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OCTOBER 1, 2016 THROUGH SEPTEMBER 30, 2017

POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP)

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ACRONYMS

ACRONYM	MEANING
ADME	Djiboutian Energy Management Agency
AEDC	Abuja Electricity Distribution Company (Nigeria)
AfDB	African Development Bank
AFD	French Development Agency
AG	Attorney General
AGIL	Africa Geothermal International Limited
AGSI	Association of Ghana Solar Industries
ALSF	African Legal Support Facility
AM	Arcelor Mittal
AMCC/GCCA	Global Climate Change Alliance
ANARE	Autorité Nationale de Régulation de l'Electricité (Côte d'Ivoire)
ANER	National Agency for Renewable Energy (Senegal)
APSD	African Plantations for Sustainable Development
APV	Africa Power Vision
ARE/RECP	Alliance for Rural Electrification (ARE) and the Africa-EU Renewable Energy Cooperation Programme (RECP)
AT&C	Accumulated Commercial and Technical (losses)
AUC	African Union Commission
B2B	Business-to-Business
BADEA	Arab Bank for Economic Development in Africa
BEDC	Benin Electricity Distribution Company (Nigeria)
BEE	Black Economic Empowerment Programme (South Africa)
BEO	USAID Bureau Environmental Office
BOOT	Build-Own-Operate-Transfer
BOT	Build-Own-Transfer
BPC	Botswana Power Corporation
BPE	Bureau of Public Enterprises (Nigeria)
BTG	Beyond the Grid
BWG	Budget Working Group
C&I	Commercial and Industrial
CBN	Central Bank of Nigeria
CCGT	Combined Cycle Gas Turbines
CIO	Chief Information Officer
CIP	Country Implementation Plan
CLSG	Côte d'Ivoire-Liberia-Sierra Leone-Guinea (transmission line)
COFIT	Cogeneration Feed-In Tariff (South Africa)
COMASEL	Compagnie Marocco-Sénégalaise d'Électricité
COMESA	Common Market for Eastern and Southern Africa
COP	Chief of Party
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'Électricité et de l'Eau
CRM	Customer Relationship Management
CRSE	Commission de Régulation du Secteur de l'Électricité du Sénégal

ACRONYM	MEANING
CSP	Concentrated Solar Power
DCA	USAID's Development Credit Authority
DCOP	Deputy Chief of Party
DFI	Direct Foreign Investment/Investor
DFID	Department for International Development (UK)
DISCO	Distribution Company
DIV	Development Innovation Ventures
DMD	Deputy Managing Director
DO	Development Objective
DOC	Director of Communications
DPM	Deputy Prime Minister (Ethiopia)
EAC	East Africa Community
EAPP	Eastern Africa Power Pool
EC	Energy Commission (Ghana)
ECG	Electricity Company of Ghana
ECOWAS	Economic Community of West African States
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
EDCL	Energy Development Corporation Limited (Rwanda)
EDD	Electricité de Djibouti
EDG	Electricité de Guinée (Guinea)
EEA	Ethiopian Electricity Authority
EEPCo	Ethiopian Electric Power Corporation
EEU	Ethiopian Electric Utility
EIA	Environmental Impact Assessment
EIPC	Electricity Infrastructure Procurement Coordinator
EKEDC	Eko Electricity Distribution Company (Nigeria)
EKT	Ethiopia-Kenya-Tanzania Transmission Interconnector
EKTZ	Ethiopia-Kenya-Tanzania-Zambia Transmission Interconnector
EKZ	Ethiopia-Kenya-Zambia Interconnector
ELPS	Escravos-Lagos Pipeline System (Nigeria)
EMMP	Environmental Monitoring and Mitigation Plan
EOI	Expression of Interest
EPC	Engineering, procurement and construction
EPSRA	Electricity Power Sector Reform Act (Nigeria)
ERA	Energie Rurale Africaine (Senegal)
ERB	Energy Regulation Board of Zambia
ERC	Energy Regulatory Commission (Kenya)
ERP	Enterprise Resource Planning
ESCOM	State power utility (Malawi)
ESIA	Environmental and Social Impact Assessment
EU	European Union
EUCL	Energy Utility Corporation Limited (Rwanda)
EWURA	Energy & Water Utilities Regulatory Authority (Tanzania)
EXIM	Export-Import Bank of the United States
FGN	Federal Government of Nigeria
FEI	Fund for Energy Inclusion
FiT	Feed-in Tariff
FREEDM	Future Renewable Electric Energy Delivery and Management

ACRONYM	MEANING
FSRU	Floating Storage Regasification Unit
FY	Fiscal Year
GCE	Generation Capacity Expansion
GCSA	Government Consent & Support Agreement
GDL	Global Development Lab
GENCO	Generation Company
GEDAP	Ghana Energy Development and Access Project
GETFIT	Global Energy Transfer Feed-in Tariffs Program
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOS	Government Letter of Support (Kenya)
GMP	Gas Master Plan (Ghana)
GMR	Gas Market Review (Ghana)
GMSP	Grid Management Support Program (Ethiopia & Kenya)
GoA	Government of Angola
GoCI	Government of Côte d'Ivoire
GoE	Government of Ethiopia
GoG	Government of Ghana
GoK	Government of Kenya
GoL	Government of Liberia
GoS	Government of Senegal
GoT	Government of Tanzania
GRMF	Geothermal Risk Mitigation Facility
GTF	Global Tracking Framework
GTP	Growth and Transformation Plan (Ethiopia)
GUMP	Gas Utilisation Master Plan (South Africa)
GW	Gigawatt
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
IFI	International financial institution
IMF	International Monetary Fund
IPP	Independent power producer
IRB	EAPP Independent Regulatory Board
IRENA	International Renewable Energy Agency
IRP	Integrated Resource Plan
IRRP	Integrated Resource and Resilience Planning
JDA	Joint Development Agreement
JICA	Japan International Cooperation Agency
JUFG	Joint Utilities Finance Group (Ghana)
KenGen	Kenya Electricity Generating Company
KETRACO	Kenya Electricity Transmission Company Limited

ACRONYM	MEANING
KfW	German Development Bank
km	Kilometer
KP	Kenya Power
KTZ	Kenya-Tanzania-Zambia Transmission Interconnector
kV	Kilovolt
kWh	Kilowatt hour
kWp	Kilowatt-peak
LCOE	Levelized costs of energy
LEC	Liberia Electricity Corporation
LFO	Light Fuel Oil
LNG	Liquefied Natural Gas
LOP	Life of Program
LVN	Low-Voltage Network
M&E	Monitoring and Evaluation
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MD	Managing Director
MDB	Multilateral development bank
MEDER	Ministry of Energy and the Development of Renewable Energy Sources (Senegal)
MEM	Ministry of Energy and Minerals (Tanzania)
MERN	Ministère de l'Énergie Chargé des Ressources Naturelles (Djibouti)
MINEA	Ministry of Energy and Water (Angola)
MININFRA	Ministry of Infrastructure (Rwanda)
MLM&E	Ministry of Lands, Mines and Energy (Liberia)
MMEWR	Ministry of Minerals and Water Resources (South Africa)
MMO	Mobile Money Operator
MMscfd	Million standard cubic feet of gas per day
MNO	Mobile Network Operator
MNREM	Ministry of Natural Resources, Energy and Mining (Malawi)
MOEP	Ministry of Energy and Petroleum (Kenya)
MOF	Ministry of Finance (Ghana)
MOFP	Ministry of Finance and Planning (Tanzania)
MOP	Ministry of Power (Ghana)
MOPET	Ministry of Petroleum (Ghana)
MOU	Memorandum of Understanding
MoWIE	Ministry of Water, Irrigation & Energy (Ethiopia)
MPN	Mobil Producing Nigeria
MSC	Management Services Contract
MVA	Megavolt Amperes
MW	Megawatt
MWp	Megawatt-peak
MYTF	Multi-Year Tariff Framework
MYTO	Multi-Year Tariff Order
NBET	Nigeria Bulk Electricity Trading, Plc.
NDA	Non-disclosure Agreement
NDPHC	Niger Delta Power Holding Company Limited
NEDCO	Northern Electricity Distribution Company (Ghana)

ACRONYM	MEANING
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NEPAD	New Partnership for Africa's Development
NERC	Nigerian Electricity Regulatory Commission
NERSA	National Energy Regulator of South Africa
NES	National Electrification Strategy (Ethiopia)
NIPP	National Integrated Power Project (Nigeria)
NLNG	Nigeria LNG Limited
NNPC	Nigerian National Petroleum Corporation
Norfund	Norwegian Investment Fund for Developing Countries
O&M	Operations and Maintenance
ODDEG	Office Djiboutien de Développement de l'Energie Géothermique
ODPP	Office of the Director of Public Procurement
OMVG	Organisation pour la Mise en Valeur du fleuve Gambie
OMVS	Organisation pour la Mise en Valeur du fleuve Sénégal
OPEX	Operating Expenses
OPIC	Overseas Private Investment Corporation
OPPI	Office for Promoting Private Power Investment (Zambia)
PA	Power Africa
PAD	Project Appraisal Document
PAIS	Power Africa Information System
PASER	Plan d'Action Sénégalais d'Électrification Rurale
PATA	Power Africa and Trade Africa
PATRP	Power Africa Transactions and Reforms Program
PATT	Power Africa Tracking Tool
PAYG	Pay-as-you-go
PCOA	Put/Call Option Agreement
PEPT	Programme Electricité Pour Tous (Côte d'Ivoire)
PESRM	PATRP Environmental and Social Review Methodology
PIP	Performance Improvement Plan
PISSA	Project Implementation and Steam Supply Agreement (Kenya)
PIU	Project Implementation Unit
PMP	Performance Management Plan
PNER	Programme National d'Électrification Rurale (Senegal)
PPA	Power purchase agreement
PPF	Project preparation facility
PPP	Public Private Partnership
PRG	Partial Risk Guarantee
PS	Principal Secretary
PSP	Private sector partner
PSS/E	Power System Simulator for Engineering
PURC	Public Utilities Regulatory Commission (Ghana)
PV	Photovoltaic
QIPP	Qua Iboe Power Project
QTAT	Qualified Transactions Assistance Tool
RAED	Renewable and Alternative Energy Directorate (Ghana)
RE	Renewable Energy
REA	Rural Energy Agency (Tanzania)

ACRONYM	MEANING
REEEP	Renewable Energy and Energy Efficiency Partnership
REFIT	Renewable Energy Feed-in Tariff
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme (South Africa)
REPARLE	Renewable Energy to Power Agriculture and Rural Livelihood Advancement (Uganda)
RES	Rural Electrification Strategy (Rwanda)
RF	Results Framework
RFEIWC	Request for Expression of Interest with Evaluation Criteria
RFP	Request for Proposal
RFQ	Request for Qualifications
RNT	Rede Nacional de Transporte de Electricidade (Angola)
RSD	Regulatory Services Department (Djibouti)
SDFS	Suppressed Demand and Forecast Study
SE4All	Sustainable Energy for All (United Nations)
SENELEC	Société National d'Électricité du Sénégal
SEC	Swaziland Electricity Company
SHS	Solar Home System
SIDA	Swedish International Development Cooperation Agency
SIS	System Integration Study
SOW	Scope of Work
SNP	Solar Nigeria Project
SPP	Small Power Producer
SPV	Special Purpose Vehicle
SREP	Scaling up Renewable Energy Program
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
TARP	Troubled Asset Relief Program (USA)
TCN	Transmission Company of Nigeria
TEDAP	Tanzania Energy Development and Access Project
TOR	Terms of Reference
TREEP	Tanzania Rural Electrification Expansion Project
TRR	Transmission Revenue Requirements
TSA	Transmission Service Agreement
TSO	Transmission System Operator
TSP	Transmission Services Provider
TWG	Transmission Working Group
UN	United Nations
USADF	United States African Development Fund
USAID	United States Agency for International Development
USD	United States dollars
USEA	United States Energy Association
USG	United States Government
USTDA	United States Trade and Development Agency

ACRONYM	MEANING
VAT	Value Added Tax
VfM	Value for Money
VP	Vice President
VRA	Volta River Authority (Ghana)
WAGP	West African Gas Pipeline
WAPCo	West African Gas Pipeline Company
WAPP	West African Power Pool
WB	World Bank
WENRECo	West Nile Rural Electrification Company
WIAP	Women in African Power
WO	Work Order
Wp	Watt-peak
WTE	Waste to Energy
YALI	Young African Leadership Initiative (USA)
ZESCO	Zambia Electricity Supply Corporation

I. INTRODUCTION

I.1 OVERVIEW

This Work Plan provides an overview of the activities that will be undertaken by the Power Africa Transactions and Reforms Program (PATRP) from October 1, 2016 through September 30, 2017.¹ These activities reflect the priorities of the Power Africa program, and ensure that the PATRP team is fully aligned with the *Power Africa Roadmap* (the ‘Roadmap’). The Roadmap describes how the Power Africa initiative intends to meet the objectives of 30,000 MW of new generation, and 60 million new connections by 2030. Importantly, the Roadmap provides a current assessment of what has been achieved – and more critically what remains to be achieved – and how the Power Africa initiative intends to support such achievements.

The last six months of Fiscal Year (FY) 2016 witnessed a significant increase in PATRP’s geographical coverage, and additional resources being deployed to provide technical and transaction assistance. Building on this expanded footprint, the FY 2017 Work Plan will focus on implementation and results, in terms of new megawatts and connections. To this end, the development of a pipeline of power generation projects from the concept phase up through late-stage transactions, in conjunction with transaction project support to bring late-stage power generation projects to financial closure, remains a focal point of PATRP’s activities. In parallel, a revamped PATRP *Beyond the Grid* (BTG) team will aggressively pursue new connections through direct support to solar home systems and private sector micro-grid developers. BTG’s support will focus on improving performance and scaling up the operations of off-grid companies.

PATRP recognizes that in most countries, in order to grow the generation sector in a sustainable manner, a holistic approach is needed. Accordingly, PATRP’s activities in FY 2017 will continue to service other parts of the energy value chain. Activities will include improving liquidity within the distribution sector through our turnaround management and loss reduction work in Nigeria and Ethiopia, unlocking the gas-to-power potential in Nigeria, supporting cross-border transmission interconnections in East Africa through EAPP and NELSAP, and targeted assistance in developing and implementing policy and regulatory frameworks that promote private sector engagement across the sector (e.g. competitive procurement and reverse auctions in Ethiopia, Kenya, Nigeria, and Malawi). PATRP will also work with Power Africa’s Development Finance Institution partners and other financial partners to develop financing mechanisms (e.g. Blended Financing, Foreign Exchange Risk Mitigation, and Social Impact Bond Program) for both large- and small-scale transactions.

Ultimately, PATRP will seek to remove challenges and constraints throughout the energy value chain, thereby enabling power and capital to move through the system – all of which should advance Power Africa’s megawatts and connections goals.

¹ More detailed work plans may be developed at the country or regional level. This Work Plan was first delivered to USAID in October 2016 and subsequently updated in December 2016, and January, February, and April 2017.

I.2 STRUCTURE OF THE WORK PLAN

PATRP's activities are organized around Country Implementation Plans, which promote a holistic programmatic approach to PATRP's objectives in each country. Further, the activities listed in the Work Plan incorporate the supplemental scope of work agreed with USAID at the end of March 2016.

Section 2 of this Work Plan summarizes PATRP's activities under Objective 1 (Institutional Support to the Office of the Power Africa Coordinator) of its contract. Sections 3 to 17 present PATRP's activities on a country or regional level, which incorporate PATRP's remaining contractual objectives, namely:

- 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.

Further, activities are divided into the three core pillars of the Power Africa Roadmap, namely:

- Pillar 1 – Getting to 30,000 MW
- Pillar 2 – Getting to 60 million connections
- Pillar 3 – Unlocking energy sector potential

Country-level targets and deliverables presented in this Work Plan are for FY 2017. Sections 18 and 19 discuss in detail PATRP's efforts to comply with the requirements of the Initial Environmental Examination (IEE), and the promotion of gender integration, respectively. It is worth noting that environmental review and gender integration are also woven into all of PATRP's program activities, which are noted at the country and regional level.

I.3 WORK PLAN MANAGEMENT

Given the breadth of new activities and expansion of existing activities, it is imperative that there be close cooperation and integration of the different work streams, including donor coordination, in each country, and regionally, in some circumstances. PATRP recognizes the importance of coordinating these activities through closer cooperation and management, and is therefore deploying – where possible – Regional and Lead Country Advisors to coordinate activities and to facilitate work stream integration, thus creating a seamless country- and regional-level program. In addition, we have instituted quarterly targets and deliverables (when appropriate) to better manage program results.

With this complexity, it is critical that PATRP advisors are predominantly Africa-based specialists, dedicated to the goals of the Power Africa program. This geographic requirement implies a greater emphasis on resident long-term advisors rather than short-term technical assistance. This will be readily seen from PATRP's organizational charts, which are set forth in Appendix A of this Work Plan. To the extent that short-term technical assistance is needed to implement this Work Plan, Appendix B sets forth a list of projected STTA staffing requirements over the next 12 months. Based on the changing demands of the projects, it is possible that additional short-term technical assistance may be needed, and this will be discussed and approved with USAID in advance of deployment, in the usual manner.

I.4 CHALLENGES

The next 12 months will see election cycles in Ghana, Côte d'Ivoire, Kenya, Liberia, and Senegal. In Ghana, a new administration is set to take charge. It is possible that these elections may cause transactions and/or reforms to be delayed as decisions are deferred. Thereafter, new administrations and decision-makers may have differing priorities in terms of energy sector policies, which may again cause uncertainty and/or delay in closing late-stage transactions. Separately, we also see markets, such as Kenya, Rwanda, and Ghana, facing potential medium-term electricity surpluses based on contracted generation. Therefore, we will need to maintain a flexible approach in our assistance, and make sure that we prioritize transactions that are most likely to reach financial close. Growth in the Nigerian energy sector also remains vulnerable, with the lack of liquidity threatening to undermine efforts to secure new investment throughout the value chain. In order for PATRP to reach its targets, it is imperative that we see progress in Nigeria; therefore, there will be a concerted effort in FY 2017 to address the liquidity problem. Indeed, the financial health of utilities remains a major challenge across the board, with resulting liquidity problems hindering investment and private sector engagement.

I.5 MONITORING, EVALUATION AND REPORTING

Performance data collection, validation, and reporting to USAID is conducted by the PATRP M&E Specialist based in Pretoria, South Africa. Data is first collected monthly by the M&E Specialist from PATRP field staff, and then reviewed to ensure that it is:

- Verifiable (supporting documents are present);
- Sufficiently accurate (data collected are aligned with the result achieved); and,
- Timely (data are within a reasonable timeframe of the result).

The M&E Specialist collates the data and supporting documentation and enters the information into the USAID Power Africa Information System (PAIS). These steps allow PATRP to track performance against quarterly and annual work plan targets and deliverables in real-time – in so doing, risks are identified and mitigation steps deployed, as needed, to include deployment of additional resources. PATRP reports to USAID quarterly on targets met, develops forecasts for the next quarter, and provides a detailed explanation if quarterly targets are not met.

