grid stakeholder coordination.

Reinvigorated Development Partner Group (DPG): Co-chaired by USAID and the African Development Bank, the DPG began to meet regularly in August. In early September, NPSP was named secretariat of the working group and took on coordination, administration, and other support to enhance DPG efficiency and effectiveness.

Streamlining Nigerian Electricity Regulatory Commission (NERC) data collection and management: NPSP is supporting NERC to assess their current approach to data mining, identify key challenges, determine data requirements, improve existing data collection templates, and develop key measurement indicators. Currently NPSP is planning a briefing with the commissioners of NERC on the newly structured data collection templates. Following this, NPSP will provide recommended process improvements to reduce redundancy and deliver better insights using data-driven analytics. This is the first step in enabling NERC to collect, store, and analyze data provided by market participants to help inform regulatory decisions.

Partnering with the Central Bank of Nigeria (CBN) and NERC on the Presidential Directive on billings and collections to improve power sector revenue: NPSP's Chief of Party and Deputy Chief of Party attended meetings with the Presidential committee chaired by CBN and NERC leadership. Subsequently, the Governor of the Central Bank issued a statement of work for NPSP to provide a project manager along with technology and sector experts to support the initiative. NPSP began providing project management support to CBN as they lead the process to automate and digitize billing and collection for key "maximum demand" customers in collaboration with NERC.

NPSP high-level briefing on Multi-Year Tariff Order (MYTO) Financial Model improvements generates keen interest: NPSP briefed the NERC chairman, commissioners, and 20 high-level managers on NPSP's audit of and updates to the MYTO financial model in preparation for the upcoming tariff review. The NERC commissioners, particularly Commissioners Garba and Shatti, expressed keen interest in NPSP's assistance with next steps, including data analysis/validation and enhanced security of the model.

Collaborating with Power Africa Legal Fellows to assess Nigeria power sector legal training needs: NPSP is facilitating meetings between its government counterparts, development partners, and Power Africa Legal Fellows affiliated with the Cyrus R. Vance Center for International Justice to assess legal training needs in the Nigerian energy sector. The assessment will lay the foundation for strengthening the capacity of Nigerian lawyers to negotiate complex international transactions to finance energy generation and distribution projects. Based on findings, NPSP technical experts will assist the legal fellows to develop a training curriculum for government legal teams, with the first training tentatively planned for early 2020.

STTA on System Planning: Since July 2019, NARUC has had an embedded technical advisory working with the NERC's Engineering team to develop and implement the System Planning Guide. The Draft Guide for Review, Approval and Monitoring of Integrated Power System Plans in Nigeria was subsequently completed in September in collaboration with the NERC Working Group on System Planning. On November 15, a stakeholder workshop was held to present the Guide. During the workshop, there were participants from all the 11 Discos, the System Operator, the Market Operator, the Transmission Service Provider, and the Nigerian Bulk Electricity Trader (NBET). Stakeholders discussed the proposed approach to the integrated planning of the power system, and are due to submit their final comments by mid-December.

Key Power Africa Partner Update

Potential opportunities for U.S. firms: NPSP met with U.S Trade and Development Agency (USTDA)'s Power Africa focal point for West Africa, Clare Sierawski, and USTDA/Nigeria Country Representative, Josh Egba, to discuss opportunities for U.S. firms in the energy sector. Participants identified several opportunities, including a feasibility study for TCN for a new 330KV line; equipment to be provided under the Presidential Power Initiative through Siemens U.S. or later-stage generation projects; smart grids; feasibility studies for U.S. firms qualified under the Nigerian Gas Flare Commercialization Program; and a domestic market study for Nigeria LNG Ltd. Possible reverse trade missions include smart grids; enterprise resource planning and supervisory control and data acquisition systems for TCN, NERC, and DISCOs; and battery storage and processing of dry gas (a by-product of natural gas for which U.S. companies have appropriate technology).

RWANDA

MW/Generation Transaction Update

Kivu56 groundbreaking and financial close: Shema Power Lake Kivu (SPLK) held a groundbreaking ceremony on October 3, 2019 for their Kivu56 methane power plant (50 MW). Energy sector officials, including USAID, participated. The Kivu56 project was previously owned by Power Africa partner Symbion Power and was acquired by Lord Laidlaw and his investment vehicle, Highland Group Holdings, in early 2019. In late November, SPLK confirmed the financial close of the project. SPLK negotiated at 9.8 cents per kWh tariff for 56 MW with first power anticipated 15 months from December with 14 MWs operational. Kivu56 needs the Ruvabu substation to be completed by Energy Utility Corporation Limited (EUCL) before first power and the USAID East Africa Energy Program (EAEP) is reaching out to EUCL to support substation planning and prioritization. The Kivu56 project will include \$12.8 million in equipment sourced from the US, including 19 Caterpillar engines.

Transmission Update

USEA & PATRP Operational Readiness Training: USEA facilitated a workshop on System Operation Procedures for Voltage and Frequency Control for EUCL. The purpose of the workshop was to examine gaps in EUCL's voltage and frequency control procedures that were contributing to network instability and to train EUCL planning and protection engineers to model voltage and frequency control measures in PSS/E. As a result, EUCL engineers have already implemented a measure that resolved a persistent high-voltage issue in Rwanda's grid during nightly low-load conditions. EUCL also introduced a new under-frequency load-shedding protection scheme that will prevent collapse of the system and minimize load shedding in case of large system disturbances. This solution was developed based on previous studies and trainings facilitated by USEA in the first phase of the project.

PATRP-funded consultants were in Kigali the week of November 18th to present an overview of their activity to prepare TORs for equipment upgrades for cross-border tie-line operations. The consultants prepared six detailed TORs for equipment and software including SCADA/EMS/automatic generator controls, shunt reactors, and remote relay setting software. Once finalized with the utility, EAEP will work with development partners to secure financing for the procurement and installation of this equipment. These equipment upgrades are critical for interconnection compliance for regional trade.

Enabling Environment Update

Mapping Rwanda Energy Group (REG) resources: EAEP confirmed assumptions with REG on resource mapping work that will take place in the next year. REG wants to update the least cost power development plan every 6 months with new resource assessments, data collection methodologies, and analyses. EAEP is looking to develop models and protocols for those six-month updates to take place in future resource mapping cycles.

Women in Rwandan Energy (WIRE) Initiative:

- **Global Gender Summit and Energy Private Developers (EPD) Conference:** The AfDB co-hosted the Global Gender Summit with the Government of Rwanda in Kigali from November 25-27th, featuring plenary speeches from H.E. Paul Kagame, President of Rwanda, and H.E. Sahle-Work

Zewde, President of Ethiopia. The event gathered professionals across all sectors and USAID Rwanda's Power Africa Lead Claire Nelson spoke on a panel regarding energy and gender work in Power Africa—she also moderated a panel on "Closing the Gender Gap in Rwanda's Energy Sector" at the Energy Private Developer's Renewable Energy for Sustainable Growth Conference in Kigali on November 5th.

- **First WIRE Partners Meeting:** USAID Rwanda and EAEP supported WIRE's first partners meeting to share gender audit results, announce upcoming activities, and secure commitment to building the network and gender equality in Rwanda's energy sector.
- **Kick-off Gender Focal Point Training:** USAID East Africa Energy Program (EAEP) hosted the first training of gender focal points across the WIRE initiative's partner organizations. The gender focal points are liaisons between their organization and WIRE activities under EAEP and will engage with the WIRE network routinely. In total, 32 participants attended the training from 27 partner organizations, including the Ministry of Infrastructure, the utility and the regulator, and several Power Africa partners, including ContourGlobal, Mobisol and BBOX.

Off-Grid Connections Update

Addressing the Affordability and Sustainability of SHS: After over a year of discussions with the Government of Rwanda (GOR), the results-based financing (RBF) solar home system (SHS) subsidy pilot program has launched. The RBF was designed by the USAID Power Africa Off-grid Project (PAOP), Energising Development (EnDev), and the World Bank and is funded by USAID and DFID. The pilot will allow companies to significantly reduce prices in five districts and serve as a model for a nationwide program that will address the affordability problems currently being experienced by the vast majority of off-grid households in Rwanda. The project is also currently supporting the government on the development of the nationwide subsidy.

Off-Grid Monitoring and Information System (OMIS) launched: OMIS is funded by Power Africa and designed and implemented by EnDev with input and support from PAOP. It tracks off-grid electrification rates for GOR through detailed reporting by companies, verifies the data received, and confirms adequate provision of after-sales servicing. The pilot SHS RBF is integrated with the OMIS, which plays a significant role in the verification required by the program.

Supporting the Private sector on SHS Importation Standards: In June, the Government of Rwanda finalized importation standards that require solar home systems (SHS) entering the country to provide a minimum level of service for lighting, radio, and phone charging. These standards have banned importation of the smaller and most popular SHS, resulting in price increases and disruption of business operations, and have caused confusion about which SHSs are compliant. To address the latter issue, PAOP supported Lighting Global and the World Bank to develop a tool to help stakeholders determine which SHSs can deliver the level of services required. However, the lack of awareness of the new importation requirements and the complexity of the tool have created additional problems for the private sector. Over the past few months, PAOP has engaged all of the international and local SHS companies that have an interest in Rwanda to ensure that they know of the existence of the standards and that they understand which products will be allowed to enter the country.

Planning for School Electrification: At the request of GOR, the European Union (EU) is providing funding for the electrification of potentially more than 400 schools with off-grid standalone solar systems. PAOP provided analysis to the EU that showed that more than half of the schools on the list initially provided by the government were in areas designated as on-grid by the National Electrification Plan (NEP). The utility subsequently created a new list of schools that the project verified were in NEP off-grid areas. PAOP also provided input on the cost of grid extension compared to that of standalone solar, which is still being used by the EU as it continues discussions with the Government of Rwanda to finalize the sites and sizing of the systems.

Increasing Financing for Solar Irrigation: The USAID Feed the Future program Hinga Weze (HW) and the Energy 4 Impact program Solar Irrigation Rwanda (SIR) are both promoting the sector by providing

technical assistance and subsidies to farmer groups and gathering data that will help convince local financial institutions to provide loans to cover a portion of the cost of future solar irrigation systems. PAOP has initiated separate MOU discussions between both HW and SIR with Banque Populaire du Rwanda, a bank with whom Power Africa currently has an off-grid USAID Development Credit Authority loan guarantee. In addition, PAOP linked SIR with microfinance institution Urwego Bank, which resulted in the development of a solar irrigation loan product.

