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PROGRESS REPORT FOR QUARTER 1 OF 2016

USAID Power Africa Transactions and Reforms Program
(PATRP)

Contract: AID-623-C-14-00003

June, 2016

This report was produced for review by the United States Agency for International Development. It was prepared by Tetra Tech ES, Inc.

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The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS AND ABBREVIATIONS

ADME	Djiboutian Energy Management Agency
AfDB	African Development Bank
AFD	French Development Agency
AG	Attorney General
ALSF	African Legal Support Facility
AM	Arcelor Mittal
AMCC/GCCA	Global Climate Change Alliance
APSD	African Plantations for Sustainable Development
ARE/RECP	Alliance for Rural Electrification (ARE) and the Africa-EU Renewable Energy Cooperation Programme (RECP)
BEO	USAID Bureau Environmental Office
BPC	Botswana Power Company
CBN	Central Bank of Nigeria
COR	Contracting Officer's Representative
COTVET	Council for Technical and Vocational Education and Training (Ghana)
CP	Conditions Precedent
CREE	Mali Commission de Régulation de l'Electricité et de l'Eau
DCA	USAID's Development Credit Authority
DCOP	Deputy Chief of Party
DFID	Department for International Development (UK)
DPM	Deputy Prime Minister (Ethiopia)
EAPP	Eastern Africa Power Pool
ECG	Electricity Company of Ghana
EDG	Electricité de Guinée (Guinea)
EEA	Ethiopian Electricity Authority
EEPCo	Ethiopian Electric Power Corporation
EEU	Ethiopian Electric Utility
EIA	Environmental Impact Assessment
EKT	Ethiopia Kenya Tanzania Transmission Interconnector
EOI	Expression of Interest
EPC	Engineering, procurement and construction
ERC	Energy Regulatory Commission
ESCOM	State power utility (Malawi)
ESIA	Environmental and Social Impact Assessment
EU	European Union
EWURA	Energy & Water Utilities Regulatory Authority (Tanzania)
FIT	Feed-in Tariff
FREEDM	Future Renewable Electric Energy Delivery and Management
GCE	Generation Capacity Expansion
GDL	Global Development Lab
GEDAP	Ghana Energy Development and Access Project
GoE	Government of Ethiopia
GIS	Geographic Information Systems
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOS	Government Letter of Support
GMP	Gas Master Plan

GMR	Gas Market Review
GMSP	Grid Management Support (Ethiopia)
GTP	Growth and Transformation Plan (Ethiopia)
HFO	Heavy Fuel Oil
HOMER	Hybrid Optimization of Multiple Energy Resources
HPP	Hydropower plant
IA	Implementation agreement
IEA	International Energy Association
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IPP	Independent power producer
IRB	EAPP Independent Regulatory Board
JDA	Joint Development Agreement
KETRACO	Kenya Electricity Transmission Company Limited
km	Kilometre
kV	Kilovolt
LEC	Liberia Electricity Corporation
LNG	Liquefied Natural Gas
MERN	Ministère de l'Énergie Chargé des Ressources Naturelles (Djibouti)
MLM&E	Ministry of Lands, Mines and Energy (Liberia)
MMscfd	Million standard cubic feet of gas per day
MOEP	Ministry of Energy and Petroleum (Kenya)
MOFEP	Ghana Ministry of Finance and Economic Planning – MOF in body
MOF	Ministry of Finance (Ghana)
MOP	Ministry of Power
MOPET	Ministry of Petroleum (Ghana)
MOU	Memorandum of Understanding
MoWIE	Ministry of Water, Irrigation & Energy (Ethiopia)
MPN	Mobil Producing Nigeria
MW	Megawatt
NBET	Nigeria Bulk Electricity Trading (PLC)
NDA	Non-disclosure Agreement
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NEPAD	New Partnership for Africa's Development
NERC	Nigerian Electricity Regulatory Commission
NIPP	National Integrated Power Project
NNPC	Nigerian National Petroleum Corporation
Norfund	Norwegian Investment Fund for Developing Countries
OMVS	Organisation pour la Mise en Valeur du fleuve Sénégal
O&M	Operations and Maintenance
OPIC	Overseas Private Investment Corporation
OPPI	Office for Promoting Private Power Investment
PA	Power Africa
PATRP	Power Africa Transactions and Reforms Program
PATT	Power Africa Tracking Tool
PCOA	Put/Call Option Agreement
PESRM	PATRP Environmental and Social Review Methodology
PISSA	Project Implementation and Steam Supply Agreement
PIU	Project Implementation Unit
PPA	Power purchase agreement
PPF	Project preparation facility

PRG	Partial Risk Guarantee
PS	Principal Secretary
PSP	Private sector partner
PURC	Public Utilities Regulatory Commission (Ghana)
PSS/E	Power System Simulator for Engineering
PV	Photovoltaic
QIPP	Qua Iboe Power Project
QTAT	Qualified Transactions Assistance Tool
RAED	Renewable and Alternative Energy Directorate (Ghana)
REA	Rural Energy Agency (Tanzania)
REEEP	Renewable Energy and Energy Efficiency Partnership
REFIT	Renewable Energy Feed-in Tariff
RFEIWC	Request for Expression of Interest with Evaluation Criteria
RFP	Request for Proposal
RFQ	Request for Quotation
SDFS	Suppressed Demand and Forecast Study
SIDA	Swedish International Development Agency
SIS	System Integration Study
SOGA	System Operation Gap Analysis
SOW	Scope of Work
SPP	Small Power Project
SPV	Special Purpose Vehicle
SSA	Sub-Saharan Africa
SSRE	Small-scale renewable energy
STTA	Short-Term Technical Assistance
T&D	Transmission & distribution
TA	Transaction Advisor
TANESCO	Tanzania Electric Supply Company Limited
TCN	Transmission Company of Nigeria
TEDAP	Tanzania Energy Development and Access Project
TSO	Transmission system operator
TSP	Transmission Services Provider
TWG	Transmission Working Group
USAID	United States Agency for International Development
USD	United States dollars
USEA	United States Energy Agency
USG	United States Government
USTDA	United States Trade and Development Agency
VAT	Value Added Tax
VfM	Value for Money
VP	Vice President
VRA	Volta River Authority
WAGP	West African Gas Pipeline
WIAP	Women in African Power
WO	Work Order
WTE	Waste to Energy
ZTK	Zambia Tanzania Kenya Transmission Interconnector

INTRODUCTION

This report’s format meets the requirements of Section F.6 (Reports), Paragraph E (Monthly and Quarterly Progress Report) of the PATRP Contract, AID-623-C-14-00003. PATRP is organized into four major components, called objectives, each with unique characteristics and each requiring a different mix of skills and resources:

- Objective 1: Institutional Support to the Office of the Coordinator
- Objective 2: Late Stage Transaction Support
- Objective 3: Support for Small-Scale Projects, Mini-Grids, and Rural Electrification
- Objective 4: Regulatory and Institutional Strengthening and Policy
 - A. Electricity Transmission & Distribution (T&D)/Regional Trade, and Institutional Strengthening of Power Pools
 - B. Policy and Regulatory Reform
 - C. Natural Gas
 - D. Mobilizing Finance and Building Institutional Capacity.

To date, PATRP’s activities have been organized and budgeted around work orders (a list of which is set forth in the table below). However, Q1 2016 witnessed a shift from the work order system to Country Implementation Plans, which promote a holistic programmatic approach to PATRP’s objectives in each country. Going forward, this shift will be reflected in the new PATRP Work Plan (for the remainder of FY 2016), which will be delivered in June 2016. It will also incorporate the supplemental scope of work agreed with USAID at the end of March 2016, which sees PATRP’s footprint extending into new countries, such as Angola, and expanding its existing work streams and associated resources in others.

Table 1. Activities Transitioning from Work Orders to Country Implementation Plans

OLD STRUCTURE		NEW STRUCTURE	
Work Order #	Description	Country Implementation Plan #	Description
WO-007-EA-04	EAPP Advisor (Joellyn Murphy - Phase 1)	CI-EA-002	Country Implementation Plan East Africa Regional
WO-015-EA-06	East Africa Regional TA (Jaap Du Preez)		
WO-010-EA-05	Eastern Africa Regional Geothermal Advisor		
WO-033-EA-07	EAPP Advisory Part 2		
WO-040-EA-08	Assistance to EAPP-IRB		
WO-002-EA-01	Support for PA Geothermal Roadshow		
WO-005-EA-02	Djibouti Private Public Partnership Workshop Assessment		
WO-006-EA-03	Geothermal Strategy (Amanda Lonsdale)		
WO-032-EA-07	Country Transaction Advisor - Djibouti	CI-DJ-021	Country Implementation Plan - Djibouti
WO-008-WA-01	Regional Transaction Advisor Scoping	CI-WA-004	Country Implementation Plan West Africa Regional
WO-014-WA-02	Regional Transaction Advisor – Senegal (Andre Larocque)		
WO-041-WA-03	Senegal Grid Management Study		
WO-045-WA-04	West Africa Forum for Clean Energy Financing - 2		
WO-025-ET-01	Country Transaction Advisor - Addis Ababa	CI-ET-007	Country Implementation Plan - Ethiopia
WO-042-ET-03	Ethiopia Corbetti Geothermal		
WO-038-ET-02	Ethiopia Scoping Mission		
WO-043-ET-04	Ethiopia Grid Management Study		

WO-049-ET-05	Ethiopia Renewable Energy TA		
WO-029-KE-01	Senior Local Energy Advisor – Kenya (David Mwangi)	CI-KE-008	Country Implementation Plan - Kenya
WO-027-KE-02	Country Transaction Advisor – Kenya (Steve Meyer)		
WO-011-KE-06	Dandora Waste to Energy Pre-Feasibility Study		
WO-039-KE-07	JDA for GDC Kenya		
WO-044-KE-08	Kenya Grid Management Study Code II		
WO-051-KE-09	Kenya Renewable Tariff Assessment		
WO-046-TZ-01	Transaction Advisor at Tanesco - Phase 1	CI-TZ-009	Country Implementation Plan - Tanzania
WO-030-TZ-02	Transaction Advisor to REA – Tanzania (Steve Wasira)		
WO-047-TZ-03	Tanzania Transmission System Operator		
WO-026-GH-01	Country Transaction Advisor for Ghana (Greg Martin)	CI-GH-010	Country Implementation Plan - Ghana
WO-019-GH-02	Tech Advisor Gas (Hassan Nawab - Nx) : Costs Invoiced on WO-22		
WO-009-GH-05	Ghana PSP Study tour - USEA		
WO-022-GH-06	Assistance to MOPET		
WO-023-GH-07	Assistance to MOP		
WO-012-LI-01	Country Transaction Advisor - Monrovia: Jacob Sandikie/ESG	CI-LI-011	Country Implementation Plan - Liberia
WO-013-LI-02	LEC Loss Reduction Program		
WO-052-LI-03	Feasibility of HFO Plants - Arcelor Mittal		
WO-031-NI-01	Transaction Advisor - Nigeria	CI-NI-012	Country Implementation Plan - Nigeria
WO-028-NI-02	Technical Advisor to TCN - Nigeria		
WO-021-NI-03	Nigeria Local Professionals at Ministry of Power and NBET		
WO-035-NI-04	Technical Advisors to NBET - Abuja		
WO-053-NI-05	Nigeria Team Leader		
WO-034-US-00	Objective 1 Support to PA Coordinator Office Washington	CI-ZA-017	Country Implementation Plan - Coordinator
WO-036-US-04	Attendance at Power Africa Summit Washington		
WO-004-ZA-01	Africa Country Diagnostic		
WO-000-ZA-00	South Africa Coordinator Office Support		
WO-016-ZA-02	Budget Working Group and PATRP Planning Sessions.		
WO-018-ZA-03	Support to Africa Power Vision - NEPAD		

Table 2. New Country Implementation Plans

CIP #	Description
CI-ZM-019	Country Implementation Plan - Zambia
CI-RW-020	Country Implementation Plan - Rwanda
CI-AN-022	Country Implementation Plan - Angola
CI-MA-023	Country Implementation Plan - Malawi
CI-SE-024	Country Implementation Plan - Senegal

Table 3. Activities Remaining under Work Order Structure

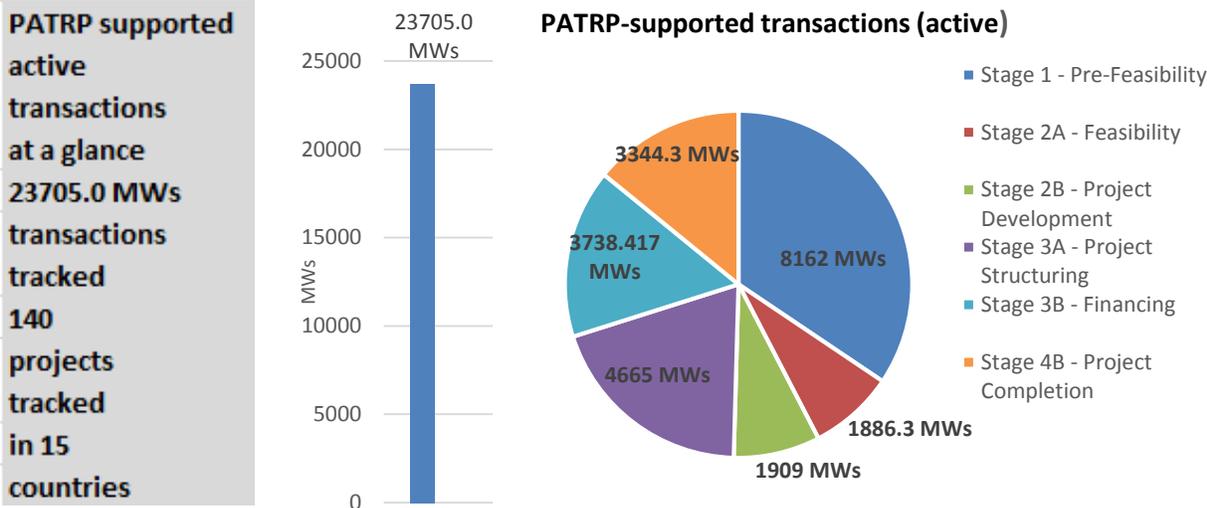
Work Order #	Description
WO-001-US-01	Communications Support - Washington
WO-003-US-02	Private Sector Relationship Management
WO-020-ZA-04	Advancing Gender Equality in PA
WO-048-ZA-06	Transaction Advisor NEPAD
WO-050-CI-01	AfDB/ Second TA
WO-017-US-03	Power Africa Policy Support
WO-000-ZA-00	Southern Africa TA (Bruce Bouchard)
WO-000-ZA-00	Beyond the Grid/Small Scale Renewable Team

PART 1 – PROGRESS MADE ON OBJECTIVES BY COUNTRY OR REGION

OVERVIEW

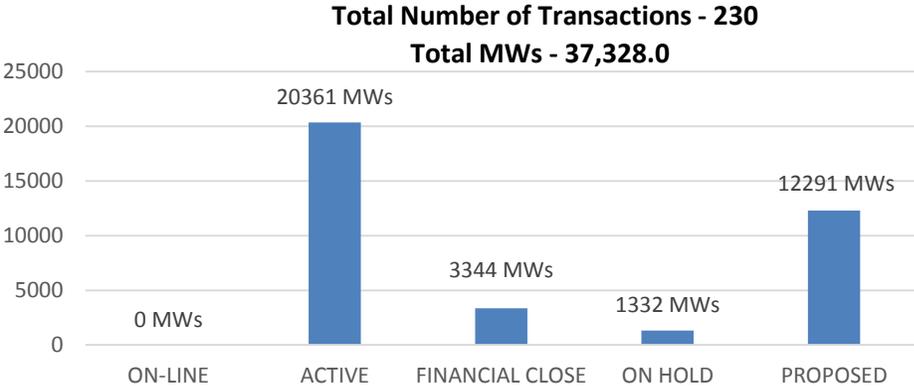
At the end of March 2016, PATRP was supporting approximately 140 active transactions in 15 countries, with a total capacity of approximately 23,705 MW. The following figures and graphs show the composition of the abovementioned transactions by country and stage, and are taken from the Power Africa Tracking Tool (PATT).

Figure 1. Dashboard of PATRP active transactions



In addition to the active transactions being supported by PATRP, there are a further 12,291 MW of proposed transactions (or a pipeline) that are currently being considered for Power Africa/PATRP support. PATRP will vet this category of proposed transactions in Q2/Q3 2016, to determine whether they should be re-classified as active transactions¹. Further, there are approximately 1,300 MW of transactions that are on hold, where there has been little or no recent activity and little prospect of progress in the near term. This information is illustrated in Figure 2 above.