In this context, PATRP has set targets for FY 2017, outlined in Table 1-1, and further disaggregated and particularized under each of the country/regional profiles. In addition, and to provide some historical context, each country/regional profile contains the FY 2016 targets and actuals, together with explanatory notes for variances. It is important to note that when reviewing PATRP's results, the 'Cumulative Targets' and 'Actuals' are the most important data points as they represent 'Life of Program (LOP)' Results to date and the complete results for which PATRP is expected to deliver.

Table 1-1: PATRP FY 2017 Targets

Indicator Name	FY 2017 Targets	Cumulative Targets through FY 2017²
Number of direct connections (projected); Unit #	600,000	600,300
Generation Capacity Pending Financial Closure; Unit MW	6,610	28,498
Generation Capacity Reached Financial Closure; Unit MW	2,446	4,543
Generation Capacity at COD; Unit MW	536	536
Training and Capacity Building Activities; Unit hours	2,940	7,032
Policy; Unit # (drafted)	19	37
Policy; Unit # (adopted/implemented)	10	10
Kilometers of Power Lines that have reached Financial Close; Unit Km	263	526
Substation Capacity Added; Unit MVA	150	300
Aggregate Losses for three distribution companies average; Unit %	7%	7%
Improved Revenue/Collections at DISCO; Unit Naira Million	209,101,000	209,101,000
Improved revenue at distribution companies; Unit # of regularized customers	35,000	35,000
Transmission Projects/Transaction that have reached Financial Close; Unit #	2	4
Transmission Projects/Transaction Commissioned; Unit #	1	1
Gas Availability, MMscfd	460	460

² Please note: (1) PATRP's 2017 Cumulative Target includes 2015, 2016, and 2017 targets; and (2) Country targets below only include 2016 and 2017, since Country Targets were not disaggregated in 2015.

2. COORDINATOR'S OFFICE

The nature and extent of PATRP support to the Coordinator's Office (both in Pretoria and in Washington, DC) has evolved significantly since the contract was awarded. Some responsibilities undertaken by PATRP early on, such as partner relationship management, have now been mostly absorbed by the Coordinator's Office directly, due to new resources being added at USAID. This transfer of responsibility has allowed PATRP to focus on the core activities of advancing transactions and expanding electricity access. This trend is expected to continue in FY 2017, with PATRP institutional support for communications being scaled back. The remaining areas of continuing support to the Coordinator's Office, in conjunction with program management and technical activities being undertaken by the PATRP Pretoria office, are set forth below.

2.1 SUPPORT FOR THE PRETORIA & WASHINGTON OFFICES OF THE COORDINATOR

PATRP's Pretoria team manages and leads program implementation. To this end, the Pretoria team will continue to manage and oversee all PATRP field activities across the continent, provide reporting, ensure quality control, and undertake overall monitoring and evaluation of the program. Another role for Pretoria includes technical backstopping of country or regional teams, including deployment of additional resources to the field when necessary to address barriers to transactions and to provide specialized expertise to support specific transactions.

In terms of institutional support under Objective 1 of the contract, PATRP will continue to provide a Development Partner Specialist and M&E Specialist as embedded staff members within the Coordinator's Office in Pretoria. Communications support will be scaled back in FY 2017, with the practice of providing an embedded Communications Specialist being discontinued.

PATRP's Pretoria team will remain available to provide specialized support to the Coordinator's Office, such as on policy studies or overseeing crosscutting issues, including gender and environmental reviews.

In Washington D.C., PATRP will continue to provide limited IT support for the Customer Relationship Management (CRM) platform and Power Africa Information System that is used by Power Africa Relationship Managers and M&E purposes, respectively. The work currently being done to support the vetting and due diligence of new Power Africa Private Sector Partners will transition in FY 2017 from Washington to PATRP Pretoria.

2.2 CROSSCUTTING ISSUES

The following two crosscutting tasks are primarily managed by PATRP's Pretoria team:

2.2.1 ENVIRONMENTAL COMPLIANCE

The PATRP Initial Environmental Examination (IEE) acknowledges that PATRP's activities have a potential for indirect negative impacts if not subjected to evaluation and remedial action plans. As

such, PATRP activities are evaluated, and remedial action plans are developed, in accordance with directives laid out in the IEE. In accordance with Condition 1 of the IEE, PATRP-supported transactions detailed in Sections 3 to 17 below are subjected to a two-stage screening process in order to determine their risk to the community and the ways in which they may have a social and environmental impact.

Section 18 provides further details of PATRP's approach to environmental compliance for FY 2017.

2.2.2 GENDER INTEGRATION

PATRP supports the key U.S. foreign policy goal of advancing the full participation of women and girls in the political, economic, and social realms of their countries. It is committed to integrating gender into all of its activities to promote gender equality and women's empowerment. PATRP has developed a gender integration strategy to articulate how it will integrate gender into its scope of work. This was developed in alignment with a broader Power Africa Gender Integration Strategy.

The Power Africa strategy outlines four objectives that guide the development of Power Africa's efforts to integrate gender considerations into its programs and planning. These include:

- Increase women's participation in energy sector policy development and project planning;
- Increase consideration of gender issues in design of energy sector policies and projects;
- Increase women's participation in the energy sector work force; and,
- Increase women's access to energy services.

PATRP's gender integration strategy complements Power Africa's Gender Strategy and aims to:

- Institutionalize a gender mainstreaming approach in PATRP by reviewing all new work streams using a gender lens when designing activities;
- Identify gender-related risks and opportunities in transactions and intervene accordingly;
- Leverage opportunities to empower women in small-scale clean energy projects; and,
- Increase women's participation in the energy sector.

Section 19 provides details of PATRP's approach to gender integration in FY 2017.

2.2.3 PRIVATE SECTOR PARTICIPATION

While private investment is being actively sought for new generation capacity, PATRP is also promoting other forms of private-sector involvement such as long-term lease or concessions; Public-Private Partnerships (PPP) and Management Contracts. These forms of private sector engagement are being considered in fuel supply, thermal generation, transmission, distribution, and off-grid/BTG networks. The major objective being to tap into the financial resources and technical skills of the private sector, while enhancing the efficiency of operations.

2.3 THE POWER AFRICA TRACKING TOOL (PATT)

Managing and enhancing PATT remains a priority activity for the PATRP Pretoria team.

To this end, during the period of this Work Plan, PATT (internal) version 2.0 for the web, iPhone, and Android Applications will continue to be developed, and will be ready for user testing by the end of 2016 with full deployment of all tools by March 2017. The new web PATT application will allow

administrators to easily customize and add more functionality. Such functionality will include flexibility in adding new fields as required, comprehensive user security and dynamic reports with options to export and import to Excel. In addition, PATRP will continue its dialogue with the Coordinator's Office to determine a way forward on migrating PATT (public) version 1.5 to 2.0 in partnership with USAID's Chief Information Officer and in full compliance with U.S. Government policies and applicable security standards.

We also recognize the importance of maintaining the accuracy and veracity of data contained in PATT. This due diligence will be performed through proactive management and data verification by the Pretoria-based PATRP Project Management Unit, led by the DCOP (Program Management). The team is structured on a portfolio basis with each PATT Portfolio Manager responsible for updating transactions by geography and transaction advisor. In parallel, we will continue to refine our data management process through review and assessment of U.S. Government and other 'Proposed' Power Africa transactions that may be viable as 'Active Transactions.'

PATRP personnel will also support the Coordinator's Office as it looks for ways to share selected information contained in the PATT with other Power Africa partners, with the goal of furthering energy sector growth. For instance, PATRP is currently working with the USAID Mission in Senegal to develop a Donor Coordination section of the PATT. PATRP also expects to restart the cooperation with the International Renewable Agency (IRENA) to identify ways in which the PATT and IRENAs' Sustainable Energy Marketplace can cooperate – this partnership was initiated in FY 2016. Finally, PATRP will look at incorporating into PATT a cloud-based interactive map (ArcGIS) for Nigeria, which will provide a comprehensive view of the existing and planned power generation projects overlaid on the transmission line system in Nigeria.

2.4 BEYOND THE GRID (BTG)

PATRP BTG staff supporting the Coordinator's Office from Pretoria will serve as a link between BTG management at Power Africa and field-based advisors in the following areas:

2.4.1 TECHNICAL SUPPORT TO COUNTRY WORK STREAMS

Supporting country- and regional-level BTG activities by providing; (i) transaction advisory support to specific project developers and off-grid businesses, particularly when those companies operate in multiple countries or do not align with the capabilities and commitment available from in-country staff; and, (ii) expertise in crosscutting themes to supplement specific activities across multiple country work streams. Such themes may include: productive use of energy, micro-grid planning, monitoring and evaluation, gender mainstreaming, etc.

2.4.2 COORDINATING WITH THE PATRP PROJECT DEVELOPMENT ADVISOR

PATRP will retain a new Project Development Advisor, who will act as a facilitator between Project Preparation Facilities (PPFs), and Development Finance Institutions (DFIs) working in Africa, and will help country and regional Transaction Advisors (TAs) link private developers and entrepreneurs with suitable sources for project development finance. This advisor's principal focus will be on supporting BTG and smaller-scale transactions. To this end, the BTG Pretoria staff will support the Project Development Advisor to identify priority projects, understand off-grid financing needs, coordinate support with BTG field staff and develop innovative financing solutions. By way of illustration, the BTG team is looking at supporting the SHS market through the development of a facility that would pre-structure special purpose vehicles (SPVs) tailored to SHS companies in Africa. This would allow SHS

companies to raise capital off balance sheet in the form of a receivables-backed SPV, and help them separate operational risk from receivables risk and provide transparency between loan and operational performance.

In addition, the Project Development Advisor will help refine the existing PPF Toolbox so that it better serves BTG developers and investors.

2.5 ENABLING ENVIRONMENT ACTIVITIES

PATRP will continue to focus its efforts in FY 2017 on developing policy, legal and regulatory instruments that enable countries to attract private sector investment, and that advance the pipeline of Power Africa transactions. These activities are largely listed under each country in Sections 3-17. By way of illustration, PATRP will (i) work to enhance the creditworthiness of power off-takers (and the energy sector as a whole), most notably in Nigeria and Ghana; and, (ii) work to remove constraints to reliable fuel supply for thermal plant. In several countries, poorly defined policies or regulatory practices, inadequate planning, or lack of incentives for the development of supply infrastructure hinders advancement. To this end, PATRP will continue to provide technical assistance to assure an appropriate enabling environment for fuel supply, particularly with respect to gas supply in West Africa.

To buttress the abovementioned activities, PATRP's policy lead in Pretoria will also undertake the following complimentary work streams:

Competitive Generation Procurement: PATRP will continue to assist countries with implementation of their competitive procurement programs for renewable energy IPPs, such as in Ethiopia and Malawi. Drawing on the lessons learned from successful programs such as the REIPPPP in South Africa, GETFiT in Uganda, and the IFC's Scaling Solar program in Zambia, PATRP will develop a set of standard project documents recognizing that caution should be applied in developing standard documents, as these ultimately must be shaped by the available credit enhancement, security measures and other risk mitigation instruments available in a given country, as well as financing structures. These standard documents may then be adapted and used by Transaction Advisors who are already being asked to advise on various forms of competitive procurement in their respective countries.

Power Africa Toolbox 2.0 Expansion: PATRP will support the Coordinator's Office in updating and expanding the Power Africa Toolbox to include revised or new mechanisms from USG agencies and Power Africa development partners.

2.6 SUPPORT TO AFDB

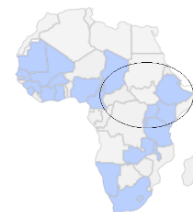
PATRP placed an embedded Transaction Advisor within the Africa Development Bank's (AfDB) Private Sector Operations Department in Abidjan, Cote d'Ivoire in September 2016. The Transaction Advisor serves as a key link between the Bank and Power Africa as related to attracting incremental capital investment into clean, renewable energy investments (from the Bank, potential co-financiers, and sponsors of the transactions it supports). The Transaction Advisor will continue to assist in bringing the broad range of technical and financial services to bear on qualifying power sector transactions financed/co-financed by the Bank. To this end, it is anticipated that FY 2017 activities will focus on: (i) advancing the following transactions towards financial close: Achwa II 41 MW HPP and the Achwa I 42 MW HPP extension in Uganda; and (ii) the structuring of the Fund for Energy Inclusion (FEI) for debt and mezzanine lending for off-grid projects and small IPPs.

2.7 ACTIVITIES NO LONGER SUPPORTED BY PATRP

PATRP will discontinue the current placement of an advisor within the African Union's New Partnership for Africa's Development (NEPAD) in December 2016; however, PATRP will continue to support certain transactions set forth in NEPAD's Africa Power Vision through its field-based transaction advisors.

3. EAST AFRICA

Power Africa Transactions & Reforms Program | East Africa Portfolio 2017



PATRP’s activities in the East Africa Region are focused on facilitating regional trade (to include constructing the underlying transmission infrastructure) and the promotion of geothermal projects (to include sharing of expertise and best practices in the region). To this end, PATRP maintains a TA in Kigali, Rwanda, who supports transmission interconnections projects being advanced by the Nile Equatorial Lakes Subsidiary Action Program (NELSAP). Similarly, PATRP also supports 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). Beyond regional trade, PATRP retains a part-time Geothermal Advisor, based in Nairobi, who supports Power Africa’s geothermal program in the region, and provides technical assistance on existing geothermal transactions. With respect to BTG activities, PATRP employs a Regional BTG Policy and Regulatory Specialist, based in Nairobi, Kenya, and recently deployed a BTG Transaction Advisor to Uganda to act as both originator and driver of priority projects in the country.³ Although his focus is on new connections, he will also facilitate the continuation of other project advisory services to small-scale producers that was initiated in FY 2016.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Geothermal Activities

PATRP will maintain its regional part-time Geothermal Advisor based in Nairobi. The advisor will focus on providing technical support (e.g. geo-sciences, reservoir engineering, exploration, and drilling) to mature generation projects (e.g. Menengai, Suswa and Baringo Silali) that have already been identified in Kenya, Ethiopia and Djibouti. In Kenya, PATRP will support KenGen in geothermal reservoir management and drilling, procurement and execution of the Olkaria I unit 6 (70 MW) and Olkaria IV 140 MW transactions as well as OPEX optimization. Support will also be provided to the 70 MW Akira project on exploratory drilling. These activities will complement the functions of PATRP’s resident advisor at KenGen. In Djibouti, the focus will be on capacity building for the ODDEG (Office de Djibouti du Développement de l’Energie Géothermique) drilling team at Gale La Goma and, in coordination with JICA, at the Hanle geothermal prospect. In Ethiopia, support will be provided for commencement of drilling at Aluto Lagono and testing of wells. Regionally, the focus is on supporting various projects in accessing GRMF grants.

³ It is acknowledged that some of PATRP’s activities in Uganda may transition over to a new USAID implementation mechanism at a future date.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Regional BTG Activities

PATRP's BTG Policy and Regulatory Specialist, stationed in Nairobi, will provide guidance and support to BTG policy and regulatory activities in East African countries and promote replicability of successful off-grid projects throughout the region. Most activities (and results) to be conducted by the BTG Policy and Regulatory Specialist are reflected in the country work plans. The following activities will be conducted at a regional level or as requested by BTG country advisors and USAID:

- Reviewing the National Electricity Distribution codes and recommendations, to include mini-grids standards, towards their compatibility with the utility grid. This activity will be undertaken in close collaboration with regulatory authorities, ministries and institutions in charge of electrification.
- Working with ERC in Kenya on PPP agreements to boost off-grid electrification.
- Collaborating with the World Bank/IFC and other development partners on designing and implementing off-grid financing facilities.
- Providing recommendations on regulatory, technical, and economic risks and gaps for business models
- Supporting the development of cost-recovery tariffs in the region, and supporting capacity-building efforts.

Uganda Small-scale Renewable Energy Support

PATRP will continue to provide project development support to the following transactions:

- Nyamabuye HPP (7 MW) – introduction to equity partners, support to financial close activities
- Mandulis Energy – Earth Energy biomass gasification (20 MW on-grid) – input on design alternatives, support in implementing project development activities under SEFA grant, sourcing additional grant, debt and equity finance.
- Mandulis Energy – REPARLE (8 MW off-grid) – support in obtaining USTDA and DIV grants, assistance in navigating government (i.e. NEMA, ERA, REA) tariff setting and grid micro-grid development procedures.
- WENRECo PV systems (1.5 MW) – input to the development of a feasibility study, identifying and supporting options for attracting and sourcing equity investment.
- WENRECo micro-grid development – input into technical and operational best practices and the development of a concept note, support in identifying and sourcing a private company to undertake development and operations within their concession.

Uganda BTG Support

PATRP will act as both originator and driver of priority projects in the country, and undertake the following activities:

- Design and carry out a preliminary off-grid market assessment building on existing data sets and studies.
- Design and carry out a preliminary assessment of the mobile finance sector in Uganda building on existing data sets and studies, focused on opportunities in the off-grid space, current barriers that exist as well as strategies for overcoming them.
- Support solar home system (SHS) and micro-grid companies to develop and implement their business models to ensure they are able to obtain suitable finance to scale up their businesses.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Technical Assistance to EAPP and IRB⁴

PATRP will build on its current technical support to the Eastern Africa Power Pool (EAPP) in realizing the institutional and legal mechanisms necessary for interregional power trading, as well as to address technical constraints among the individual transmission systems involved. The specific activities include:

Ethiopia-Kenya-Tanzania (EKT) 200 MW Wheeling Transaction

- 200 MW Transmission Service Agreement and Tariff finalized and pro-forma Control Area Interconnection Agreement completed. Some preparation will be made for the second 200 MW which is to be phased in in 2022.
- Includes up to two TWG meetings, a Workshop with IRB Board and Staff members, and presentation to the Conference of Ministers. Facilitation sessions with KETRACO and/or TANESCO may also be needed to resolve any open issues.
- A standard process and set of guidelines that can be used to guide the development of similar long-term wheeling service agreements.

EAPP Interconnection Code Compliance Program

For fiscal years 2017 and 2018, the program contains two major tasks to assure that the planned EAPP regional power system can be operated reliably and that the scheduled import/export of MWs between member countries is delivered reliably and efficiently by 2019.

Task 1: Operational Readiness

Provide hands-on, in-country subject matter expert support to those utilities that have an interconnection project operational by 2019; Ethiopia, Kenya, Tanzania, Uganda and Rwanda (EKTUR).

This includes the following activities:

- Gap Validation; Verify and quantify EKTUR gaps found during Phase 1 Self-Assessments.
- Mitigation Plan Development; Prepare Action Plans to close Phase 1 validated gaps.
- Capital Fund Packaging; Develop descriptions and justification of the capital improvements needed to close the gaps.
- Mitigation Plan Implementation; Provide advisory support and guidance to EKTUR.
- Phase 2 and 3 Self-Assessment Implementation; Update Gap Analysis Tools; prepare and send notifications to members; and review Self-Assessment submittals.