Key Power Africa Partner Update

AfDB Development in Rwanda: USAID Rwanda and EAEP met with AfDB in October to introduce their energy team to Power Africa plans and to receive an update on the bank's \$266 million funding agreement with Rwanda. AfDB's funding agreement is focused on grid strengthening and extension, on and off grid access to renewable energy, and institutional capacity building. AfDB disbursed \$58 million in June 2019 for the first year but the \$6 million for capacity building has been stalled in disbursement due to a lack of movement from REG. USAID Rwanda and EAEP discussed opportunities for working with REG to leverage the capacity building funds before they are removed or reallocated. USAID Rwanda and EAEP followed up on capacity building opportunities with the Ministry of Infrastructure at the joint sector working group and the Ministry is receptive to Power Africa, through EAEP support to streamline the capacity building planning. Power Africa will continue to coordinate with stakeholders on next steps.

SENEGAL

Enabling Environment Update

Policy and regulations: The USAID Power Africa Off-grid Project (PAOP), in collaboration with the Tony Blair Institute, organized a 3-day seminar on the regulatory framework of mini-grids regulatory framework workshop October 2-4, 2019. The workshop featured participants from the Ministry of Petroleum and Energy, the private sector and Development and Financial Institutions to draft improvements to the mini-grid regulation in Senegal, namely in the licensing process, tariff determination and tax regime. The recommendations from the workshop should be included in the new Electricity Code and improve the financial sustainability of mini grids at national level.

Unlocking local finance: Solar Plaza Unlocking Solar Capital Conference took place October 16-17, 2019 in Dakar, Senegal. The conference brought together hundreds of representatives from development banks, investment funds, solar developers, Independent Power Producers (IPPs), Engineering, Procurements and Construction Companies (EPCs) & other stakeholders to engage in extensive discussions to solve Africa's solar energy funding gap and get projects realized. Under the "Access to Finance" workstream of the PAOP, Power Africa advisors organized a roundtable on October 15, 2019 between Senegal Sovereign Fund FONSIS, 6 local banks and selected Investment Funds (SIMA funds and ResponsAbility) to discuss green credit line opportunities and long-term partnership development.

Market dynamics: PAOP has finalized the off-grid market assessment for Senegal in October 2019. The study consolidates expert interviews and data analyses for country-specific context and in-depth market intelligence, with detailed insights to guide private-sector investments, strategic business decisions and development partner interventions. The documents were made available to the public on October 16th at the Unlocking Solar Finance Conference in Dakar and are also available on Power Africa's website.

Capacity Building / training: Through the Energy Utility Partnership Program (EUPP), the United States Energy Association (USEA) held a Portfolio Management training for 20 agents from the National Electricity Company, SENELEC, between November 12th-15th 2019. The purpose of this workshop is to enhance the capacity of the SENELEC Senior Management staff to improve and effectively implement best management practices to the growing portfolio of projects of the national electricity company.

Grid Expansion study: following Award to Deloitte Consulting LLP, the "Expanding the Grid" study was kicked off on October 21, 2019. This assignment's focus is to deliver project execution plans that will guide Power Africa and its partners to facilitate and sustainably accelerate connection of urban, peri-

urban, and near-grid rural households and enterprises to the electricity grid in Senegal. The study's completion is anticipated for June 2020 and its results will contribute to MCC's "Access Project" under the Senegal Compact 2.

PACO Visit to Senegal: Power Africa Coordinator Andrew Herskowitz visited select countries in West Africa, visiting Senegal with the PACO and Power Africa West Africa team on November 22nd, 2019. PACO met with the Ministry of Economy, Planning and Cooperation, the Ministry of Petroleum and Energy, SHS Private Companies, Power Africa Partner APR Energy and Interagency USG.

Key Power Africa Partner Updates

Weldy Lamont: Following three years of coordinated interagency U.S. government advocacy, Illinois-based Weldy-Lamont Associates, Inc. (Weldy), won a \$100 million contract to extend Senegal's rural electricity grid and provide off-grid solar power to villages in Senegal (November 2019). The project focuses primarily on providing grid connections for Senegalese villages located within 8 km of existing infrastructure (approximately 80 percent of the work) and may also include solar generation and microgrids to bring electricity to remote Senegalese villages for the first time. Weldy Lamont is committed to sourcing approximately 85 percent of the equipment, technology, and services for the project from the United States, provided appropriate EXIM financing is available.

GIZ: The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has executed a study productive uses of on energy linked to food-energy-water in Senegal for an upcoming program (early 2020) called "Water and Energy for Food - WE4F". The study is a snapshot of the current actors and existing innovative solutions on the food-energy-water nexus in Senegal.

GOS: The Government of Senegal has launched its first oil and gas licensing procurement round at the Africa Oil Week conference in South Africa between November 3-7, 2019. Senegalese Minister of Petroleum and Energy Mouhamadou Makhtar Cisse officially opened the bidding process on 12 blocks in Senegal. There will be follow up roadshows in Houston and London, before concluding at the MSGBC Basin Summit in January 2020. At this point, companies will be able to submit bids over the following six months, closing at the end of July 2020.

SIERRA LEONE

MW/Generation Transaction Update

USTDA-Betmei 25 MW hydropower (run-off river) Feasibility Study: USTDA funded the update of the Betmei 25 MW hydropower feasibility study (2018), with a \$1 million grant. Betmei plans to complete this update by the end of 2019 and estimates to reach financial close by end of 2020. The proposed tariff under negotiation is \$0.12/kWh (inclusive of transmission charges) under a 25 year Build Own Transfer (BOT) agreement. According to Betmei, because it is a run-off river hydropower plant, there is no resettlement and minimal environmental disruptions. Betmei is currently looking for debt financing and working with the Power Africa team to find ways in supporting it to reach financial close.

5 MW SolEra in Bo: SolEra agreed on a tariff of \$0.11/kWh for its first phase of operation, the 5 MW solar PV. This new tariff was agreed upon from an original tariff of \$0.17/kWh. The project is being developed in two phases: Phase I is a 5 MW solar PV plant and Phase II (still under review) may consist of a 20 MW PV plant and a 10 MW diesel power plant near the city of Bo. Under the first phase, SolEra has contracted Chinese company TBEA Co, as the EPC and mentioned that, all the U.S. firms who submitted bids were not competitive. Construction works is estimated to begin by the end of quarter 1 of 2020. ResponsAbility Renewable Energy Holding is fully financing the construction of the 5 MW with equity shares. Phase 2 is still under discussion and more to follow in future reports.

Off-Grid Connections Update

Mini-Grid Feasibility Studies Aims for 8,000 Connections: In September 2019, the U.S. Trade and Development Agency (USTDA) announced that US company WindGen/PowerGen will be the contractor

and Sierra Leone's Ministry of Energy will be the grantee for a \$1-million feasibility study of 40 village mini-grids and five commercial and industrial mini-grids. This transaction resulted in part from the collaborative efforts of Power Africa Off-grid Project, Tony Blair Institute, and USTDA. It is estimated that this activity will generate more than 8,000 connections.

PowerGen announced the closing of its funding for its Sierra Leone pipeline with InfraCo for \$6.9 million. The funding will go to the Sierra Leone Mini-grid Project, which will provide 41 communities with access to clean power for the first time. The project plans to establish approximately 12,500 new connections, with around 85 percent allocated to households and 15 percent to micro, small, and medium enterprises and public institutions. The initiative anticipates generating new employment and having a significant positive impact on living standards in rural Sierra Leone.

Enabling Environment Update

Power Africa High Level Visit: The U.S. Ambassador to Sierra Leone and Power Africa Coordinator met with President Julius Bio, on November 18, 2019. The President was appreciative of Power Africa's visit and highlighted the importance of Sierra Leone passing the MCC scorecard. The team has released a cable on this high-level visit and the outcomes.

Sierra Leone Off-grid Market Assessment: To effectively guide Sierra Leone's off-grid energy strategy and associated policies, the Ministry of Energy requested Power Africa support to undertake an assessment of the current off-grid energy sector market. Such an assessment will provide Government of Sierra Leone (GoSL) with a better view of their off-grid market, the opportunities for scale-up, and the financial, policy and regulatory barriers that prevent further market growth and hinder associated energy access gains. PATRP reviewed the existing findings and identified gaps to be re-examined or updated. PATRP then conducted a two-week data gathering and consultation mission to Sierra Leone to interview key stakeholders in the energy sector. Recommendations on next steps and improved processes were presented to the Ministry of Energy.

SOMALIA

Off-Grid Connections Update

Operationalizing an Energy-Health Nexus Project in Somalia: Stella Futura has projects with RA International for a small mini-grid and Ayaan Hospital in Mogadishu. Stella Futura is looking for a local partner to help import the necessary equipment, build mini-grids and provide long-term management and maintenance services. The team introduced Stella Futura to SolarGen, a potential local partner. The company plans to start construction of the hospital's PV hybridization project by January 2020.

TOGO

Distribution/On-Grid Connections Activity Updates

Technical Assistance Program in support of CEET's Universal Access Program: The Government of Togo through the state utility Compagnie Energie Electrique du Togo (CEET) is currently designing and implementing a network connection program with the aim of achieving universal access in 2030. The objective is to connect between 400,000 to 1 million homes within the next 10 years, depending on the pace at which the country's network expansion program proceeds. Through WA Regional PATRP Transaction Advisor, transaction advisory support has been provided to CEET in the design and implementation of this program. With the expiration of the PATRP contract, efforts are underway to transition this engagement to USAID West Africa Energy Program (WAEP).

Off-Grid Connections Update

TOGO 300 MINI-GRIDS: In Togo, Power Africa Off-grid Project is supporting the presidential unit tasked to discuss the drafting of the concession agreement for the mini-grids. In addition, the project disseminated the mini-grid tender to private-sector companies interested in entering the West Africa region, which otherwise would not have been able to access the documents. The project worked with the

government to change the tender process and allow developers access and pay only to submit the final application.

The Power Africa Off-grid Project advised Powerhive and Toyota on their application to Togo as part of their West Africa market entry strategy after their public announcement of Toyota's \$9.3m Series B investment into Powerhive. The project reached out to IFC scaling mini-grids, which previously did the preparatory work for the Togo mini-grid strategy, to provide technical support to Powerhive and Toyota. Other companies supported for the mini-grid tender included Engie–Power Corner.