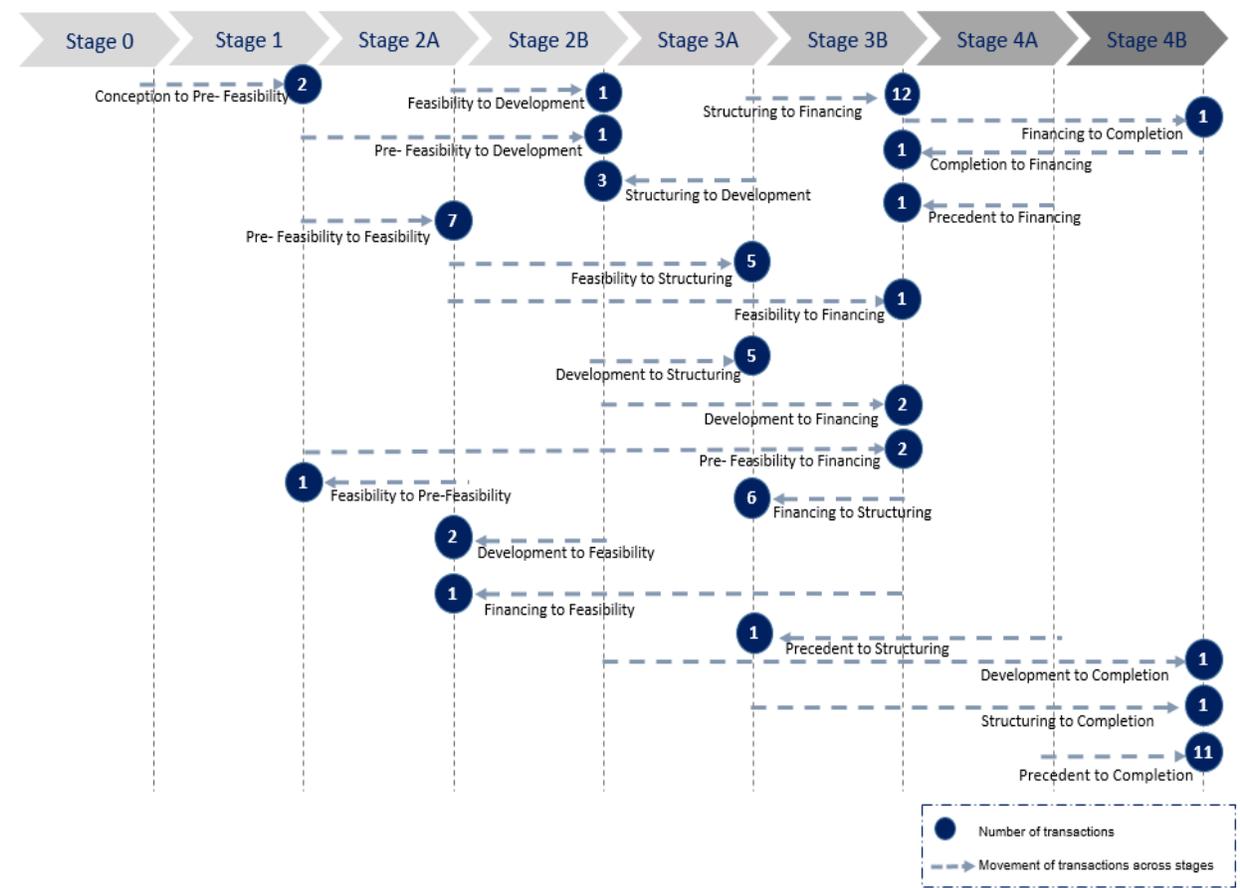
Figure 2. Breakdown of total PATRP transactions



¹ Unless otherwise stated, active transactions also include those transactions that have reached financial close and/or are commissioned.

In terms of advancing the existing portfolio of transactions toward financial close, Figure 3 below illustrates the number of transactions that have moved from one stage of the project cycle to the next since becoming classified as a Power Africa transaction. As will be noted, while there is a general progression of transactions through the various stages, at least 70 transactions have not advanced and require closer attention in terms of determining what is impeding progress and whether PATRP/Power Africa can deploy resources to unblock these transactions. In the next quarterly report, we will also illustrate any movement of these active transactions during the reporting period.

Figure 3. Movement of active PATRP transactions through the project cycle stages (since they were added to PATT)



The remainder of this Part 1 provides an overview of PATRP’s activities and progress towards its objectives in the respective countries and regions (which are presented in alphabetical order).

DJIBOUTI

PATRP maintains a dedicated transaction advisor for Djibouti. The transaction advisor also oversees a four-pronged work plan that is directed at improving Djibouti’s legal and regulatory environment to attract, enable, and facilitate the development and financial closure of IPPs. These tasks have been designed in collaboration with relevant officials at the Ministère de l’Energie Chargé des Ressources Naturelles (MERN) and respond directly to MERN’s requests for support in implementing Djibouti’s IPP law, such as the development of licensing and concessioning processes and large-scale IPP procurement procedures.



The following figures show the composition of active Djibouti transactions (that have not yet reached financial close) by stage, and how they have advanced through the project cycle.

Fig. 4. Breakdown of transactions

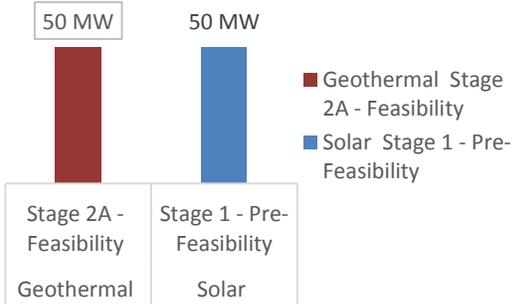


Fig. 5. Movement of transactions by Stage

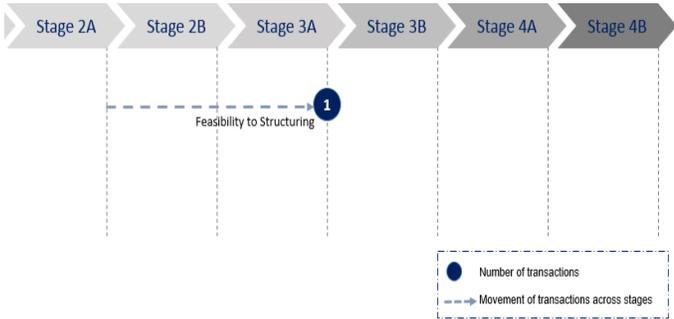


Table 4. List of generation transactions

Name	Stage--1, 2a, etc	Technology--Wind, Solar, etc.	MW	Connections
Lac Assal / Fiale Caldera	Stage 2A - Feasibility	Geothermal	50	31,802
Grand Bara	Stage 1 - Pre-Feasibility	Solar	50	7,067

Summary of PATRP’S progress in Djibouti during Q1 2016

Grand Bara solar PV (first phase 50 MW, expanding up to 300 MW). PATRP attended and supported meetings between MERN and the developer during which project documentation was discussed. The parties reviewed outstanding technical, legal and commercial issues with a particular focus on guarantees to be provided under the agreements. To this end, the transaction advisor consulted with representatives of financial institutions in South Africa to discuss current best practices for project guarantees, and the findings were shared with representatives from MERN. The objective is to reach consensus on the documentation necessary to advance the project to financial close.

North Ghoubet Tadjoura wind project (60 MW)². PATRP facilitated a conference call between the developer and potential technical partner. The outcome of the call was that the proposed partner would commence evaluation of available data from masts at the North Ghoubet site, and review the feasibility study for a wind power project at the site. This information was reported back to MERN. The dialogue advanced toward the drafting of a Joint Development Agreement. This project is currently being considered for formal Power Africa transaction support.

² This is a proposed transaction.

Petit Bara solar PV. The transaction advisor worked with the developer in their efforts to reduce the proposed tariff towards MERN's desired price point. However, owing to lack of progress it has now been placed on hold.

Energy Efficiency. PATRP is helping MERN draft terms of reference for additional technical input on the Energy Efficiency regulations, and to cover the main elements relating to the production of renewable energy. To this end, PATRP attended a meeting with MERN officials representing the Djiboutian Energy Management Agency (ADME) and a technical representative from the Global Climate Change Alliance (GCCA). The latter will provide technical support to ADME on the development of the technical aspects of the Energy Efficiency regulatory texts, in particular those elements that do not relate to the production of renewable energy. PATRP provided guidance for the non-technical elements of the Energy Efficiency regulatory texts, and additionally spent capacity-building time with the designated head of the Regulatory Services Department, that is under development.

IPP Action Plan. PATRP supported MERN with drafting an IPP action plan that will provide the Ministry with support as it develops its strategy for and sequencing of IPP projects to be developed through a competitive tender process. In parallel, PATRP also exchanged comments with MERN officials regarding the text for specific IPP Licenses, to complement the work being done on draft IPP regulatory texts, and to this end submitted initial drafts for a Large Producer/IPP License, conforming to the draft IPP regulatory texts.

New geothermal project. PATRP attended negotiations between MERN and a U.S. Developer with regard to the development of geothermal resources for power generation. These discussions are at an early phase. The concept proposed by the U.S. Developer is to use existing geothermal data from earlier project development activities in Djibouti, and advance this to the stage of a feasibility study. The parties agreed to discuss a framework agreement to advance the work.

Proposed new gas-fired plant. Discussions continued with MERN regarding a potential gas-fired power station, to be constructed by a foreign developer, as they move forward with plans for a gas pipeline from Ethiopia to the Djibouti coast. This business plan is premised on the success of exploration and development activities being carried out by the developer in Ethiopia, as well as putting in place the necessary agreements with the Ethiopian government to support the infrastructure that would be required in Ethiopian territory. The transaction advisor will continue to track development of this project.

Power Africa Partners. The transaction advisor also met with representatives from a Power Africa private sector partner relating to the development of their various projects in Djibouti, including energy generation using a multi-fuel power barge.

ETHIOPIA

PATRP maintains a resident transaction advisory team in Ethiopia, which includes a Lead transaction advisor, local legal advisor and project finance advisor. In addition, and as part of grid management activities, PATRP is working to strengthen Ethiopia’s power system for the integration of new generation (conventional and renewables), and for the sustainable and efficient operation of the national power grid for the delivery of quality and reliable electrical services to consumers. PATRP is also now extending its Ethiopian work streams to encompass the development and implementation of a pilot rooftop solar program, and modernization of the distribution grid.



The following figures show the composition of active Ethiopian transactions (that have not reached financial close) by stage, and how they have advanced through the project cycle.

Fig. 6. Breakdown of transactions

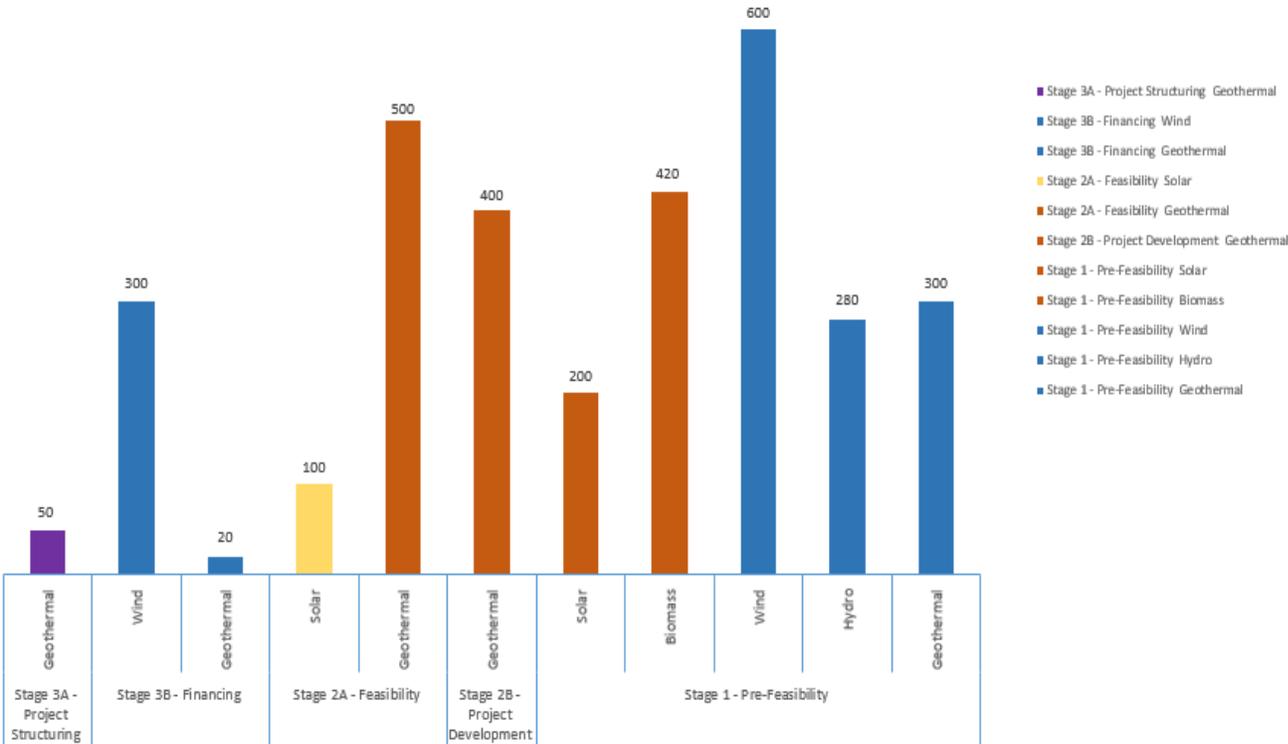


Fig. 7. Movement of transactions by Stage

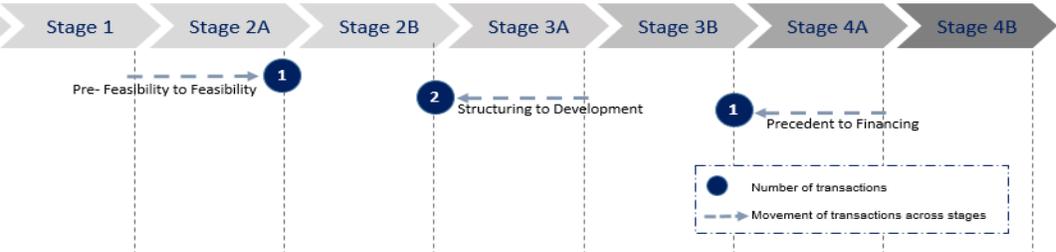


Table 5. List of generation transactions

Name	Stage	Technology	MWs	Connections
Corbetti Geothermal Phase 1	Stage 3B - Financing	Geothermal	20	14,222
Aysha Wind Farm	Stage 3B - Financing	Wind	300	71,110
Corbetti Geothermal Phase 2	Stage 3A - Project Structuring	Geothermal	50	35,555
Corbetti Geothermal Phase 3	Stage 2B - Project Development	Geothermal	200	142,219
Corbetti Geothermal Phase 4	Stage 2B - Project Development	Geothermal	200	142,219
Abaya & Tulumoya	Stage 2A - Feasibility	Geothermal	500	355,548
Tams Hydro Project	Stage 1 - Pre-Feasibility	Hydro	1,700	671,590
Chemoga Yeda 1 & 2	Stage 1 - Pre-Feasibility	Hydro	280	110,615
Geothermal Site 1	Stage 1 - Pre-Feasibility	Geothermal	300	213,329
Wind Project 1	Stage 1 - Pre-Feasibility	Wind	300	71,110
Wind Project 2	Stage 1 - Pre-Feasibility	Wind	300	71,110
GTDC Solar	Stage 2A - Feasibility	Solar	100	15,802
Metahara Solar	Stage 1 - Pre-Feasibility	Solar	100	15,802
Solar Project 2	Stage 1 - Pre-Feasibility	Solar	100	15,802
Thermal Biomass Project--1	Stage 1 - Pre-Feasibility	Biomass	420	265,476

Summary of PATRP's progress in Ethiopia during Q1 2016

Corbetti Geothermal 20 MW (Phase 1). The two primary issues remaining are the treatment of VAT and the percentage allocations of shareholder loan versus pure equity on the equity component of the project developers' investment. Normally, VAT is paid when project developers procure local equipment and services. If the project developer requests different treatment on VAT for goods procured in Ethiopia (as was previously the case with the Ethiopian Electric Power Corporation (EEPCo) in the past), the Ministry of Finance (MoF) has offered to take the issue to the Council of Ministers. On the allocation of pure equity versus shareholder loan, local investment law requires that equity must be 80% cash and the shareholder loan to be 20%. Any variation requires agreement with the National Bank of Ethiopia (Central Bank). One of the reasons these commercial issues have not yet been resolved has been the absence of the Government's external legal counsel who are funded through the African Legal Support Facility (ALSF) due to a lapse in their mandate. PATRP is working with the MoF on re-engaging the law firm so that any remaining commercial issues can be finalized.

In addition, the newly drafted Geothermal Proclamation is at the office of the Council of Ministers awaiting ratification, and the geothermal implementing regulations being developed with PATRP assistance will be sent to Parliament in Q2 2016 for approval.

New Opportunities in Ethiopia. PATRP received a revised list of power projects approved by EEPCo's Board for the Growth and Transformation Plan II (GTP II). There is a significant emphasis on solar and wind - allocating 3,600 MWs wind and 5,200 MWs solar for private sector development. In the near term, PATRP has updated PATT with the aforementioned data and will schedule a meeting with the broader Power Africa Ethiopia team to identify the nature and scope of assistance needed by the Government (based on this new list) and work on prioritizing Power Africa assistance.

First solar procurement (Metahara 100 MW). Following on from the above, during the quarter EEPCo issued a Notice for Procurement on their website and in the local media providing a list of over 18,000 MW of new generation projects, with 71% of them being IPPs. In support of this initiative, PATRP provided technical assistance on EEPCo's first IPP procurement of a 100 MW solar PV project (the Metahara project), which is being competitively procured. Sixty four companies responded to EEPCo by the due date with their qualifications in response to a Request for Qualifications (RFQ). EEPCo, with PATRP assistance is now evaluating the proposals and expects to issue a Request for Proposals (RFP) to prequalified bidders by mid-April 2016. It is anticipated that legal and technical assistance will be provided by PATRP in Q2 to finalize the RFP and underlying project documents, to include PPA and Implementation Agreement. In

parallel, PATRP has engaged an expert to prepare a tariff benchmarking study for the project to be included in the RFP. In support of the aforementioned procurement, PATRP is supporting MoWIE, EEA, and EEPCo technical experts on amending Energy Proclamation 2013/810 to provide for a legal framework for Solar, Wind, Hydro and Biomass IPPs.

Chemoga Yeda I and II Hydro project. EEPCo has opted to issue a competitive procurement for the 280 MW Chemoga Yeda I and II Hydro project. In this context, EEPCo submitted the following two draft documents for PATRP review: (1) an Expression of Interest (EOI); and, (2) Request for Expression of Interest with Evaluation Criteria (RFEIWC). PATRP provided feedback on these documents and is also looking at the underlying environmental and social impact of the project to ensure that international best practices are observed.

Ethiopia Grid Management Support (GMSP). The GMSP PATRP team traveled to Ethiopia during the first two weeks of February to meet with stakeholders and advance this work stream. They received feedback on the draft Grid Code and received additional data for the System Integration Study (SIS) and System Operational Gap Analysis (SOGA) activities. PATRP also held a meeting with the Senior Energy Management & Donor group as well as with the Technical Review Working Group. Also, a potential expansion to the GMSP scope was discussed with stakeholders. They confirmed the need for these changes, and work has begun on the expanded scope, which will include analyzing the GTP II plan, performing fundamental base demand, generation, and transmission optimal expansion planning exercises.