Task 2: EAPP Coordination / IRB Readiness

- Gap Validation; Verify and quantify EAPP CC (EAPP Coordination Center) and IRB gaps found during Phase 1 Self-Assessments to ensure that the EAPP Coordination Team is implementing the critical path tasks needed.
- Mitigation Plan Development; Prepare Action Plans to close Phase 1 validated gaps for EAPP CC and IRB responsibilities.
- Operating Guideline Development; Continue development of Guidelines to provide clear, consistent procedures for all members to follow. Assist EAPP/IRB to get the Guidelines approved by the Operations Committee, Steering Committee and Conference of Minister.
- Mitigation Plan Implementation; Provide advisory support and guidance to EAPP CC and IRB.

⁴ A detailed work plan has been developed.

Assistance to the Nile Equatorial Lakes Subsidiary Action Program (NELSAP)⁵

PATRP will provide technical assistance to support: (i) regional power transmission projects in the pipeline; and, (ii) technical and commercial readiness for regional generation and transmission. The assistance will focus on achieving the following specific results in addition to general support to NELSAP.

- Northern Corridor – Technical and commercial operations by June 2017
- North South Corridor – Design and finance the Zambia/Tanzania (ZT) interconnection by September 2017
- East West Corridor – Design and finance the South Sudan/Uganda interconnection by December 2017

To ensure that these activities are adequately aligned with Power Africa’s objectives, to include increased MWs and connections, PATRP management will continue to monitor the nature and impact of this work stream, and will conduct an interim review in July 2017 to determine if any refinements in scope are needed.

Geothermal technical assistance

Regionally, the focus will be on rolling out of the adopted AUC (Africa Union Commission) geothermal drilling code to ensure the application of best practices and improved safety procedures. The PATRP Geothermal Advisor will also focus on improving the technical enabling environment (e.g. drilling codes) in Djibouti by assisting MERN and ODEGG.

DELIVERABLES⁶:

- Final IRB-approved EKT Transmission Service Agreement and Tariff

⁵ A detailed work plan has been developed.

⁶ Deliverables listed in this work plan are considered a contractual commitment and will be presented to the COR. It is acknowledged that other work products will be generated by PATRP in furtherance of the work plan; however, they will only be presented to the relevant local/regional USAID Mission. A full list of deliverables and work products are set forth in Appendix C.

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections	30,000	0	0	0	0	30,000	The PATRP BTG team is working with a number of mini grid, and solar home-based system operators and businesses to scale up and increase market penetration by 30,000 new connections.
Generation Capacity Pending Financial Closure	230	49.7	7.5	200	42	30	Proposed projects under review by PATRP Transaction Advisors to meet our cumulative target for this indicator include Holdco Hydro 150 MW, Lukoma Solar 50 MW, Seychelles Solar 15 MW, and Buranga Geothermal 70 MW. There will be no new MW associated with this indicator for FY 2017 but PATRP will continue to identify additional projects to meet the cumulative balance of 150.3 MW for this pipeline over FY 2017. PATRP will build the Uganda pipeline by 30 MW of new transactions for FY 2017 including Earth Energy and REPARLE 28 MW.
Generation Capacity Reached Financial Closure	42	0	0	0	0	42	PATRP is tracking advancement to financial close for FY 2017 of Achwa 42 MW which is expected to close by second quarter FY 2017.
Transactions Pending Financial Closure	1	4	1	1	3	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisors.

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Training and Capacity Building Activities	512	0	0	320	0	192	Training and capacity building will continue to meet cumulative targets of 320 person hours . These training topics/activities may include East Africa Power Pool training on the Interconnection Code Compliance, Essentials of Power Trading, Geothermal Drilling Regulations training, Developing Wheeling Agreements, and Power Trade Agreements, amongst others. In addition, for FY 2017 PATRP will provide capacity building in Uganda to private sector firms on marketing and scaling of solar home systems and mini grids.
Policy; (Actions)	0	1	0		1	0	There are no new policy targets associated with this indicator for East Africa Regional Mission.
Policy; Unit # (implemented)	0	1	0	0	1	0	There are no new targets associated with this indicator for East Africa Regional Mission.
Kilometers of Power Lines pending Financial Close; Unit KM	9,103	0	0	9,103	0	0	This indicator is associated with NELSAP and EKTZ. PATRP will not include targets for FY 2017; however, we will continue to build the transmission pipeline to meet the cumulative target of 9,103 km of power lines . Projects are under review and will be added to the pipeline in FY 2017.
Transmission Projects that are pending Financial Close; Unit #	7	0	0	7	0	0	This indicator is directly linked to Km of Power Lines pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Transmission Projects/Transaction that have reached Financial Close; Unit #	2	0	0	0	0	2	This indicator is referencing the 200 MW Ethiopia, Kenya, Tanzania, Transaction that includes Transmission Service Agreements, Tariff, Accession Agreement and Pro-Forma Control Area Interconnection Agreement; and the North South Corridor (the Zambia/Tanzania interconnector).

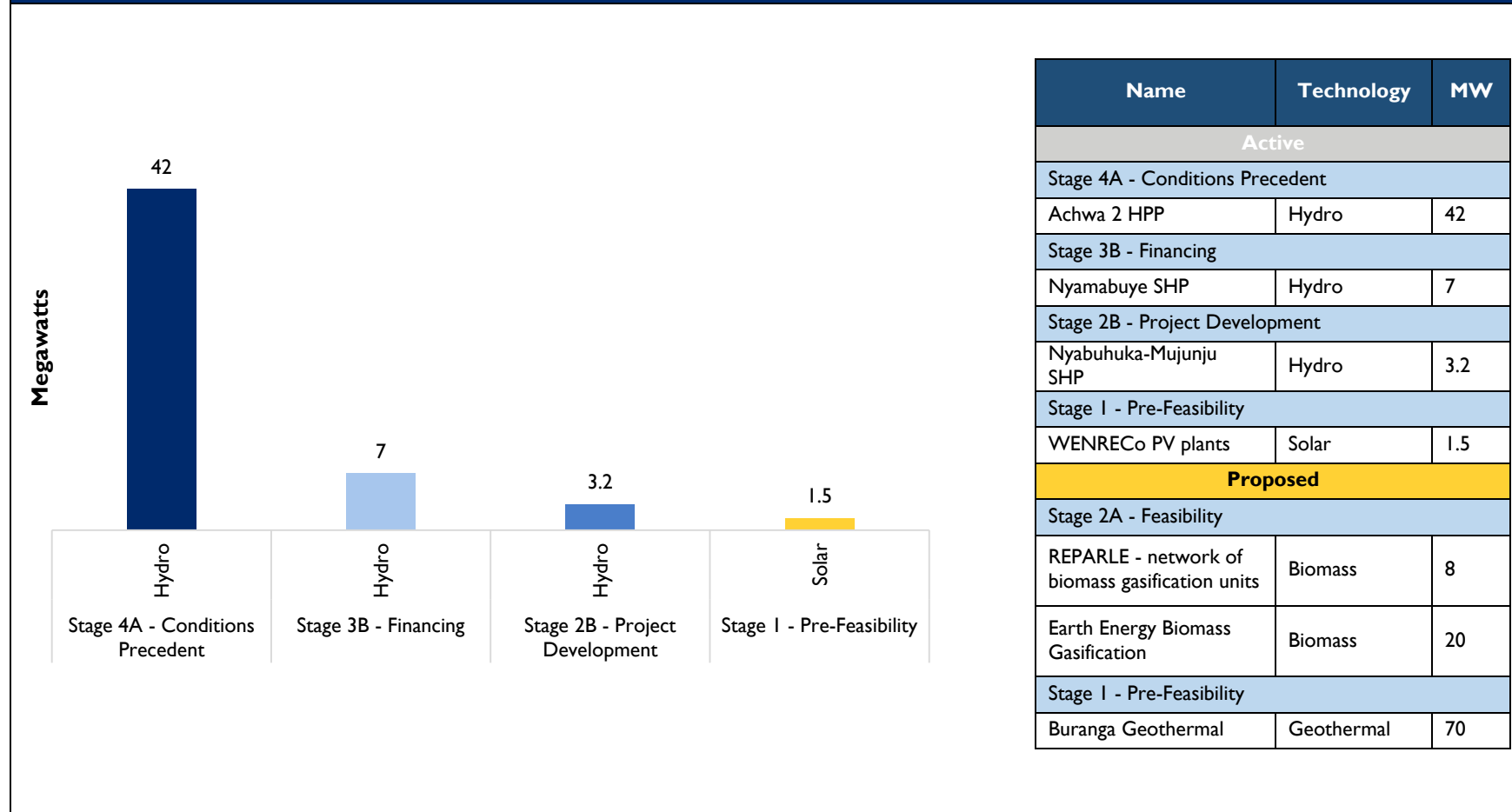
Variances – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: PATRP has identified additional projects for this pipeline in FY2017 and they are under review.

Kilometers of Power Lines pending Financial Close: This indicator is associated with NELSAP and the EKTZ interconnector. Projects are under review and will be added to the pipeline in FY 2017.

EAST AFRICA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 4A - Conditions Precedent		
Achwa 2 HPP	Hydro	42
Stage 3B - Financing		
Nyamabuye SHP	Hydro	7
Stage 2B - Project Development		
Nyabuhuka-Mujunju SHP	Hydro	3.2
Stage 1 - Pre-Feasibility		
WENRECo PV plants	Solar	1.5
Proposed		
Stage 2A - Feasibility		
REPARLE - network of biomass gasification units	Biomass	8
Earth Energy Biomass Gasification	Biomass	20
Stage 1 - Pre-Feasibility		
Buranga Geothermal	Geothermal	70

4. DJIBOUTI

Power Africa Transactions & Reforms Program | Djibouti Portfolio 2017



PATRP maintains a dedicated transaction advisor for Djibouti, who also oversees STTAs responsible for developing and enabling environment for large-scale power production, including IPPs. Entities receiving this assistance include the Ministry of Energy and Natural Resources (MERN), the Djiboutian Agency for Energy Management (ADME), and Electricité de Djibouti (EDD), the parastatal utility company under the supervision of MERN.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

PATRP will continue to advance new generation projects by providing transactional support for ongoing transactions including a 50 MW solar project (Grand Bara) and a 60 MW (North Ghoubet) wind project, totaling 110 MW. The TA is also vetting another geothermal project, which is currently the subject of PPA and Implementation Agreement negotiations.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Implementing Regulations under IPP Law

PATRP will continue to support MERN to implement Djibouti's IPP Law, and to establish the legal and regulatory framework necessary for private sector investment. This support includes the design and development of the licensing and concessioning processes, addressing issues such as net metering, land lease processes, and general tariff regimes; and the development of a strategy for procurement of large-scale IPPs, addressing both unsolicited bids and competitive tendering. Institutional support will also be provided to create the Regulatory Services Department (RSD) and assist MERN to develop other regulations under the IPP Law. These activities are targeted for completion during FY 2017, at which time the IPP Regulatory Support advances to Competitive IPP Tender Support.

Electricity Law

PATRP will draft an Electricity Supply Industry Law (Electricity Law) to accompany the existing IPP Law. The Electricity Law will provide the overarching framework for the power sector, defining the functions to be performed by different power sector entities and the defining role of the RSD in regulating the electricity sector – in particular the regulation of all activities of EDD. The Electricity Law will address customer-owned generation (including details necessary to support net metering, which is mentioned only in the Energy Efficiency Law and not dealt with in the IPP Law), off-grid generation, rural electrification, micro-grids, and independent distribution companies (if any). It will define the functions of the System Operator and the Single Buyer. It will also define the requirements for unbundling of EDD activities so that the costs of each activity can be identified by the RSD. The reforms suggested by the

Electricity Law will require substantial stakeholder engagement to foster the political will necessary for meaningful implementation thereof. As a result, the timeline for this task may extend into FY 2018.

IPP Action Plan

PATRP will develop the IPP Action Plan to estimate the demand for capacity and energy from IPPs, taking into account the opportunities for electricity import and export, and for customer-owned generation. The IPP Action Plan will also help identify best procurement methods for existing opportunities; identify the near-term IPP opportunities for which a competitive international tender should be organized; and develop recommendations regarding electricity import from and export to Ethiopia, taking into account the regional trading opportunities provided by the EAPP. This activity should be complete in the first quarter of FY 2017, in tandem with the IRP and IRP Implementation Strategy.

Grid Code Development and Trade Advisory

PATRP will continue to assist in advancing Djibouti's grid code, including the rules governing third-party access and use, to support the integration of independent power production to the grid currently being developed by EDD. PATRP will assist Djibouti's accession to the governance mechanisms of the EAPP. In parallel, PATRP will organize and conduct a series of meetings designed to promote a dialogue between Djibouti, Ethiopia, and the EAPP concerning electricity trade that would be mutually beneficial. This will encompass a discussion of export of IPP power and energy into the EAPP.

Integrated Resource Plan & Implementation Strategy

An Integrated Resource Plan (IRP) for EDD and MERN will be developed to understand and meet forecasted annual peak demand and annual energy requirements (plus some established reserve margin) through a combination of supply-side and demand-side resources management over 10- and 20-year periods. The IRP is intended to not only support the enabling environment, but to serve as a capacity building tool, to transfer the analytical and planning skills necessary to manage the newly liberated power generation sector and its impact on existing transmission and distribution networks. Steps taken in the creation of the IRP will include the following: (i) forecasting future loads and growth in demand; (ii) identifying potential resource options to meet those future loads; (iii) estimating capital investment requirements to meet those future loads; (iv) determining the optimal mix of resources based on GORD guiding principles; (v) receiving and responding to public participation (where applicable); and, (vi) creating and finalizing the resource plan.

As the final element of the IRP, PATRP will prepare an IRP Implementation Strategy. Once the articulated strategy is adopted, the IRP Implementation Strategy represents a consensus document, and may become a basis of authority for the GORD's reform activities. The start date of this work depends on the successful completion of the IRP, but it would most likely be the first quarter of 2017. The reforms suggested by the IRP Implementation Strategy will require substantial stakeholder engagement to foster the political will necessary for meaningful implementation thereof. As a result, the timeline for this task may extend into FY 2018, given to factors outside the control of Power Africa.

Launch of IPP Project Tenders/ Competitive IPP Tender Support

PATRP will seek to develop a Competitive IPP Tender Process. Ultimately, competitive IPP project tenders will be launched on acceptance of the IRP results and the related IRP Implementation Strategy. The initial drafts of the IRP suggest estimations as a function of Djibouti's demand projections to be 258 MW wind; 553 MW solar, 158 MW gas; 182 MW CSP; and 55 MW geothermal. PATRP will assist MERN in administering the procurement process in order to ensure that new generation and transmission capacity is procured timeously, and to build a knowledgebase within MERN to launch IPP bids without PATRP support in the future. The reforms suggested by a transition from direct negotiation

procurement to competitive procurement of electricity production by MERN will require substantial stakeholder engagement to foster the political will necessary for meaningful implementation thereof. As a result, the timeline for this task may extend into FY 2018, due to factors outside the control of Power Africa.

DELIVERABLES:

- Integrated Resource Plan (IRP)
- IPP Action Plan

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	210	100	50	110	50	100	Projects under review for this indicator include North Ghoubet Wind 60 MW, Beazley Geothermal, Oil and Power Pipeline Project (with related power needs), and Tesla Power. There will be an additional 100 MW target for FY 2017 resulting in cumulative target of 210 MW.
Transactions Pending Financial Closure	2	2	1	2	1	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Training and Capacity Building Activities	200	435	435	100	0	100	The TA and other Technical Advisor are developing a number of new policies, regulations, and legal instruments (Implementing Regulations under IPP Law and Small-Scale Production Regulations to name a few) to facilitate governance of the sector. These new activities will require significant capacity building with government agencies. PATRP will conduct a number of targeted, structured workshops that will ensure government of Djibouti entities understand these new policies and develop capability to implement them.
Policy; (Actions)	6	4	0	3	4	3	Policy reform documents for FY 2017 include the Implementing Regulations under IPP Law, Guidelines and Establishment Documents for the Regulatory Services Department, Electricity Law, Small-Scale Production Regulations, and others). These new regulations and laws will improve the investment environment allowing for improved bankability of projects and lead to an increased pipeline.
Policy; Unit # (implemented)	1	0	0	0	0	1	PATRP expects the Integrated Resource Plan and Implementing Strategy to become established policy; the Electricity Law may also be approved. These new regulations and laws will improve the investment environment allowing for improved bankability of projects and lead to an increased pipeline.

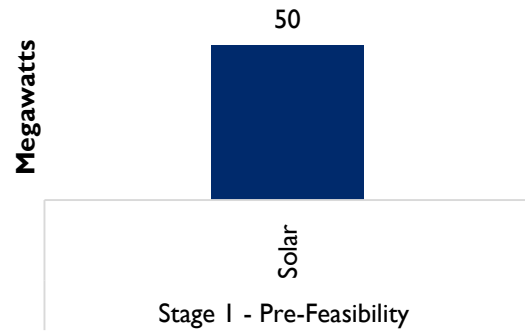
Variations – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: The North Ghoubet wind project (60 MW) may be included as part of a competitive tender. The transaction is still under review and may be added in FY2017.

Training and Capacity Building Activities: The TA and other Technical Advisors completed over 100 hours of training and capacity building, but mostly in the form of coaching, and not structured as formal events. Moving forward in FY 2017, we will conduct more structured workshops to provide capacity development to a wider audience at MERN and other relevant ministries.

DJIBOUTI | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage I - Pre-Feasibility		
Grand Bara Phase I	Solar	50

5. ETHIOPIA



Power Africa Transactions & Reforms Program | Ethiopia Portfolio 2017

PATRP's resident transaction advisory team in Ethiopia now includes a second Transaction Advisor, a Local Legal Advisor and a Project Finance Advisor, engaged in FY 2016 as part of PATRP's activities set forth in the supplemental scope of work. PATRP also established a dedicated Power Africa office in Addis Ababa, which is supported by a local assistant, also retained in FY 2016. 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. In FY 2017, PATRP's activities will extend to providing dedicated support to EEU with reducing commercial losses. This new work stream will be performed by a new resident Team Leader/Country Implementation Manager and two Commercial Loss Reduction Specialists.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Support to EEP

PATRP will continue to assist the Government in developing and managing competitive procurement processes for IPPs, including expressions of interest (EOIs), Requests for Proposals (RFPs), and PPAs and IAs for solar, wind, and hydro projects. The next twelve months will see PATRP focusing its support on the IPP projects listed below by providing legal, technical and financial input into the design of the tender to make it attractive to potential developers, the preparation of prequalification criteria and tender documents, and bid evaluation. In addition, PATRP will develop the capacity of the EEP procurement team for evaluation of tender documents. To expedite the Metehara procurement, an Environmental and Social Impact Assessment (ESIA) will also be undertaken by PATRP to identify critical environmental and social concerns associated with the project and address them as part of project design and operations and the ESIA will be made available to the preferred bidder.

- 100 MW Metehara Solar IPP
- 280 MW Chemoga Yeda HPP
- 100 MW IFC Scaling Solar program
- Two other 100 MW Solar projects (Mekele and Humera)

In addition, PATRP will support EEP with the development of a wind strategy and implementation framework to include undertaking a feasibility assessment of at least one site, and advance it to tender.