UGANDA

MW/Generation Transaction Update

Albatros HFO (50 MW): The project is expected to reach financial close in Q1 2020. The USAID Power Africa Uganda Accelerator (PAUESA) assisted the project developer in identifying equity investors including Contour Global and Africa Infrastructure Investment Managers (AIIM), a Power Africa Private Partner, with ongoing negotiations. A preferred fuel supplier was identified with PAUESA's support. The project will execute a Fuel Supply Agreement (FSA) after amendments to the Power Purchase Agreement (PPA) and Implementation Agreement (IA) have been made to reflect a change in policy allowing Albatros Energy Limited, the developer, to import Heavy Fuel Oil (HFO) in the interim 5 to 7 years. In the long term, the plant will use fuel produced from the planned refinery in the oil-rich Albertine region of Uganda. A 20-year power purchase agreement (PPA) has been signed with the Uganda Electricity Transmission Company (UETCL), the off-taker.

Kabale Peat (33 MW): PAUESA is assisting the project in discussions with the off-taker about development of the 132 KV Mirama/Kabale transmission line to evacuate the future power plant and facilitating discussions with OPIC's successor, United States International Development Finance Corporation (USDFC), on financing the project. Power Africa is also supporting engagement between the project sponsors and the Uganda Electricity Generation Company Ltd (UEGCL) to participate as a co-investor in the project, given the national utility's long-term mandate and strategy to contribute to diversification on Uganda's energy mix, with intentions to be less dependent on hydro power plants.

Earth Energy Biomass (20 MW): After assisting the project in procurement of a consultant, COWI AS of Denmark, to conduct the feasibility study, PAUESA is proactively working with the developer and consultant to ensure timely completion of the study. With the feasibility study scheduled to be completed in Q1 2020, Power Africa is assisting the sponsor in identifying potential US equity partners and debt providers. Expected to reach financial close by the end of June 2020.

Palaro / Awere Hydro (18 MW): The project has moved from stage 1 Prefeasibility to stage 2a Feasibility. The developer, KMR Infrastructure, is a Power Africa private partner based in the US. PAUESA is supporting the identification and approach of potential US equity and debt partners and technology suppliers. Likely to reach financial closer by Q1-Q2 2021.

Keere Hydro (6.3 MW): PAUESA supported the developer and their consultant, Newplan, to update the Environmental and Social Impact Assessment (ESIA) report. PAUESA is now assisting with sourcing for grant funding for completion of the Resettlement Action Plan (RAP) study (PAUESA has also received an application for a grant). Expected to reach financial close by Q2 2020.

Mukoki Hydro (3.4 MW): PAUESA continues to monitor the grant for conducting a resettlement action plan (RAP) study and has reviewed the project's term sheet and investment agreement with Frontier Energy, the investor. Final Investment Decision was achieved on September 15, 2019 and the Power Purchase Agreement (PPA) initialed with UETCL, the off-taker, in November 2019. Reported financial close is December 2020.

Nyabuhuka – Mujunju Hydro (3.2 MW): PAUESA has completed development of a financial model for the project, incorporating all assumptions and project sensitivities to address recent changes to the power purchase agreement (PPA). Expected to initial the PPA with UETCL, the off-taker, in December 2020.

Kisinga Hydro (2.45 MW): PAUESA reviewed and advised the developer to update the RAP study to comply with International Finance Corporation (IFC) performance standards, particularly on involuntary resettlement. Financial close is expected by the end of Q2 2020.

Nyamabuye Hydro (7 MW): PAUESA is advising the project sponsor, Elemental Energy, on regularizing their partnership with Frontier Investment Management to satisfy regulatory prescriptions and completing project financing. Expected date of financial close is Q2 2020.

West Nile Solar (4 MW): PAUESA funded the feasibility study for a 4 MW distributed solar PV and storage plant(s) on behalf of the West Nile Rural Electrification Company Limited (WENRECO) of the Aga Khan Fund for Economic Development (AKFED). The study has determined that the project is both technically and financially viable. With concurrence from the project sponsor, PAUESA will now assist to develop a procurement package for a competitive bidding model and access to grant funding for battery storage.

Off-Grid Connections Update

Power Africa supports Productive Use of Energy Campaign: PAUESA is working with Uganda Rural Electrification Agency (REA) to implement a Productive Use of Energy (PUE) campaign. The campaign is targeting 19 load centers under 3 rural service providers; Bundibugyo Electricity Cooperative Society, Kyegegwa Rural Electric Cooperative Society and Kilembe Investments Ltd. The promotion of productive use capacities is a deliberate effort to boost demand in the presence of excess capacity, increase the performance of utilities and cause qualitative life changes in communities with access to electricity.

Power Africa concludes support to mini-grid regulation for Uganda: Power Africa, working with the National Association of Regulatory Utility Commissioners (NARUC) and the Uganda Electricity Regulatory Authority (ERA), has finalized the development of mini-grid regulation, officially named the Electricity (Isolated Grid Systems Below 2 MW) Regulations, 2019. The regulation, submitted after a consultative workshop in September 2019, contains definitions for isolated grid systems, including developers and operators, criterion for reviewing and modifying of an isolated grid system's generation capacity, and timeline for an operator to come into compliance with licensing requirements when upgrading a system to above 2 MW. The regulation also confirms what licenses are needed for interconnection under different scenarios and a simplified tariff adjustment section. The next step is for ERA to formally adopt the regulation that will be applied to over 40 mini-grids that are currently under development.

Power Africa partners with NRECA International to develop a mini-grid: Power Africa is working with NRECA International to develop a solar-diesel-battery hybrid mini-grid project in the Rwangara fishing village in Ntoroko District, Uganda that will provide reliable and safe electricity to an estimated 200 residential and small commercial consumers. NRECA International, a Power Africa partner and a USAID implementing partner in Uganda, is meeting the cost of the generation facility as part of its contribution to Power Africa programming in Uganda. The Uganda Rural Electrification Agency (REA) will provide for the construction of the low voltage distribution network for this mini-grid.

Power Africa supports off-grid products standards: PAUESA is supporting and facilitating the design and implementation of the Quality Assurance Framework (QAF) for stand-alone component-based solar systems through the industry and specific government entities. The QAF provides an interim standard for solar companies as a necessary condition for attracting World Bank financing and will form a basis for a long-term standards and enforcement framework to be implemented by the Uganda National Bureau of Standards. The framework will also involve preparing installation and system design guidelines for solar companies.

Enabling Environment Update

Uganda Exchange to U.S. on Hydropower: A two-week long executive exchange brought 10 high-level delegates from the Uganda Electricity Generation Company Ltd. (UEGCL) and provided participants with knowledge necessary to develop recommendations and strategies for a Dam Safety program, Asset Management Department, and Operations & Maintenance Training Centre for Uganda's hydropower units. The delegates traveled to Tennessee, Washington State, and Washington DC and met with various US utilities and energy companies.

As a result of this visit, UEGCL is identifying areas of continued partnership with Power Africa at a time where it commences operations on Isimba (180MW) and is expected to commission the Karuma (600MW) hydro power plants soon. The knowledge gained will assist in ensuring sustainability of Kiira/Nalubaale (380 MW) hydro power plant, the oldest and least cost generation plant in the country.

Power Africa supports the development of a Framework for Transmission PPP Implementation: Power Africa through PAUESA has initiated an activity to develop a framework for the profitable implementation of PPPs. The activity was a request from the Uganda Electricity Transmission Company Ltd with backing from the Ministry of Energy and Mineral Development. As part of the implementation, the Power Africa Uganda Accelerator will involve various stakeholders from the government of Uganda as well as development partners in the process, map key transmission lines and prepare a regulatory regime under which the PPP transaction can be originated and anchored.

Isolated-Grid System Regulation: Power Africa, through NARUC, is supporting the development of Uganda's Isolated-Grid System Regulation. On September 12-13, 2019, the second and final stakeholder consultative workshop convened relevant stakeholders to provide feedback on the draft Regulation, including international donors, mini-grid developers, and government entities involved in developing and overseeing Uganda's flourishing mini-grid sector. With the inclusion of comments from the stakeholder workshop, the final Regulation was completed in November 2019. The regulation will be submitted to Uganda's Solicitor General for review, approval, and eventual publication in The Uganda Gazette. Upon final approval and passage, the Regulation will be codified as national law and serve as Uganda's regulatory framework governing millions in foreign direct investment. This will in turn invigorate Uganda's electricity sector and achieve significant strides towards Uganda's ambitious rural electrification targets.

Key Power Africa Partner Update

Beyond the Grid Fund for Africa Uganda window: PAUESA has participated in exploratory meetings on the launch of a Uganda window under the Beyond the Grid Fund for Africa to be launched by SIDA. This follows the successes under the Power Africa-supported Beyond the Grid Fund Zambia program.

ZAMBIA

MW/Generation Transaction Update

Upepo Energy accesses grant funding for a wind feasibility Study: Upepo Energy received a grant from the United States Trade and Development Agency (USTDA) to conduct a feasibility study for a proposed wind project. Upepo erected wind masts to collect data for a proposed project in the Copperbelt Province of Zambia. Upepo Energy plans to construct an electricity generation plant with an installed capacity of 250MW using hybrid technology of wind, solar and storage, in association with Copperbelt Energy Corporation Plc, a privately owned and publicly listed electricity utility, as the off-taker and co-developer.

The Power Africa supported solar plants provide electricity: the state-owned electricity utility, Zambia Electricity Supply Corporation (ZESCO) Limited, partially mitigated the ongoing electricity deficit (shortfall of 700 MW at peak) by generating 75.7 MW of new solar power. The electricity generation at all the hydropower stations (which constitutes 85% of the electricity generation capacity of Zambia) was severely constrained due to reduced water levels in the Zambian river systems. The largest hydropower station Kariba North Bank was only able to generate 270 MW (out of an installed capacity of 1080MW), with the

second largest power station, Kafue Gorge, only able to generate 600MW (out of an installed capacity of 990MW). Load shedding on account of insufficient generation capacity was in the order of 15 hours per day.

Distribution / On-Grid Connections Update

During the period under review, ZESCO Limited, the state-owned electricity utility, attained the target of connecting 1,000,000 customers.

Off-Grid Connections Update

The Zambian Cabinet approved the implementation of the National Off-Grid Solar Mini-Grid project as an alternative to the reduced hydropower generation due to low water levels.

Assistance to solar home system (SHS) companies in Zambia resulted in 121,265 new connections. Program support took several forms of which the majority focused on developing tailored route-to-market strategies, training sales staff, and advancing the implementation of customs and duty exemptions on imported SHS and components. This has been part of a concerted effort between the Off-Grid Task Force, the private sector and the USAID Southern Africa Energy Program (SAEP) to support private sector solar home system sales companies. Despite the challenges to the rural sector in Zambia, SHS companies have experienced accelerated sales due to SAEP's efforts.