Additionally, PATRP met with Ethiopian Electric Utility (EEU)'s Chief Executive Officer to discuss inclusion of distribution planning and operations in Power Africa's Grid Management & Strengthening program. Other areas of possible support included use of smart meters, loss reduction efforts, and promoting rooftop solar.

Rooftop solar. The Condominium housing project is a flagship project for the government and is a major objective of the GTP. The plan foresees completion of 70,000 condominium buildings (with 225,000 household connections). Due to the project's importance, EEU has assembled a project team that will coordinate this effort with other government ministries and agencies. PATRP has developed a concept note on how it can assist EEU to meet its development objective, and will be calling on additional short term technical assistance to follow through on this support in Q2

IFC Scaling Solar Meeting. EEPCo's Investment and Planning Director met with IFC's Scaling Solar Country Manager to discuss opportunities for this initiative. The Director affirmed the government's interest in the initiative and informed PATRP that an official recommendation will be submitted to EEPCo Senior Management that it pursue IFC's Scaling Solar Initiative. PATRP also met with IFC's Scaling Solar Team separately, and discussed areas of collaboration.

Beyond the Grid/Small-Scale Renewable Energy (SSRE). PATRP discussed with a small scale wind developer their planned projects in Ethiopia, which include providing 0.5 kW wind-based home systems that will enable 10,000 households to have access to electricity. They are in the process of securing a Letter of Intent with the authorities in Ethiopia, after which the discussions will continue on possible PARTP support. In addition, PATRP reviewed and provided comments to USAID/Ethiopia's scope of work (SOW) for mini-grids and rural electrification efforts. The SOW focused on conducting feasibility studies for a large number of villages to determine: (i) best technology and financial options for mini-grids in 150 villages; (ii) best technology and financial models for hybrid solutions in 29 villages with mini-grids already operating with diesel engines; and, (iii) solar irrigation sites.

GHANA

PATRP maintains a resident transaction advisor in-country, together with a gas advisor who provides technical and institutional support to the Ministry of Petroleum and the Energy Commission. In support of these activities, PATRP is also providing short-term technical assistance (STTA) to perform an electricity demand forecasting and suppressed demand estimation, gas market update, securitization and financial modeling, and gas pricing framework study.



The following figures show the composition of active Ghana transactions (that have not yet reached financial close) by stage, and how they have advanced through the project cycle.

Fig. 8. Breakdown of transactions

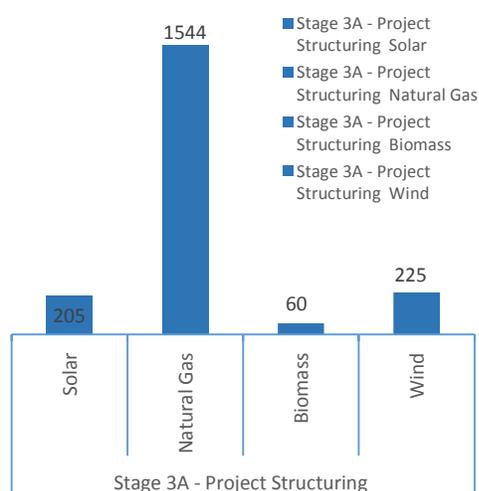


Fig. 9. Movement of transactions by Stage

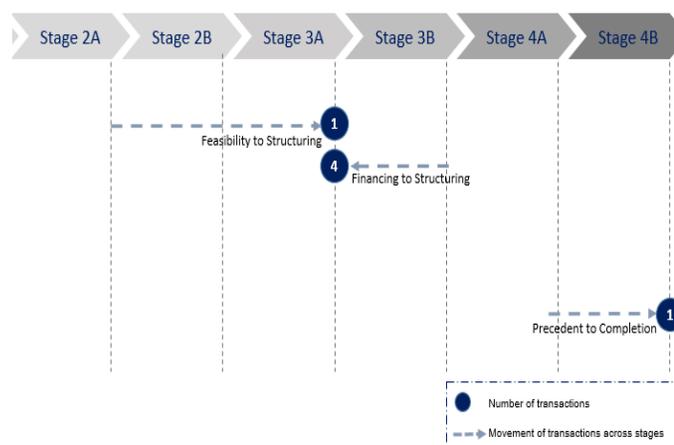


Table 6. List of generation transactions

Name	Stage	Technology	MWs	Connections
Ghana 1000	Stage 3A - Project Structuring	Natural Gas	750	452,690
African Plantations for Sustainable Development (APSD)	Stage 3A - Project Structuring	Biomass	60	33,301
Mere Power Nzema /Blue Energy	Stage 3A - Project Structuring	Solar	155	21,507
Upwind Ayitepa	Stage 3A - Project Structuring	Wind	225	46,830
Bridge (Fast) Power	Stage 3A - Project Structuring	Natural Gas	344	207,634
Signik Energy / CIG	Stage 3A - Project Structuring	Solar	50	6,938
Aboadze	Stage 3A - Project Structuring	Natural Gas	450	271,614

Summary of PATRP’s progress in Ghana during Q1 2016

Overall approach. PATRP engaged with project developers, as well as the Ministry of Finance, Ministry of Power (MOP), Ministry of Petroleum (MOPET), and the Electricity Company of Ghana (ECG), to track progress in each of the PATRP transactions, as well as to facilitate communication between project developers and the Government to prompt stakeholders to take actions that will move the transactions forward.

PCOA negotiations. Put/Call Option Agreement (PCOA) negotiations were held by MOF with a number of power project developers. A few developers expressed reservations on the PCOA provisions and stated that the draft PCOA will require significant modifications to be acceptable to lenders. The draft PCOA is

being revised in light of developer comments, which will delay the timelines for achieving financial close. USAID has sought advice from PATRP on recommendations to be made to the Ministry of Finance in order to resolve this impasse, which has impacted both Ghana 1000 and Bridge Power projects.

Bridge Power—138 MWs (Phase 1). The project scope was recently increased to include steam turbines in both phases, raising total capacity from 344 MW to 400 MW. Vendor financing is lined up for Phase 1 for fast-track financial close and construction. However, conclusion of the PCOA remains outstanding. In this respect, it is worth noting that Ghana's needs in terms of new generating capacity are progressively being covered, with several projects currently in the commissioning stage, accounting for more than a 50% increase in Ghana's generation capacity and more than its recorded deficit, hence creating a small reserve margin. This has impacted the Government's negotiating position with developers.

Ghana 1000. The Chief Executive Officer (CEO) of NEPAD held bilateral discussions with the President of Ghana at the African Union Summit in Ethiopia. During those discussions, NEPAD's CEO discussed a brief on the Ghana 1000 project, which was prepared by Power Africa, with input from PATRP's advisor embedded at NEPAD. In response, the President of Ghana asked NEPAD to: (i) assist ECG with the Power Purchase Agreement; and (ii) assist the Public Utilities Regulatory Commission (PURC) with strengthening the regulator on issues around tariff setting. In response, and after discussions with USAID, NEPAD has dispatched a letter to the Government of Ghana requesting a scoping mission to the country. The mission is expected to take place early in Q2.

Portfolio of solar transactions with PPAs issued by ECG - Including Siginik/Episolar (50 MW solar) and Blue Energy Mere Power Nzema (155 MW solar). PATRP received an assessment from ECG on the status of six projects, including the two noted above. ECG's approach to these projects is to pursue reductions relative to the pricing, including in the initial PPAs and even relative to the current Renewable Energy Feed-in Tariffs (REFIT) values. ECG believes that Blue Energy is no longer pursuing Mere Power because a sovereign guarantee is not forthcoming, but this is not yet confirmed by the developer. A government implementation agreement with Siginik has been negotiated, but has not been yet initialed. Other key agreements for the Siginik transaction, specifically the PPA and interconnection agreement, are still in process. PATRP also established contact with developers of the other projects in the portfolio to gather data and assess suitability for consideration as Power Africa transactions.

20 MW Solar RFP. DCA, USAID/Ghana and PATRP have been given final approval for language to be included in the GIZ/MOP tender for 20 MW of new solar PV generation, which includes the opportunity to apply for a DCA loan guarantee. MOP has not given final approval of the bid package, but issuance is expected early in Q2 with bids anticipated in June, and notice of intent to award expected in early August.

Volta River Authority (VRA) Thermal Plants Rehabilitation & Performance Contract. PATRP completed a revised version of the VRA Rehabilitation Report and submitted to USAID. The report provides a technical assessment of the Tema and Takoradi thermal plants based on plant visits, and an evaluation of operating and maintenance data provided by VRA. The revised report addresses comments provided by USAID on the original report, including an evaluation of VRA operating and maintenance performances and PATRP's recommendations in this regard. The revised report also now includes templates for: (1) the Operations & Maintenance (O&M) contract; and (2) associated tender documents for the procurement of an O&M contractor. The intent is to encourage private sector participation through an open competitive tender, which identifies the best combination of cost and expertise—the ultimate goal being to improve VRA's available generational capacity and operational performance.

Transaction pipeline. PATRP concluded an NDA with a solar developer to facilitate receipt of information about a PV project it has developed, which has a PPA with ECG.

Reverse Flow of Ghanaian Natural Gas in the West African Gas Pipeline. As more indigenous gas is becoming available in Western Ghana, there is a need to identify credible buyers. At the same time, only limited supplies are available in Eastern Ghana from the West African Gas Pipeline (WAGP), due to lack of available gas in Nigeria. As a result, WAGP is only used at 20% of its capacity. In this context PATRP has been assisting MOPET by providing a policy paper for interconnecting the Ghanaian gas transmission network with the WAGP system to enable reverse flow of Ghanaian gas from West to East. Targeted completion of a “free flow” phase is planned for Q4 2016, which will enable a reverse flow of 60 MMscfd. Phase-2 of the project (“compressed flow”) to enable reverse flow up to 150 MMscfd is being scoped out, with targeted completion by Q4 2017.

Gas Master Plan. The Government of Ghana is in the process of developing and adopting a 25-year Gas Master Plan (GMP) for Ghana (2016-2040). At the end of 2015, PATRP conducted a review of a draft GMP prepared by external consultants engaged by the World Bank. A comprehensive set of comments was prepared by PATRP and submitted to MOPET, and a subsequent dissemination workshop was conducted by MOPET with the assistance of PATRP. Thereafter, PATRP assisted MOPET in formulating a Memorandum for approval of the GMP by the Cabinet.

Gas Market Review. PATRP prepared a revised version of the Gas Market Review (GMR) report to: (i) address the last set of comments from stakeholders; (ii) incorporate the latest set of electricity demand forecasts produced in the February version of the Power Suppressed Demand and Forecast Study (SDFS); and, (iii) align the GMR input data with the Generation Capacity Expansion (GCE) Study prepared by PATRP for the MOP (items (ii) and (iii) are discussed further below).

Power Suppressed Demand and Forecast Study (SDFS). PATRP updated projections of electricity demand, including Suppressed Demand, which were originally submitted to USAID in September 2015. The study aims to provide a realistic forecast of the electricity demand in Ghana for the next 15 years, which will feed into subsequent studies on the gas demand (GMR) and generation capacity expansion (GCE) planning (as mentioned above). The updated SDFS was submitted to USAID on February 21.

Generation Capacity Expansion (GCE) Planning. PATRP developed the Generation Capacity Expansion (GCE) model to evaluate the impact of projects under construction and proposed IPPs on Ghana’s power supply/demand balance; and the impact on national and regional gas demand from the gas-to-power (GTP) projects. The model uses power demand and peak load and subtracts hydropower and renewable energy output to arrive at a thermal generation requirement. From this, projected output from existing capacity is deducted; similarly, output from those projects that are likely to reach financial close is deducted, resulting in a surplus or gap. The slate of projects reaching financial close can be modified to show the impact of different sets of planned projects on the future supply/demand balance. Additionally, three forecasts for gas supply in Ghana (indigenous and imported sources) are loaded into the model, and the estimated gas consumption from GTP projects is deducted from available supply to show the gas balance at a regional level (Takoradi and Tema) as well as in the aggregate, or the national level. An analysis conducted by the PATRP team using the GCE spreadsheet model shows that capacity additions already under construction will progressively narrow the power supply deficit that caused the load-shedding of 2014-2015, and enable Ghana to achieve a power surplus in 2018. The Generation Capacity Expansion and Gas Allocation model and PowerPoint presentation was circulated to all stakeholders including the ECG, VRA, MOP, and MOPET.

LNG Policy Paper. The GMR demonstrates the existence of a deficit in gas to meet the power sector demand. Importing LNG as a complement to WAGP and domestic gas is an option to maintain existing power plants on-stream, and a condition to financial closure of several IPP projects. The Minister of Petroleum requested that PATRP prepare an LNG Policy Advisory Paper to aid him in making a decision on this issue - a draft outline for the LNG Policy Paper was submitted by PATRP at the end of Q1.

Gas Act and Gas Access Code. The purpose of the Gas Act is to establish the legal framework for an efficient and competitive natural gas market by establishing the basic principles of the organization and regulation of the natural gas market, including the production, storage, transmission, distribution and supply of natural gas. In March, PATRP reviewed the draft Gas Act delivered in 2015 and produced the draft Gas Act Implementation Protocol.

Off-Grid/Small-Scale Renewable Energy (SSRE). In January, PATRP met with the Renewable and Alternative Energy Directorate (RAED) at the Ministry of Power (MOP) to advance discussions held in November 2015 regarding the off-grid work stream. RAED referenced the mini-grid policy issued on January 15, 2016, and indicated a strong preference for supporting work under Power Africa that would result in the implementation of mini-grid projects in areas where the Government of Ghana has already conducted surveys and GIS mapping. To this end, PATRP has developed a concept note for mini-grid implementation in select communities for potential developers, and assisted multiple developers with technical proposals, due diligence, planning and evaluations. At least four developers are currently interested in moving forward with projects. PATRP has advanced the execution of a work plan to a point where it is appropriate for delegates of select U.S. companies to visit communities surveyed by RAED and the World Bank-funded Ghana Energy Development and Access Project (GEDAP) for engagement and evaluation. These companies are industry members of the Future Renewable Electric Energy Delivery and Management (FREEDM) Systems Center, which is developing new power grid solutions in the U.S. PATRP obtained concurrence and support for the mini-grid activities, including the timeline from RAED/GEDAP, the key drivers, and responsible directorates at the MOP. A joint scoping mission is scheduled for May 2016.

Certification for Grid-connected Solar PV Installers and Inspectors. In order to advance and encourage solar PV projects for small-scale projects, PATRP drafted preliminary working documents and a work plan for certification of grid-connected solar PV installers and inspectors. In this direction, PATRP has assembled a team of local and international experts that is expected to meet in April to finalize the following documents: (i) Job Task Analysis for Solar PV Installer; (ii) Job Task Analysis for PV Inspectors; and, (iii) curriculum material. PATRP also obtained concurrence and approval of the certification activities including the timeline from the Energy Commission (EC) and Council for Technical and Vocational Education and Training (COTVET), the key drivers and responsible agencies.

KENYA

PATRP maintains one transaction advisor and one technical resident advisor in Kenya. In addition, PATRP is performing grid management work through short-term technical assistance, and supporting Kenya’s plans to move to competitive generation procurement by conducting tariff studies and reviewing the framework for Government support. Moving forward, PATRP will also be deploying a resident beyond the grid advisor and initiating new work streams relating to (i) community engagement best practices; and, (ii) providing capacity building to the Kenya Power Training Institute.



The following figures show the composition of active Kenya transactions (that have not yet reached financial close) by stage, and how they have advanced through the project cycle. There are a further eight proposed transactions (totaling 750 MW) that are awaiting further review and vetting by PATRP, before they can be considered active transactions.