Facilitate Geothermal Power Generation Investments

PATRP geothermal activities in Ethiopia will see continued assistance to the two, current major geothermal transactions (the 500 MW Corbetti plant and the 500 MW Tulu Moya/Abaya project).



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Ethiopia Electric Utility Support Program

The primary focus of this two-year program will be to reduce commercial losses in one of the 15 regions of EEU in the Addis area. A team of experts will be deployed and will work with local employees and EEU staff. In order to ensure success, a MOU will be required between PATRP and key EEU stakeholders so that appropriate risk mitigation measures can be enforced. Program tasks will include:

- Begin installation of energy accounting meters at all Distribution Transformers of the selected region
- Establish baseline for energy and collection losses
- Review current “Meter to Cash” processes and design “to be” processes to improve performance
- Implement the improved processes
- Report on performance on a monthly basis

This program will interface with the ERP Program (currently underway) to ensure proper overall integration and change management. Based on availability of funding and the level of progress and performance improvement, the program can be expanded to other regions.

Ethiopia Grid Management Support Program (GMSP)⁷

PATRP is providing several key technical studies essential to ensuring a modern and efficient electricity grid that is prepared for renewables integration, new generation projects and transmission projects, to keep pace with expected significant increases in demand, as well as exports to other countries. The system integration study (SIS) work is ongoing, with results for some initial years and scenarios to be presented in FY 2017.

PATRP will continue to facilitate adoption of the grid codes through completion of an impact assessment, by entity, which is necessary for passage of the new regulation, as well as operationalization of the grid codes. PATRP has developed complete Grid Codes, and is working through the review/revision process expected to run through Q4 FY 2017.

As part of the SIS activity, PATRP is making substantial updates and revisions to the master plan to develop a demand forecast, generation and transmission plan, to determine the proper mix and timing of generation (hydro, geothermal, biomass, intermittent renewable, etc.) and associated transmission to be able to reliably meet demand as well as exports. In addition, we are performing analysis (e.g. feasibility) in support of specific generation projects. Preliminary results have been provided for the Metehara Solar Project, with additional analysis underway, and other generation projects to follow.⁸

Development of EEP IPP Unit

Subject to EEP approval, PATRP will develop a training program to manage the full IPP project cycle. This training will focus on building the back office IPP unit to manage all future IPP contracts, including settlement and dispute resolution. This training will include multidisciplinary units/departments to

⁷ This activity will also be the subject of a detailed work plan.

⁸ In this manner, GMSP is also supporting Pillar 1.

work together to make sure both EEP's and the Sellers' obligations are met. PATRP will develop organizational charts and scopes of work for the new unit, and develop a best practices toolbox for development of IPP projects (from inception to implementation). To complement this activity, PATRP will redesign and streamline the EEP website to improve user interface, access to technical information, and provide maintenance of technical content, especially as it relates to IPP procurement. PATRP will work with the Ministry of Finance, Ministry of Energy and EEP on how to move forward and provide a scope of work by Q2 FY 2017.

Support on Tariff Revision

PATRP will provide continued support and capacity building to the Government of Ethiopia on the tariff model and IPP Tariff foreign exchanges liability exercise delivered in FY 2016. PATRP will complete an EEP/EEU cost-reflective tariff calculation, and a final proposal will be issued by the regulator (EEA), which then will be sent to the Council of Ministers for ratification. We expect this to take place in Q1.

DELIVERABLES:

- Final Grid Codes adopted – Q4 FY2017

KEY TARGETS:

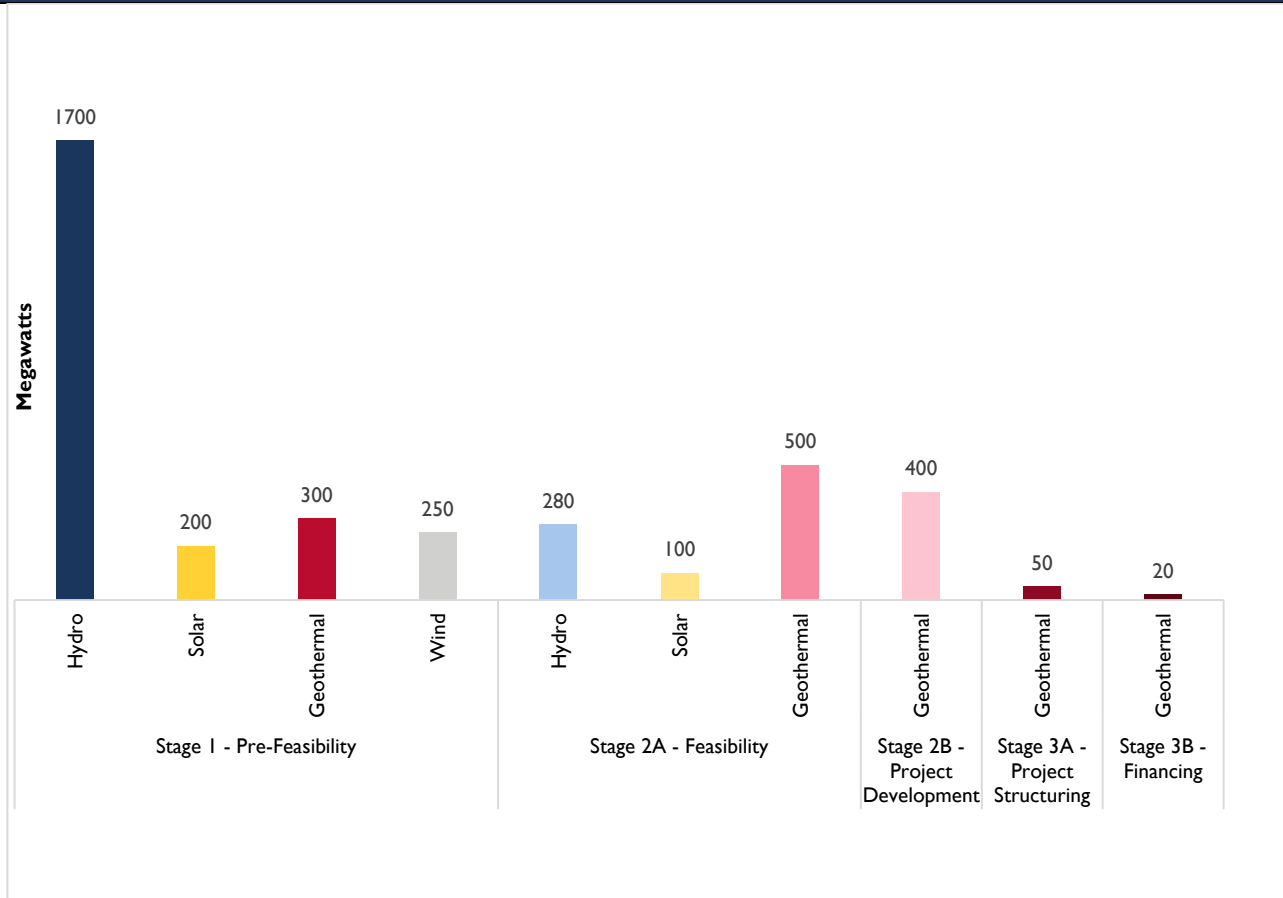
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	5,156	4,570	970	4,156	3,600	1,000	PATRP is assisting the GoE to review over 21 projects with over 2,500 MW of potential capacity. These include 500 MW solar, 1500 MW hydro, 150 MW wind, and 500 MW geothermal. There will be an additional 1000 MW target for FY 2017 resulting in cumulative target of 5,156 MW.
Transactions Pending Financial Closure	13	14	5	13	9	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	120	0	0	0	0	120	PATRP is tracking advancement to financial close for FY 2017 for Metehara 100 MW and Corbetti 20 MW. There is a proposed wind project that may require assistance to close in FY 2017 and PATRP is performing due diligence to assess its viability as Power Africa transaction.
Training and Capacity Building Activities	300	724	544	100	180	200	PATRP will conduct training in FY 2017 on final Grid Codes and the IPP Best Practices Toolkit under development.
Aggregate Losses; Unit %	0%	0%	0%	0%	0%	TBD	PATRP will provide a target for FY 2017 once an assessment of the utility is complete.
Policy; (Actions)	10	4	1	2	3	8	PATRP will develop a Wind Strategy and Implementation Framework document that will provide governance framework for that resource. Further, IPP Best Practices Toolkit will include governing documents such as PPA Template, Implementation Agreements, Interconnection Agreements, and others. PATRP will deliver the final draft of the Grid Codes for adoption.

Variances – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: PATRP is assisting the Ethiopian government in developing the standard documents for two projects. In addition, while reviewing the five-year plan's pipeline we downgraded a number of expected MW leading to a reduction in our initial estimates.

ETHIOPIA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 3B - Financing		
Corbetti Geothermal Phase 1	Geothermal	20
Stage 3A - Project Structuring		
Corbetti Geothermal Phase 2	Geothermal	50
Stage 2B - Project Development		
Corbetti Geothermal Phase 4	Geothermal	200
Corbetti Geothermal Phase 3	Geothermal	200
Stage 2A - Feasibility		
Metehara Solar Project	Solar	100
Chemoga Yeda 1 & 2	Hydro	280
Abaya & Tulu Moya	Geothermal	500
Stage 1 - Pre-Feasibility		
Mekele	Solar	100
Tams Hydro Project	Hydro	1700
Humera	Solar	100
Iteya Wind Project	Wind	150
Geothermal Site 1	Geothermal	300
Debre Birhan Wind Project	Wind	100

6. KENYA

Power Africa Transactions & Reforms Program | Kenya Portfolio 2017



PATRP maintains a multidisciplinary team in Kenya. In addition to the Transaction Advisor and Senior Technical Advisor, who focus principally on large-scale projects, PATRP has also deployed a *Beyond the Grid* (BTG) Advisor and Part-time Community Engagement Advisor. Finally, and in furtherance of the Cooperation Framework concluded between KenGen and Power Africa, PATRP is providing an embedded KenGen Utility Advisor tasked with supporting the company's geothermal projects.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR 1: GETTING TO 30,000 MW

Transaction Advisory Assistance

PATRP will continue to support a strong pipeline of large-scale, private sector-driven, late-stage transactions with an estimated generation value of 525 MW, and will continue to add viable Power Africa projects across various technologies. The issues facing developers may either be project-specific or common to all developers in Kenya, and our approach to providing support will reflect this fact. The initial focus in FY 2017 will be on the form of the Government Letter of Support to ensure bankability, which is critical to advance priority transactions, such as Akiira, Kipeto and certain solar PV projects. As previously noted, we see Kenya facing potential medium-term electricity surpluses based on contracted generation. Therefore, we will need to maintain a flexible approach in our assistance, and make sure that we prioritize transactions that are most likely to reach financial close.

Support the Delivery of Specific KenGen Projects

PATRP deployed a Senior Geothermal Utility Advisor who is focused on completing KenGen's immediate pipeline of projects, namely competitive tenders for three new Olkaria projects totaling 350 MW, as well as the rehabilitation of Olkaria I. The Senior Geothermal Utility Advisor has begun and will continue to work with KenGen on planning and developing new binary electric generating projects to be located near existing Olkaria generating plants in order to better utilize the existing well production. Between existing and new projects, PATRP anticipates supporting KenGen with developing generation capacity of 1,300 MW and improving operational efficiency. PATRP will also support KenGen as it works towards its longer-term goal of adding 2,500 MW of new generation capacity by 2025.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

BTG-SSRE Transaction Support

PATRP will provide targeted small-scale renewable energy technical assistance focused on the off-grid market. PATRP will assist new companies entering the market and existing market players with respect to transaction support, registration and tax regime, market growth strategy (e.g. reverse logistics and

partnership development, among others), and connections to sources of funding. This task is expected to deliver:

- increased system sales for at least two small-scale renewable and off-grid companies (every 6 months);
- increased approval rates of at least one national green credit line for small-scale renewable and off-grid companies (every 6 months); and
- new loan issues to at least two new small-scale renewable and off-grid companies leading to increased system sales (every 6 months).

Integrated Strategy between Government of Kenya's Connection Targets and Private Sector Off-Grid Projects

PATRP will formulate the necessary regulatory framework, along with standard forms of license agreements for off-grid service providers. The ultimate target is 900 kW in new generation capacity and 30,000 new connections. This task will deliver templates for standard forms for off-grid license agreements.

Support to Home-Based Systems (HBS) and Value Chain Companies

PATRP will support the HBS and value chain companies by addressing high up-front costs and mapping of sustainable business models for solar decentralized products currently available in Kenya. In addition, PATRP will work with REA to produce a publicly available rural electrification map/region to provide clarity on where, when, and which areas will be reached by the national grid. The ultimate target is 2,100 kW in new generation capacity and 70,000 new connections.

Off-grid Accelerator Program

PATRP will develop and support a new off-grid accelerator program, with a proposed target of 2.5 million new connections. This activity will include (i) developing an off-grid strategy, including a business case for technologies and geographies; (ii) establishing an off-grid innovation lab; (iii) promoting a micro-grid financing fund; and, (iv) developing a social impact bond program, which PATRP will have tested with potential investors.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Policy Interventions/Capacity Building

PATRP will support the development of a new Renewable Energy Curricula at the Kenya Power Institute of Energy Studies (the Institute). In FY 2017, the focus will be on reviewing the Institute's renewable energy curricula, and developing new curricula for approximately ten new courses, including (i) Energy Management; (ii) Strategies for Developing Renewable Energy Projects – Mini-Hydro; (iii) Strategies for Developing Renewable Energy Projects – Solar PV; and, (iv) Strategies for Developing Renewable Energy Projects – Wind Power.

PATRP will also engage a full-time Senior Energy Advisor & Power Africa Liaison who will be responsible for providing high-level policy, legal, regulatory and strategy advice to the Cabinet Secretary for Energy and Petroleum, and senior staff in the Ministry.

PATRP will also be advising the Ministry of Energy on defining Kenya's strategy to transition the existing pipeline of wind and solar renewable energy projects from a feed-in tariff to a competitive auction process, in the first six months of FY 2017, at an affordable price and with minimal disruption to power

generation. We will be focusing on the transitional arrangements as the sector moves from FIT's to auctions.

Kenya Financing

PATRP will develop and support initiatives to finance the USD\$14-18 billion gap identified to achieve the country's power generation, transmission, distribution and off-grid electrification targets. Solutions will be developed in collaboration with the CEO-only Steering Committee, and will likely include (i) blended finance structures with development finance institutions, as well as local and international commercial lenders; and (ii) promotion of a Build-Own-Transfer (BOT) option on selected transmission lines to bring in private capital and skills. The option could facilitate financing in the transmission sector, but would require a clear wheeling tariff to attract financiers. PATRP will work with the CEO-level steering committee, Ministry of Energy and the transmission system operator (KETRACO) to develop a strategy for implementation of this concept, and identification of prospective lines that could be piloted for this purpose.

Develop and Drive a Community Engagement Framework to Support IPPs

PATRP will continue with the development of a Community Engagement Framework for planning and implementing a community engagement program through a project lifecycle. The framework will propose options on organization and coordination structures, entry steps to roll out the strategy, planning and management actions, participatory approaches, and mechanisms for linking the community to the project, grievance redress mechanisms and comment response.

Grid Management Support Program⁹

This activity builds on PATRP's work to strengthen Kenya's power systems to be ready for the integration of new conventional and intermittent renewable generation sources, and for sustainable and efficient operation of the National Grid. To this end, PATRP will continue to assist Kenya Power, KETRACO, KenGen, and the Energy Regulatory Commission (ERC) to manage system expansion and the integration of renewable energy projects. Previous system studies (System Integration Studies – SIS), will continue to be updated and broadened (e.g. beyond an emphasis on wind). Studies are anticipated to look at the system as a whole, technical system issues, and provide (generation) project specific analysis and support.

PATRP will continue to work towards adoption of a national grid code. The final draft of the Grid Code has been sent to the Cabinet Secretary for gazette, and is awaiting approval of the National Energy & Petroleum Policy and enactment of the Energy Bill 2016. In the interim, the ERC has decided to move forward with the implementation of the grid codes. With this in mind, PATRP will continue with the grid code operationalization phase, where timelines have been developed for ERC. Upcoming activities include assisting ERC and licensees with the compliance process, as well as advising ERC and the grid code review committees on additional revisions to the grid code.

Development of Private Sector Micro-grids

PATRP will develop a grid code to provide for both on-grid and off-grid service providers, including interconnection provisions to eventually integrate off-grid systems into the grid, and will develop a transparent licensing process and a model license agreement for off-grid electrification projects. PATRP will assist the government in developing a tariff setting process for micro-grids, including a methodology for evaluating initial connection costs, usage charges (including life-line electricity rates), and a means for financing subsidies for off-grid consumers (taking into consideration affordability and willingness to pay while ensuring commercial and financial viability of projects). In parallel, PATRP will draft technical

⁹ This activity will be the subject of a more detailed work plan.

standards and a safety code based on international norms for off-grid and service line constructions compatible with future grid interconnection. The ultimate target is 300 kW in new generation capacity and 6,000 associated new connections. This task will deliver mini-grid interconnection terms to be integrated in the existing license agreements; at least eight companies are expected to benefit from such arrangements.

DELIVERABLES:

- Final adoption and operationalization of Gazetted Grid Code
- Development of an off-grid strategy
- Community Engagement Framework report for private developers
- Standard forms for off-grid license agreements

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	70,000	0	0	0	0	70,000	The PATRP BTG team is working with a number of mini-grid, lanterns and solar home-based system operators and businesses to scale up and increase market penetration by 70,000 new units and/or connections.
Generation Capacity Pending Financial Closure; Unit MW	1,025	747.5	667	725	81	300	PATRP is assisting KenGen to advance a number of geothermal projects to financial close. We anticipate 300 MW of new transactions added to the pipeline for FY 2017 resulting in cumulative target of 1,025 MW.
Transactions Pending Financial Closure; Unit #	9	10	8	9	2	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	240	310	310	0	0	240	PATRP is tracking advancement to financial close for FY 2017 for Olkaria 5 (140 MW) and Kipeto (100 MW). There is further potential for closure on some of the large-scale solar projects including Kesses I (40 MW), Eldosol Energy (40 MW), and Kenergy (40 MW)
Transactions Reached Financial Closure; Unit #	0	1	1	0	0	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Commissioned; Unit MW	0	0	0	0	0	0	PATRP expects the Lake Turkana Wind project turbines to be 90% complete by end of FY 2017 however the Transmission line construction may delay commissioning of the project into FY 2018.