Enabling Environment Update

Through the Power Africa funded partnership between the National Association of Regulatory Commissioners (NARUC) of the USA, the Energy Regulator and the Energy Regulation Board (ERB), work commenced to develop and implement an approach and strategy to best manage the communications between the ERB and all stakeholders. During the period under review, the ERB conducted work on the latest tariff application submitted by ZESCO Limited and this process is an input into the communications work NARUC is executing.

The Government of the Republic of Zambia (GRZ) approved the Revised National Energy Policy 2019 to replace the previous National Energy Policy of 2008. To address the challenges being experienced in the energy sector, the Revised Policy aims at facilitating open access regimes, cost reflective tariffs in the pricing of energy services in order to promote investment, encourage multiplicity of players in the energy market and promote alternative sources of energy such as geothermal, solar, wind and nuclear among others.

The Zambian Cabinet approved for the Energy Regulation Bill, 2019 to be published and introduced in Parliament, with the objective to continue the existence of the Energy Regulation Board and provide for adequate licensing of enterprises in the energy sector and repeal and replace the Energy regulation Act, 1995. Additionally, the Zambian cabinet approved for publication and introduction in parliament, the Electricity Bill, 2019, with the objective to improve the legal framework for generation, transmission, distribution and supply of electricity so as to enhance the security and reliability of supply of electricity.

Improving Water Management for a Brighter Zambia: Due to persistent drought and resulting decrease in power generation, Zambia's electricity supply company, ZESCO Limited, collaborated with USAID SAEP to conduct extensive analysis of the characteristics of the different supply options, compile operational data and hold regular workshops to develop an innovative scheduling and water valuation model. This model evaluates different hydro dispatch schedules for a range of possible water availability scenarios, determining water values for the various cases. ZESCO began operationalizing the model in September 2019, using it to simplify and standardize its scheduling process. The use of the scheduling model has helped ZESCO to better utilize available resources, allowing a more diverse clean energy mix and improved management of the load shedding forced upon ZESCO by the hydrological situation. In the coming year, USAID SAEP and ZESCO will continue to further refine and improve the model as the utility goes on to take ownership of the revised scheduling and dispatch process.

EAST AFRICA REGIONAL

Enabling Environment Update

Power Africa Facilitates NELSAP–EAPP Mediation Meeting: Power Africa hosted the first collaboration meeting between Nile Equatorial Lakes Subsidiary Action Program (NELSAP) and East Africa Power Pool (EAPP), both regional bodies responsible for cross-border power trade. This meeting was critical as a new beginning for regional power trade given the fact that EAPP and NELSAP were previously at odds with each other. NELSAP and EAPP agreed that the first project for their nascent collaboration would be the commissioning of Shango-Mbarara.

EAPP Development Partner Coordination: EAPP and the World Bank hosted the first virtual EAPP development partner coordination meeting since the last Council of Ministers meeting in February. It was decided that a workshop would be hosted during the last week of January 2019 in Nairobi, ahead of the EAPP Council of Ministers meeting, to increase the region's understanding of the importance of regional trade and the steps necessary to advance it.

Women in Energy Regulation Internship Program: As of November 2019, National Association of Regulatory Commissioners (NARUC)/Energy Regulatory Partnership Program (ERPP) has placed female interns with regulatory commissions in Ethiopia, Kenya, Senegal, and Tanzania. The program allows interns to acquire the basic skills and institutional knowledge needed to pursue a career in the sector and become attractive candidates for employment within the host commission, other regulatory agencies, and among regulated entities such as electric utilities. It seeks to create career pathways for women in energy sector, focusing on areas where women are most underrepresented (e.g. engineering). In Kenya, the second cohort of two interns embedded with the Kenya Energy and Petroleum Regulatory Authority (EPRA) completed their term in September 2019. As a result of the most recent term, EPRA asked one of the two interns to stay on under their own sponsorship.

Business Model for Rusumo Hydro Power: The Nile Equatorial Lakes Subsidiary Action Program (NELSAP) supported the Rusumo hydro power plant in developing a hybrid business model for the plant which is to be owned by the governments of Rwanda, Tanzania and Burundi but whose operation and maintenance services will be provided by an external contractor. The plan is for each country to split the 80 MW generated evenly. Power Africa is advising NELSAP on best practices and lessons learned from the Ruzizi multi-country hydro project and preparing the individual countries on interconnection compliance. The main challenge will arise if commissioning comes before the operationalization of the interconnection code or before firm operational procedures are in place.

Transmission Update

Facilitating Power Trade Between DRC and Uganda: Power Africa met with the CEO of Nuru (formerly Kivu Green Energy), a U.S. private sector company working with the Democratic Republic of Congo (DRC) utility, Société Nationale d'électricité (SNEL). The government asked Nuru to develop the 320 km, 400 kVA transmission line from Uganda to eastern DRC and Uganda expressed support for export of power to the DRC. Nuru is in the process of concluding a Joint Venture with SNEL that will give the company control over SNEL's assets in eastern DRC. Power Africa provided Nuru with advice on structuring conditions, technical transmission considerations, and on possible supporting counterparties.

Support for Coordination of DRC-Uganda Interconnection: The Nile Equatorial Lakes Subsidiary Action Program (NELSAP) coordination unit reached out to USAID East Africa Energy Project (EAEP) for support on the Nkenda (Uganda) to Beni-Bunia-Butembo (DRC) line. NELSAP initially planned for 220 kV operation but there is a proposal to have it re-designed at 400 kV. NELSAP shared with EAEP the original 2013 feasibility study and the updated Terms of Reference for a new feasibility study, detailed design, environmental-social impact assessment and resettlement action plan.

Interconnecting Burundi and Tanzania: EAEP released the RFP for transmission line feasibility studies, ESIA's, RAPs, detailed design and associated tender documents. The lines are:

1. Rwinkwavu-Kirehe-Rusumo, 64.5 km, 110kV single circuit transmission line and upgrade of Rwinkwavu substation 110 /30kV
2. Rukarara-Huye-Butare (Gisagara), 40.7 km, 110 kV single circuit transmission line and Huye 110 KV/30 KV substation

EAEP will award the studies in late December 2019 for work to begin in January 2020. The transmission lines, once built, will add 100 km of transmission to the system and support interconnection with Burundi. Power Africa reached out to U.S. companies Delphos, Power Engineers, and Worley Parsons for proposals.

Off-Grid Connections Update

Data Protection and Privacy Laws and their Impact on PAYGO Companies: New data protection and privacy laws will affect the PAYGO sector in Kenya, Rwanda, Uganda, and Tanzania where a new bill also affects microfinance institutions. The PAOP legal subcontractor, Norton Rose Fullbright, was tasked with analyzing each country's data protection and privacy laws. The legal memos from Norton Rose Fullbright have been shared with a closed group of stakeholders. PAOP is coordinating with DFID's Africa Clean Energy Program (ACE) to continue providing feedback to lawmakers in order to encourage more private sector-friendly regulations. Feedback provided by the project has related to the potential effects of these new laws, the challenges they will create, and questions that require further clarification. The team has also met with such companies as the U.S.-based Greenlight Planet and intends to share more information with all off-grid companies, GOGLA and ACE about the data protection bills in the 4 countries.

Guidelines for Unlocking Africa's Mini-Grid Market: The final draft of the Guidelines for Unlocking Africa's Mini-Grid Market, being developed by Tetra Tech through funding provided by USAID's Scaling Up Renewable Energy (SURE), is currently being finalized following a review workshop held in Arusha on October 17th and 18th. Once ratified by the African Union, member states will have the basis for creating an enabling environment for private sector engagement in the development of mini-grids to improve electricity access as well as rural productivity, an essential component of J2SR.

Key Partner Update

Cooperation with the African Development Bank (AfDB): On October 15-18, 2019, NARUC/ Energy Regulatory Power Partnership (ERPP) co-hosted a two-day workshop with the African Development Bank (AfDB) in Arusha, Tanzania. The workshop covered emerging issues in electricity regulation, specifically focusing on content from USAID/NARUC's Practical Guide on the Regulatory Treatment of Mini-Grids, Practical Guide to Women in Energy Regulation, and the AfDB's Electricity Regulatory Index (ERI) for Africa. The workshop hosted regulators from Ethiopia, Kenya, Rwanda, Tanzania, Uganda, and the semi-autonomous region of Zanzibar, as well as stakeholders from the AfDB, NARUC, the African Union Commission (AUC), and independent energy regulatory experts. This was the second time ERPP and AfDB collaborated in organizing a regional workshop to address gaps in electricity regulation. The first workshop, which took place in March 2019, also addressed gaps identified in the ERI and mini-grid regulation as well as the role of gender in energy regulation in the context of West Africa.

WEST AFRICA REGIONAL

MW/Generation Transaction Update

Transaction Support to the West African Power Pool (WAPP) Regional Solar Power Projects: WAEP has received a request from WAPP to provide advisory services for its Regional Solar Projects in Benin, Mali, Togo, Gambia and Burkina Faso. The specific support includes pre-feasibility studies using a model already developed by the World Bank and WAPP. The selection of a consultant for the Environmental & Geotechnical Studies for projects in Mali and Burkina Faso were concluded in October 2019 with the negotiation of contracts is expected to be concluded before the end of 2019.

WAPP 150 MW Regional Solar Power Project in Burkina: The selections of the Consultants for the Environmental and Geotechnical Studies and the Transaction Advisory have been finalized in October

2019, with key procurement meetings organized by the WAPP Secretariat with the participation of representatives of the countries involved in the project.

WAPP 150 MW Regional Solar Power Project in Mali: The selections of the Consultants for the Environmental and Geotechnical Studies and the Transaction Advisory have been finalized in October 2019, with key procurement meetings organized by the WAPP Secretariat with the participation of representatives of the countries involved in the project.

Transmission Update

Technical Support to the West African Power Pool (WAPP): The West African Power Pool, through its Director of Planning, Mr. Momodu A. K. Njie, has requested WAEP to provide essential technical training and capacity building for three critical transmission projects in the region namely: (i) Gambia River Basin Development Organization (OMVG) Interconnection Project; (ii) OMVS Transmission Expansion Project and (iii) Guinea-Mali. Total length of these lines is 2,765km. As part of this broad engagement, WAPP has officially requested WAEP to support it in the preparation of the 225 kV Côte d'Ivoire – Liberia Interconnection Project which will be from San Pedro in Cote d'Ivoire to Buchanan in Liberia through Tiboto, Cote d'Ivoire and Greenville, Liberia.