Fig. 10. Breakdown of transactions

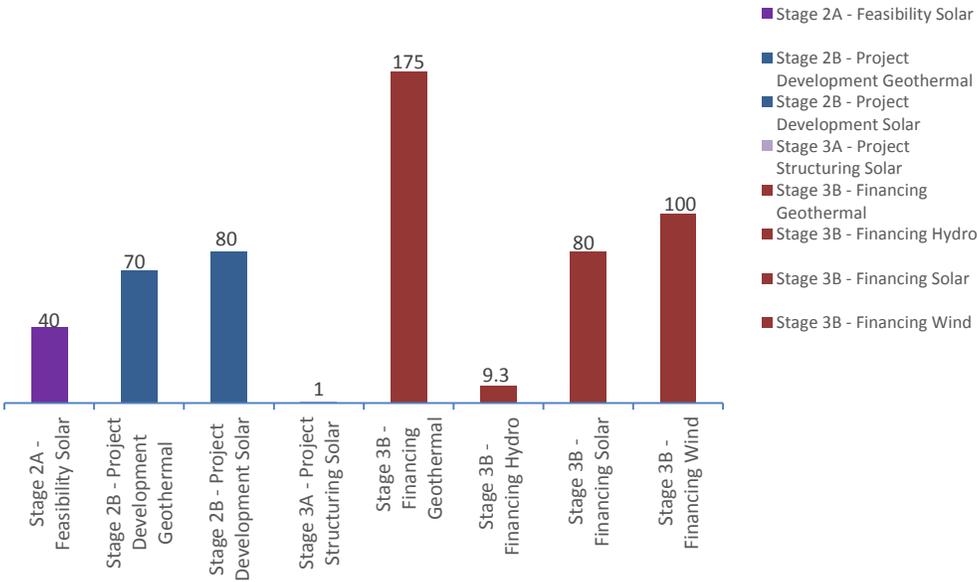


Fig. 11. Movement of transactions by Stage

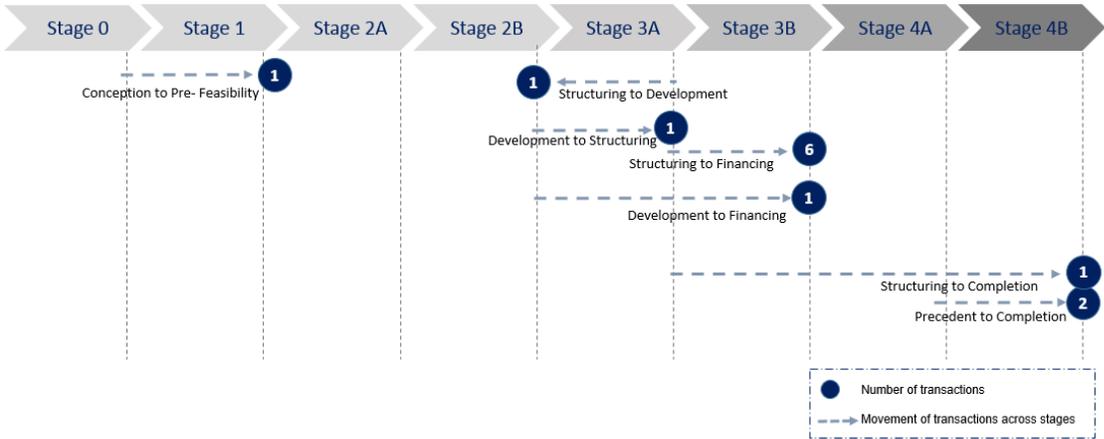


Table 7. List of generation transactions

Name	Stage	Technology	MWs	Connections
Kipeto	Stage 3B - Financing	Wind	100	18,847
Tindinyo	Stage 3B - Financing	Hydro	1.5	-
Akiira--Phase 1	Stage 3B - Financing	Geothermal	70	39,579
AGIL-Longonot Phase 1	Stage 2B - Project Development	Geothermal	70	39,579
Menengai	Stage 3B - Financing	Geothermal	105	59,368
Rumuruti Kenergy	Stage 3B - Financing	Solar	40	5,026
Mutunguru Hydroelectric Co Ltd	Stage 3B - Financing	Hydro	7.8	5,000
Kesses I	Stage 3B - Financing	Solar	40	5,026
Powerhive--100 Solar microgrids	Stage 3A - Project Structuring	Solar	1	20,000
Xago Kogelo (MSOF)	Stage 2A - Feasibility	Solar	40	5,026
Radiant Energy	Stage 2B - Project Development	Solar	40	5,026
Eldosol Energy	Stage 2B - Project Development	Solar	40	5,026

Summary of PATRP's progress in Kenya during Q1 2016

Solar PPA Capacity Building for Kenya Power. PATRP provided training on solar PPAs to the Kenya Power PPA negotiation team between March 10 and 11. The training is intended to help Kenya Power better understand the nuances of solar PPAs, both from a technical and legal perspective, and advance the pending PPAs for seven solar projects (with a combined capacity of 280 MW). The training saw the participation of 14 members of the PPA negotiation team, and was led by technical and legal experts provided by PARTP. Feedback from the PPA negotiation team was very positive. In addition, PATRP has arranged for Kenya Power staff to visit Solar PV sites in South Africa in April. This will be an opportunity for them to meet with developers and also the state utility (Eskom), which should promote a greater understanding of industry standard terms in a solar PPA. The ultimate goal is to remove the current impasse on executing the PPAs.

Rumuruti Solar Power Project. There is a concern that financial closing of this project may be delayed owing to uncertainty on the timing of the proposed Nanyuki-Rumuruti 132kV transmission line, which is needed to evacuate power. PATRP is working with KETRACO and other stakeholders to resolve this issue. In addition, the project is seeking a letter of support from the Government of Kenya; however, there is some ambiguity as to whether projects eligible for the Feed in Tariff are also entitled to a letter of support. The issuance and timing thereof will be a key factor in the financial closing of the project. Again, the PATRP team has been shuttling between the parties to advance this issue. In parallel, Kenya Power was reluctant to present the draft PPA to its Board for approval until a Project SPV (registered locally) had been established. To address this bottleneck, PATRP assisted the developer in drafting wording for the PPA that would provide the necessary comfort for Kenya Power to allow the project to proceed. The developer sent the proposed wording to Kenya Power on February 11, which has been accepted.

Tindinyo Hydroelectric Project. The project signed an EPC construction contract in Q1, and a lender has been identified. The lender must now undertake a due diligence review, which is the last milestone prior to financial close. The developer expects this will take one to two months. PATRP continues to track progress on the transaction and unless the due diligence reveals any problems, the project should reach financial closure in Q2.

Akiira Geothermal Power Project. Drilling work continues. In parallel, the agreement for the GRMF grant was signed by the developer and with GRMF/African Union Commission on March 2 in Nairobi. Regarding grid interconnection at 220kV, the PPA states that the line will revert to Kenya Power, but there is some suggestion that the line should be passed to KETRACO since it is high voltage. The developer is seeking policy guidance on this matter from the Ministry of Power. PATRP will be working with the parties in an attempt to resolve the impasse on the transmission line issue.

Mutunguru Hydro Power Project. During the reporting period, the project received approval to move forward with negotiating a PPA with Kenya Power. In parallel, PATRP has agreed to meet with the sponsors to discuss financing needs.

Menengai Geothermal Project. Under the PPA and the Project Implementation and Steam Supply Agreement (PISSA), the developer has so far been given three, 6-month extensions to meet all conditions precedent (CPs) with the latest extension set to expire on April 30, 2016. The developer has advised PATRP that it has met all CPs, with the exception of financial close. Meanwhile, the Kenya Geothermal Development Company has yet to provide the sub-lease for land, letter of support, and Partial Risk Guarantees (PRGs). While the PRGs were provided by the African Development Bank (AfDB), the process of identifying PRG banks and due diligence is pending. If financial close is reached by July 1, 2016, the project may be commissioned by end of June 2018.

Kipeto Wind Power Project. PATRP followed up with the Director of Renewable Energy at the Ministry of Energy and Petroleum (MOEP), on a memorandum that had been sent to MOEP jointly by Kenya Power, Kipeto Energy Limited and KETRACO, proposing three options for the way forward on the allocation of transmission infrastructure delay risk. The Director confirmed receipt and advised that he was waiting for the Principal Secretary (PS) to return from an assignment in Uganda so that he could discuss the matter with him and together decide on the way forward.

Pricing of Renewable Energy. Kenya will likely eliminate its current Feed in Tariff program in the near term. Their intention is to replace it with a competitive procurement. In this context, there was a request from the Power Africa team in Kenya to perform a study on what pricing levels could be expected in Kenya in a competitive generation procurement. This request was also discussed and supported by the Director of Renewable Energy at MOEP. A key aspect of the study was to propose appropriate price caps that MOEP intends to impose on bids. Establishing a proper price level (and thus the price cap) is fundamental to the success of the competitive procurement. The aforementioned study was prepared by PATRP and presented to USAID and the Ministry in late 2015. In February, MOEP scheduled a workshop to review the mid-term report on the Feasibility Study on Renewable Energy Auctions, during which PATRP presented its conclusions from the tariff study. It is anticipated that there will be follow-on work and that this will also allow Power Africa the opportunity to play a meaningful role in the anticipated competitive power generation procurement and the resulting new MWs that will be secured.

Kenya Grid Management Support. In the context of PATRP's ongoing grid management work in Kenya, which includes supporting the Grid Code Revision, PATRP made a presentation to Norfund on the ability of the Kenyan power grid to absorb intermittent renewables. The presentation was particularly timely, given Norfund's ongoing support to Kenya's renewables sector. Thereafter, in Q1 the PATRP team made a presentation to MOEP on the System Operation Gap Analysis (SOGA) that is being produced, and also assisted the Energy Regulatory Commission (ERC) with conducting a public consultation meeting on the new Grid Code, which is required as part of the gazetting procedure.

Grid integration. The Energy Sector Donors' Coordination Group's Energy Access sub-Committee has been formed to debate, discuss, evaluate, and propose a clear policy on micro grid development. The sub-Committee is comprised of development and government agencies. The PATRP Micro-Grid Integration Program is intended to work in parallel and focus on one specific aspect of micro-grid policy, which involves the potential commercial conflict that could arise between owners of micro-grids and Kenya Power when the expansion of the national grid reaches a town or village that has a micro-grid. To address this issue, PATRP will consult with and seek consensus among key stakeholders in Kenya to draft a framework agreement that governs the key rights and obligations of the parties involved in such a

situation. From initial consultations, at least one company seems to have an arrangement in-place, where it is working alongside Kenya Power. Other models that have been discussed in Kenya include transferring the ownership of the micro-grid to Kenya Power. These, and models from other markets, will be used to inform the framework agreement. Kenya Power seems well disposed to this support, but has asked PATRP to secure concurrence from MOEP. During Q1 PATRP asked MOEP to send Kenya Power a letter directing them to engage with PATRP in discussions on this work stream. We expect that MOEP will send the letter and this process can move forward in Q2.

Scoping trip by the Kenya Beyond the Grid Advisor. PATRP's new resident Beyond the Grid (BTG) Advisor for Kenya conducted a scoping trip during Q1, during which the following key challenges and/or needs were identified to advance the BTG sector in Kenya. Promoting solutions to these challenges will form a core part of the BTG work plan for Kenya going forward:

- Regulatory: (i) The need for a general micro-grid policy; (ii) insistence on use of national uniform tariffs discourages private sector investment unless subsidies are provided; (iii) the need to streamline exemption of duty/VAT on solar equipment; and, (iv) the need for a micro-grid code (as an extension of the distribution grid code).
- Technical: Need for capacity building for sizing of micro-grids, possibly using National Renewable Energy Laboratory's Hybrid Optimization of Multiple Energy Resources (HOMER) software.
- Financial: (i) Need for standardization of green credit lines; (ii) need for credit guarantees; and, (iii) need for concessionary long-term financing.

LIBERIA

At present, PATRP supports Liberia's Power Africa program through frequent short-term technical assistance (STTA), focusing on the loss reduction initiative at the Liberia Electricity Company (LEC), and through specific large- or small-scale transactions. Moving forward, these activities will be continued in conjunction with the initiation of PATRP's support to the procurement of a new management contractor for LEC.



Summary of PATRP's progress in Liberia during Q1 2016

Loss Reduction Program for LEC. PATRP continued to implement the LEC loss reduction program that is intended to quantify technical and commercial losses and make recommendations for their reduction. In particular, progress was made during the reporting period on performing GIS mapping of the network, and formulating a pilot program that would see implementation of certain recommendations made by PATRP to reduce commercial losses. It is expected that this activity will be completed during the next quarter.

Pursuing New Generation Capacity. A "Preliminary Assessment" completed by PATRP at the request of the Ministry of Lands, Mines, and Energy (MLM&E) identified 104 MW of HFO power plant assets in-country and currently owned by the mining firm Arcelor Mittal (AM). In Liberia, AM mines iron ore for export and the company acquired these assets to support a major expansion plan it had for its operations in Liberia, which have been postponed due to the downturn in global commodity prices. The HFO plants are in two separate "packages": (i) 78MW - 10 X 7.8MW plants: all 10 are still in crates and are being relocated to the port city of Buchanan; and (ii) 26MW+ - 6 X 4.4MW plants: five have been installed in Buchanan. Based on feedback from USAID, PATRP refined its proposal for moving forward with exploring various options and mechanisms for utilizing these assets. Further activity is expected on this work stream in March-April, subject to USAID concurrence – at which point the project will be on boarded as a Power Africa transaction.

17.5 MW biomass-to-power investment. PATRP contacted the developer of a 17.5 MW biomass-to-power investment in Kakata, Liberia. The developer asked for support on various outstanding issues, to include the technical design, finalization of multiple PPAs (currently in draft) and at a later stage to organize the financing of the transaction. Information was shared with the Swedish International Development Agency (SIDA) since there is a possibility that the biomass project qualifies for support. SIDA is now deliberating how to structure their assistance in terms of their strategy for Liberia. The project will be entered into PATT as a proposed Power Africa transaction.

Captive Generation. On the periphery of the Mining Indaba in Cape Town, PATRP held meetings with executives of a South Africa engineering services firm and Swedish developer/capital provider. As a result, it was agreed to proceed to feasibility on an approximate 15 MW run-of-river hydro project in Liberia. The transaction will be considered for on boarding as a Power Africa transaction.

NIGERIA

PATRP provides transaction advisory support to approximately 20 generation projects, spread across the project cycle. The total planned installed capacity of these generation projects amounts to over 4,000 MW. These projects are drawn from five distinct generation technologies, *i.e.*, wind, solar, biomass, hydro, and natural gas. PATRP is also currently assisting the Transmission Company of Nigeria (TCN) by providing a full time technical advisor, supported by financial, legal/regulatory and subject matter experts who contribute on an as-needed basis. Further, PATRP has established an ongoing work stream for helping TCN implement its capital program, and this work stream will continue in 2016.



Moving forward, PATRP will increase its level of support in Nigeria, to include: (i) providing assistance to three distribution companies, supported by a team of field management professionals to help demonstrate loss reduction strategies, as well as other improvements to allow for improved ways of managing the business to be rolled out throughout the target utilities; (ii) deploying a dedicated resident Gas Sector Advisor; and (iii) initiate new work streams in the off-grid/small scale renewable generation space

The following figures and graphs show the composition of PATRP’s Nigeria active transactions by stage, and how they have advanced through the project cycle.

Fig. 11 Breakdown of transactions

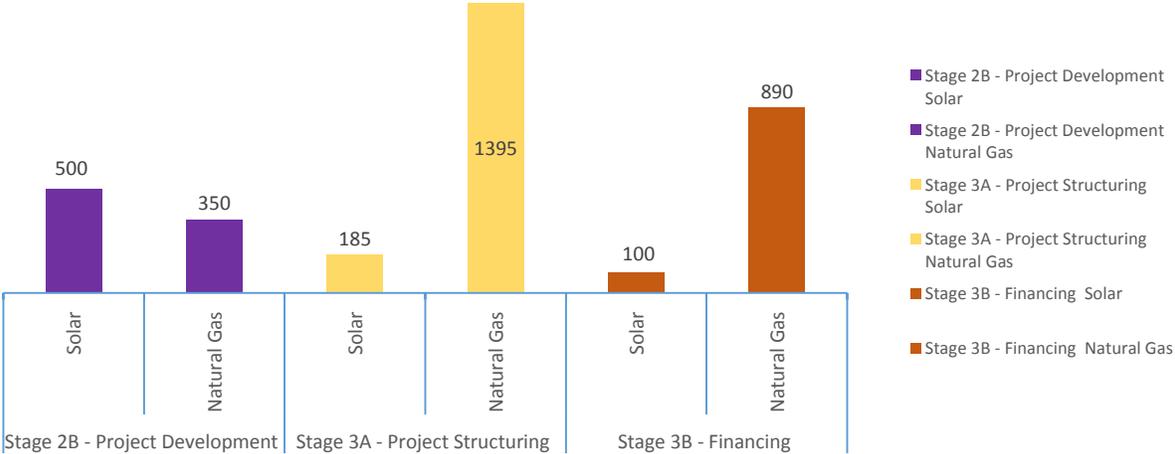


Fig. 12. Movement of transactions by Stage

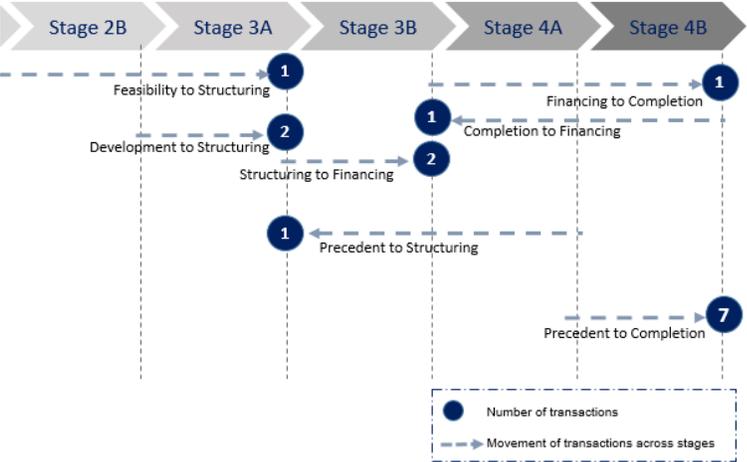


Table 8. List of generation transactions

Name	Stage	Technology	MWs	Connections
Nigeria Solar Capital	Stage 3B - Financing	Solar	100	24,352
Century Power	Stage 3A - Project Structuring	Natural Gas	495	524,368
Qua Iboe (QIPP)	Stage 3B - Financing	Natural Gas	540	572,038
Ikot Abasi Power	Stage 3A - Project Structuring	Natural Gas	250	264,832
Abiba Solar / Quaint	Stage 3A - Project Structuring	Solar	50	12,176
Afam Power	Stage 3B - Financing	Natural Gas	350	370,765
Proton Delta Sunrise	Stage 3A - Project Structuring	Natural Gas	150	158,899
Pan Africa Solar	Stage 3A - Project Structuring	Solar	65	15,829
DuSable Capital / Motir	Stage 2B - Project Development	Solar	100	24,352
OMA Power	Stage 3A - Project Structuring	Natural Gas	500	529,665
Yellowstone IPP	Stage 2B - Project Development	Natural Gas	350	370,765
LR Group	Stage 2B - Project Development	Solar	100	24,352
Nova Solar Power	Stage 2B - Project Development	Solar	100	24,352
Rook Solar Investment	Stage 2B - Project Development	Solar	100	24,352
Green Cowrie Energy Limited	Stage 2B - Project Development	Solar	100	24,352
Panyam Solar	Stage 3A - Project Structuring	Solar	70	17,047

Summary of PATRP's progress in Kenya during Q1 2016

Solar PV projects. PATRP has prepared a standard form solar PPA for use by the Nigerian Bulk Electricity Trading Company (NBET), which incorporated detailed comments from several donor agencies. The template has since been used for several front-runner Solar PV projects, which were expected to be initialed by NBET before the expiration of the terms of office of the commissioners of the Nigeria Electricity Regulatory Commission (NERC) on December 22. However, this did not occur as anticipated, and the status of these transactions was placed into question, given the decision to migrate from unsolicited renewable generation projects to a competitive procurement process. In an effort to move these transactions forward, PATRP prepared a briefing paper for NBET's meeting with the Ministry of Power (MoP) and the Vice President's Office. The briefing paper made recommendations to the MoP on the suggested policy for competitive procurement and a way forward on these pending Solar PV projects. PATRP's advisor within the VP's Advisory Power Team was also instrumental in convening the meeting, which took place on February 18. The VP ultimately approved the abovementioned recommendations and NBET should now proceed with finalizing the PPAs for these projects.