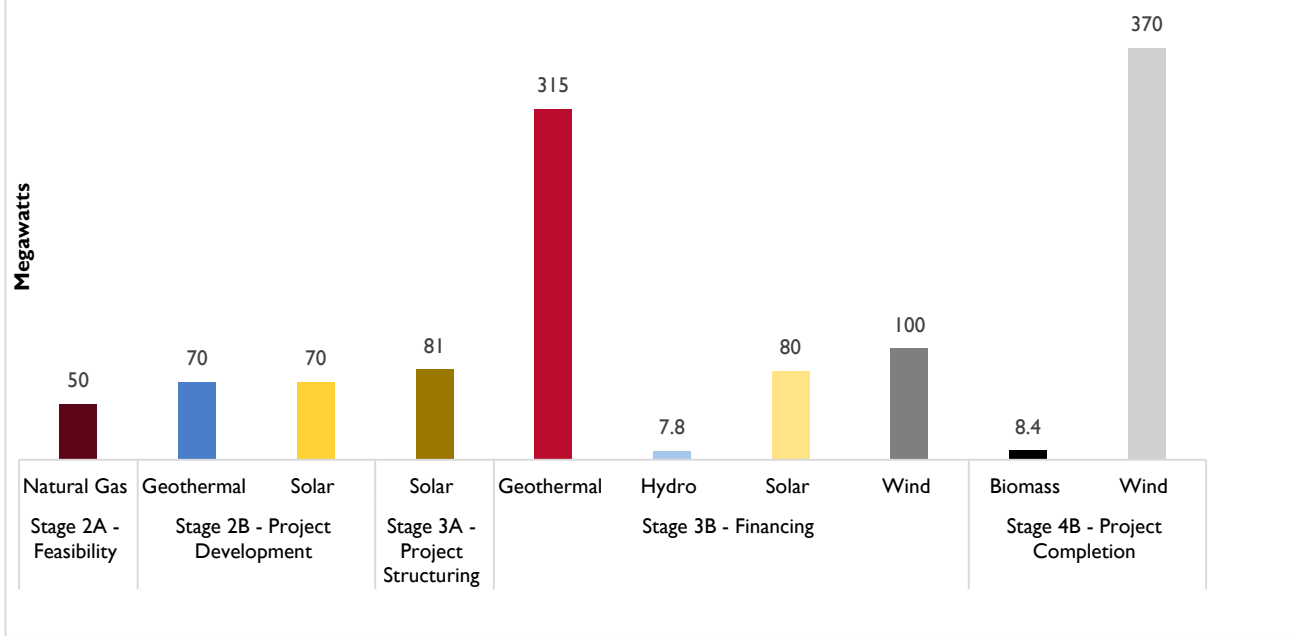
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Utilization of Risk Mitigation Measures; Unit #	0	3	3	0	0	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of the power sector health by providing an indication of the level of confidence investors have in a country by gauging the requirements for guarantees and other risk mitigation tools such as Government Letter of Support.
Training and Capacity Building Activities; Unit hours	200	523	232	0	291	200	PATRP will conduct a range of capacity building activities including at KenGen (capex optimization, Olkaria field optimization, reservoir management, and so forth). In addition, it is anticipated that a Community Engagement Framework will have been completed, which may be applied widely in a range of settings.
Policy; (Actions)	1	3	0	0	2	1	PATRP will develop a draft mini-grid code, including interconnection provisions for eventual grid integration.
Policy; Unit # (implemented)	0	0	0	0	0	0	PATRP does not anticipate policy implementation for FY 2017.
Kilometers of Power Lines that have reached Financial Close; Unit KM	0	436	0	0	436	0	PATRP does not anticipate new transmission lines to reach financial close in FY 2017.
Transmission Projects that have reached Financial Close; Unit #	0	1	0	0	1	0	This indicator is directly linked to Km of Power Lines that have reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.

Variances – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: Kenya has a surplus capacity of 755 MW (48%) which has led to reluctance by the Government to issue Letters of Support that would support financial close. This seems to confirm that Government is actively reviewing less expensive power options, and is also concerned about a potential oversupply of power in the medium term.

KENYA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions

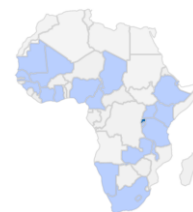


Name	Technology	MW
Active		
Stage 4B - Project Completion		
Lake Turkana	Wind	310
Kinangop Wind Farm	Wind	60
Cummins Baringo	Biomass	8.4
Stage 3B - Financing		
Menengai	Geothermal	105
Kipeto	Wind	100
Akiira Phase I	Geothermal	70
Kesses I	Solar	40
Rumuruti Solar PV	Solar	40
KenGen Olkaria V	Geothermal	140
Mutunguru Hydro Power	Hydro	7.8
Stage 3A - Project Structuring		
Radiant Energy	Solar	40
Eldosol Energy	Solar	40
Cloverfield Project	Solar	1
Stage 2B - Project Development		
AGIL-Longonot Phase I	Geothermal	70
Kogelo (MSOF)	Solar	40
Makindu	Solar	30
Stage 2A - Feasibility		
Lamu Gas-to-Power Project	Natural Gas	50

Proposed		
Stage I - Pre-Feasibility		
Sisal Biomass to Energy	Biomass	8
Oserian	Geothermal	30
Olsuswa Energy	Geothermal	140
Baringo-Silali	Geothermal	200

7. RWANDA

Power Africa Transactions & Reforms Program | Rwanda Portfolio 2017



PATRP deployed a new resident Transaction Advisor to Rwanda in FY 2016, along with a new BTG Advisor. In addition, PATRP initiated a new activity to support EUCL as it attempts to deliver on new transmission capacity that can accommodate new generation.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

PATRP's Rwanda Transaction Advisor will continue to work with both public and private sector actors to advance existing generation transactions towards financial close (see priority list below). In addition, the TA will support the newly created Contract Management Unit at EDCL in the management of signed transactions, as well as strengthening systems and procedures to ensure projects are implemented on time and within budget. As previously noted, we see Rwanda facing potential medium-term electricity surpluses based on contracted generation. Therefore, we will need to maintain a flexible approach in our assistance, and make sure that we prioritize transactions that are most likely to reach financial close.

The immediate focus will rest on advancing the following projects:

- Mini hydro sites – The Government has targeted 20 micro-hydro power sites through tenders and bilateral negotiations with private sector developers to design, build, own, operate and transfer micro hydro power plants totaling 40 MW.
- Symbion Methane Gas Power Project (50 MW)
- So Energy 30 MW Thermal Project



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Off-Grid and Small-Scale Renewables

The newly deployed BTG Advisor will advise the private sector and Government of Rwanda in the development and implementation of off-grid projects and deployment of off-grid solutions. The BTG Advisor will connect private sector companies to key institutions/people in Rwanda and resources (such as the DCA BTG Guarantee program) provided by Power Africa, its partners and other donor agencies that will enable companies to increase connections to Rwandan citizens. Specific activities will include:

- Work closely with the Ministry of Infrastructure (MININFRA) to implement the Rural Electrification Strategy (RES), which aims to enable private sector to deploy more solar home systems and mini-grids through the establishment of a Renewable Energy Fund and a targeted subsidy program.
- Provide loan portfolio guarantees to local financial institutions to increase lending to the energy sector. Support solar PV companies, in particular solar home system (SHS) companies, to develop and implement their business models to ensure they are able to obtain suitable finance to scale up their businesses.
- Support private sector companies to participate in Ministry of Infrastructure programs.

PATRP will provide policy support to MININFRA in the implementation and management of the RES, including detailed design of the program mechanics, communications, mobilization of finance, and support for gender integration into program activities.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

System Operational Planning and Dispatch Support

EUCL is responsible for day-to-day operations of power generation, transmission, distribution. EUCL is also in charge of operations planning of the existing power system. PATRP will assist with:

- Operational Planning and Dispatch Procedures – Assist EUCL on development of system operational planning and dispatch processes, relevant operating rules and procedures.
- Support in Development of Investment Plan – Assist EUCL in developing a systematic approach and a system and processes investment plan for system operational planning and dispatch.

The PATRP team will present all findings during a high-level presentation to EUCL and relevant stakeholders, and hold two workshops and three validation sessions, with EUCL. We will provide relevant trainings and capacity building for the planning and operational personnel of EUCL, ensuring that these opportunities for skills development benefit male and female personnel equally.

Lake Kivu Monitoring Program

PATRP is proposing to support EDCL (Energy Development Corporation Limited) in building engineering capacity within its Lake Kivu Monitoring Program to enable efficient practical monitoring and inspection of IPPs extracting methane gas from Lake Kivu and better policies/processes for inspecting gas extraction designs and operations. This support will have a positive impact on the implementation of both Phase 2 of Kivuwatt and the Symbion project, both of which will require LKMP approval of their designs in order to reach commercial operations. Further, future operators on the Lake Kivu will benefit from a more transparency and effective monitoring institution.

DELIVERABLES:

- Operational Planning and Dispatch Procedures and Investment Plan
- Implementation Roadmap for RES
- Report on off-grid market assessment opportunities
- Report on support, recommendations and implementation efforts to at least five off-grid companies

KEY TARGETS:

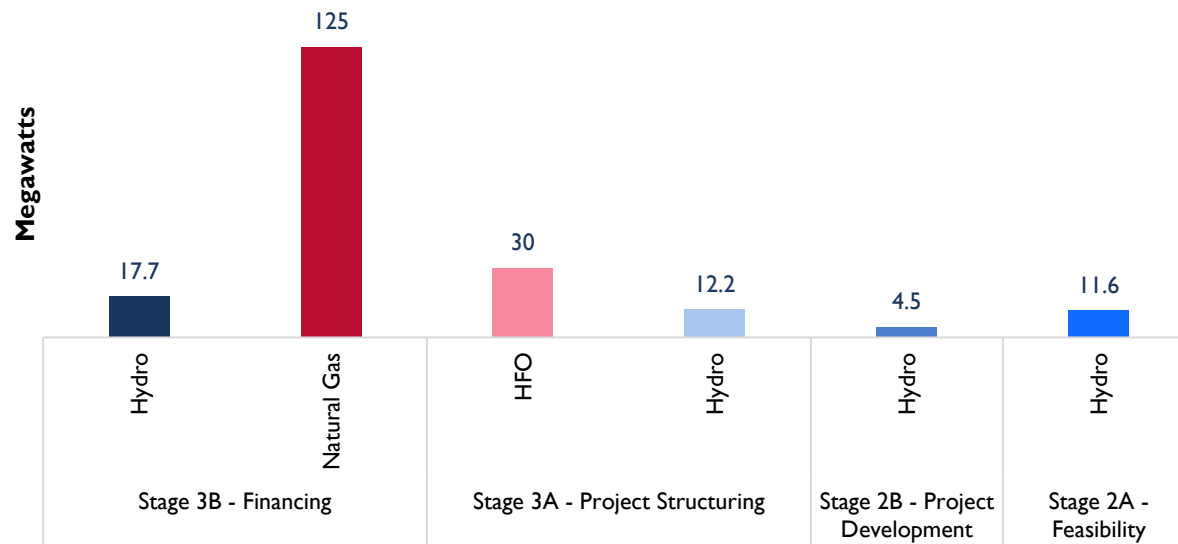
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	50,000	0	0	0	0	50,000	The PATRP BTG team is working with the Government of Rwanda, a number of mini-grid, and solar home-based system operators and businesses to scale up and increase market penetration by 50,000 new connections.
Generation Capacity Pending Financial Closure	295	189	0	295	189	0	PATRP will continue to advance existing projects but anticipates no new MW targets for FY 2017 due to oversupply of power. We will submit an additional 106 MW to the pipeline to maintain the cumulative target of 295 MW.
Transactions Pending Financial Closure	3	14	0	3	14	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	30	0	0	0	0	30	PATRP is tracking advancement to financial close for FY 2017 for SO Energy 30 MW.
Training and Capacity Building Activities	384	747	0	192	747	192	PATRP will provide capacity building to EUCL on system planning in FY 2017.
Policy; (Actions)	6	0	0	3	0	3	PATRP will develop operational planning and dispatch procedures for EUCL.
Policy; Unit # (implemented)	0	0	0	0	0	0	PATRP does not anticipate newly implemented laws and/or policies for FY 2017.

Variations – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: TA has selected 189 MW in projects, which represent the most viable projects in the pipeline. One project may achieve financial close in early 2017.

RWANDA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Proposed		
Stage 4A - Conditions Precedent		
Rusumo	Hydro	80
Stage 1 - Pre-Feasibility		
Rusizi 1 & 2 Refurbishment	Hydro	50

Name	Technology	MW
Active		
Stage 3B - Financing		
Kiwuatt Phase 2	Natural Gas	75
Ngali Energy projects	Hydro	11
Rukarara VI	Hydro	6.7
Rwanda Methane Plant	Natural Gas	50
Stage 3A - Project Structuring		
Agatobwe	Hydro	0.3
Rucangozera	Hydro	1.4
Kirimbi I, II & III	Hydro	1.6
Mpenge II	Hydro	0.3
Karambo	Hydro	0.726
Kabavu	Hydro	0.1
Kore	Hydro	2.4
Bihongore	Hydro	5.37
HFO/LFO Rental Thermal Project	HFO	30
Stage 2B - Project Development		
Koko	Hydro	4.5
Stage 2A - Feasibility		
Giciye III	Hydro	11.6

8. TANZANIA

Power Africa Transactions & Reforms Program | Tanzania Portfolio 2017



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 SSRE Transaction Advisor, who is embedded within the Rural Energy Agency of Tanzania.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

PATRP's Transaction Advisor will continue to advance a number of late-stage transactions. The immediate focus is on the following transactions, which are expected to achieve financial close within two years:

- Singida East Wind Africa – 105 MW IPP
- Somanga PPP - 300 MW
- Somanga Fungu I – 320 MW IPP
- Uppepo Singida Wind – 75 MW IPP
- Mtwara Gas – 300 MW IPP
- Kakono HPP – 87 MW IPP

With respect to Somanga PPP PATRP is working with TANESCO, and transaction advisors engaged with World Bank funding, to produce three critical studies that are needed to allow the procurement process to proceed: (1) Bathymetry study, (2) mapping of the site; and (3) geotechnical assessment of the site. These will be completed in FY 2017.

Advancing Small-scale Renewable (Rural Energy Agency – REA)

Transaction specific activities will include supporting 10-15 of REA's most viable hydropower projects, including:

- Lupali HPP (0.317 MW)
- Kikuletwa HPP (1.6 MW)
- Isigula HPP (0.4 MW)
- Nakatuta HPP (10 MW)
- Mapembasi (10 MW)
- Kiwira HPP (10 MW)
- NextGen Solawazi Project (5 MW)



**POWER AFRICA ROADMAP
PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL
POWER AFRICA ROADMAP**

PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Grid Support – TANESCO

PATRP will continue to work with TANESCO’s transmission division through an embedded advisor, with **Advancing off-grid (Rural Energy Agency – REA)** (whether through TANESCO or as an IPP) can be effectively supported through the establishment of the SIDA/DFID Off-Grid Program that is implemented through the Rural Energy Agency (REA). PATRP support facilitates the disbursement of approximately USD \$50 million over the next four years (2016/17 to year 2020/21) to REA for small scale renewable energy projects. The off-grid component of the SIDA/DFID program is projected to yield 86,000 connections through wired and/or un-wired grids, systems and 188,000 connections through solar PV systems. PATRP will also provide advisory support in the establishment the World Bank sponsored Tanzania Rural Electrification Expansion Program (TREETP - off-Grid component) that is implemented through the Rural Energy Agency (REA). PATRP support facilitates the disbursement of approximately USD \$42 million over the next five years (2016 to year 2022) to REA for small scale renewable energy projects. The TREETP off-Grid component of the program is projected to yield 310,000 with access (approximately 60,000 households) through SRPs and other renewables including solar PV systems. Also at least 33 MW of generation capacity of renewable energy is expected to be constructed under the Program associated workshops

- Support transactions by performing technical systems analysis to ensure adequate power evacuation and grid reliability

Survey of Network to identify investment needs:

- Identify system metering points and assess metering system adequacy for TSO Operations
- Develop metering plan for TSO

The continuation of this work stream beyond June 2017 will be reviewed with USAID, which may result in revisions to the above activities.

Capacity Building & Legal Support

PATRP will conduct a financial modeling workshop in March 2017 and, subject to available resources, a PPA Bootcamp workshop mid-2017 for TANESCO staff engaged in IPP negotiations. PATRP will also continue to build out the EWURA PPA prototype documents so that they provide a better guideline of a ‘balanced agreement’ to prospective sponsors, EWURA and TANESCO.

DELIVERABLES:

- Somanga PPP studies: (1) Bathymetry study, (2) mapping of the site; and (3) geotechnical assessment of the site. These will be completed in FY 2017.

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	300	0	0	300	0	0	The PATRP Small-Scale Transaction Advisor is working with a number of mini-grid developers to increase 300 new connections. There are no new targets for FY 2017 but PATRP will continue to increase connections to meet the cumulative target. In addition, PATRP is assisting a number of donor-led programs that will lead to almost 250,000 new connections.
Generation Capacity Pending Financial Closure	3,370	1,671.124	26	3,050	1,645.124	320	PATRP is assisting REA and TANESCO to advance a number of transactions to financial close. We anticipate 320 MW of new transactions added to the pipeline for FY 2017 resulting in cumulative target of 3,370 MW. TANESCO has stated their interest in renewable energy auctions and this may affect the pipeline moving forward.
Transactions Pending Financial Closure	7	20	5	7	15	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	340	433.5	7.5	0	426	340	PATRP is tracking advancement to financial close for FY 2017 for Somanga Fungu I 320 MW, NexGen 5 MW, and Kiwira, Kigoma, and Lupali, and Mapembasi 15 MW.
Transactions Reached Financial Closure; Unit #	0	3	1	0	2	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Commissioned; Unit MW	186	5	0	0	5	186	PATRP expects the Kinyerezi I Expansion project to reach commissioning by end of FY 2017.
Utilization of Risk Mitigation Measures; Unit #	0	1	1	0	0	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of the power sector health by providing an indication of the level of confidence investors have in a country by gauging the requirements for guarantees and other risk mitigation tools.
Training and Capacity Building Activities	692	1,453	0	500	1,453	192	PATRP will provide capacity building to TANESCO staff through a financial modeling workshop and a PPA boot camp in FY 2017.
Greenhouse Gas Emissions Reduced; Unit Metric tons CO ₂ e	0	10,661	0	0	10,661	0	This indicator is directly linked to Generation Capacity Commissioned. It is linked to the technology and the number of MW and, as a result, there is no target although PATRP does track and report on this number.