The specific request from WAPP relates to Feasibility Study and Preparation of Bidding Documents as well as a Line Route and Environmental and Social Impact Assessment Study. The NEPAD-IPPF of the African Development Bank has approved funding to cover the preparation of the Line Route and Environmental and Social Impact Assessment Study, leaving a funding gap of US\$1,567,837 for the Feasibility Study and Preparation of Bidding Documents.

WAPP has officially launched the **Implementation of the 330kv WAPP Northcore (Nigeria- Niger - Benin /Togo- Burkina Interconnection line) project**. WAEP is in discussions with the management of WAPP to determine the possible areas of support to be provided for the implementation of this project.

Guinea – Mali 225 kV Interconnection Project: Following the payment of the contractual advance on August 08, 2019 to the Owner's Engineer (OE), the WAPP Secretariat, in collaboration with the Project Implementation Units in Mali and Guinea, organized from September 12 to 13, 2019 in Conakry, the kick-off meeting to launch the control and supervision services for the work. According to the schedule adopted following the kick-off meeting, the tender documents will be launched in December 2019. The PMUs of Mali and Guinea organized meeting for the validation of the revised Bidding documents for the lines and substations respectively from 30 to 31 October 2019 and from 14 to 15 November 2019. The interconnection line is scheduled to be commissioned in 2023.

Off-Grid Connections Update

SUPPORT TO INTERNATIONAL INVESTORS ENTERING WEST AFRICA: WAEP has been working with international investors such as Amethys, Sumitomo, Norfund, and Inspired Evolution on market intelligence on the mini-grid market in Mali, Burkina, Benin, Kenya, Sierra Leone, and Tanzania. WAEP wrote market briefs for these countries in order to attract investments to the region, with success after an official announcement from Sumitomo that co-invested with Shell in PowerGen at TopCo level for its Series B round for their West and East Africa markets.

NEUMANN KAFFE GROUP AND MONDELEZ: The project reached out to the head of sustainability of Neumann Kaffe Group (NKG) to offer the project's support in conducting an energy assessment of the off-grid needs of coffee farmers. NKG accepted, and discussions are ongoing. The project reached out to Mondelez to do a similar intervention with cocoa farmers.

Energy Sector Updates

Backup Information and Coordination Center (BICC): PATRP delivered a pre-feasibility study for the construction and operation of a BICC. A BICC facility provides the information and communication infrastructure needed for real-time supervision of the operation of the interconnected system, as well as

management of the regional electricity market. PATRP initially supported WAPP in developing a proposal for USTDA to fund a feasibility study, to be located in Nigeria, although it was subsequently not approved. To help WAPP seek financing, PATRP evaluated different configuration options for the BICC system (including the hardware and the software) and identified necessary reinforcements to ensure communication redundancy between the main ICC and the BICC.

SOUTHERN AFRICA REGIONAL

Enabling Environment Update

Power Africa Supports SACREEE's Organizational Development. The SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) remains a key institution within the SADC regional stakeholders and a key contributor to the renewable programs within SADC. Effective operational guidelines are critical to SACREEE securing longer-term donor support for regional programs on renewable energy and energy efficiency. To develop operating guidelines, USAID SAEP facilitated various sessions with stakeholders to get input in the design and development of the guidelines, conducted a documentation review to draw on leading practices, and developed a framework for the drafting of the guidelines. In October 2019, SACREEE endorsed the final draft guidelines for implementation.

The Regional Electricity Regulators Association of Southern Africa Moves to Digital Training. The Regional Electricity Regulators Association (RERA) is tasked with capacity building among national and regional members through skills training, which the USG has previously supported by developing several training packages and programs. USAID SAEP is now working with RERA to deploy selected training courses through digital media. The digital approach to training is a strategy that RERA has stated they want to leverage to amplify skills development amongst their members due to opportunity to optimize costs for training. RERA has taken full ownership of the e-learning module files and is in the process of training other regulators on how to use it.

U.S. GOVERNMENT PARTNERS PARTNER UPDATE

U.S. DEPARTMENT OF ENERGY

Power Africa Beyond the Grid Program: The National Renewable Energy Laboratory (NREL) concluded microgrid enabling environment efforts in Uganda, including travel to Uganda to close out support and finalize capstone outputs of technical support and stakeholder engagement. A draft of a technical report on performance monitoring was also readied for final internal and external review. The report draws on an extensive dataset of micro-grid performance from SparkMeter that yields valuable insights, particularly as it relates to QAF tiers for performance and how they can provide a useful framework for understanding system performance relative to customer or community expectations.

Clean Energy Solutions Center: Gender Equity in Energy Access: The NREL publication process for the Blueprint Guide was completed and published in July. The Blueprint Guide can be accessed through the NREL Publications Hub at <https://www.nrel.gov/docs/fy19osti/73927.pdf>. The Blueprint Guide is already receiving significant attention and interest from other regions beyond the African continent. A presentation of this Guide was delivered on August 5, 2019 in Taipei, Taiwan at the Workshop on the Path to Inclusive Energy Transition in the APEC Region: How to Enhance Women's Empowerment in the Energy Field. While the focus region for the Guide is sub-Saharan Africa, it is worth noting that the Guide is providing guidance and making impacts in regions around the world.

U.S. DEPARTMENT OF COMMERCE

CLDP Call for Authors for upcoming handbooks: Power Africa is in the process of developing two more handbooks for our "Understanding Series" handbooks, produced in partnership with the Commercial Law Development Program (CLDP). The topic of the handbooks will be on 1) Transmission Financing; and 2) Energy Storage Policies and Regulations to Encourage the Adoption of Storage. CLDP is currently

in the process of identifying potential public and private contributors who will work together over the next ~9 months, primarily through a series of 3+ working sessions. If you have any suggestions on potential authors, please email metaylor@usaid.gov and mbadissy@doc.gov

Department of Commerce Energy Storage Roundtable: One Tuesday, December 3rd the Department of Commerce's International Trade Administration (ITA) convened a public-private roundtable on energy storage. This discussion was convened by A/S Ian Steff and A/S Nazak Nikakhtar and brought together 29 U.S. private sector companies and 24 senior U.S. Government officials, including Power Africa's Coordinator Andy Herscowitz. The roundtable provided a venue to exchange information among stakeholders on the state of the energy storage industry.

PowerGen International: Power Africa attended PowerGen International (PGI) to promote and support U.S. companies engagement in sub-Saharan Africa's energy sector, as well as to facilitate introductions to key partners, and learn about issues and innovations in the energy space. We're preparing a trip report to share broadly, and please contact Ryan Tramonte should you require additional information.

U.S. EXIM

EXIM Approves Preliminary Commitment to Support Exports of Services, Electrical and Renewable-Energy Equipment by U.S. Small Business for Electrification Project in Senegal: On October 30th, EXIM approved a preliminary commitment to the Republic of Senegal for approximately \$86 million in financing that would support U.S. exports of services, and electrical and renewable-energy equipment by Weldy-Lamont LLC, a small-business engineering firm in Mt. Prospect, Illinois, for a rural electrification project. The Chicago-area company was selected for the project over foreign competition being supported by other governments, including China. The preliminary commitment is the first that EXIM has approved under the agency's recently signed memorandum of understanding with Senegal's Ministry of Economy, Planning and Cooperation. If the transaction reaches final board approval, EXIM would provide funding for an estimated \$100 million rural electrification project of the Senegal National Electricity Agency (Senelac), which would be the borrower of the financing and the buyer of the exports. The Ministry of Economy, Planning and Cooperation would provide a sovereign guarantee of the financing. For the project, Weldy-Lamont is anticipated to source from a large U.S. supply chain to procure American-manufactured electrical and solar-energy equipment, as well as a variety of services. EXIM's financing could support an estimated 500 American jobs in 14 states: California, Colorado, Florida, Georgia, Illinois, Kentucky, Mississippi, Missouri, New Hampshire, Nevada, Ohio, South Carolina, Tennessee, and Wisconsin. In addition to EXIM, other federal agencies involved in promoting the selection of Weldy-Lamont for the project include the U.S. Departments of State and Commerce, the U.S. Agency for International Development, and the U.S. Trade and Development Agency.

U.S. TRADE AND DEVELOPMENT AGENCY (USTDA)

USTDA Expands Its Support for Nigeria's Energy Sector: USTDA built on its 27 years of support for Nigeria's energy sector by funding three projects that will help to electrify dozens of rural communities and deliver critical gas resources to support economic activity and job growth. USTDA committed funding for a feasibility study to help Xenergi Nigeria Ltd. expand and construct a natural gas gathering and processing plant that will substantially increase access to customers in the Niger Delta region. The opportunity for U.S. firms to conduct the study is posted on USTDA's website at <https://ustda.gov/business-opportunities> with a proposal submission deadline of January 10, 2020. USTDA encourages interagency colleagues to share information about this opportunity with qualified U.S. companies.

USTDA also committed funding to help the Abuja Electricity Distribution Company provide electricity to underserved communities through the implementation of up to 1,370 solar-powered minigrids with energy storage systems. Colorado's Rocky Mountain Institute will carry out the study.

In addition, USTDA is funding a study to assist Havenhill Synergy Limited develop off-grid solar and storage minigrad sites in up to 110 Nigerian communities. That study will be completed by Colorado-based Odyssey Energy Solutions, Inc.

USTDA Call for Energy Project Proposals in Sub-Saharan Africa: On October 2nd, USTDA announced a call for Power Africa proposals from project sponsors in sub-Saharan Africa, including U.S. companies working with African project sponsors. USTDA's investments under these programs provide critical early-stage support to advance new power generation, transmission and distribution infrastructure. In total, USTDA received 51 project proposals, including 21 in East Africa, 15 in West Africa, and 8 in Southern Africa with proposals received for 18 different countries. Overall, mini-grids was the sector with the most applications with 9. USTDA will respond to all applicants by early 2020.

POWER AFRICA COORDINATOR'S OFFICE

Off-Grid Connections Update

Recognizing Innovative Early Movers and Best-in-Class Products in the Off-Grid Solar Pump

Market: Access to irrigation technologies has the potential to improve the lives and livelihoods for nearly 500 million smallholder farmers worldwide who lack energy access. The 2019 Global LEAP Awards Solar Water Pump Competition, with financial support from UK Aid and Power Africa's Beyond the Grid Initiative, sought to identify and recognize innovative early-movers and best-in-class products to accelerate the off-grid solar water pump market. The first-of-its-kind competition received 45 solar water pump nominations, of which 30 products successfully passed an initial screening and underwent laboratory testing. Following evaluation by a panel of expert judges, the Efficiency for Access Coalition announced the 27 Winners and Finalists of the competition in October. The Winners and Finalists are eligible to apply for Global LEAP results-based financing incentives for the procurement of products in Kenya, Tanzania, Rwanda, Uganda, Zambia and Senegal.