Qua Iboe Power Project (QIPP)—gas—540 MW. QIPP is a proposed USD\$1.2 billion, 540 MW combined cycle gas-fired power plant, developed by a joint venture between Mobil Producing Nigeria (MPN) and the Nigerian National Petroleum Corporation (NNPC). Through PATRP's assistance to NBET, MPN and NNPC have already substantially negotiated most of the key commercial project agreements, including the PPA, Put / Call Option Agreement, Ancillary Services Agreement, and Grid Connection Agreement. A new joint venture is in the advanced stages of purchasing the rights to finance, construct, and operate the proposed power plant. While a handful of key business points remain to be resolved, as well as the necessity to recast several of the project agreements to reflect the new proposed ownership structure, evacuation of power from the plant to the grid remains an issue. The developer has promised to build a 58 km, 330 kV double-circuit transmission line from the power plant to the Ikot-Abasi substation, which the Transmission Company of Nigeria (TCN) will operate once the line has been constructed. But another 78 km, 330 kV double-circuit transmission line still needs to be built from Ikot-Abasi to Ikot Ekpense in order to evacuate the project's power to the national grid—otherwise the power will be stranded. The National Integrated Power Project (NIPP) has committed to finance and construct this transmission line, which TCN will own and operate once the line has been constructed, but this key component of the project has stalled. PATRP's advisor to TCN is working to unblock this issue by focusing attention and prioritizing the construction of this line.

Bresson—gas—400 MW (90 MW Phase 1). Through its support to NBET, PATRP reviewed and revised the PPA Schedules, in anticipation of its execution. The transaction is currently being on boarded as a Power Africa transaction.

Transaction pipeline. PATRP’s Nigeria team undertook the following actions to develop a pipeline of new Power Africa transactions:

- PATRP met with a new developer, to discuss the development of its 40 MW embedded generation project and to follow up on its discussions with the USTDA. PATRP also held discussions to potentially assist in securing private equity funding from one or more Power Africa partners for its gas field development and gas infrastructure project. Potential Power Africa private sector partners were identified and PATRP will work to facilitate key introductions and meetings.
- PATRP met with a US EPC contractor of a 6 MW Waste-to-Energy (WTE) power plant developed by a local Nigerian company. PATRP is reviewing project documents to determine if, and what, Power Africa assistance may be appropriate.
- PATRP connected with an investment company dedicated to renewable energy projects in sub-Saharan Africa. They are currently in partnership with a multinational energy company to develop solar hybrid solutions for gas stations and are looking at replicating the same type of model for banks and other gas stations, as well.
- PATRP reviewed USAID’s feedback on the QTAT analysis and recommendation for a new 144 MW embedded generation project in the Onne Free Port Industrial Zone.
- Together with the General Counsel for NBET, PATRP supported PPA negotiations with two developers for their 500 MW gas fired power plant in Rivers State and 550 MW gas fired power plant in Ondo State. Both transactions are being considered for onboarding as Power Africa transactions.

Impact of foreign currency restrictions on Nigeria’s Power Sector. The Central Bank of Nigeria (CBN) has introduced a host of foreign exchange control measures, in an attempt to control the use of foreign exchange within Nigeria. These foreign exchange controls include, *inter alia*: (1) A directive from the CBN restricting certain imported goods from the list of items that qualify for access to foreign exchange within the Nigerian foreign exchange market; (2) a restriction on the usage of Naira-denominated debit and credit bank cards abroad, to either pay for transactions or withdraw money from ATMs overseas; (3) a ban on Bureau De Change operators from receiving access to U.S. dollars from the CBN; and (4) a circular released by the CBN titled “Granting of Foreign Currency Loans to Non-Dollar Generating Businesses”³ (the “Circular”), directing local banks to extend foreign currency loans only to customers with foreign currency-generating businesses, and to avoid redenominating loans originally granted and disbursed in Naira to foreign currency loans where the customer does not have foreign exchange receivables. PATRP has been tasked with examining whether the restrictions imposed by the Circular have a direct effect of preventing the operating entities of the Nigerian electricity sector from accessing foreign currency borrowings, as sector revenues derived from domestic consumers arise in Naira. If so, this reasoning may be used by the CBN to review the restrictions set forth in the Circular specifically for energy sector projects. In this direction, PATRP presented a second draft of its findings to USAID during the quarter. At the request of the Mission, PATRP added a quantitative analysis of the potential losses incurred in the sector as a result of the Circular. This work is ongoing, and it is anticipated will be completed in Q2 2016.

Zenith’s DCA Facility. On a related note, Zenith Bank has formally requested that the Central Bank of Nigeria (CBN) waive its foreign currency lending restrictions in order to allow Zenith Bank to lend money to the power sector under the DCA’s credit guarantee facility. The CBN may grant the waiver request but stipulated that certain conditions must be met, one of which includes a hedging agreement. PATRP

³ Source: CBN Circular BSD/DIR/GEN/LAB/08/037, released on 4 August 2015.

worked with Zenith Bank to demonstrate, through its application, that those conditions have been sufficiently satisfied.

Prioritizing Transmission Investments. PATRP supported TCN with: (i) development and review of multiple submissions requested by the Ministry of Power regarding prioritizing investments in light of limited funding, and, (ii) resolving issues raised by the distribution companies about transmission facility outages and ongoing projects. In addition, and in terms of identifying financing sources for transmission investment, PATRP prepared a Position Paper for TCN at the request of the Ministry of Power on contractor-financed transmission projects. The paper discusses transaction frameworks, payment arrangements (i.e. tariff- or contract-based), credit security for private transmission developers, relevant international experience and next steps. TCN is encouraged that the Ministry of Power is showing interest in further developing the framework for private investment in transmission.

PATRP is also assisting the Transmission Services Provider Business Unit of TCN with its regionalization initiative as a precursor to setting up autonomous TSP Regions that eventually can be bid as concessions. A PATRP team will complete the initial field work in Q2.

Finally, construction has been completed on one of TCN's highest priority ongoing projects, the second Benin-Onitsha 330kV line crossing Edo, Delta and Anambra States, which had been stalled for many months due to funding issues. PATRP assisted with negotiating with the contractor, developing TCN's action plan, convening an inter-departmental team and unlocking funds in an existing AfDB loan facility to provide stopgap funding.

Distribution Company Commercial Turnaround Support. PATRP initiated work on a diagnostic assessment of Nigerian distribution companies to assist USAID in the determination of selected utilities that should be targeted for field assistance, focused on loss reduction, collection improvement and improved payment for energy and ancillary services. To date, the utilities approached have expressed considerable interest in being considered for the targeted assistance. The diagnostic assessment will be delivered to USAID in Q2 and the targeted utilities confirmed. This will then trigger PATRP's deployment of its distribution advisory team to Nigeria.

Off-Grid/Small-Scale Renewable Energy (SSRE). PATRP initiated work on the Solar Nigeria Program jointly with DFID/Adam Smith International, which included: (i) concluding a desktop search on micro-grid activity and related information in Nigeria; and, (ii) discussing with the USAID Global Development Lab (GDL) on identifying opportunities for the GDL to become involved in the Solar Nigeria Program. Over the coming weeks, identified opportunities will be detailed and agreed on in terms of (financial) support through GDL. Building on these effort, PATRP conducted a 10-day mission to Nigeria in an effort to develop a collaborative work plan with DFID and REEEP-Winrock in the context of the Solar Nigeria Program. The key findings and observations from the trip will be incorporated into the next iteration of the PATRP Nigeria FY 2016 Work Plan, which will broadly include:

- Transaction Advisory Services in relation to: (i) commercial captive power for industrial clients in Kano, Kaduna and Lagos; (ii) five solar/hybrid mini-grids developed by EU-GIZ;
- Access to Finance in relation to: (i) commercial captive power investments; (ii) working capital for solar companies and businesses operating the household segment of the market; (iii) scaling mini-grids through unlocking funding from the Rural Electrification Fund; and,
- Enabling Policy Environment in relation to the continued development of a Solar Nigeria Plan through supporting the Power Advisory Team at the Vice President's Office.

TANZANIA

PATRP maintains a resident transaction advisor in Tanzania, who is based in the Investment Division of TANESCO. PATRP has also deployed a resident project manager to oversee the establishment and institutional development of an independent transmission system organization. PATRP also retains a small-scale renewable transaction advisor, who is embedded within the Rural Energy Agency of Tanzania.



The following figures show the composition of active Tanzanian transactions (that have not yet reached financial close) by stage, and how they have advanced through the project cycle. We have also listed a number of proposed transactions that are currently being vetted by PATRP's Tanzania team.

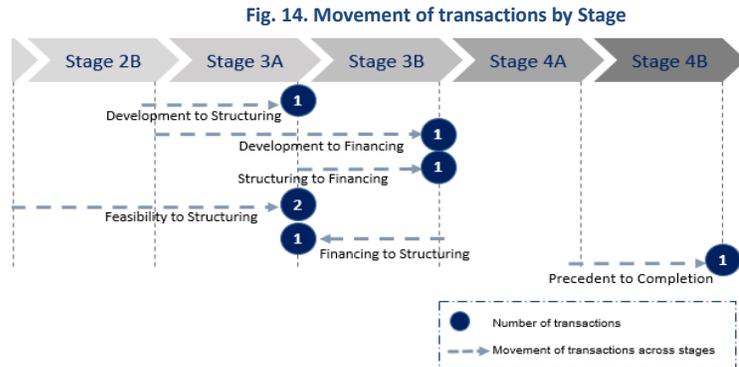


Fig. 13. Breakdown of transactions

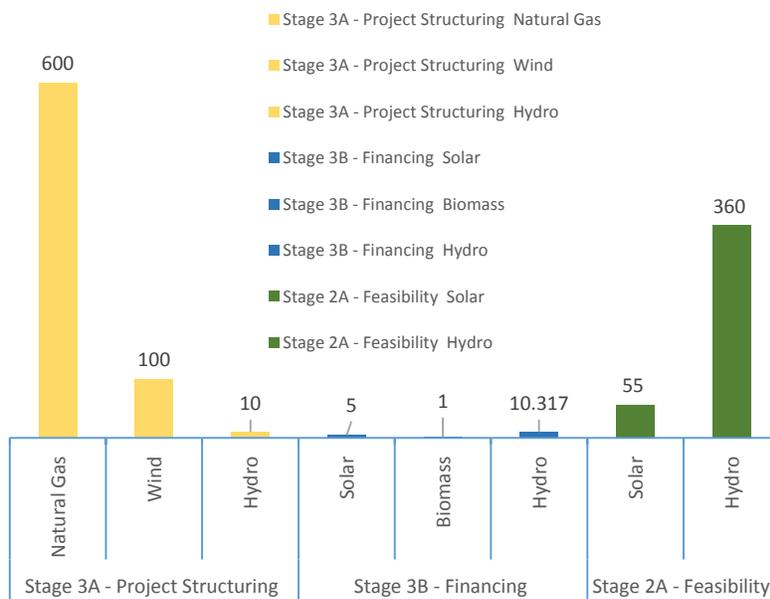


Table 9. List of generation transactions

Name	Status (proposed or active)	Stage	Technology	MW	Connections
Kiwira River (East Africa Power Limited)	Active	Stage 3B - Financing	Hydro	10	4,394
Kinyerezi III	Active	Stage 3A - Project Structuring	Natural Gas	600	458,747
Ruhudji	Active	Stage 2A - Feasibility	Hydro	360	158,189
University of Dodoma 55 MW	Active	Stage 2A - Feasibility	Solar	55	9,667
Aldwych Singida Wind	Active	Stage 3A - Project Structuring	Wind	100	26,365
NextGen / Kigoma	Active	Stage 3B - Financing	Solar	5	17,500
Mapembasi / Njombe	Active	Stage 3A - Project Structuring	Hydro	10	22,410
Husk Power	Active	Stage 3B - Financing	Biomass	1	-
Lupali	Active	Stage 3B - Financing	Hydro	0.317	1,459
Luganga	Proposed	Stage 1 - Pre-Feasibility	Hydro	2.8	-

Name	Status (proposed or active)	Stage	Technology	MW	Connections
Isigula	Proposed	Stage 3A - Project Structuring	Hydro	0.407	1,182
Ijangala	Proposed	Stage 2B - Project Development	Hydro	0.36	1,000
Nakatuta	Proposed	Stage 2B - Project Development	Hydro	10	4,394
Kinyerezi IV	Proposed	Stage 2A - Feasibility	Natural Gas	500	382,289
Kusini Mtwara	Proposed	Stage 3A - Project Structuring	Natural Gas	200	152,916
Kakono	Proposed	Stage 3B - Financing	Hydro	87	38,229
Rumakariya	Proposed	Stage 1 - Pre-Feasibility	Solar	500	87,883
Kinyerezi I (Expansion)	Proposed	Stage 3B - Financing	Natural Gas	186	142,212
Kinyerezi II	Proposed	Stage 3B - Financing	Natural Gas	240	183,499
Kilwa I	Proposed	Stage 4A - Conditions Precedent	Natural Gas	320	244,665
Kilwa II	Proposed	Stage 3B - Financing	Natural Gas	300	229,373
Shinyanga	Proposed	Stage 3A - Project Structuring	Solar	150	26,365
Makambako	Proposed	Stage 3A - Project Structuring	Wind	100	26,365

Summary of PATRP's progress in Tanzania during Q1 2016

Kakono HPP. A Value for Money (VfM) study comparing the costs for TANESCO of implementing the 87 MW Kakono Hydroelectric Power Project as either: (i) a fully-owned project, (ii) an IPP, or (iii) a variant of an IPP was largely finalized. A Users' Manual and a PowerPoint Presentation to accompany the study have also been developed. Among other matters that remain open, the study's methodology will be discussed with TANESCO to determine, in particular, if the assumptions with regard to risk events, probability of occurrence, and total cost impacts seem reasonable to the utility. The key element is that the VfM study and the Users' Manual, jointly, should in the future enable TANESCO personnel to do VfM studies for other projects independently.

EA Wind (100 MW). PATRP reviewed the term sheet and commented on this project, which is receiving assistance from the World Bank. The project is currently being considered for Power Africa support.

Dodoma Solar (55 MW). PATRP supported TANESCO with procurement of a consultant to conduct a feasibility study for the implementation of a 55 MW solar power facility in Dodoma, as well as a solar research station at the University of Dodoma. This procurement would involve the installation of the facility on a PPP basis. This second procurement is also being coordinated with support and technical assistance of the World Bank.

100 MW Dodoma Solar Plant. PATRP incorporated World Bank feedback on the draft RFP it prepared with TANESCO regarding a new 100 MW solar plant. The project is currently being considered for formal Power Africa support. This is the first of two different RFPs that will be developed by PATRP working closely with TANESCO. The second one is a 100 MW wind-powered station to be located in Singida or Makambako. It remains to be seen whether TANESCO will agree to finalize and launch one or both of RFPs as Reverse Auctions in 2016.

Kinyerezi 1 (expansion - 186MW). PATRP developed a management summary of the Kinyerezi 1 (expansion) project, necessary to obtain final clearance to construct. The down payment for the plant has been fully arranged. The Government will fund the debt requirement, although the source of funding has not yet been confirmed.

Masigira HPP PPA negotiations. The two-stage (2 x 35MW) 70 MW Masigira hydroelectric project is a relatively new, unsolicited proposal which has been around since 2011-2012, but only now seems to have become very active. During the quarter, PATRP participated in PPA negotiations between TANESCO and the project sponsors. Further negotiations are expected in Q2.

PPA Templates. Masigira and Kinyerezi III are two of the first PPA negotiations being handled by TANESCO. Although the development by EWURA of PPA templates for each technology has greatly advanced the level of awareness within the TANESCO Investment Division (the entity which conducts the negotiations), it is clear that important issues are unresolved in these templates. Alternate provisions introduced by sponsors are almost always initially unacceptable and must be worked through with the sponsor to understand why the change is needed. To this end, PATRP is exploring the option of providing additional capacity building to TANESCO on project agreements, to include PPAs and IAs.

Project pipeline. A group of six unsolicited wind and solar projects are expected to enter the pipeline. For this group, PATRP and TANESCO are looking into a reverse auction approach to implement the projects as PPPs. This group of projects amounts to about 500 MW total with a collective value of USD \$2.7 billion.

TANESCO-TSO support. PATRP continued to implement the approved work plan, which is intended to support the restructuring of TANESCO within the framework of implementing the Tanzania Electricity Supply Industry Reform Strategy and Roadmap. PATRP is supporting the establishment and institutional development of an independent transmission system operator (TSO).

To this end, during the reporting period, PATRP met with the TANESCO-TSO Sub-Working Group to review its PSS/E model, define issues, and develop an accurate and verified power system model that will allow for robust grid planning going forward. PATRP's review of the model revealed major deficiencies. Moreover, the team from TANESCO's Grid Control Center cannot verify the input data, since important information (such as configuration of some substations and a system single line diagram, parameters of lines and major substation equipment, etc.) is not available. As a follow up, PATRP met with the Co-chair of the Joint Working Group and the Transmission Manager and described the aforementioned issues and submitted a detailed request for missing and/or additional information. TANESCO agreed to collect, verify and provide the requested information within one month. In parallel, PATRP will work with TANESCO technical staff to develop a comprehensive database that will contain all necessary information and drawings for system operations and planning.

With respect to buttressing the TSOs budgeting, accounting and human resources: (i) PATRP received the 2016 first six months budget data and reviewed it for accuracy and completeness. The financial audit of TANESCO is still underway and audited financial statements are still not available to the team, although they should have been available in December 2015. This has caused a delay in completing the TSO financial model; and, (ii) PATRP continued to develop a draft organizational structure for a functionally unbundled TSO within TANESCO. In support of this, PATRP finalized and shared with USAID a report on Human Resources Development and Training, which set forth various recommendations, to include performance appraisals and salary structures.