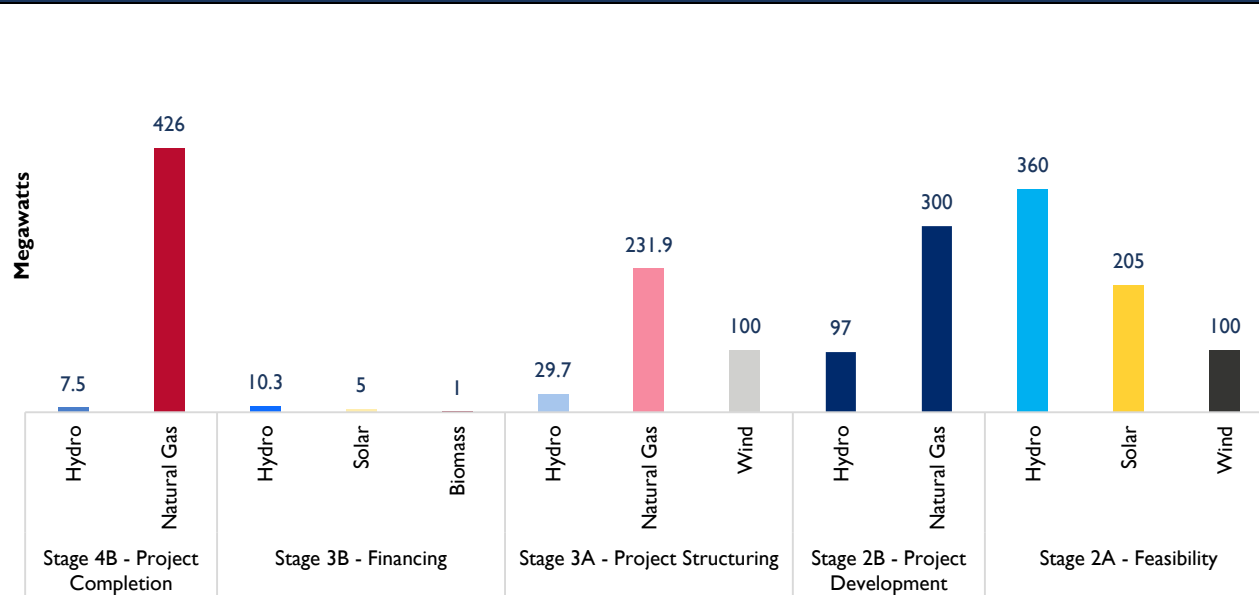
Variances – FY 2016 Targets vs Actuals:

Number of new grid and off-grid projected direct connections: Policy gaps in the existing framework are a barrier in accelerating the uptake of the mini-grid sector. Country regulator, EWURA, is reviewing the current framework. Even though the current framework has some provisions for mini-grid operators, developers have expressed their concerns that it does not provide protection from serious financial losses for the mini-grid operator in case of National Grid connection to the mini-grid. PATRP is in the process of engaging EWURA to provide the necessary support that will enhance the framework so it is more conducive for mini-grid operators.

Generation Capacity Pending Financial Closure: Power Africa is assisting TANESCO in negotiations of a number of projects including review of agreements with private sector developers. After further discussion with USAID, two transactions have been removed from our pipeline. TANESCO has stated their interest in renewable energy auctions and this may affect the pipeline moving forward.

TANZANIA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Proposed		
Stage 4A - Conditions Precedent		
Somanga Fungu I	Natural Gas	320
Stage 2B - Project Development		
Ijangala	Hydro	0.36
Stage 2A - Feasibility		
Kinyerezi IV	Natural Gas	500
Stage 1 - Pre-Feasibility		
Rumakariya HPP	Hydro	500

Name	Technology	MW
Active		
Stage 4B - Project Completion		
Kinyerezi I Expansion	Natural Gas	186
Kinyerezi II	Natural Gas	240
Tulila (Online)	Hydro	7.5
Stage 3B - Financing		
Lupali	Hydro	0.317
Kigoma	Solar	5
Kiwira River	Hydro	10
Husk Power	Biomass	1
Stage 3A - Project Structuring		
Luponde	Hydro	2.9
Isigula	Hydro	0.407
Luswisi HPP	Hydro	4.7
Mapembasi – Njombe	Hydro	10
Kikuletwa I HPP	Hydro	1.7
Luganga	Hydro	10
Singida	Wind	100
Stage 2B - Project Development		
Nakatuta	Hydro	10
Somanga PPPI	Natural Gas	300
Kakono HPP	Hydro	87
Stage 2A - Feasibility		
Ruhudji	Hydro	360
Shinyanga	Solar	150
University of Dodoma	Solar	55
Makambako	Wind	100

9. WEST AFRICA

Power Africa Transactions & Reforms Program | West Africa Portfolio 2017



PATRP deployed a second resident Transaction Advisor to the region in FY 2016, based within AfDB in Abidjan, Côte d'Ivoire. This deployment is in support of the Regional West Africa Transaction Advisor, based in Dakar, Senegal, who services projects principally in Francophone West Africa.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory

The Lead Regional Transaction Advisor will continue to provide general transaction support to various Power Africa stakeholders in West Africa's energy sector. Priority transactions will include:

- Taiba N'Diaye (150 MW – Wind): Senegal
- MakMo (24 MW – HPP): Cameroon
- Three solar projects (30 MW): Niger
- Bumbuna II (143 MW – Two HPP): Sierra Leone
- Sombwe (100 MW – HPP): DRC

A new Regional Transaction Advisor will be deployed in March 2017 and will provide particular assistance in the development of gas-fired generation projects, including: (i) advice on gas resource development strategies, resource benchmarking, required technical studies, and demand growth assessments; and, (ii) assistance in project development negotiations, tendered and unsolicited procurement methods, and proposal evaluations. The advisor will also be expected to cooperate with other PATRP gas advisors based in Ghana and Nigeria to leverage any lessons learned and adopt a regional approach where possible. Although the advisor will have a focus on gas transactions, this will not be to the exclusion of other power generation projects in the region.

PATRP will also join USAID representatives on a scoping mission in Guinea in February 2017, which will allow the Lead Regional Transaction Advisor to better assess the barriers to the timely development of IPP or PPP transactions in-country, with a particular focus on the sustainable development of its hydropower sector. This will allow PATRP to finally gauge what, if any, support it will provide to the inventory of possible HPP transactions that has been identified for Guinea.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

BTG Support

BTG will coordinate regional efforts with ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) and CTI-PFAN. Potential areas of collaboration will include: technical/financial implementation tools to scale up mini-grids in the region, innovative business models (e.g. pay-as-you-go, mobile platforms, crowdfunding, and remittances), and matchmaking efforts between East and West African private sector companies. After the scope of work is approved, the BTG team will discuss with the mission and its partners their current scopes and reach of their programs to identify gaps and needs to be addressed with BTG technical advice to ensure that there will not be any duplication with the work of any other mission's partners.

Technical Support to Micro-grid and SHS Companies

BTG will provide technical support to micro-grid and SHS local and international companies looking to start and/or scaling up operations in the region. BTG will provide business-focused technical assistance to at least five solar PV companies selling solar lantern and solar home systems (SHS). This may include supporting them on the development and implementation of their business models to ensure they are able to obtain suitable finance to scale up their businesses; supporting effective distribution and retail sales plans, including developing new partnerships with other distribution and retail companies.

Specifically, FY 2017 will see PATRP building on, and responding to the formal requests for assistance received from the following entities:

Potential High Impact Companies

- PEG – Cote d'Ivoire – Potential connections 50,000
- Microcred – Senegal, Cote d'Ivoire and Mali (Madagascar) – Potential connections 35,000
- Oolu Solar – Senegal, Guinea, Mali – Potential connections 35,000
- Fenix International, Senegal and Cote d'Ivoire – Potential connections 5,000
- GLP/Airtel pilot, Niger – Potential connections 5,000
- Nadji.bi, Senegal, Benin, DRC, Madagascar – Potential connections 5,000

Start-ups

- Bonenergie – Potential connections 1,000
- Aphelion/Paygo Solar, Cote d'Ivoire – Potential connections 1,000
- Toubasolar, Senegal, Burkina Faso – Potential connections 1,000
- WARI – Potential connections 1,000

Unlocking Financing for Mini-grids and Small-scale Solutions

PATRP is providing referral support to feed the pipeline of AfDB's newly minted Fund for Energy Inclusion, and has already referred six SHS companies to the program.

In addition, PATRP is supporting the development of a pipeline of projects in response to the World Bank's interventions in Niger, to include its Regional Off-Grid Electrification Project. These programs provide support to the private sector in the form of working capital loans or longer-term loans through multiple competitively selected and experienced financial intermediaries that can enable the private sector distributors and service providers.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Technical Assistance to West Africa Power Pool (WAPP) PPP Advisor

As needed, PATRP will support the WAPP PPP Advisor in the development of two 450 MW gas-fired power plants that make up the immediate pipeline.

New Technical Assistance in Guinea and Sierra Leone

Budget permitting, PATRP will undertake technical assistance in Guinea and/or Sierra Leone, which may consist of:

- Assessing improved electricity services in rural areas of Sierra Leone and Guinea through renewable energy-based distributed power generation, to include (i) developing viable business models for rural electrification; (ii) determining barriers to sustainable operations and potential replication of these rural projects; and (iii) designing a strategy to promote renewable energy-based, grid-connected distributed power generation and supply; and/or,
- Performing a review of demand projections and producing a generation/transmission master plan. The master plan would incorporate aspects such as minimum spinning reserves requirements to incorporate renewable energy, regional generation and transmission projects, and current contractual obligations.

A final decision on the abovementioned assistance will be undertaken (in conjunction with USAID) after completion of a mission to Guinea.

DELIVERABLES:

- Generation and Transmission Expansion Master Plan

KEY TARGETS:

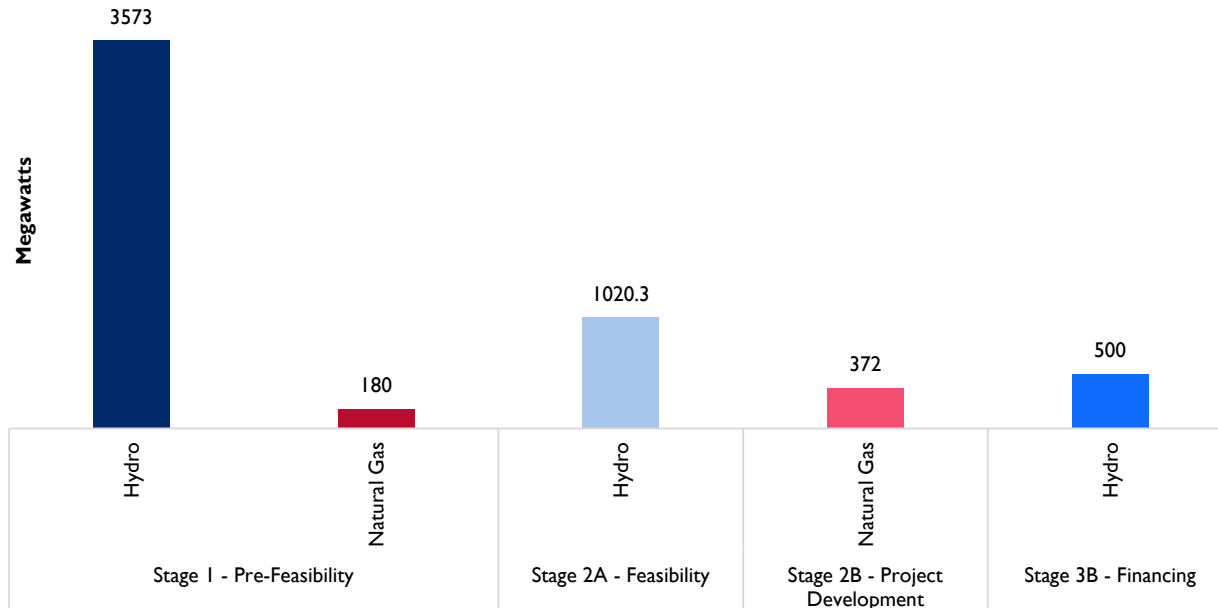
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	25,000	0	0	0	0	25,000	The PATRP BTG team is working with a number of mini-grid, and solar home-based system operators and businesses to scale up and increase market penetration by 25,000 new connections.
Generation Capacity Pending Financial Closure	5,350	7,370.8	1,480	5,000	5,891	350	PATRP will increase the pipeline by 350 MW through a review of Benkongor, Betsmai, Mange, Tiassalé, Ciprel V (650 MW) and select viable projects for assistance.
Transactions Pending Financial Closure	40	57	10	40	47	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	186	29	0	28	29	158	PATRP is tracking advancement to financial close for FY 2017 for Taiba N'Diaye 158 MW, and Gao and Tayaboui 210 MW.
Utilization of Risk Mitigation Measures; Unit #	0	1	0	0	1	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of the power sector health by providing an indication of the level of confidence investors have in a country by gauging the requirements for guarantees and other risk mitigation tools.
Kilometers of Power Lines pending Financial Closure; Unit KM	0	3,009	0	0	3,009	0	PATRP does not anticipate new Transmission projects to be added to the pipeline
Transmission Projects that are pending Financial Closure; Unit #	0	3	0	0	3	0	PATRP does not anticipate new Transmission projects to be added to the pipeline.

Variations – FY 2016 Targets vs Actuals:

A large number of the pending pipeline are pre-feasibility hydro transactions and will be reviewed to assess if they should remain in the pipeline.

WEST AFRICA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage I - Pre-Feasibility		
HPP various Guinea	Hydro	3,000
Banda	Natural Gas	180
Tiboto	Hydro	220
Tahibli	Hydro	20

Active		
Stage 3B - Financing		
OMVS Manantali II T&D + HD	Hydro	500
Stage 2B - Project Development		
Songon Power	Natural Gas	372
Stage 2A - Feasibility		
Markala	Hydro	10
Digan	Hydro	93.3
Fello Sounga	Hydro	82
Gran Kingkon	Hydro	291
Kogbedou	Hydro	44
Gao and Tayaboui	Hydro	210
Bumbuna II HPP	Hydro	224
Yiben	Hydro	66

Proposed		
Stage 0 - Conception		
CIPREL V Expansion	Natural Gas	350
Stage I - Pre-Feasibility		
Betsmai	Hydro	25
Bekongor	Hydro	150
Mange	Hydro	100
Stage 2A - Feasibility		
MakMo	Hydro	24
Tiassalé	Hydro	25

10. GHANA



Power Africa Transactions & Reforms Program | Ghana Portfolio 2017

PATRP maintains a resident transaction advisor in Ghana and has deployed a gas advisor who provides technical and institutional support to the Ministry of Petroleum and the Petroleum Commission. FY 2017 will also see the expansion of PATRP's BTG program to Ghana, with a new local hire to be added to the team. In support of these activities, PATRP will continue to provide support to the Ministry of Power as it looks to address financial shortfalls in the energy value chain.

PLANNED ACTIVITIES¹⁰:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Electricity Company of Ghana (ECG)

PATRP will provide legal, commercial and transaction advice to ECG, as requested, to expedite the closing of generation transactions, as prioritized by GOG. PATRP will also continue to support ECG in the resolution of stumbling blocks, if any, occurring in the completion of the 350 MW Cenpower KIPP project, which is currently under construction. The current list of active short-run transactions includes the Phase 1A and 1B of the 194 MW Early Power Project in Tema, and the 192 MW Amandi Power Project a Power Africa Transaction in Aboadze.¹¹ PATRP is tracking the Amandi project, which achieved financial close in December 2016 and groundbreaking is due in January 2017; while the Early Power project is in negotiations with GrantCo and DCA for political risk coverage, which PATRP is currently reviewing. The longer-term gas-fired projects include the 206 MW Early Power Phase 2; the Ghana 1000 Phases 1A and 1B (750 MW in total); and the 450 MW Globeleq Aboadze project, which would be sequenced in accordance with supply-demand gap in the future (some analysis indicates that such new capacity would be required beyond 2020). The list of supported renewable power transactions also includes one PV solar project, two wind power projects (totaling 225 MW) developed by Actis at Ayitepa; and one 60 MW biomass project developed by African Plantations for Sustainable Development (APSD). PATRP will also advise on the transition from directly negotiated transactions to competitive tendering of new power generation capacity, to facilitate transparency as well reduction in delivered cost of electricity.

Private Sector Support

PATRP will provide transaction advisory services to the developers or other private sector actors as they are undertaking their project development activities, such as feasibility studies and market size assessment. In the short term, PATRP will support two private sector-driven transactions that will first be presented for acceptance in the PATT database, namely: (i) The VRA-CENIT CC, which is being developed as a PPP (reviewing and negotiating a Joint Development Agreement, and continuing this assistance with respect to other project agreements, as well as helping the project to attract financing); and (ii) the Windiga Tilli solar project (project development and search for long-term finance). As previously noted, we see Ghana facing potential medium-term electricity

¹⁰ Activities in Ghana are the subject of a detailed work plan.

¹¹ Amandi is a Power Africa transaction; however, it is not a PATRP transaction.

surpluses based on contracted generation. Therefore, we will need to maintain a flexible approach in our assistance, and make sure that we prioritize transactions that are most likely to reach financial close.

Unlocking Gas-to-Power

PATRP will support the Ministry of Petroleum in policy planning and gas sector entities in developing the gas infrastructure projects for supplying power generation, and assist the GoG in gas sector institutional and regulatory structuring. This will be the subject of activities under Pillar 3 below.

PATRP will also continue to explore opportunities for implementing improvements in the efficiency of existing thermal power plants, thereby securing additional incremental MWs – this would follow from the previous work that was done with VRA’s thermal units.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

BTG Support

PATRP BTG activities in Ghana will focus on support to solar home system (SHS) and micro-grid companies looking to expand their operations in the off-grid space. BTG plans to work closely with the Association of Ghana Solar Industries (AGSI) to identify, select and support local and international off-grid companies. BTG expects to conduct the following activities:

Assessment of Policy and Regulatory environment. BTG will carry out an assessment of the policy framework *inter alia* providing for the ownership of assets, private sector participation, Public-Private Partnerships (PPP), allowable returns and uniform tariffs, and subsidy-delivery mechanisms. The regulatory review would cover topics such as exclusive jurisdiction of existing utilities, regulatory standards and burden on BTG service providers, tariff-setting, and involvement of cooperatives/communities. This assessment would highlight the binding constraints for the development of BTG solutions for enhancing access.

Stakeholder Mapping. PATRP will conduct a rapid in-country assessment of all current programs and projects in Ghana to determine synergies and areas of collaboration. At a minimum, we will explore potential collaboration and integration with MCC, WB (through their Ghana Energy Development and Access Program – GEDAP) and GIZ in electricity access efforts. This rapid assessment will identify niche areas of BTG support as well as leverage opportunities with other donors and stakeholders.

Off-Grid Demand Market Assessment. PATRP will design and carry out a detailed market intelligence/assessment on the solar PV off-grid market in Ghana. This assessment will focus on: (i) Market research on the potential demand, willingness to pay, regulatory environment and access to finance for off-grid solar developers in Ghana; (ii) Business model development; (iii) Distribution and retail strategies; and (iv) Marketing approaches, including access to mobile money.

Assessment of Mobile Finance Sector. Mobile operators in Ghana include MTN, Airtel and Tigo. To date, a Pay as You Go (PAYG) model to move from developer-financed to a customer-financed approach has not been used extensively in Ghana (Azuri technologies seems to be the only one at this point). BTG will conduct a detailed assessment of the current situation and potential barriers that exist within the mobile finance sector to increase the use of mobile finance for potential customers to spread the upfront cost of off-grid energy systems. BTG will develop an action plan based on the results to address the major issues identified.

Based on the stakeholder mapping, assessment of policy/regulatory framework, off-grid market and mobile finance sector assessments, it is expected that BTG will conduct activities in the following areas:

Technical Support to Micro Grid and SHS Companies. PATRP will provide technical support to micro-grid and SHS local and international companies looking to start and/or scale up operations in Ghana. It is expected BTG will provide business-focused technical assistance to at least five solar PV companies in the off-grid space. This assistance may include support for the development and implementation of business models to ensure the ability to obtain financing to scale up; supporting the companies as they distribute and retail products more effectively, including developing new partnerships with other distribution and retail companies; and assessing current distribution and marketing strategies and providing support to improve marketing methods.