Detailed information about all 27 Solar Water Pump Competition Winners and Finalists—including product performance data and sales contact information—is available in the 2019 Global LEAP Awards [Solar Water Pump Buyer's Guide](#).

Round Two of The Global LEAP Solar E-Waste Challenge Now Open: Round Two of the [Global LEAP Solar E-Waste Challenge](#), financially supported by USAID, will make up to \$1.2 million in grant funding available to support the research and development of more sustainable solar home system and battery technologies for the off-grid solar sector in sub-Saharan Africa. Innovations should extend product and/or component lifespan; enhance product repairability and recyclability; facilitate refurbishment, reuse or repurposing; or reduce rare metal and hazardous material composition. Grant funding is available for solar home system and battery technology companies pursuing innovations around sustainable product design and waste reduction directly relevant to the off-grid solar sector. Successful applicants will receive funding to support implementation of their proposed projects over an 18-month period, with individual awards ranging from \$50,000-\$300,000. **The application window closes December 15, 2019.**

Household Solar Workforce Development Challenge Now Open: The [Household Solar Workforce Development Challenge](#) will award up to \$350,000 in grant funding to support scalable, innovative, third-party training solutions to the off-grid solar home system sector's workforce needs in sub-Saharan Africa. USAID, as part of its commitment to the [Scaling Off-Grid Energy Grand Challenge for Development \(SOGE\)](#), is financially supporting the Challenge run by the ResilientAfrica Network (RAN). Grant funding is available for companies or organizations seeking to pilot or expand workforce development operations that train management staff, technicians, or sales agents in the off-grid solar home system sector across sub-Saharan Africa. Please note that eligibility is limited to brand-agnostic organizations who provide training to staff across multiple companies, and not to individual companies seeking to strengthen internal workforce development programs. Individual awards will range from USD \$100,000 - \$350,000. **The application deadline is December 15, 2019.**

VentureBuilder Launched - [VentureBuilder](#), an organization focused on investing "patient capital" and providing business development services to scale African-owned, off-grid solar distribution companies, launched in October 2019 with support from the DOEN Foundation, Facebook, Shell Foundation, and USAID's Scaling Off-Grid Energy Grand Challenge for Development.

DEVELOPMENT PARTNER UPDATES

NEW PARTNERS

Sovereign Infrastructure Group ("SIG") is a global financing company that works with project sponsors and Multilateral Development Banks, as well as national and local governments, to develop robust pipelines of viable infrastructure deals across Africa and in other emerging markets. Jeffrey Zakha in the Coordinator's Office is the relationship manager.

Monetizing Gas Africa (MGA) is an investor, developer, and operator of gas infrastructure focused on sub-Saharan Africa. MGA maximizes the commercial availability of natural gas by increasing infrastructure in sub-Saharan Africa. Megan Taylor in the Coordinator's Office is the relationship manager.

The Anergi Group is the result of a shared vision by Africa Finance Corporation ("AFC") and Harith General Partners ("Harith"), two of Africa's leading institutions and both Power Africa partners, who decided to establish a leading African power company to address the growing need for energy, and to accelerate the pace of energy delivery on a sustained basis. Anergi owns another current Power Africa partner, Aldwych International Limited. Michael Jordan in the Coordinator's Office is the relationship manager.

Buffalo Energy is a for-profit renewable energy developer in Zambia, focusing on early stage project development and bringing on large multinational partners to de-risk the project and use industry leading technology. Buffalo Energy intends on supporting the objectives of Power Africa by developing 590 MW of energy generation and 5000 new home and business connections. Ashlee Thomas in the Coordinator's Office is the relationship manager.

Africa50: On November 12, at the Africa Investment Forum held in Johannesburg, Power Africa and Africa50 signed a Memorandum of Understanding (MOU) focused on attracting power sector financing and developing innovative public private partnership models in sub-Saharan Africa. By working together to leverage resources and increase the efficiency of their programs, Power Africa and Africa50 intend to bring additional power projects to financial close, support transmission and distribution line expansion, and improve energy access. Africa50 made a commitment in the MOU to advance up to 500 kilometers of transmission line development through new and innovative investment and operating models that leverage private sector capital. This commitment contributes to Power Africa's transmission goal of 5,000 km of transmission lines installed by 2030. The duration of the MOU will be three years from the date of signature.

News Flash: Power Africa is launching a new private sector partner webinar series! The series will offer valuable insights and up to date analysis from Coordinator's Office and Mission staff, implementing partners, interagency colleagues, and other leaders in their field. The first episode is tentatively scheduled for (East Coast) morning of January 14th. Look for more information coming soon! (Do you have an idea for a topic? Contact Amanda Fong afong@usaid.gov)

BILATERALS

Canada

In October, Export Quebec's Alain Carrier met with the Power Africa Coordinator to discuss the government of Quebec's new investment fund of 50 M\$ dedicated to Africa and if there were potential opportunities for Power Africa to partner with Canadian companies.

Chris Troy recently traveled to Toronto to meet with GAC counterparts Phillip Halliday, and Paula Caldwell on the margins of the X event. The Coordinator's office is working closely with Global Affairs Canada on a match-making event to be held at the next Africa Utility Week in May 2020.

The Coordinator's Office will be negotiating a new MOU with the Government of Canada next year as our current MOU expires in September of 2020.

Denmark

Power Africa is working with Investment Fund for Developing Countries (IFU), and Danida to create an MOU between the Government of Denmark and Power Africa, to be signed in early 2020. Denmark has significant experience and resources in leveraging Danish pension funds for overseas investments which Power Africa hopes to capitalize on in mobilizing institutional investment to support African energy infrastructure projects. Two team members of the Power Africa Coordinator's Office traveled to Copenhagen on Nov. 11 and met with counterparts at Denmark's MFA and DFI, and the IFU, to discuss the MOU and coordinating their respective energy project investments and technical assistance programs in sub-Saharan Africa.

France

Under France's Declaration of Intent (DOI) with Power Africa, the Government of France through the Ministry of Foreign Affairs made a commitment to invest \$2.15 billion in Africa's energy sector by 2020 in support of the African Renewable Energy Initiative (AREI). In September, at AREI's Extraordinary Board meeting on the sidelines of the United Nations General Assembly in New York, the board approved 51 projects funded by AFD representing €2.45 (\$2.7) billion, exceeding France's original commitment. Of these projects, 11 are in North Africa, representing €522 (\$575) million in investments, for a total sub-Saharan investment in 40 projects representing €1.93 (\$2.13) billion. Against current exchange rates, the Government of France has effectively closed out its commitment to Power Africa outlined in the DOI.

Israel

Power Africa joined a PPL roundtable with the new Embassy of Israel's Minister-Counselor for Political Affairs Amit Zarouk to discuss USAID programming and opportunities for potential future engagement. Power Africa would like to encourage Israeli firms to join the Power Africa Partnerships meeting in Miami (February 24-26) as well as the Africa Utility Week (May 12-14) in Cape Town. It would be excellent to have broader participation from Israeli firms at these events.

Power Africa and the Israeli Trade Commission (South Africa) continue to discuss delivering a "cyber security" training program to African utility managers, drawing on Israel's cutting-edge knowledge and technical strengths in this sector. Power Africa plans to cover the travel costs for African utility managers to travel to Israel to participate in a one-week training focused on identifying, resolving and preventing cyber security attacks. Israel will develop follow-on activities to ensure the sustainability of the initiative.

Japan

Power Africa and JICA are discussing JICA's plans to conduct a data collection survey for small-hydropower development project in Lesotho.

Power Africa continues to meet with Japanese companies to discuss opportunities for collaboration, including Marubeni, Mitsubishi and Sumitomo Mitsubishi Banking.

On the margins of the Africa Investment Forum, Mozambique and Uganda country energy reps from JICA introduced the Private Sector Investment Finance (PSIF) facility that provides both debt and equity investment in private sector sponsored projects to the Coordinators office. The facility was launched in March 2018 but has been picking up steam over the past 18 months. JICA would appreciate project suggestions to build their power project pipeline. Power Africa is prioritizing deals to share with JICA. JICA also noted their interest to pursue more co-financing with the USDFC which I believe the agency has plans to pursue but that I'll re-highlight to relevant stakeholders.

In Mozambique, JICA has will start implementing parts of the 2017 SRUC loss reduction strategy provided by E3 to Electricidade de Mocambique. They are planning a signing event for February or March of 2020 to launch the activity.

Korea

The Coordinator is collaborating with KEXIM to plan an event on the margins of the next Korea-Africa Economic Cooperation (KOAFEC) Ministerial Conference to be co-hosted by the African Development Bank Group, the Korean Ministry of Economy and Finance, and KEXIM, in Seoul in 2020 (dates to be confirmed).

Power Africa's Off-grid team is keen to learn more about Korean companies working in the off-grid sector. We have recently asked KEXIM for a list of relevant Korean companies that have a presence in Africa and/or companies that want to expand their investments in Africa and may benefit from Power Africa support.

Sweden

The USAID Power Africa Off-grid Project (PAOP) has been working with SIDA on the Energy Data 4 Development (D4D) initiative that the agency is championing to collect data from solar home system companies. The project team is supporting SIDA's data collection scale-up efforts by bringing in more players and participated in a recent D4D workshop. The team continues to support SIDA in identifying new partners, understanding business models across the sector, and identifying the incentives necessary to bring in other sector players.

On November 12, members from USAID's Power Africa Coordinator's Office met with staff from the Swedish aid agency SIDA, which leads Sweden's Power Africa program, as well as over two dozen representatives from Swedfund (Sweden's DFI), Business Sweden, the Swedish Energy Agency, and EKN (Sweden's export-import agency). SIDA's Africa Department Director Hans Magnusson opened the day-long session by thanking Power Africa for a long-standing and productive relationship and discussed their desire to continue collaborating, in particular to leverage private sector investments in the off-grid space. SIDA's Beyond the Grid Fund for Africa (BGFA) has relied heavily on Power Africa's advisors to understand off-grid markets and channel investments effectively, a relationship that will continue as BGFA expands from Zambia to Burkina Faso, Liberia, and Mozambique. Proposed new areas of collaboration include expanding SIDA's crowdfunding platforms and working with the new U.S. Development Finance Corporation (DFC) to co-develop guarantees to lower risk for institutional investors as well as explore potential donor-funded local currency (LCY) conversion tools. However, Swedish partners expressed serious concern over the U.S. Power Africa's mandate to support U.S. private sector interests with fears that this may come at the expense of Swedish and other international companies also operating in energy markets in SSA. The U.S. Power Africa contingent responded that while it does support U.S. company competitiveness, over half of its 151 private sector partners are not American and receive the full support of the Power Africa Coordinator's office and its Transaction Advisors, and have access to many of the same resources.