317 kW Lupali small hydro project. PATRP participated in a Joint Meeting with Lupali project sponsors, advisors and potential lender. The meeting took place at the lender's offices. The purpose of the meeting was to discuss the Lupali loan application, the lender's indicative terms and conditions and next steps. Lender's representatives have since commenced their appraisal process for the Lupali project, and the project sponsors have submitted project supporting documents for the lender's review. In support of this process, PATRP drafted a supporting letter from REA to the lender.

10 MW Nakatuta small hydro project. PATRP and the project sponsor continued to explore cost-effective options to enable the project to remain economically viable. The Letter of Intent for the Nakatuta small hydropower project from TANESCO indicates the interconnection point to be at a new Songea 220/33kV sub-station. However, the Engineering Assessment and Grid interconnection Study that was

commissioned by the project sponsor indicates that it is technically possible to interconnect at the existing Songea sub-station; however, a double-circuit transmission line is proposed in order to minimize electrical losses. Connecting the power plant to the existing line would significantly cut the project's transmission line costs. The Engineering Assessment Study further proposes to utilize double-circuit conductors from Nakatuta to Songea substation to minimize losses. The project sponsors have formally submitted a request to TANESCO regarding the interconnection change.

Pipeline of early and mid-stage hydro projects. PATRP is collating a booklet summarizing project details for small power projects within the REA pipeline. The booklet will be presented to potential investors who will be participating at the ARE/RECP Off-Grid Investment Forum on April 12-13 in Amsterdam, the Netherlands. PATRP is also assisting two developers who are in early stage discussions with an equity investor. PATRP assisted the developers in formulating and refining a term sheet that was presented to them by the potential equity investor.

Husk Power Systems (HPS): PATRP met with the co-founder and CEO of Husk Power Systems (HPS) to discuss progress and obstacles they are encountering in implementing their projects. Since 2014, HPS has installed three biomass gasification powered mini-grids in Morogoro and Geita regions and serves over 200 customers. Going forward, HPS is planning to install solar-biomass hybrid systems that can provide 24/7, three-phase AC power to commercial and residential customers. PATRP and HPS discussed and reviewed HPS plans to invest up to USD \$30 million to deploy off-grid power generation equipment. The proposal will enable HPS to deploy a total of 25 MW across 5 regions that they have identified. Discussions are ongoing regarding the appropriate approach that will allow HPS to reach an agreement with the relevant authorities covering standards for operations, possible concession and an exit mechanism when the national grid arrives. PATRP will look to support these new initiatives.

EAST AFRICA REGION

PATRP maintains a technical advisor who is resident in Kigali, Rwanda and covers the East Africa region, with a particular focus on transmission interconnections projects being advanced by the Nile Equatorial Lakes Subsidiary Action Program (NELSAP). Similarly, PATRP is also supporting the Eastern Africa Power Pool (EAPP) as it looks to build a robust regional power trading platform, with a specific focus on operationalizing the Ethiopia-Kenya-Tanzania interconnector (EKT).



Moving forward, PATRP will be deploying a resident transaction advisor to Rwanda in Q2, and will also look to identify and advance small to medium sized generation projects in Uganda that require technical assistance. Finally, PATRP plans to engage a part-time geothermal advisor, based in Nairobi that will support Power Africa's geothermal program in the region, and provide technical assistance on existing geothermal transactions.

Summary of PATRP's progress in East Africa during Q1 2016

The EKT line. The EKT Transmission Working Group (TWG) meeting was held in Addis Ababa on January 20, 2016 where the following items were covered: (i) a draft wheeling agreement developed by PATRP was distributed for review and comment; (ii) the USEA EKT study results were reviewed and adopted; (iii) an outline of an Interconnection Agreement developed by PATRP was distributed for comment; (iv) the EKT project timeline was revised and now shows completion by Q4 2018; and (v) it was announced that the 200 MW PPA between EEA and TANESCO is close to execution.

EAPP Interconnection Code Compliance Program. The EAPP/IRB Roadmap that was initially developed in Kigali at a meeting in late 2015 was approved by the Steering Committee and the Council of Ministers at their meetings of January 21 and 22. The EAPP Interconnection Code (IC) Compliance Program that is being led by PATRP was also approved and launched. The EAPP Interconnection Code includes a set of standards and measures to clearly specify what is required of member countries/utilities and what evidence is needed to determine whether an entity is in compliance with the each of the requirements set out in the Code. The EAPP IC Compliance program now seeks to ensure that all utilities and operators comply with IC and that the EAPP transmission grid is operated in a safe, reliable, secure and efficient manner once trading begins in earnest. PATRP will move forward with implementing this compliance program in Q2.

Nile Equatorial Lakes Subsidiary Action Program (NELSAP). PATRP assisted NELSAP's Project Implementation Unit (PIU) responsible for developing Transmission and Regional Generation on: (i) appointing preferred consultants to perform studies on the technical and commercial operations of its proposed interconnection system. PATRP assisted the PIU in the negotiations and will advise during the execution of the studies; PATRP is also ensuring that the consultants retained for this work will focus on the critical evacuation of power from Rusizi and Rusumo HPPs; and, (ii) drafting of a paper illustrating the nexus between water and energy and how interconnectors assist in stabilizing water and energy resources in the region (the purpose of the document is to enhance the support of Energy Ministries in the region towards improved interconnectivity and trade).

Off-Grid/Small-scale. PATRP discussed with the developer DCH/Afritech on ways Power Africa can support their projects. The developer is targeting small- to medium-sized hydropower developments in Tanzania (four), Uganda (four) and Rwanda (six). Their Rwandan developments, Rwaza 1 & 2, are at post-feasibility stage and final PPAs are imminent. Additional follow up is expected in Q2.

SOUTHERN AFRICA REGION

Many of the transactions mentioned below span several countries, including South Africa, Namibia, and Botswana but are at an early stage in the project cycle and may need support with sourcing funds for feasibility studies, sourcing financing, and negotiating PPAs and other project agreements. These transactions were initially identified by PATRPs Lead Southern Africa Regional Transaction Advisor. However, in order to service these transactions moving forward, PATRP has identified a second Regional Transaction Advisor who will join the program in Q2. This additional assistance will allow PATRP to further augment its efforts in the region. In addition, PATRP will also look to deploy resident transaction advisors in Angola, Zambia and Malawi in the coming months as part of the program’s expansion. PATRP has also seconded a transaction advisor to the Africa Union’s New Partnership for Africa’s Development (NEPAD), who is tasked with accelerating the development and implementation of the Africa Power Vision energy projects.



The following figures show the composition of active transactions in Southern Africa (that have not yet reached financial close) by stage, and how they have advanced through the project cycle. There are also a further eight transactions totaling over 200 MWs that are currently being vetted for PATRP support.

Fig. 15. Breakdown of transactions

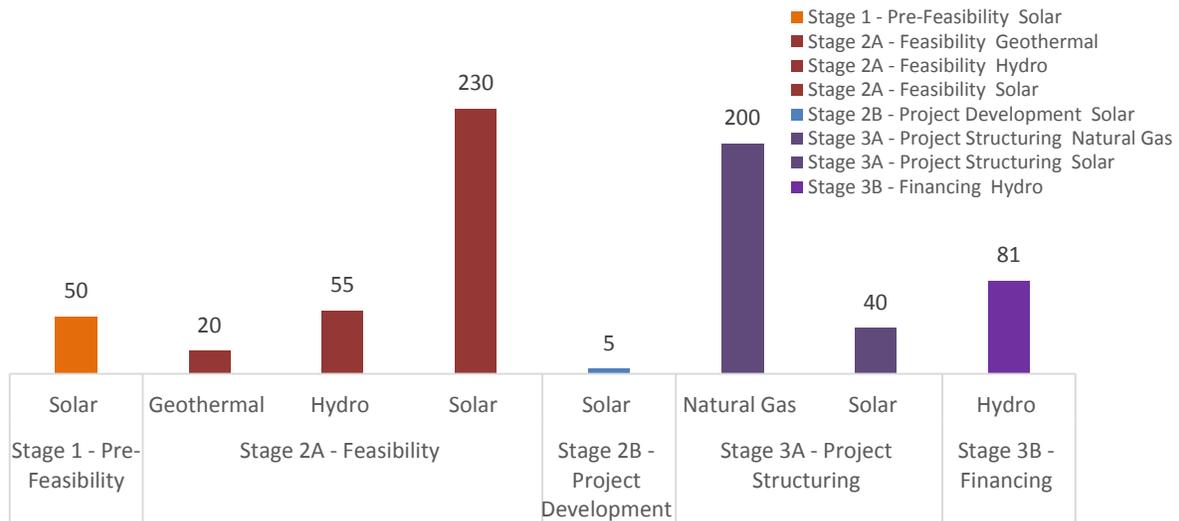


Fig. 16. Movement of transactions by Stage

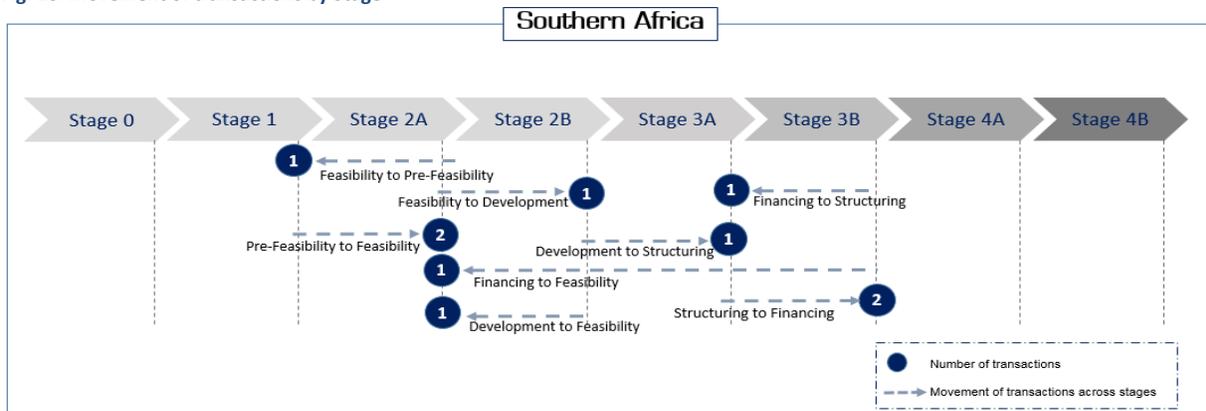


Table 10. List of generation transactions

Name	Country	Stage--1, 2a, etc	Technology-- Wind, Solar, etc	MW	Connections
AEC Namibia Solar	Namibia	Stage 2B - Project Development	Solar	5	2,429
Xaris	Namibia	Stage 3A - Project Structuring	Natural Gas	200	100,609
Luweya River	Malawi	Stage 2A - Feasibility	Hydro	15	5,300
JCM Capital Solar PV	Malawi	Stage 2A - Feasibility	Solar	30	4,240
Mbongozi Power	Malawi	Stage 3B - Financing	Hydro	41	14,488
Atlas Energy Solar PV	Malawi	Stage 3A - Project Structuring	Solar	40	5,654
Ngonye Falls	Zambia	Stage 2A - Feasibility	Hydro	40	17,625
Kumi Zuba	Zambia	Stage 2A - Feasibility	Solar	100	14,100
Kalahari GeoEnergy	Zambia	Stage 2A - Feasibility	Geothermal	20	12,690
Kabompo	Zambia	Stage 3B - Financing	Hydro	40	14,100
Total/Western Power JV	Zambia	Stage 1 - Pre-Feasibility	Solar	50	7,050
Scaling Solar 1	Zambia	Stage 2A - Feasibility	Solar	50	7,050
Scaling Solar 2	Zambia	Stage 2A - Feasibility	Solar	50	7,050

Summary of PATRP's progress in Southern Africa during Q1 2016

Zambia – captive generation. PATRP worked with private sector partners to identify near-term captive commercial off-taker investment opportunities in Zambia to implement that strategy. Four such opportunities identified are: (i) AttaAfrica (shopping malls), (ii) Zambeef (agriculture/agribusiness), (iii) Zambian Breweries (brewery/soft drinks), and (iv) Lilayi Development (agriculture). In this direction, PATRP worked with local Zambian contacts and arranged a visit by interested parties to secure info needed from two prospective captive commercial off-takers (i.e. Zambeef and Zambian Breweries). Thereafter, and with USAID support, PATRP completed an ‘Opportunity Fund Submission’ requesting the fast tracking of feasibility study funding for the Zambeef (up to 12 MW) and Zambian Breweries (up to 60 MW in seven locations).

Zambia/SIDA. At the request of the Swedish Embassy in Lusaka, PATRP participated in a stakeholder meeting to discuss implementation of the Swedish Government/SIDA-supported “Off-Grid Innovation Fund.” The Fund was officially launched at the end of Q1. PATRP is working with the Fund Managers and will assist with: (i) setting up the operational model of the Fund; (ii) pipeline development of projects that can benefit from the Fund; and, (iii) introducing Power/BTG partners to the Fund’s existence and opportunities provided by it.

In addition, PATRP identified a new solar PV project in Western Zambia. The developer is a South African solar PV Company. The project is at the nexus of agricultural development, energy and employment creation. PATRP referred the deal to the Off-Grid Innovation Fund Manager.

PATRP held an introductory meeting with Swedish New Energy Technologies to discuss biomass-based fuel cell power provision for the Telecom sector. PATRP referred them to the Swedish Embassy in Zambia to discuss the opportunity to submit an application for (financial/grant) support from the Off-Grid Innovation Fund

Zambia – waste to energy. PATRP met with executives of two U.S. companies exploring opportunities in Zambia. One has identified and will be pursuing three 15 MW waste-to-energy plants for the city of Lusaka; the second will install five micro-grids (total of 1 MW) in selected sites. These deals will be added to the PATT. The second company is also exploring the possibility of setting up a photovoltaic and wind turbine manufacturing facility in Lusaka’s “Economic Zone.”

Malawi. PATRP identified an immediate need to assist ESCOM (the state power utility) in developing/negotiating a PPA for a solar PV transaction being developed by JCM Capital (a Power Africa private sector partner), which would be first such IPP in Malawi. It is proposed that PATRP deploy transaction advisory assistance to support ESCOM in Q2.

Re-engaging on Xaris transactions (200 MW; gas – Namibia). Given the recent movement on this transaction, PATRP held discussions with sponsors to begin the process of determining how Power Africa might support the transaction. Further discussions will be held before an action plan is agreed.

Botswana. PATRP met with executives of a developer to learn of their challenges in Botswana. One key issue is that the Botswana Power Company (BPC) intends to retain ownership over all generation assets. Also, a tender for 100 MW of new solar power generated a considerable number of submissions, but there has been little follow-on activity, to date. This may be a possible area for Power Africa support and PATRP will deploy the Lead Regional Transaction Advisor to Botswana to identify other opportunities in Q2.

Lesotho. PATRP met with the CEO of a developer to discuss a potential wind farm in Lesotho. The developer already has an agreement with the Government of Lesotho and a detailed feasibility is currently underway; investments would be completed on an incremental basis, starting with 50 MW. PATRP is awaiting the feasibility study to assess the opportunity for Power Africa support.

Zambia/Tanzania/Kenya (ZTK) Transmission Interconnector Project. With PATRP assistance, NEPAD sent an official letter to the Permanent Secretary (PS) at the Zambian Ministry of Energy, indicating their willingness to meet to discuss possible NEPAD support for this project. The resulting meeting elicited the following key findings/observations:

- The Kenyan and a part of the Zambian Line have already secured funding and are under construction (Insinya – Iringa), but the most significant issue for the project at the moment is the financing required from Iringa in Tanzania to Kabwe in Zambia.
- The Office for Promoting Private Power Investment (OPPPI, which is responsible for implementing this project, is currently looking to host a financier’s conference in June, in which they aim to market the project.
- With the help of the EU, OPPPI is currently appointing an advisor to do a market study on the ZTK, which will look at the potential volumes of power that can be traded, the wheeling arrangements required, and the impact of the interconnector on the SAPP and EAPP systems. The report will be out towards the later part of 2016.
- Grant funding from the EU is coming to an end in 2016, and OPPPI is looking for resources to help them complete the project.
- The PS is eager to have NEPAD assist them with looking for potential funding so the OPPPI can continue its work on the ZTK.

Thereafter, OPPPI sent NEPAD a formal letter of engagement, indicating those items that they would like NEPAD to assist with: (i) Preparing for a financiers round table in June; (ii) assisting them in securing project preparation funds to continue working on the project; and, (iii) providing Technical assistance on the commercial arrangements required for trading power (PPA’s, wheeling arrangements, tariff setting). A decision on next steps is expected in Q2.

WEST AFRICA REGION

PATRP maintains a resident transaction advisor in the region, based out of Dakar, Senegal. The transaction advisor services projects principally in Francophone West Africa, including Burkina Faso, Benin, Guinea, Côte d'Ivoire, Mali, Senegal and Mauritania. In addition, and pending his placement within the AfDB, PATRP also deployed a second Regional Transaction Advisor based in Abidjan, Cote d'Ivoire during the quarter - he will support and back-stop the Regional Transaction Advisor on transactions in Cote d'Ivoire. Moving forward, PATRP will also appoint an additional resident energy advisor in Senegal, who will be tasked with managing in-country work streams that form part of the expanded PATRP scope of work.



The following figures show the composition of active transactions in West Africa (that have not yet reached financial close) by stage, and how they have advanced through the project cycle.