Accessing Mobile Finance for Off-Grid Energy. BTG will provide technical assistance to at least two companies to develop the structure of new partnerships between Mobile Money Operators (MMOs) and Mobile Network Operators (MNOs). BTG will assist in developing the terms of partnerships with the MMOs and MNOs, ensuring they are acceptable under the current regulations, and support implementation of these pilots, to allow off-grid companies to start using mobile finance to overcome the significant consumer finance barrier.

Sourcing Suitable Financial Assistance. BTG will work with USG agencies including OPIC, DIV, DCA and USADF, to find innovative ways of providing seed money and concessional finance to off-grid companies in Ghana. In addition, PATRP will provide technical assistance to local financial institutions, including local banks but also working closely with local microfinance institutions, to help them better understand the business models of off-grid energy companies through training and capacity building and discussions with off-grid companies.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

The Gas Sector - Assistance to Ministry of Petroleum

During FY 2017, PATRP will undertake the following critical activities:

- Continue to support the Ministry of Petroleum (MOPET) in the implementation of the Gas Master Plan (approved in July 2016 with PATRP assistance) with the aim of securing gas as the main source of fuel for the supply to existing thermal power plants and expansion of generation capacity.

- Develop a Gas Pricing Policy to enable sustainable gas development (to be submitted to GoG Cabinet) and a Gas Pricing Model to enable simulation of delivered gas prices under various policy options.
- Support finalization of the WAGP reverse flow gas transportation agreement to ensure gas is delivered on timely basis to existing power plants in the Tema area, including the PATRP-supported Cenpower project.
- Draft an LNG policy for Cabinet approval, and review of the various LNG import projects in pipeline.
- Review the Takoradi-Tema Onshore Pipeline Project.
- Draft a Gas Act, to provide legal coverage to various gas sector policy reforms.

Assisting the Joint Utility Finance Group (JUFG) and Ministry of Power (MOP) in sector financial restructuring

Near-term measures are necessary to change the financial balance of the power sector, ensuring that cash flows allow all public and private financial commitments to be met and re-establish a sound investment climate. Therefore, PATRP proposes to assist the JUFG and MOP in this direction with the following activities:

- Continue to assist the JUFG in the development and improvement of the financial model aiming at forecasting the revenues and expenditure of the power sector for the year 2016 and will expand the Model range to further years.
- Advise JUFG on the implementation of a Revenue Waterfall System ensuring fair distribution of the sector revenues existing at a time between the various creditors, based on contracts and regulations.
- Provide options for the resolution of legacy debt in the sector; and develop a risk mitigation framework to cover the liquidity and termination events.
- Provide assistance to MOP in setting cost-reflective tariffs, which shall principally comprise of undertaking a study on price elasticity of power demand, with special emphasis on price/income elasticities.
- Review of pipeline of IPP projects, and development of a screening criteria for different projects

Other ad hoc assistance may, depending on priorities, extend to supporting GRIDCo on its transmission system operations and inter-connection planning, and distribution planning and management, particularly as they relate to removing barriers to transactions.

In the event that the general election in Ghana (scheduled for January 2017) results in a change in administration, it is recognized that some of the activities listed above may need to be re-purposed depending on the priorities of the new government.

DELIVERABLES:

- Gas Pricing Policy
- LNG Policy and Action Plan
- Mobile Finance Sector Assessment
- Off-grid Market Assessment

KEY TARGETS:

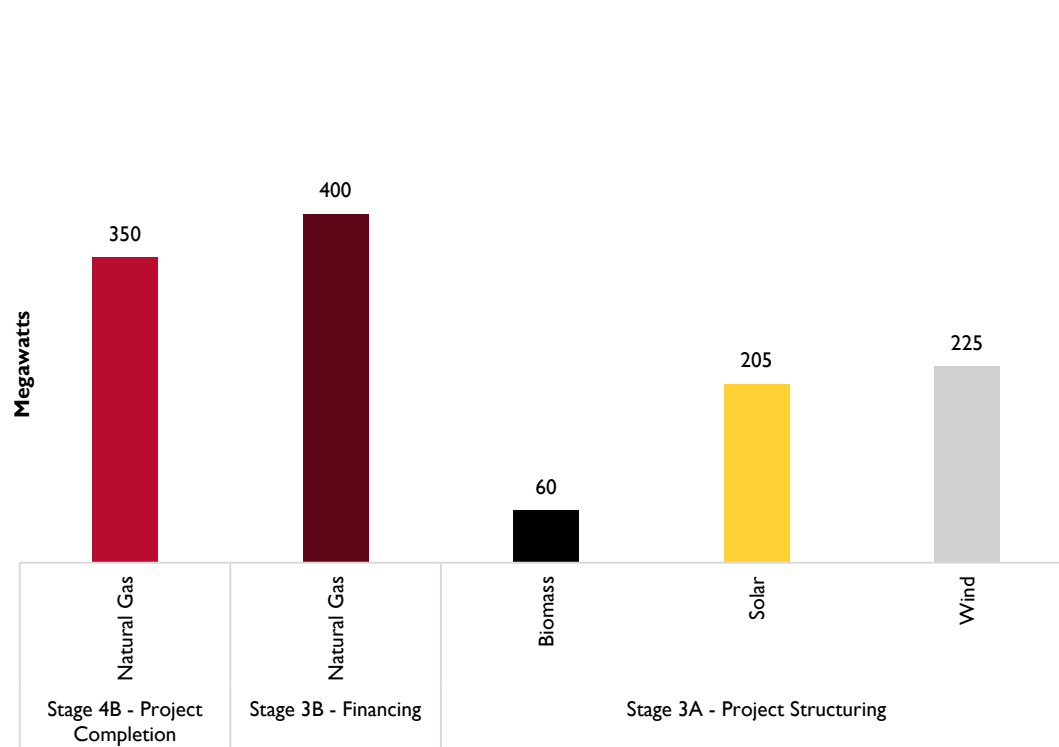
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/17)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	250	2,030	2,030	250	0	0	PATRP does not anticipate a large number of new MW to the pipeline for Ghana due to the oversupply of power in the medium term. However, we will continue to review qualified transactions and engage new investors.
Transactions Pending Financial Closure	6	7	7	6	0	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	144	350	350	144	0	0	PATRP is assisting the advancement to financial close for FY 2017 for Early Power 144 MW. There are no new targets for FY 2017 but PATRP will continue to advance existing transactions in the pipeline.
Generation Capacity Commissioned; Unit MW	350	0	0	0	0	350	PATRP expects the Cenpower Gas project to reach COD by end of FY 2017.
Training and Capacity Building Activities	1,064	3,728	904	200	2,824	864	PATRP will provide capacity building to all key power sector ministries and agencies including ECG, MOPET and MOP on topics such as Competitive Procurement Process, the Revenue Waterfall System and the Gas Pricing Model to be developed in FY 2017.
Policy; (Actions)	6	16	4	4	12	2	PATRP will develop a Gas Act, and a Gas Pricing Policy.
Policy; Unit # (adopted)	0	0	0	0	0	0	PATRP does not anticipate passing legislation or new policies during FY 2017.
Transactions that improve Gas availability; Unit MMscfd	160	0	0	0	0	160	PATRP will assist in increasing the gas supply for existing power stations to improve efficiency of plants. We will assist on the WAGP and the Tema terminals.

Variations – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: Ghana's peak power system load is around 2,200 MW. A number of public sector power projects totaling nearly 1,000 MW are under construction, removing the urgency for new IPPs to be provided the required Government consents and approvals. This will significantly slow new projects from entering the pipeline in the short to medium term.

GHANA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 4B - Project Completion		
Kpone (Cenpower) Independent Power Plant	Natural Gas	350
Stage 3B - Financing		
Early Power Ltd Phase 1a	Natural Gas	144
Early Power Ltd Phase 1b	Natural Gas	50
Early Power Ltd Phase 2	Natural Gas	206
Stage 3A - Project Structuring		
African Plantations for Sustainable Development (APSD)	Biomass	60
Upwind Ayitepa (Mainstream/Actis) Phase 2	Wind	75
Upwind Ayitepa (Mainstream/Actis) Phase 1	Wind	150
Nzema Power Project	Solar	155
Bole Solar Project	Solar	50
Proposed		
Stage 2A - Feasibility		
Tilli Solar Project	Solar	20

II. LIBERIA



Power Africa Transactions & Reforms Program | Liberia Portfolio 2017

PATRP supports Power Africa in Liberia through frequent short-term technical assistance (STTA), focusing on procurement of a new management contractor the Liberia Electricity Company (LEC), and specific large- or small-scale transactions.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Pursuing New Generation Capacity

A “Preliminary Assessment” completed by PATRP identified 104 MW of HFO power plant assets in-country, currently owned by a mining firm:

- 78 MW – 10 X 7.8 MW plants: all 10 are still in crates and are being relocated to Buchanan; and
- 26 MW – 6 X 4.4 MW plants: five have been installed in the port city of Buchanan.

PATRP will explore various options for utilizing these assets; however, progress will be dependent on buy-in from the parties. As matters currently stand, for the 6 x 4.4 MW units in Buchanan, the mining company has agreed to complete the remaining work and place this capacity into service. The mining company is in discussion with the Government of Liberia on finding an off-taker and signing a PPA.

Du River 17.5 MW Biomass Project

PATRP will provide transaction advisory assistance to the proposed 17.5 MW biomass project near the city of Kakata. In the near term, PATRP is working with the developer to identify funding sources for an updated feasibility study. The Du River project is a revival of the 35 MW Buchanan Renewable Energy project, which had obtained all necessary permits but was canceled due to environmental concerns. The new project is a scaled-back version that is expected to comply with current regulations. The developer is in negotiation with an EPC contractor for the project and is in the process of obtaining necessary licenses and permits. Pursuant to that, the developer has requested assistance in arranging financing for the project from commercial and institutional sources.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Procurement of new LEC Management Contract

The Government of Liberia (GoL), as part of its Compact with MCC, will transition to a new Management Services Contract (MSC) for the Liberia Electricity Corporation (LEC). The objective of this work stream is to support the end-to-end process of designing a new MSC and the bidding, negotiation, and contracting process that will see LEC transition to a new management contractor and provide support to GoL in defining and planning their oversight of the contract. PATRP also will develop an investment and turnaround management action plan that will account for planned investments in the sector and be incorporated into the terms of the MSC. The mapping of the investments with the donors and LEC board is a key element that will also affect the definition and establishment of key performance indicators in the MSC contract, and define any financing gap that may be identified during the LEC power system planning stage. The request for qualifications was released in September 2016, and it is expected that the request for proposals will be published in early 2017. Thereafter, PATRP will support the selection of the new MSC, who should assume management responsibility of LEC by mid-2017.

DELIVERABLES:

- Final RFP for new LEC Management Contract
- LEC Management Services Contract

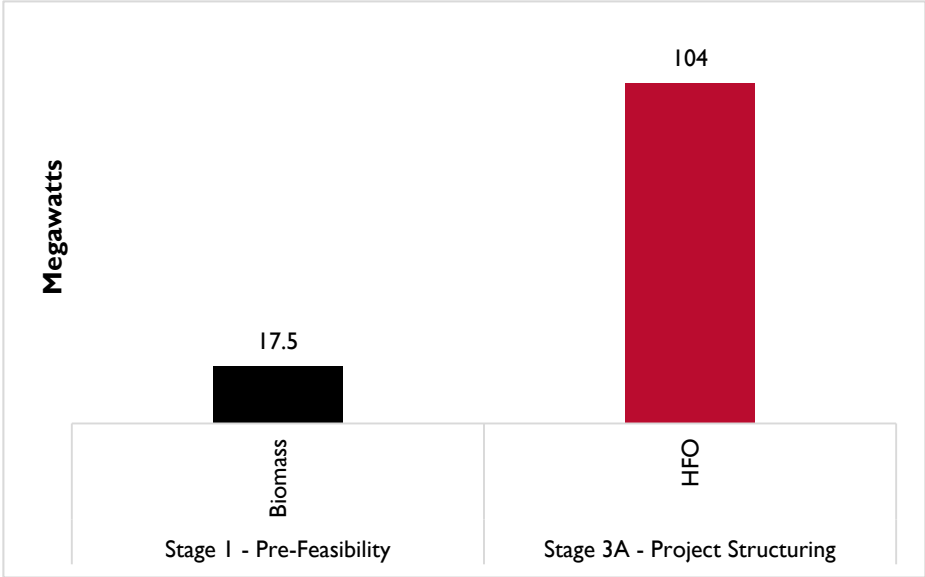
KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Q4-FY16- Total	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	131	121.5	0	121.5	121	121.5	10	PATRP is anticipating a new 10 MW project with a Power Africa Partner and is in discussions with the project sponsors to review their concept and provide assistance.
Transactions Pending Financial Closure	3	3	0	3	3	3	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP, but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Training and Capacity Building Activities	100	0	0	0	100	0	0	PATRP will develop workshops over FY 2017 that will directly impact improved governance of the sector and assist in negotiating with IPPs.

Variations – FY 2016 Targets vs Actuals:

Training and Capacity Building Activities: Liberia PATRP team will develop workshops over FY 2017 that will directly impact improved governance of the sector.

LIBERIA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE



Name	Technology	MW
Active		
Stage 3A - Project Structuring		
Buchanan	HFO	26
Port Buchanan	HFO	78
Stage I - Pre-Feasibility		
Du River	Biomass	17.5


12. NIGERIA

Power Africa Transactions & Reforms Program | Nigeria Portfolio 2017¹²



PATRP maintains a multidisciplinary team in Nigeria, covering the full spectrum of activities within the energy sector. The large-scale transaction team consists of the following resident advisors: Lead Transaction Advisor, Gas Sector Advisor, Transaction Advisor, Legal/Policy Advisor, and an embedded commercial advisor at NDPHC. Their focus is on supporting the negotiation of PPAs and other key agreements for priority IPPs, and providing technical assistance to spur new investment in the power sector, including a focus on unblocking gas supply issues. PATRP is also scaling up its BTG activities in Nigeria, with a focus on supporting pico-solar and Solar Home System (SHS) Companies. PATRP has also deployed eleven Resident Distribution Advisors to provide turnaround assistance to three distribution companies. In the transmission sector, PATRP continues to support TCN to mobilize public and private investment for its capital investment needs.

PLANNED ACTIVITIES¹³:



POWER AFRICA ROADMAP
PILLAR I: GETTING TO 30,000 MW

Assistance to Facilitate Large Power Generation Investments

PATRP will continue to provide transaction advisory support to generation projects in Nigeria, spread across the project cycle. The total planned installed capacity of these generation projects amounts to 4,061 MW (assuming all these projects reach financial close) with required financing amounting to USD\$4,554,830,000. PATRP will redouble its efforts to secure new MW and connections from large-scale power generation by pursuing the following interrelated work streams:

- **Gas-fueled IPPs:** PATRP will provide legal and commercial assistance to private developers for a number of large gas projects, including the Qua Iboe Power Project (QIPP 540 MW), Century (495 MW), Oma (500 MW), Yellowstone (350 MW) and Proton (150 MW), among others, with a goal of having Power Purchase Agreements (PPAs) and Put/Call Option Agreements (PCOAs) fully negotiated. PATRP will also work to obtain approval of the Ministry of Finance and Ministry of Justice for these and other PPAs and PCOAs, thereby positioning as many projects as possible for financial close by the end of 2017.
- **Privatization of seven NIPPs:** PATRP will facilitate the privatization of up to eight completed NIPP projects, which could result in over 3,000 MW of new (incremental) generation capacity. We will provide end-to-end support to NDPHC in preparing and packaging the NIPP projects by (i) assessing previous privatization activities and developing a gap analysis; (ii) providing redefined privatization strategy options analysis and valuation of NIPP assets; (iii) completing due diligence; and, (iv) identifying credit enhancement options and gas supply constraints solutions.
- **Solar IPPs:** PATRP will continue to support private developers with finalizing the form PCOA and successfully closing all outstanding terms in these commercial agreements. Once

¹² It is acknowledged that some of PATRP's activities in Nigeria may transition over to a new USAID implementation mechanism at a future date.

¹³ A detailed work plan of these activities has been prepared.

negotiations are finalized, the most advanced solar IPPs are expected to sign the PCOA and reach financial close by the end of the year. The transactions dashboard below includes a list of the projects that PATRP is actively supporting.

- **Access to Development Credit Authority (DCA) guaranteed facility:** PATRP was heavily involved in structuring a USD\$90 million credit guarantee facility that the Development Credit Authority (DCA) and GuarantCo provided to Standard Chartered Bank, which then provided a loan to Zenith Bank, a Nigerian local bank, for lending to the power sector. PATRP continues to support this transaction by assisting Zenith Bank in its pipeline development and helping generation companies (GENCOs) and Distribution companies (DISCOs) to access the facility.
- **Unlocking gas supply issues:** PATRP plans to undertake the following activities: (i) attract demonstrated and proven U.S. technologies for a gas flare-down program by developing a structured contracting process and actively engaging U.S. Power Africa partners working in this space. PATRP will work with USG partners such as USTDA who are preparing trade/reverse trade missions targeted to the Nigerian gas market; (ii) negotiate and secure gas supply assurance for four power plants to deliver circa 2,000 MW of transactions. This will require a strategic selection undertaken in collaboration with NDPHC; (iii) provide assistance to the Ministry of Petroleum Resources on the resolution of Production Sharing Contract terms in order to unlock gas supply from offshore fields that would be independent of the supply from the Niger Delta Region (which is vulnerable to vandalism). PATRP will also assist the Ministry's policy implementation team to help draft regulations that will underpin the mid- and downstream gas framework and carry out flares data verification. This activity will be supported through short-term technical assistance; and (iv) provide transaction and technical assistance to the Ministry of Petroleum Resources on the implementation of the Natural Gas Flares Commercialization Program (NGFCP) to facilitate investment and accelerate access to finance for power development under the Fast Power Program.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Business-Focused Technical Assistance to Pico-Solar and Solar Home System (SHS) Companies

PATRP will continue to provide business-focused technical assistance to at least five solar PV companies that sell solar lanterns and solar home systems (SHS). This will include supporting the development and implementation of business models to ensure they are able to obtain suitable finance to scale up their businesses. Technical assistance will include financial planning, cost analysis, and developing long-term business strategies to ensure that they can convince financial institutions and investors of their bankability and low risk. In addition, technical assistance will also be provided to help the companies more effectively distribute and retail their products, including developing new partnerships with other distribution and retail companies. It will also include assessing their current distribution and marketing strategies and supporting them to improve their marketing methods and outreach, through a range of new marketing avenues. This work will build on, and complement, work REEEP has carried out on providing project finance, and further support companies who have received pilot grants from the Solar Nigeria Program (SNP), and quality control and awareness support from IFC Lighting Africa.