United Kingdom (DFID)

The UK is pushing for climate change mitigation progress in the run up to the November 2020 UN Climate Change Conference (UNFCCC COP 26), to be held in Glasgow, UK. Given this focus and increase in

related funding, Power Africa took advantage of the opportunity to meet with DFID, the British DFI CDC Group, and the Ministry of Business, Energy and Information Systems (BEIS) on November 13 and 14 to engage their support for existing projects that expand off-grid energy access in Africa under their current MOU and identify new areas of collaboration, such as battery storage, under a renewed MOU to be signed (potentially at COP26) in 2020. DFID is also looking at ways to mobilize and leverage more private sector investment around its projects, particularly in the off-grid sector under its Africa Clean Energy (ACE) program run by Coffey International, which has an “access to finance” challenge fund and competitive business facility. As an example of successful collaboration, the ACE program is working with the Government of Tanzania to amend potential microfinance legislation that could inhibit the country’s pay-as-you-go (PAYGO) businesses after Power Africa completed an initial legal analysis that raised the alarm.

MULTILATERALS

African Development Bank

The African Development Bank hosted the second flagship Africa Investment Forum (AIF) in Sandton, Johannesburg, South Africa from November 11th to the 13th. The event once again showcased bankable projects to attract financing and provided platforms for infrastructure investment across the Continent with the ultimate objective of making the platform a springboard for Africa’s economic transformation.

At the AIF, the AfDB launched the Desert to Power (DtP) initiative to unlock the social and economic development potential of countries in the Sahel region through the deployment of solar technology solutions. The Initiative aims to develop and provide 10 GW of solar generation capacity by 2030 and supply electricity to 250 million people. The initiative covers 11 countries: Burkina Faso, Chad, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Senegal, and Sudan. The initiative will start with the G5 Sahel countries (Burkina Faso, Chad, Mali, Mauritania, and Niger) and of a joint DtP-G5 Sahel Taskforce was established to fast-track implementation of the Initiative. Power Africa will sit on the DtP Steering Committee that includes senior representatives from the Bank, the Ministers of Energy of the G5 Sahel countries, and selected partners, to provide oversight to ensure that the AfDB-hosted DtP Taskforce.

Power Africa is working with the African Development Bank (AfDB) to enlist the National Rural Electric Cooperative Association (NRECA) to co-create a project establishing electricity cooperatives in Nigeria and Ethiopia. NRECA has submitted a Program Description under the Cooperative Development Program Annual Program Statement (CDP APS) that will build upon its previous feasibility studies in both countries produced on behalf of the AfDB.

European Union

In Brussels on November 15, the Coordinator’s Office delegation met with several DEVCO counterparts, as well as investment managers from the EU’s ElectrIFI program, to discuss their current portfolios and potential areas for collaboration under a renewed MOU (to be signed in 2020), including: the African Renewable Energy Initiative (AREI), which the EU is currently co-leading with France; Technical Assistance Facility (Phase 2 starting next year); guarantee instruments through their External Investment Program (EIP); and social infrastructure and gender (Women in Sustainable Energy) programming. DEVCO also mentioned wanting to align with Power Africa on its push for private sector investment, though questioned its promotion of U.S. companies over other international partners. Power Africa acknowledged this concern and pointed to the new U.S. Development Finance Corporation’s (DFC) use of untied aid but also cited European companies’ dominance of power sector contracts and the need for friendly market competition.

World Bank Group (including IBRD/IDA, IFC and MIGA)

Power Africa and the World Bank Group are finalizing the World Bank Group - Power Africa MOU. The MOU will be shared across country teams when it is signed by all parties.

The WBG Energy Storage Partnership (ESP) meeting of global partners is scheduled to take place January 21, 2020 in Pretoria, South Africa. Power Africa, under the WBG MOU, aims to support three of seven ESP pillars: Procurement Frameworks & Enabling Environment Policies, Testing R&D facility and decentralized energy storage solutions.

The East Africa Power Pool (EAPP) and the World Bank hosted the first virtual EAPP development partner coordination meeting since the last Council of Ministers meeting in February. The group decided on a technical and ministerial level workshop to be hosted the last week of January in Nairobi ahead of the EAPP Council of Ministers meeting to increase the region's understanding of the importance of regional trade and the steps necessary to advance it. This will help improve EAPP's ability to coordinate across the national utilities, ministries, and decision-makers for regional trade.

IFC is advancing Scaling Solar in Togo, Cote d' Ivoire and Mozambique. In Mozambique, the program includes a storage solution.

Members of the Southern African Power Pool (SAPP) visited Washington, D.C., as part of the "Balancing Markets Study Tour" funded by the World Bank. The group included members of the SAPP Markets Sub-Committee, who are responsible for the design and continued development of the SAPP electricity market with the aim of better balancing the Southern Africa regional energy market. The group visited Phoenix, San Francisco, Philadelphia, Washington, DC to deepen their country, state, and regional regulation perspective which will inform integration and standardization in Southern Africa.

MIGA - preliminary discussions with MIGA on the Power Africa model and developing modes of cooperation.

STRATEGIC PARTNERS

African Trade Insurance Agency (ATI)

ATI is struggling to secure Mozambique's membership to the agency. Membership to ATI should help increase deal flow in Mozambique as the private sector will have access to more affordable insurance products and the Regional Liquidity Support Facility. In late November, ATI reached out to our Mozambique Mission to discuss ways in which the team can help message to the Mozambique government the importance of securing ATI membership. The Mission was able to advise ATI to engage the Ministry of Mineral Resources and Energy (MIREME) to advance its advocacy as ATI was previously in contact with the Ministry of Finance. The USAID Mission remains available for additional support.

African Union Development Agency (AUDP)-New Partnership for African Development (NEPAD)

AUDA-NEPAD is now an active participant in the Mega Solar Memorandum of Intent, and has contributed inputs and content for the latest version of the document. AUDA-NEPAD's legal team has yet to review the latest version of the MOU renewal with Power Africa. Apparently, it is in a long queue of documents and our POCs are not able to confirm when legal counsel will revert with input.

The AUDA-NEPAD team met with PAOP in October to discuss ways in which PAOP can support their efforts to establish several mini/micro grid installations in members states that will go through formal tender processes. PAOP will support with market intelligence and transaction advisory services, as requested, to support the development of high-quality tender documents.

AUDA-NEPAD held the Program for Infrastructure Development in Africa (PIDA) week in Egypt Cairo from the 25th to 29th of November 2019. The conference was preceded by a two-day workshop to solicit input to the proposed Terms of Reference (TOR) for a Continental Energy Transmission Masterplan, which NEPAD will tender to the market in the coming months. All five power pools, including the different

Regional Executive Councils (RECs), the African Development Bank, Regional Regulators and other Agencies were present. Power Africa will provide input to the TOR. At the conference, AUDA-NEPAD shared progress towards PIDA implementation and next steps and discussed PIDA PAP 2. The EU reported back on the first report (SEI report) of the newly launched Sustainable Energy Investments (SEI) Platform with the purpose to identify bottlenecks to investment in energy on the African Continent and find solutions to eradicate these bottlenecks. The Africa EU Energy Partnership (AEEP) shared activities that they are launching to support PIDA PAP 2 (harmonization of regulatory frameworks, facilitating investment in RE, donor coordination etc.). The African Forum for Utility Regulators (AFUR) also met at PIDA week to discuss amongst others, how to include IPPs in regulatory frameworks, but cautioned against the use of “take or pay” contracts. Minimum Standards for Energy Efficiency is also a key thematic area for the African Union Commission (AUC) going forward.

Development Bank of Southern Africa (DBSA)

The Development Bank of Southern Africa (DBSA) continues to seek opportunities outside of the southern Africa region. Amongst others, it is currently looking at investments in Ethiopia (the Acwa Power Scaling Solar deal in Ethiopia), project prep support to a transaction in Uganda, and investment in the Dangote refinery in Nigeria.

The DBSA very recently approved a sovereign loan for investment in a USD 550 million solar project in Angola with energy storage capabilities. The project, run by a Chicago-based company - Sun Solar - covers seven sites totaling 370 MW.

The bank is also looking to launch a high impact innovation fund, which will include investments into the off-grid sector and will include a working capital fund. They hope to build off of their previous success collaborating with the GCF under the Climate Finance Facility to draw in additional funds from GCF to cover a portfolio of off-grid investments.

Although the DBSA’s investment strategy in the energy sector will continue to focus on generation assets, Mohan Vivekanandan affirmed in a recent meeting that his team also wants to look at a portion of investments in the transmission and distribution sector and would like to work with SAEP to better understand regional trading dynamics to support DBSA’s interest in making an investment that will improve SAPP trading dynamics.

IDC

After many years of focusing on South Africa’s REIPPP opportunities, IDC is re-looking outwards to the rest of Africa (as it did before REIPPP) to expand its investment portfolio. IDC sees need to diversify its energy investments and identify new opportunities as SA’s economy slows down and Eskom’s looks to renegotiate early energy tariff rates for the early REIPPP rounds.

Because the IDC focused exclusively for a number of years on the South African market, it formally requested that Power Africa support its efforts to renew its sub-Saharan networks, which the RM team has done through introductions to the task order holders and made an immediate introduction to one of Power Africa’s partners, CIG, which is looking to build a 100 MW solar installation in the DRC.

IDC expressed interest in a recent meeting to refresh the existing MOU (which is coming up for expiry) but would like to take a light touch approach that focuses on practical, actionable ways in which to collaborate.

The IDC would like to work the DCA team to review the existing loan guarantee facility, which has been underutilized and look at ways to improve uptake and use.