Fig. 17. Breakdown of transactions

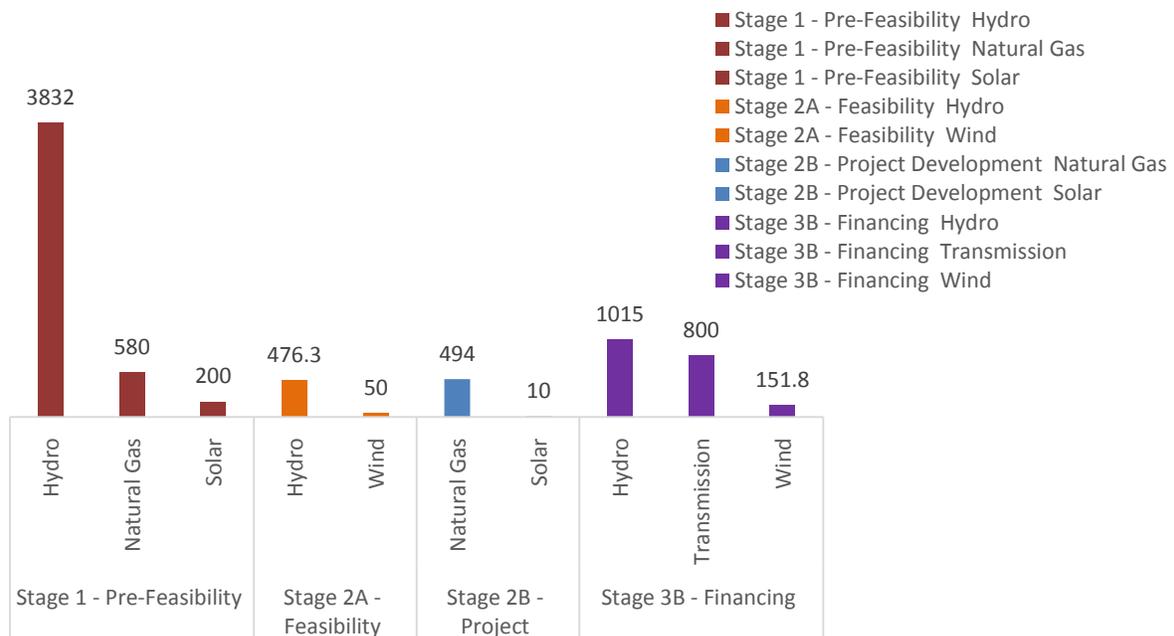


Fig. 18. Movement of transactions by Stage

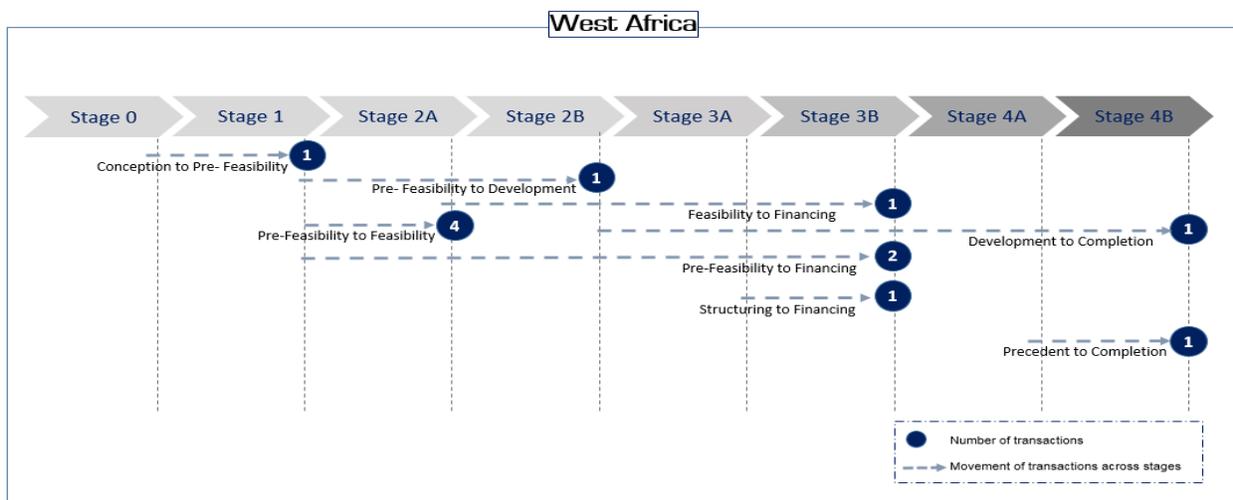


Table 11. List of generation transactions

Name	Country	Stage--1, 2a, etc	Technology-- Wind, Solar, etc	MW	Connections
Tiboto	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Hydro	225	105,003
Tahibli	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Hydro	20	9,334
Fello Sounga	Guinea	Stage 2A - Feasibility	Hydro	82	28,975
Digan	Guinea	Stage 2A - Feasibility	Hydro	93.3	32,968
Saltinho	Guinea	Stage 1 - Pre-Feasibility	Hydro	19	6,714
Kouya	Guinea	Stage 1 - Pre-Feasibility	Hydro	86	30,388
Songon Power	Côte d'Ivoire	Stage 2B - Project Development	Natural Gas	374	303,696
ContourGlobal Markala	Mali	Stage 2A - Feasibility	Hydro	10	-
Kogbedou	Guinea	Stage 1 - Pre-Feasibility	Hydro	44	15,548
Poudalde	Guinea	Stage 1 - Pre-Feasibility	Hydro	130	45,936
Gao and Tayaboui	Côte d'Ivoire	Stage 1 - Pre-Feasibility	Hydro	210	98,003
Amaria	Guinea	Stage 1 - Pre-Feasibility	Hydro	300	106,006
Balassa	Guinea	Stage 1 - Pre-Feasibility	Hydro	181	63,957
Banda Gas-to-Power	Mauritania	Stage 1 - Pre-Feasibility	Natural Gas	180	110,670
Bamafelle	Guinea	Stage 1 - Pre-Feasibility	Hydro	58	20,495
Bonkon Diara	Guinea	Stage 1 - Pre-Feasibility	Hydro	174	61,484
Boureya	Guinea	Stage 1 - Pre-Feasibility	Hydro	114	40,282
Diaoya	Guinea	Stage 1 - Pre-Feasibility	Hydro	149	52,650
Diaragella	Guinea	Stage 1 - Pre-Feasibility	Hydro	72	25,441
Doundouko	Guinea	Stage 1 - Pre-Feasibility	Hydro	127	44,876
Fakarra	Guinea	Stage 1 - Pre-Feasibility	Hydro	70	24,735
Fetore	Guinea	Stage 1 - Pre-Feasibility	Hydro	124	43,816
Fomi	Guinea	Stage 1 - Pre-Feasibility	Hydro	110	38,869
Gaoual-C	Guinea	Stage 1 - Pre-Feasibility	Hydro	49	17,314
Gozoguezia	Guinea	Stage 1 - Pre-Feasibility	Hydro	48	16,961
Gran Kingkon	Guinea	Stage 2A - Feasibility	Hydro	291	102,826
Hakkaounde	Guinea	Stage 1 - Pre-Feasibility	Hydro	84	29,682
Kassa B	Guinea	Stage 1 - Pre-Feasibility	Hydro	118	41,696
Korafindi	Guinea	Stage 1 - Pre-Feasibility	Hydro	100	35,335
Koukoutamba	Guinea	Stage 1 - Pre-Feasibility	Hydro	292	103,179
Kouravel	Guinea	Stage 1 - Pre-Feasibility	Hydro	135	47,703
Lafou	Guinea	Stage 1 - Pre-Feasibility	Hydro	98	34,629
Madina Kouta	Guinea	Stage 1 - Pre-Feasibility	Hydro	67	23,675
Mangoy	Guinea	Stage 1 - Pre-Feasibility	Hydro	67	23,675
Morisananko	Guinea	Stage 1 - Pre-Feasibility	Hydro	100	35,335
Netere	Guinea	Stage 1 - Pre-Feasibility	Hydro	71	25,088
Souapiti-	Guinea	Stage 3B - Financing	Hydro	515	181,977
Tene	Guinea	Stage 1 - Pre-Feasibility	Hydro	76	26,855
Tigeya	Guinea	Stage 1 - Pre-Feasibility	Hydro	60	21,201
Tiopo 1	Guinea	Stage 1 - Pre-Feasibility	Hydro	115	40,636
Tiopo 2	Guinea	Stage 1 - Pre-Feasibility	Hydro	83	29,328
Tourdou	Guinea	Stage 1 - Pre-Feasibility	Hydro	56	19,788
OMVS Manantali II T&D + HD	Mali	Stage 3B - Financing	Hydro	500	176,677
10 MW PV Parakou Benin	Benin	Stage 2B - Project Development	Solar	10	1,889
Genesis Gas Plant	Benin	Stage 2B - Project Development	Natural Gas	120	98,604
Taiba N'Diaye	Senegal	Stage 3B - Financing	Wind	151.8	32,023
FSRU to Replace HFO with LNG	Senegal	Stage 1 - Pre-Feasibility	Natural Gas	400	244,708
Leona	Senegal	Stage 2A - Feasibility	Wind	50	10,548
Senegal Scaling Solar Program I	Senegal	Stage 1 - Pre-Feasibility	Solar	100	14,064
Senegal Scaling Solar Program II	Senegal	Stage 1 - Pre-Feasibility	Solar	100	14,064

Summary of PATRP's progress in West Africa during Q1 2016

Benin. PATRP assisted a Power Africa private sector partner with their PPA negotiations with the Government of Benin. PATRP reviewed the PPA and proposed revisions to non-bankable clauses, which were then presented by the Partner to the Government. Unfortunately, the PPA revisions were not accepted by the Government and negotiations were stalled. PATRP engaged with USAID to determine the best way to move forward. Three alternatives were considered: (i) PATRP would travel to Benin to work with the Government on the proposed PPA terms; (ii) provide more generic capacity building to the Government on PPAs, financial modeling and legal constraints; or (iii) facilitate external legal assistance to the Government through the ALSF. The matter is now under consideration by USAID.

Guinea – pipeline. PATRP met with a developer group regarding the hydro potential of Guinea. The group is particularly interested in the development of the Koukoutamba Hydro plant (154 MW), and more generally other generation project Guinea and Côte d'Ivoire. The group would like to see improvements to the enabling environment in Guinea, specifically for developing its significant hydro potential. PATRP raised this issue with USAID, to include the nature and scope of PATRP's engagement in Guinea and any related environmental concerns, and will continue the dialogue in Q2.

Off-Grid in Niger. Based on a request from USAID, PATRP developed a first draft of a country assessment for solar PV potential in Niger. Preliminary findings show a very weak enabling environment and regulatory process to foster development of solar PV (or any renewable technology), subsidized electricity imports, high import duties for solar equipment, and apparently lack of local technical skills and quality control. PATRP will follow up with USAID on this Q2.

Sierra Leone. PATRP visited Sierra Leone at the request of the local USAID mission to meet with local stakeholders, including the Minister of Energy. The Minister was pleased to see Power Africa's willingness to support transactions in the country and underlined the inexperience of the ministry and its personnel with negotiating power projects with private sector partners. Potential transactions have already been identified in Senegal, and PATRP will follow up with USAID on vetting these projects and potentially onboarding them as Power Africa transactions.

Mali – Malarka project (hydro dam 12.5 MW). This transaction is again delayed following the rejection of bids submitted in response to the tender launched by the Government to obtain an additional environmental study on the impacts on agriculture. A new process will be launched within 60 days and the process is expected to result in a new environmental report in Q3 2016.

Mali – Regulatory Authority. PATRP met with the president of the Mali Commission de Régulation de l'Electricité et de l'Eau (CREE), which is driving the reform of the infrastructure sector, with energy forming a key component. CREE would like PATRP to provide assistance with developing reforms, which would open up the energy sector to private sector engagement. This matter will be discussed further with USAID during Q2.

Côte d'Ivoire – Songon 372 MW. PATRP prepared a brief for the U.S. Ambassador in Côte d'Ivoire on challenges facing the project, and the actions to be taken. The US Ambassador indicated that PPA Annexes were executed by the Ministry of Energy and Ministry of Budget. Subsequently the PPA needs to be amended for bankability. PATRP continues to track progress and will engage as needed to advance the transaction.

Côte d'Ivoire – Tiassalé 51 MW Hydro plant. PATRP is working with the developer to identify funding for the feasibility study. To this end, PATRP will utilize the newly finalized Project Preparation Facility (PPF) toolbox to identify possible sources of funding to advance the early development of the project.

Côte d'Ivoire – Singrobo 44 MW Hydropower plant. DCA indicated that a USD \$15-20 million commercial lending coverage is viable. However, the developer needs to secure an agreement with an equity partner and engage with a commercial lender that can utilize a DCA guarantee. PATRP will follow up with the developer on these requirements.

Senegy I. PATRP advanced the Senegy I (Solar PV; 29 MW) transaction to financial close during Q1 by undertaking the following actions: (i) PATRP received a request to evaluate the project financial models and the PPA to ensure their bankability; (ii) based on PATRPs review of the financial models, PATRP detected some flaws, specifically the overestimation of future earnings. A review of the PPA also led to several suggested modifications; and (iii) following further discussions with the local project partner, PATRP discovered that the project was now 29 MW instead of the 20 MW referenced in the PPA. PATRP recommended that the PPA be adjusted accordingly.

Scaling Solar project. The IFC signed a new Scaling Solar Program with the Government of Senegal, and has initiated implementation of the first phase of the 200 MW generation plan. IFC specialists have visited eight sites predetermined by the Government of Senegal for the solar plants. The next step will be to start preparing an ESIA and pre-feasibility study to determine if the sites are suitable. IFC has expressed a desire to collaborate with USAID and PATRP in order to advance the initiative and address potential challenges. Further progress on this matter is expected in Q2.

Taiba Ndiaye wind farm. PATRP held discussions on this project with several interested parties with a view to reconfiguring the composition of the transaction parties and maintaining eligibility for OPIC financing.

PART 2 – SUPPORT TO THE COORDINATOR’S OFFICE

Monitoring and Evaluation (M&E). During Q1 the USAID Monitoring and Evaluation team introduced the Power Africa Information System (PAIS) to PATRP. As a result, all PATRP Performance Indicators for FY2015 and Q1 FY2016 are now captured on PAIS.

PATRP continued its data review and updates of the PATT including Risk Mitigation, Green House Gas emissions reduced, training, and connections data.

Training. In Q1, PATRP conducted two training sessions in Tanzania as part of its work with TANESCO’s Transmission System Operator, namely: (i) Performance Appraisal Systems for Utilities; and (ii) Electricity Balancing Workshop. The Electricity Balancing workshop presented information about the flows of electricity, covering both generation, import, transmission, export, distribution, losses and consumption by each category of customers for a given year. The table below shows Training/Capacity building indicator results.

Table 12. Training data

Country	Training & Workshops	Date of Training	# of Male	# of Female	# of participants Total	Hours of Training	Total # of person hours trained
Tanzania	Performance Appraisal systems training	22-Jan-16	8	7	15	2	30
Tanzania	Electricity Balances Workshop	26-Feb-16	5	1	6	2	12.0

Power Africa Tracking Tool (PATT). During Q1, PATRPs Project Management Team continued with updates and clean-up of PATT in preparation for its public launch. The public version of the iPhone app was ultimately launched during the Powering Africa Summit in Washington in January. The new app received positive feedback from Power Africa Partners and attendees to the Summit. The transfer of the PATT public app to the USAID Power Africa Apple developer account, which will allow ‘USAID Power Africa’ to appear as the developer on the app, is still in progress. PATRP is also developing the Android version, which is expected to be ready in Q2.

Other activities included:

- Providing input for PATT ‘frequently asked questions’ (in preparation for the PATT public launch).
- Held discussions with the Power Africa team and USAID on the integration and launch of the Power Africa Website and map with PATT data.
- Prepared country summaries and uploaded them into PATT.
- Collecting PATT App usage statistics and submitting to USAID.
- Conducted training and detailed analysis of East Africa, Tanzania and Kenya transactions.
- PATT update and clean-up based on feedback received from points of contact (POCs) and TAs, this included updating transaction leads (POC, Country Desk Officers, Country Mission and Relationship Managers) on transactions.
- Designed M&E and Enabling Environment reports, and submitted for review by USAID.
- Meeting with USAID’s Office of the Chief Information Officer (CIO) to discuss the process of rolling out USAID systems; PATT App (Apple & Android) to be rebranded first before transferred to USAID and reflect USAID name on the App Store.
- Released PATT update on Test Flight (Internal & Public) to include issues raised on the Punch List for testing.

- Conducted detailed PATT training and analysis of transactions with Nigerian Transaction Advisors.
- Submitted PATT Specification Documents, technical fact sheets and mobile App source codes to CIO for review and approval.
- Discussed and scheduled PATT training for the USAID M&E team.

Gender Integration. The Gender Advisor continued to provide support to Power Africa’s Women in African Power (WIAP) network. This includes updating and maintaining the WIAP database and a compilation of member bios, as well as managing the WIAP LinkedIn group, which has 156 members. There are approximately 250 members in the full WIAP database. Relevant news and resources are sourced to keep the page active and informative. Resources and interesting news from the sector relevant to women and energy were uploaded on LinkedIn, and new PATRP Transaction Advisor vacancies were shared in order to draw more women into the recruitment pool. Bios were also requested and compiled from which Power Africa can recommend speakers for major energy events. The Gender Advisor worked closely with organizers of the Africa Energy Indaba and Women in Energy Forum to ensure women are well represented on the panels. Thirteen names and bios from the network were sent to the organizers as recommended speakers. At least two confirmed and were added to the conference agenda.

The Gender Advisor presented a webinar on the role of Power Africa Transaction Advisors in gender integration to the PATRP team. It was presented three times in February with the aim of reaching all of the transaction advisors. Other efforts to build the capacity of transaction advisors to integrate gender include regularly sharing existing and available resources on gender in the energy sector with the transaction advisors via email. A series of easily accessible information notes for the transaction advisors on relevant subjects will be developed on an ongoing basis from March.

The Gender Advisor facilitated monthly meetings (teleconferences) during each month of the quarter with the Power Africa Gender Integration Working Group, which consists of McKinsey and AGI representatives as well as USAID. These calls provide a platform for information sharing between the Power Africa implementing mechanisms regarding gender integration in Power Africa.

Other activities performed by the Gender Advisor included:

- Call with Scatec Solar representatives to explore possibility of including Scatec’s approach to women’s economic empowerment into agenda of Kenya Power site visit to South Africa in Q2.
- Provided content to Senior Transaction Advisor on gender integration for Transaction Advisor’s Handbook update.
- Added new gender and energy resources to Team Site on Share Point.
- Continued research on private sector partners and gender equality commitments. This is to inform an information brief for Transaction Advisors on engaging with private sector partners on gender equality.
- Began review of transactions on PATT, as well PESRM checklists, with the aim of identifying opportunities for gender integration and follow up with a call with the respective Transaction Advisors. This will be done monthly for each country.
- Ongoing review of gender and energy resources.