International Renewable Energy Agency (IRENA)

On November 11, Power Africa and the International Renewable Energy Agency (IRENA) along with the African Trade Insurance Agency (ATI), hosted the first African Renewable Energy Matchmaking event at the Africa Investment Forum (AIF) held in Johannesburg, South Africa. The event showcased ten investment-ready renewable energy projects, including wind, solar, bioenergy, and hydropower technologies, in Cameroon, Cote D'Ivoire, Kenya, Mali, Senegal, Sierra Leone and Togo, ranging in capacity between 6 megawatts (MW) and 70 MW. These projects were selected from an extensive energy project pipeline in IRENA's Sustainable Energy Marketplace, which highlights over 90 renewable energy projects in sub-Saharan Africa alone. To kick off the event, IRENA's Director-General, Francesco La Camera, and the Acting Director of the United States Trade and Development Agency (USTDA), Tom Hardy, delivered keynote speeches addressing the role of renewable energy in Sub-Saharan Africa's energy transformation.

SEforALL

Damilola Ogunbiyi was recently announced as the new CEO of SEforAll, Special Representative to the UN Secretary General, and the Co-Chair of UN-Energy. She will succeed Rachel Kyte, former SEforAll CEO and Special Representative to the Secretary-General, after she announced her resignation earlier in the year. Before joining SEforAll, Ogunbiyi served as the Managing Director of the Nigerian Rural Electrification Agency where she successfully negotiated the Nigerian Electrification Project, a \$550m facility (World Bank \$350m and AfDB \$200m), to rapidly construct solar mini-grids and deploy solar home systems across Nigeria. She is also responsible for the Energizing Education Programme which will provide uninterrupted electricity to 37 federal universities and seven teaching hospitals through off-grid captive power.

Power Africa has been working with SEforALL to draft a renewed MOU after the previous version expired at the end of September 2019 and is hoping to sign it in 2020 following the appointment of the new CEO.

In October, SEforALL published their Energizing Finance Report. The report examines supply and demand for finance across two key areas of energy access, electricity and clean cooking, in 20 developing countries in Sub-Saharan Africa and Asia. Power Africa contributed to the report.

DP Contributions toward Commitments to Date

Partner	Financial Commitment	Financial Progress	Percent Progress	MW Commitment	MW Progress	Percent Progress
World Bank	\$5,000,000,000	\$11,399,700,000	228%			
African Development Bank (AfDB)	\$3,000,000,000	\$4,880,694,785	163%			
European Union (EU)	\$2,800,000,000	\$1,570,000,000	56%			
SIDA (Sweden)	\$1,000,000,000	\$252,837,800	25%			
Norway	\$750,000,000	\$155,000,000	21%	1,500	460	31%
Canada	\$150,000,000	\$150,000,000	100%			
Japan				1,200	164	14%
France	\$2,150,000,000	\$2,125,866,917	99%			
Development Bank of Southern Africa (DBSA)				3,000	100	3%
Industrial Development Corporation of SA (IDC)				2,500	1,501	60%
Africa Trade Insurance Agency (ATI) - <i>Technical Assistance</i>				400	100	0%
Government of the State of Israel				400		0%
Republic of Korea	\$1,000,000,000	\$215,000,000	22%			
Totals	\$15,850,000,000	\$20,534,099,502	130%	9,000	2,225¹	25%

¹ Based on September 2019 field update data.

POWER AFRICA METRICS

GENERATION FIGURES

MW & Transactions	Partner-Only Supported	USG-Supported	Total	Change Note
# of MW Pending Financial Close	7,859	24,611	32,470	This number will fluctuate due to support being added and removed from transactions.
# of Transactions Pending Financial Close	60	494	554	This number will fluctuate due to support being added and removed from transactions.
# of MW at Financial Close	1,841	8,543	10,384	Added Tracked USG MW (160 MW) -Salima Solar in Malawi (Solar, 60 MW) -Malindi in Kenya (Solar, 40 MW) -Scaling Solar Senegal Program I in Senegal (Solar, 30 MW) - Kahone Senegal in senegal Solar (Solar, 30 MW)
# of Transactions at Financial Close	31	93	124	Added Tracked USG transactions 4 Transactions
# of MW at Commissioning	1,508	1,978	3,486	Added USG transactions -Kpone Independent Power Plant in Ghana (Natural Gas, 330 MW) -Ten Merina Ndakhar (Solar, 29.5 MW) -Scaling Solar Zambia Round 1 - Ngonye (Solar, 34 MW) -Lake Turkana (Wind, 310 MW) Added Partner transactions -Mocuba in Mozambique (Solar, 15 MW)
# of Transactions at Commissioning	20	36	56	Added USG transactions - 4 Transactions Added Partner transactions - 1 Transaction Removed USG transaction
# of MW Tracked			86,325	Breakdown of total 1. Partner Power Africa Transactions 9,699.61 2. Unclassified Qualified Transactions 43,476.89 3. USG Power Africa Transactions 33,148.52
# of Transactions Tracked			976	Breakdown of total 1. Partner Power Africa Transactions 93 2. Unclassified Qualified Transactions 296 3. USG Power AFrica Transactions 587

CONNECTIONS FIGURES

Connections	Partner-Only Supported	USG-Supported	Total
Actual Connections - On Grid	0	1,263,999	1,263,999
Actual Connections - Off Grid	11,564,339	2,984,382	14,548,721
Lanterns Off-grid connections	7,782,732	1,976,783	9,759,515
Micro-Grid	6,010	33,734	39,744
SHS	3,775,597	973,568	4,749,165
Others	0	297	297
Off-grid Lanterns number of beneficiaries	33,971,625	8,628,658	42,600,283
Off-grid Micro-grid number of beneficiaries	30,050	198,720	228,770
Off-grid SHS number of beneficiaries	18,877,985	23,745,825	42,623,810
Off-grid Others number of beneficiaries	0	1,485	1,485
Total Off-grid beneficiaries	49,872,018	13,694,902	63,566,920
Total On-grid number of beneficiaries	0	6,319,995	6,319,995
Total Number of Connections	11,564,339	4,248,381	15,812,720
Total Number of beneficiaries	49,872,018	18,129,877	68,001,895

PARTNERSHIP FIGURES

Partnership	Partner-Only Supported	USG-Supported	Total
# of Private Sector Partners		154	173
<i>of which</i> # of U.S. Partners		75	
# of Public Sector Partners		19	
Private Sector \$ Committed		\$40 billion	\$56.25 billion
Public Sector \$ Committed		\$16.25 billion	

ACRONYMS

AECF	African Enterprise Challenge Fund
AFD	Agence Francaise de Development
AfDB	African Development Bank.
AIIM	African Infrastructure Investment Managers
AREI	African Renewable Energy Initiative
ATI	African Trade Insurance
AUPSE	Africa Utility Power Exchange
BOT	Build Operate and Transfer
BTG	Beyond the Grid
CDC	Commonwealth Development Corporation
CGECI	Confédération Générale des Entreprises de Côte d'Ivoire
CLDP	Commercial Law Development Program
COD	Commercial operations date
CP	Conditions Precedent
DFI	Development Finance Institutions
DfID	UK Department for International Development
DRC	Democratic Republic of Congo
EAEP	East Africa Energy Program
EAPP	East African Power Pool
EDM	<i>Electricidade de Moçambique</i>
EEC	eSwatini Electricity Company
EEP	Ethiopia Electric power
EEU	Ethiopian Electric Utility
EMU	Electrification Management Unit
EPC	Engineering, procurement, and construction
EPRA	Energy and Petroleum Regulatory Authority (Kenya)
ESCOM	Malawi Electricity Supply Corporation
ESERA	eSwatini Energy Regulatory Authority
ESMAP	Energy Sector Management Assistance Program
ESRP	Energy Sector Recovery Program
EU	European Union
GCF	Green Climate Fund
GDA	Global Development Alliance
GDC	Geothermal Development Company
GNCP	Ghana National Petroleum Corporation
GOCI	Government of Côte d'Ivoire
GOGLA	Global Off-Grid Lighting Association
GridCo	Ghana Grid Company
GSA	Gas supply agreement

IA	Implementation Agreement
IDC-SA	Industrial Development Corporation – South Africa
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
JDA	Joint Development Agreement
JUSEP	Japan-US Strategic Energy Partnership
KETRACO	Kenya Transmission Company
KOICA	Korean International Cooperation Agency
KPLC	Kenya Power and Lighting Company
LEC	Liberia Electricity Company
LNTP	Limited Notice to Proceed
M2C	Meters-to-Cash
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MFI	Microfinance Institutions
MIFED	Microfinance et Développement
mmscfd	million standard cubic feet per day
MOU	Memorandum of Understanding
NARUC	National Association of Regulatory Utility Commissioners
NBET	Nigeria Bulk Electricity Trade Company
NDPHC	Niger Delta Power Holding Company
NEP	National Electrification Program
NERC	Nigeria Electricity Regulatory Commission
NGFCP	Nigeria Flare Gas Commercialization Program
NIPP	National Integrated Power Projects
NPSP	Nigeria Power Sector Program
NRECA	national Rural Electrification Association
O&M	Operations and Maintenance
OMVG	Gambia River Basin Development Organization
OPIC	Overseas Private Investment Company
OSC	Office of Security Cooperation (Africom)
PAEMIR	Rural Electricity Access Improvement Program - Cote d'Ivoire
PAOP	Power Africa Off-grid Project
PATRP	Power Africa Transactions & Reforms Program
PCOA	Put Call Option Agreement
PPA	Power Purchase agreement
PPP	Public Private Partnership
PRG	partial risk guarantee
PROLER	Projeto de Promoção de Leilões para Energias Renováveis
PSS/E	Power System Simulator for Engineering
PV	Photovoltaic

QIPP	Qua Iboe Power Plant
REA	Rural Electrification Agency
REACT	Renewable energy Adaptation to Climate Technologies
REIPPP	Renewable Energy Independent Power Producer Procurement
RFP	request for proposal
RFQ	request for qualifications
SAEO	Southern Africa Energy Program
SE4ALL	Sustainable Energy For All
SEFA	Sustainable Energy Fund for Africa
SHS	Solar Home System
SIDA	Swedish International Development Cooperation Agency
SIMA	Social Investor Managers & Advisors
SOGE	Scaling Off-Grid Energy Grand Challenge for Development
TANESCO	Tanzania Electric Supply Company Limited
TCN	Transmission Company of Nigeria
TDB	Trade and Development Bank
TSA	Transmission service agreement
TTP	Temane Transmission Project
UNDP	United Nations Development Program
USADF	U.S. African Development Foundation
USEA	U.S. Energy Association
USTDA	U.S. Trade & Development Agency
VAT	Value Added Tax
VRA	Volta River Authority
WAEP	USAID West Africa Energy Program
WAGPCo	West Africa Gas Pipeline Company
WB	World Bank
YALI	Young African Leadership Institute