Power Africa Private Sector Partners (PSP). Due diligence continued on prospective partners. In the first quarter of 2016, 13 new due diligence memos were produced and five were updated and re-submitted. PATRP also continued to provide technical resources to advance the Power Africa Private Sector Partner Customer Relationship Management Platform.

Environmental and Social Due Diligence Process for Power Africa Projects. Specific activities performed by PATRP’s Environmental Specialist included:

- Screening of all PATRP supported transactions of which 116 qualified for further due diligence through the PESRM Checklist. PESRM Checklists for a total of 103 PATRP supported transactions were completed by the end of Q1.
- Escalating PESRM Checklists for Souapiti hydro and Chemoga Yeda hydro due to potential environmental and social concerns (see Appendix 1).
- Holding a conference call with DuSable Capital to discuss deficiencies identified in the ESIA Report for their proposed PV facility as noted in the PESRM Checklist. DuSable clarified that the ESIA process is being revisited by their consultants in order to bring it in line with international standards in order to access funding. The checklist will need to be revised based on this information.
- Identifying and querying major deficiencies in ESIA Report for JBS Wind, Nigeria. PATRP requested additional project information from the developer and clarity on the layout relative to neighboring communities and bird monitoring information.
- Conducted environmental and social impact awareness training of Transaction Advisors and PATRP staff in Pretoria over several weeks in February 2016.
- Provided technical assistance to partner (Proton Energy) in development of an Environmental and Social Management System as part of its application for OPIC finance
- Provided input for the environmental and social component of an RFQ to be released for the Chemoga Yeda hydro transaction.
- Developed an Environmental Monitoring and Mitigation Plan for PATRP and submitted to USAID for approval.

A detailed description of PATRP’s compliance with the IEE conditions is set forth in Appendix 1 of this Report. In general, the transactions subjected to the PESRM Checklist demonstrated an “acceptable” level of compliance (i.e., no risks were identified that could not be adequately mitigated) and environmental impacts are either not yet fully documented (due to the absence of ESIA reports), or mitigation measures prescribed in the management plans are commensurate with the anticipated impacts. In these circumstances, no recommendations were made to cease PATRP support to any of these transactions. However, several projects do warrant ongoing PATRP monitoring or more affirmative activities due to siting considerations and associated impacts on receiving communities in particular. As indicated above, some of the larger hydropower schemes, notably the Souapiti HPP in Guinea and the Chemoga Yeda HPP in Ethiopia have attracted attention on the basis of environmental and social concerns.

Small-Scale Renewable Energy (SSRE). In Q1 the PATRP SSRE team - under the leadership of the new SSRE Advisor who deployed in January - undertook the following tasks, which are beyond the country level activities presented in Part 1 of this report:

- **Country summary matrix.** Updated the country summaries matrix to reflect current information. The matrix summarizes USG BTG existing activities in each sub-Saharan Africa country related to private sector engagement, enabling environment, and financing mechanisms. The information is drawn from the BTG activities listed in the PATT and from other USG agencies. The intention is to develop this into a tool, which will provide an understanding of overlapping country priorities and activities.
- **Mini-grid strategy.** Started developing a mini-grid strategy for Power Africa BTG that captures leading private sector companies in Africa, leading markets, common configuration (technologies and size), donor activities (in corresponding countries), and gaps that Power Africa BTG can consider filling.
- **Inferred Connections Model.** Updated the inferred access model, including an expansion to all countries in sub-Saharan Africa, an update to the data taken from the IEA, and a potential update to the access numbers used per country.

- **Followed up with SAB Miller/Coca Cola**, who are in the process of screening responses they have received from possible EPC contractors, IPPs and others in relation to their Request for Information on providing a clean, reliable energy supply solution for their breweries/bottling facilities spread over 32 sites across SSA. They will indicate if and when they would like to engage Power Africa to further assist.
- **Project Preparation Facilities (PPF) Report and Toolbox.** The final draft of the PPF Report was submitted to USAID for comments, which were duly incorporated and the Report promptly finalized. In parallel, PATRP developed the PPF Toolbox, which was refined and updated during the reporting period and submitted to USAID for final approval (see Fig. 19).
- **Strategic Equity Partners list.** Reviewed and provided inputs into an overview of Strategic Equity Partners compiled by the SSRE consultant. This work in progress provides useful insights in which equity sources are in existence for BTG type activities and basic information on these equity partners.

Fig. 19. PPF Toolbox

The image shows the cover of the 'PROJECT PREPARATION FACILITIES TOOLBOX' report, featuring the Power Africa logo. Below the cover is a table titled 'PPFs in Sub-Saharan Africa and their Project Development Stage Focus Areas'. The table lists various PPFs and their focus areas across seven stages: Enabling, Concept, Pre-feasibility, Feasibility, Development, Structuring, and Financing, and Construction.

PPFs in Sub-Saharan Africa and their Project Development Stage Focus Areas	Enabling	Concept	Pre-feasibility	Feasibility	Development	Structuring	Financing	Construction
Electrification Finance Initiative (ElectrFI)		✓	✓	✓	✓	✓	✓	✓
Sustainable Use of Natural Resources and Energy Financing (RTAP-SUNREF)		✓	✓	✓	✓	✓	✓	✓
Energy and Environment Partnership Program of Southern & East Africa (EEP SAEA)		✓	✓	✓	✓	✓	✓	✓
U.S. Trade and Development Agency (USTDA)		✓	✓	✓	✓	✓	✓	✓
U.S.-Africa Clean Energy Finance Initiative (ACEF)		✓	✓	✓	✓	✓	✓	✓
Infrastructure Development Collaboration Partnership Fund (DevCo)		✓	✓	✓	✓	✓	✓	✓
Climate Investor One (CIO)			✓	✓	✓	✓	✓	✓
InfraCo Africa			✓	✓	✓	✓	✓	✓
Climate Technology Initiative Private Financing Advisory Network (CTI PFAN)			✓	✓	✓	✓	✓	✓
Sustainable Energy Fund for Africa (SEFA)			✓	✓	✓	✓	✓	✓
NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF)			✓	✓	✓	✓	✓	✓
Africa Renewable Energy Fund Project Support Facility (AREF-PSF)			✓	✓	✓	✓	✓	✓
Seed Capital Assistance Facility Phase 2 (SCAF II)			✓	✓	✓	✓	✓	✓

PART 3 – ISSUES AND PROPOSED SOLUTIONS

Staffing: After consultation with, and securing concurrence from the COR, PATRP proceeded to identify candidates for additional transaction advisory roles – specifically in West Africa, Zambia, Angola, and Southern Africa. It is anticipated that candidates will be identified and confirmed during the next quarter in order to service the pipeline of transactions listed in PATT.

During the reporting period, a second transaction advisor was deployed to Ethiopia and a local assistant retained. As reported above, the AfDB transaction advisor (designate) also deployed to Abidjan during the period and will be supporting the Regional West Africa Transaction Advisor, pending resolution of the terms of the AfDB placement. Further, and in an effort to better coordinate the various work streams in Nigeria, PATRP deployed a new Lead Transaction Advisor to Abuja.

As reported previously, PATRP realigned its SSRE team and deployed a new SSRE advisor to post, with the previous SSRE advisor reassigned to work on more focused technical activities in Nigeria and Zambia.

Expenditure Forecast and Budget Realignment: As previously reported, the additional program activities that PATRP is performing have increased project burn rate. At the current rate, the obligated amount will be exhausted by December 2016. To this end, PATRP presented a new (supplemental) technical proposal and associated budget to USAID for continuation of the program. USAID subsequently provided feedback, based on which PATRP submitted a revised (supplemental) technical proposal and budget in March. PATRP hopes that this scope and budget will be finalized in April, thereby eliminating the lack of certainty on future funding levels. This will allow PATRP to plan its activities beyond the next 12 months, and renew its focus on the Power Africa objectives set forth in the *Roadmap*.

Forecast of Upcoming Activities. The following activities are anticipated to take place in Q2 2016:

- Await confirmation that the secondment contract (and related MOU) have been agreed by AfDB
- Finalize report on the impact of CBN Circular on the Nigerian energy sector
- Await response from USAID on the revised (supplemental) technical proposal and associated budget
- Review an MOU between NELSAP and Power Africa, to facilitate, and formalize the technical assistance being provided to NELSAP by PATRP
- Present candidates for transaction advisory positions in Angola, Southern Africa, and Zambia
- Subject to concurrence, identify a second DCOP, who will be responsible for all grid-related work undertaken by PATRP
- Provide assistance to USAID/Power Africa at the Africa Utility Week (Cape Town) and Africa Energy Forum (London)
- Deploy advisory team to Nigeria to support commercialization efforts with three selected distribution companies
- Deploy new resident Gas Sector advisor to Nigeria
- Deploy new resident BTG advisor to Kenya
- Deploy new resident energy advisor to Senegal
- Appoint second regional transaction advisor for Southern Africa, who will be tasked with advising ESCOM - Malawi on its upcoming PPA negotiations.
- Initiate implementation of the EAPP Interconnection Code (IC) Compliance Program
- Deliver a two, half-day sessions on the topic of gender and energy for the Young African Leaders Initiative/Power Africa Energy Institute at University of California, Davis

- Undertake further missions to Botswana and Namibia, to advance existing PATRP transactions and identify new opportunities
- NEPAD mission to Ghana, as a follow-up to the exchange of letters on advancing the Ghana 1000 transaction
- Issuance of the new RFP for the 100 MW Metahara solar PV transaction in Ethiopia subject to finalization of the template project agreements (i.e. PPA, IA, lease and connection agreements), followed by a site visit
- Hosting of Kenya Power delegation to South Africa to allow for capacity building on solar PV PPAs
- Pending budget confirmation and USAID concurrence, initiate new work streams in Kenya for improving community engagement on power generation projects, supporting KenGen with geothermal projects, and also providing capacity building with the Kenya Power Training Institute

PART 4 – PERFORMANCE INDICATORS FOR THE QUARTER

Table 13. Performance indicators

PATRP Q1 2016 PERFORMANCE INDICATORS (Q2 FY 2016)			
Indicator Name	Indicator	Disaggregate By	Q1 Actual
Generation Capacity Pending Financial Closure	Number of MW from transactions that have not yet achieved financial closure	Solar (in MW)	100
		Wind (in MW)	0
		Biomass (in MW)	0
		Hydroelectric (MW)	0
		Gas (in MW)	120
		Geothermal (MW)	0
Transactions Pending Financial Closure	Number of transactions that have not yet achieved financial closure	Solar (#)	1
		Wind (#)	0
		Biomass (#)	0
		Hydroelectric (#)	0
		Gas (#)	1
		Geothermal (#)	0
Generation Capacity Reached Financial Closure	Number of MW from transactions that achieved financial closure due to USG assistance	Solar (in MW)	0
		Wind (in MW)	0
		Biomass (in MW)	0
		Hydroelectric (MW)	0
		Gas (in MW)	0
		Geothermal (MW)	0
Transactions Reached Financial Closure	Number of transactions that have achieved financial closure	Solar (#)	0
		Wind (#)	0
		Biomass (#)	0
		Hydroelectric (#)	0
		Gas (#)	0
		Geothermal (#)	0
Utilization of Risk Mitigation Tools	Utilization of risk mitigation tools by developers of qualified transactions supported by Power Africa	Partial Risk Guarantee	0
		Political Risk Insurance	0
		Sovereign Guarantee	0
		DCA Guarantee	0
		Put-Call Option	0
Training and Capacity Building Activities	Person hours of training completed in technical energy fields supported by USG assistance	Male (# of hours) trained	316
		Female (# of hours) trained	269
Policy	Number of policy reforms/laws/regulations/administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance.	Drafted	7
		Presented	3
		Regional	1
		National	7
		Private sector participation	0
		Clean and cleaner energy	7
		Small scale and off grid energy	1
		Gender equity	0
	Number of energy sector laws, policies, strategies, plans or regulations officially revised, adopted or implemented as a result of USG assistance that enhance energy sector governance and/or facilitate private sector participation and competitive markets, and/or encourage investment in clean and cleaner, small scale and off-grid options, and/or support gender integration in the energy sector.	Revised	1
		Adopted	1
		Implemented	1
		Regional	1
		National	1
		Private sector participation	0
		Clean and cleaner energy	2
Small scale and off grid energy	0		
Gender equity	0		

APPENDIX 1: COMPLIANCE WITH IEE CONDITIONS

IEE Condition	Requirement	Comments
1	Establish a Process for Tracking and Screen existing, new, and reclassified transactions	<p>Ongoing activity:</p> <ul style="list-style-type: none"> Screening: Of the transactions tracked by the Power Africa Transaction Tracker at the end of Q1 2016, 156 are PATRP supported transactions identified for further Environmental and Social (E&S) due diligence. The presumption remains (as per the IEE) that PATRP transactions with involvement of other USG Agencies, International Financial Institutions or Multilateral Development Banks are subjected to that organizations own due diligence procedures. PESRM Checklists: Of the 156 PATRP supported transactions 116 qualified for further due diligence through the PESRM Checklist. PESRM Checklists for a total of 103 PATRP supported transactions have been completed to date. Re-screening: PESRM Checklist updates for 3 transactions were completed due to stage changes or due to ESIA's being sourced.
2	Power Africa review of E&S checklist to determine whether continued support is appropriate (for end September 2015)	Completed: No PATRP transactions were identified for discontinuing of Power Africa support.
	Power Africa review of E&S checklist to determine whether continued support appropriate (for rescreening or new transactions)	Ongoing activity: No PATRP supported transactions (for rescreening or new transactions) have been identified in Q1 2016 for discontinuing of Power Africa support. See further comment under IEE Condition 8.
3	Review of ESIA's for stage 3 and 4 transactions (Power Africa will not provide support to any Stage 4 transaction without a completed ESIA party to that transaction)	At the end of Q1 2016, there are 59 late-stage PATRP transactions in PATT (Stage 3A to 4B). Of the 31 late-stage transactions identified for PATRP E&S due diligence, 16 ESIA Reports or Environmental Permits have been sourced to date. For all transactions which have reached Stage 4, either the project ESIA Report or Environmental Permit has been sourced.
4	Resources: Power Africa to make available links to E&S soundness policies and procedures of USG agencies as well as IFC, Equator Principles and carbon principles. If USG agency policies are not available, Power Africa is to list regulations governing E&S impacts of agencies and provide links to their public statements.	PATRP has sourced E&S policies / procedures for OPIC, MCC, USADF, Exim Bank, USTDA in addition to IFC performance standards and guidelines, the Equator Principles as well as policies of other MDBs. This information is currently hosted on PATRP's SharePoint site and has been shared with transaction advisors. E&S training provided to TAs in February 2016 considered the content and use of this information in a transaction context.
5	Staffing: Power Africa through PATRP to make available an E&S advisor to: <ul style="list-style-type: none"> Complete PESRM checklists Provide E&S social soundness on activities Serve as a resource to relevant staff as needed 	PATRP has engaged an E&S advisor on a full-time basis, backstopped by a senior E&S consultant on an as-needed basis. The E&S advisor is also supported by PATRP's Gender Specialist, who provides subject matter expertise on gender components of the PESRM checklist. The E&S advisor regularly informs / updates TAs of environmental safeguarding and/or best practices and remains available as a resource to TAs to advise on environmental issues.
6	PATRP, with support from Power Africa, to provide training to PATRP staff including transaction advisors, relationship managers, other USAID staff and implementing partner staff. Training will empower staff to address, promote and help overcome barriers to E&S soundness in PATRP transactions.	<p>PATRP developed two training modules covering content and conditions of the IEE as well as PATRP's position for addressing environmental and social issues within the scope of the contract. The training also provided background on best practices and impacts and standard mitigation for specific generation technologies. Training was provided in person to PATRP Pretoria staff and via webinar to transaction advisors over the course of several weeks during February 2016.</p> <p>It is planned that the existing E&S training modules be updated and systematic refresher training provided following:</p>

IEE Condition	Requirement	Comments
		<ul style="list-style-type: none"> ▪ collaboration with the USAID / Coordinator’s Office to identify further/new issues including Executive Order on Climate Change and Development amongst other issues ▪ inclusion of further case studies or experiences of TAs to expand the knowledge base
7	Advising: Power Africa / other relevant staff to provide recommendations to private sector partners on adhering to international E&S best practice	<ul style="list-style-type: none"> ▪ Developer advisory: In March 2016, PATRP provided technical assistance in the development of an Environmental and Social Management System and Stakeholder Engagement Plan following IFC guidelines in support of Proton Energy’s application for OPIC assistance. ▪ EMMP: In accordance with Section H7 – item 5 of the PATRP contract, an illustrative Environmental Monitoring and Mitigation Plan (EMMP) or mitigation and monitoring (M&M) plan must be prepared describing how the conditions of the IEE will be implemented. PATRP developed the EMMP in Q1 to address the higher level IEE requirements. It further served to provide universal mitigation measures of potential impacts for power and energy sector investments facilitated by Power Africa in line with good practice. ▪ Checklist recommendations: Following on recommendations and action items listed in PESRM Checklists, the PATRP E&S advisor engages with TAs on next steps. In the current circumstances the TAs are tasked primarily with querying shortfalls of ESIA to good/best practice standards, sourcing additional planning phase project information and offering support (where applicable) in terms of social and gender mitigation and integration.
8	Reporting: Report to Power Africa leadership any significant environmental and social issues with respect to a transaction or party they are engaged with	<p>In Q1 of 2016 the following projects have been escalated to Power Africa leadership due to their potential environmental and social impacts:</p> <ul style="list-style-type: none"> ▪ Souapiti 515 MW HPP in Guinea (Stage 3A) – The primary issue is the potential displacement of 48,000 people and loss of 50,000 hectares of arable land due to the extensive reservoir. ▪ Chemoga Yeda 1 & 2 hydro – due to potential E&S concerns from downstream countries
9	Screen hydropower transactions in PESRM supplement	A total of 47 hydropower transactions were subjected to the PESRM Checklist in Q1 2016. The supplementary PESRM Checklist for hydro power projects was populated in the majority of cases depending on the availability of technical and E&S information.