Technical Assistance to Finance Institutions

PATRP will continue to work with a range of USG organizations, including OPIC, DIV, DCA and USADF, to find innovative ways of providing concessional finance to financial institutions in Nigeria to lend to off-grid companies to meet their working capital requirements. Such finance may include risk guarantees to free up banks to lend, to reduce collateral requirements and extend lending periods, and interest rate buy-downs to allow off-grid companies to take loans at affordable rates. In addition, PATRP will continue to provide technical assistance to CBN, as well as local financial institutions, including local banks. PATRP will also work closely with local microfinance institutions to help them better understand the business models of off-grid energy companies through direct training and capacity building support to their staff, as well as direct discussions with the off-grid companies. In addition, through supporting development of detailed and well-structured business plans, relationships and trust between the off-grid companies and financial institutions will grow, leading to increased lending at more acceptable terms. PATRP will provide technical assistance to up to three local Nigerian financial institutions, other than Ecobank, to explore whether they are able to start accessing a new regional BTG DCA facility and start lending to off-grid energy companies with more acceptable terms. This work will be carried out in partnership with REEEP, SNP, USADF and WB, who are all also supporting the finance sector in Nigeria.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Support to Facilitate Transmission System Investments

PATRP's assistance to TCN will shift toward a more direct engagement on: (i) Increasing concessional and private sector funding of transmission infrastructure, and (ii) Optimizing the utilization of available funding to streamline rehabilitation and new-build construction activities. To this end, PATRP will deploy an external consultant to conduct a rapid assessment of TCN's weaknesses/challenges with respect to accessing funding and ensuring the efficient allocation of existing funds. The consultant will generate a list of specific (and realistic) interventions and activities that can be implemented in the current environment. The consultant will define how PATRP and Power Africa transaction and technical assistance resources can be programmed over the next fiscal years to achieve Power Africa objectives.

In the meantime, PATRP will continue to assist TCN to mobilize public and private investment through implementing the Build-Transfer model. To date, PATRP has developed the proposed transaction framework, modeled TCN's financial outlook to determine how much funding TCN can set aside to repay contractors from Internally Generated Revenue (IGR), and reached consensus with TCN executive management to proceed on a proposed USD\$200 million pilot project based on the build-transfer model. PATRP awaits authorization from TCN to proceed with the pilot procurement.

Additionally, PATRP will support TCN with budgeting, financial planning, financing and tariff setting. This work is essential to establish TCN as a financially viable entity able to fund a portion of its own capital requirements.

Addressing liquidity issues

Drawing on lessons learned from the U.S. Troubled Assets Relief Program (TARP), PATRP will produce a summary White Paper discussing potential applications for TARP to the challenges of unwinding accumulated DISCO bad debts. Such de-levering would free up cash for allowing DISCOs to invest in other areas (e.g., reducing ATC&C losses) to further improve internal liquidity, indirectly improving liquidity along the electric power value chain. PATRP will also provide further recommendations on establishing a payment support mechanism between GENCOS, NBET and DISCOs, with the participation of standby letters of credit-issuing banks, and a CBN-backed partial risk guarantee.

Support for Distribution Utilities – Loss Reduction

PATRP's field-based team will continue to oversee an effort to ensure improved processes and controls are introduced in the field at the three distribution companies being supported (AEDC, BEDC and EKEDC). These efforts will include oversight of revenue management practices, field inspection (revenue protection) to review/audit the extent to which new practices and procedures are being successfully embedded, and staff training to provide field-based support to the utility personnel.

The geographic scope of these activities will be expanded beyond the existing pilot areas, and by January 2017 will encompass the entire Federal Capital Territory of Abuja (for AEDC), the entire EKEDC territory in Lagos, and Edo state (for BEDC). The PATRP staff will also focus on training legal staff and improving their capabilities in handling criminal cases for theft of electricity and debt cases for non-payment of electricity

PATRP has developed a list of items to be purchased as Phase 1 of its Commodity Support to the three DISCOs. The purchase of these items will further enable the PATRP DISCO teams to continue implementing field-based reforms and improvements. Subject to USAID concurrence, the procurement will include 200 distribution transformer meters (for each DISCO) and a bucket truck for each DISCO. The trucks are needed to improve customer service and to conduct individual disconnections of non-paying customers. PATRP will also complete the limited refurbishment of an AEDC cash collection office in March 2017.

Following the generation of Performance Improvement Plans (PIPs) for each of the three distribution utilities, Project Management Offices (PMOs) have been set up for AEDC and EKEDC, with BEDC to be completed by March 2017. The objective of the PMO office is to steer and monitor the implementation of the various functional initiatives set forth in the PIP. To this end, PATRP will support the operationalization of their respective PMOs in FY 2017.

PATRP plans to convene a “DISCO workshop” in February 2017, to which representatives from all DISCOs and staff from BPE will be invited to discuss utility best practices and present the lessons learned from PATRP’s current experience with the three DISCOs. Aside from starting a dialogue on change management within the DISCO sector, the goal of the clinic will be to determine the best vehicle/platform for continued support to the sector as a whole. The DISCO clinic will include several workshops and entail deployment of a PATRP utility specialist in management/business practices, finance/investment, network/technical, metering, IT, tariffs, legal/contracts, and commercial practices.

Accessing Mobile Finance for Off-Grid Energy

PATRP will provide technical assistance to develop up to two new pilot projects, through developing the structure of new partnerships between off-grid energy companies, Mobile Money Operators (MMOs) and Mobile Network Operators (MNOs). PATRP will help the off-grid companies develop terms of the required partnerships with the MMOs and MNOs, in line with current regulations. Thereafter, PATRP will support the companies as they implement the pilots in practice, allowing the off-grid companies to start using mobile finance to overcome the significant consumer finance barriers they face. Removing such obstacles should significantly increase sales of ever-larger renewable energy systems and push toward reaching tier 2 or 3 levels of electrification according to the Global Tracking Framework (GTF). This work will be carried out in partnership with the Vice Presidents’ Office, SNP and the Global Innovation Lab.

Support to Ministry of Finance and NIPC on sector incentives

In support of activities under Pillar 3, PATRP will examine incentives other countries have offered to spur solar and gas and other electric power IPP investment and development, determine suitability of such incentives for the Nigerian context, and recommend implementation of several. Further, PATRP will take an inventory of all fiscal incentives Nigeria offers to electric power IPP investors, including Customs, VAT, corporate tax, capital allowances, etc., and produce a report encapsulating all incentives to aid project developers.

Energy regulatory framework

Following on from the activities initiated in FY 2016, PATRP will perform a legal review of the Electric Power Sector Reform Act and make recommendations for changes to encourage private sector investment. In parallel, PATRP will update the Nigeria Inventory of Policy Interventions (October 2016), which will outline the current status of the Nigerian energy sector with a particular focus on key developments such as: Power Sector Liquidity, Renewable Energy/Gas IPPs, Competitive Bidding Processes, Energy Efficiency, Beyond the Grid/Off-grid Renewable Power, and Unbundling of Nigerian National Petroleum Corporation.

DELIVERABLES:

- Annual Report on Improved Collections; reduced losses; increased number of paying customers
- Produce a comprehensive approach for access to liquidity (Q2 FY 2017)
- Report on TCN Strategy for Power Africa

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	400,000	0	0	0	0	400,000	The PATRP BTG team is working with a number of mini-grid, lanterns and solar home-based system operators and businesses to scale up and increase market penetration by 100,000 new units and/or connections. The PATRP distribution loss reduction team will facilitate new metered connections of 300,000 customers.
Generation Capacity Pending Financial Closure	8,500	4,755	4,155	5,000	600	3,500	PATRP is assisting NBET, NDPHC, and the private sector to advance a number of transactions to financial close. We anticipate new additions to the pipeline of 3,500 MW for FY 2017 resulting in cumulative target of 8,500 MW. We have identified over 3,000 MW through negotiations of gas supply agreements with existing generation entities and over 1,000 new gas IPPs and 200 MW solar IPPs under due diligence for inclusion in the Power Africa pipeline.
Transactions Pending Financial Closure	22	23	18	22	5	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	2,800	450	0	1,400	450	1,400	PATRP is tracking advancement to financial close for FY 2017 for QIPP, Proton, Ethiope, Yellowstone, Oma, Kingline, Cummins, MBH at 2,040 MW, and Solar IPPs at 700 MW for a total of 2,740 MW.

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Utilization of Risk Mitigation Measures; Unit #	5	3	0	5	3	0	This indicator is directly linked to MW Reached Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of the power sector health by providing an indication of the level of confidence investors have in a country by gauging the requirements for guarantees and other risk mitigation tools such as the solar and gas PCOA.
Training and Capacity Building Activities	3,000	2,025.5	160	2,000	1,865.5	1,000	PATRP will continue to provide capacity building to DISCO staff on operations process improvements, leadership, legal, and other key technical areas in FY 2017.
Aggregate Losses-Abuja (average)	7.25%	13%	0	7.5%	13%	7%	PATRP will continue to reduce losses at the DISCOs by an additional 7% in the Federal Capital Territory of Abuja.
Aggregate Losses-Eko Lagos (average)	5.75%	12%	0	4.5%	12%	7%	PATRP will continue to reduce losses at the DISCOs by an additional 7% in the entire EKEDC
Aggregate Losses-Benin (average)	7.25%	7%	0	7.5%	7%	7%	PATRP will continue to reduce losses at the DISCOs by an additional 7% in the entire territory area in Edo State for BEDC.
Policy; (Actions)	3	26	5	3	21	0	PATRP will focus on implementation of developed policies during FY 2017 and will not assign new targets.
Policy; Unit # (adopted)	9	15	0	0	15	9	PATRP will assist DISCOs in developing new policies and procedures for improved governance, and assist NBET in finalizing the Gas form PCOA.
Kilometers of Power Lines pending Financial Close; Unit KM	977	0	0	977	0	0	Assistance to TCN on priority projects is discontinued therefore PATRP will not continue with this indicator.

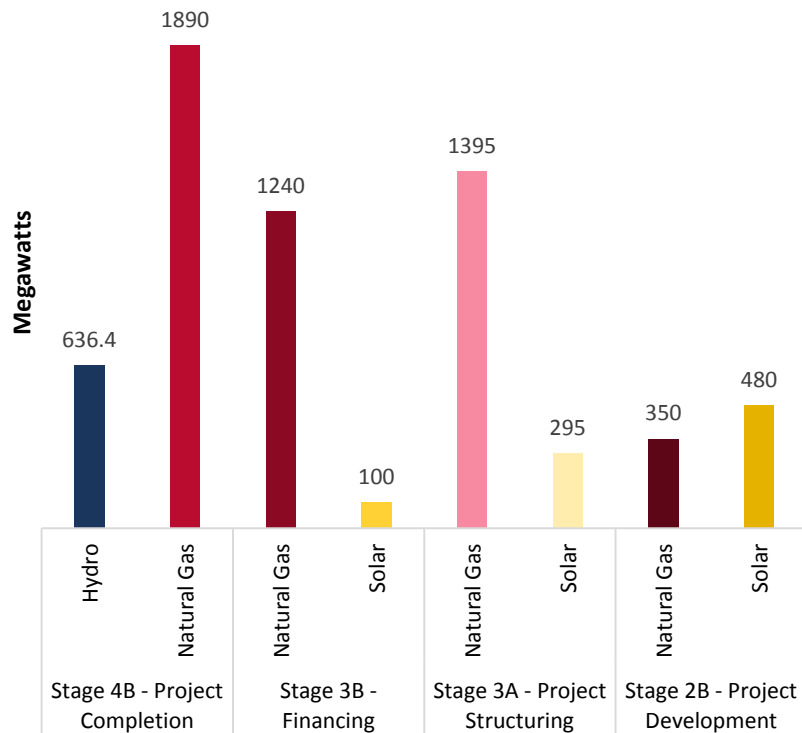
Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Kilometers of Power Lines that have reached Financial Close; Unit KM	526	143	0	263	143	263	This indicator will focus on generation projects requiring transmission lines for evacuation of stranded power.
Substation Capacity Added; Unit MVA	300	0	0	150	0	150	This indicator will focus on generation projects requiring transmission lines for evacuation of stranded power.
Transmission Projects that are pending Financial Close; Unit #	7	10	0	7	10	0	Assistance to TCN on priority projects is discontinued therefore PATRP will not continue with this indicator.
Transmission Projects that have reached Financial Close; Unit #	2	1	0	2	1	0	This indicator will track priority transmission lines necessary for evacuation of stranded generation. These projects are under review and a target will be assigned once the assessment is complete.
Improved revenue at distribution companies; regularization of customers (Unit #)	35,000	35,000	0	0	35,000	35,000	The DISCO team will regularize 35,000 new customers across all pilot areas in FY 2017.
Additional revenue generated at DISCOs due to regularization of existing consumers	209,101,000	289,000,000	0	0	289,000,000	209,101,000	The DISCO team will increase revenue in the areas of their responsibility by 209,101,000 million Naira.
Transactions that improve Gas availability; Unit MMscfd	300	0	0	0	0	300	PATRP will assess existing generation plants and provide assistance in gas supply negotiations in addition to new generation plants for a total of 300 MMscfd in FY 2017.

Variances – FY 2016 Targets vs Actuals:

Generation Capacity Pending Financial Closure: There are a number of projects that are pending QTAT approval (approximately 300 MW) to be made Active. In addition, the team added two new technical advisors that will facilitate an increase in the pipeline for FY2017.

NIGERIA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Proposed		
Stage 3A - Project Structuring		
Ondo IPP	Gas	550
Stage 2B - Project Development		
GoSolarAfrica	Solar	0
Nigeria BTG Project 3	Solar	2.5
Nigeria BTG Project 1	Solar	1
Nigeria BTG Project 2	Solar	1
Stage 1 - Pre-Feasibility		
Gas-to-Power Phase I	Natural Gas	20
Adia Power	Gas	540

Name	Technology	MW
Active		
Stage 4B - Project Completion		
Egbin Power	Natural Gas	220
First Independent Power / Afam	Natural Gas	180
First Independent Power / Elema	Natural Gas	75
First Independent Power / Omoka	Natural Gas	25
Kainji Jebba	Hydro	96.4
Kainji	Hydro	540
Sapele Power	Natural Gas	940
Azura / Edo	Natural Gas	450
Stage 3B - Financing		
Afam Power	Natural Gas	350
Magboro IPP	Natural Gas	90
Qua Iboe (QIPP)	Natural Gas	540
Nigeria Solar Capital	Solar	100
Ewekoro Phase I & II	Natural Gas	260
Stage 3A - Project Structuring		
Ikot Abasi Power	Natural Gas	250
Abiba Solar / Quaint	Solar	50
OMA Power	Natural Gas	500
Panyam Solar	Solar	70
Proton Delta Sunrise	Natural Gas	150
Century Power	Natural Gas	495
Pan Africa Solar	Solar	75
Middle Band Solar	Solar	100
Stage 2B - Project Development		
Yellowstone IPP	Natural Gas	350
Nova Solar Power	Solar	100
Nova Scotia Power IPP	Solar	80
Gwagwalada LR Group	Solar	100
Rook Solar Investment	Solar	100
DuSable Capital / Motir	Solar	100

13. SENEGAL



Power Africa Transactions & Reforms Program | Senegal Portfolio 2017

In addition to the Lead Regional Transaction Advisor and the regional BTG Advisor, both of whom are based in Dakar, PATRP maintains a dedicated energy advisor for Senegal who is overseeing development of the Generation and Transmission Expansion Master Plan, and supporting SENELEC more generally.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR 1: GETTING TO 30,000 MW

Continued Support from West Africa Regional Transaction Advisor Based in Dakar

PATRP will continue to provide transaction assistance to various stakeholders in the power sector in Senegal through its resident Lead Regional Transaction Advisor in West Africa. PATRP will also backstop the government, upon request, as it seeks to implement the new Scaling Solar program with the International Finance Corporation for 200 MW of solar generation.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Direct Support to Rural Electrification Concessions

The Government of Senegal has tendered and awarded six concessions for rural electrification, implemented several solar and hybrid mini-grids projects and implemented solar home programs as part of its national rural electrification action plan (PASER). The PATRP BTG program will support two of these concessions: ERA and COMASEL. Activities may include technical support in screening, evaluating and financing ongoing and planned projects to develop mini-grids and deploy small-scale solutions (e.g. SHS). BTG will prioritize projects that directly support the economic growth of the areas benefitted. Further, we will apply a gender lens in project identification and prioritization. PATRP will evaluate the feasibility of developing complementary projects, which may include water supply, waste management, and transportation, among others. This integrated approach, while challenging, has been used successfully in Kenya and Uganda to enable the commercial viability of mini-grids, providing a more comprehensive model for development.

Direct Support to Private Sector Goods and Service Providers

PATRP BTG will support private sector goods and service providers to scale up their activities in Senegal. BTG has identified ten private sector companies operating in Senegal in the SHS and micro-grids space. BTG will screen local firms with the potential capacity and interest to grow at scale. Furthermore, BTG will seek to establish partnerships and joint ventures between providers operating locally and firms operating in East Africa, so that Senegal can learn from the rapid deployment of SHS and other small-scale solutions in East Africa.

Implementation of the Rural Electrification Program

Building upon the PASER results and with the backing of the Sustainable Energy for All (SE4All) Initiative, Senegal is developing an ambitious rural electrification program (PNER) for the 2015-2025 period. The PNER aims to increase the rate of rural electrification (in terms of rural household connections) from 27% in 2015 to 100% in 2025. Within this framework, PATRP and BTG as appropriate, plan to support the Government in implementing the PNER. For example, BTG will continue supporting the Ministry of Energy (MEDER) and the World Bank in validating the SE4All national rural electrification investment plan, reviewing products during its various phases. As this project moves forward, BTG will seek to support the MEDER and the Rural electrification agency (ASER, under the MEDER) in mobilizing capital for its implementation. PATRP will promote gender mainstreaming in implementation of the PNER. This may include capacity building, gender analysis, and encouraging MEDER to facilitate women's empowerment through participation in rural electrification projects at all levels.

Unlocking Financing for Mini-grids and Small-scale Solutions

BTG has identified at least six potential partner financial institutions operating in Senegal, including Ecobank and SUNREF. BTG will explore opportunities for technical assistance and DCA partnerships in Senegal. Furthermore, BTG will explore a partnership with Orange, a multinational telecommunications company, that will test a rural solar-powered electrification program based on SHS and mini-grids in Senegal, Cote d'Ivoire, and Cameroon in November 2016. Also, several companies need low-budget interventions in areas such as marketing, distribution, and ERP consulting to scale-up their businesses. A small budget would allow BTG to do support these businesses in specific areas.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Technical Assistance

PATRP will support different sector actors within the Government of Senegal, including MEDER, the national utility (Senelec), and the regulator (CRSE) to strengthen the enabling environment to promote further investment in Senegal's energy sector. These include:

Procurement Process for IPPs: The Regulatory Electricity Commission (CRSE) has been asked to evaluate the PPAs executed to date and make recommendations to improve the framework and procurement processes for new generation. This evaluation will include the legislative and regulatory framework set up to promote independent generation and the role of the various actors in the planning, selection and negotiation process leading to the signing of the PPAs. PATRP is supporting this evaluation, which will hopefully lead to a more transparent and effective process for procuring new generation moving forward.

2017-2035 Generation and Transmission Expansion Master Plan: PATRP recently launched an assignment to review and strengthen Senelec's demand projections and generation master plan for the period 2017-2035. The master plan will incorporate aspects such as minimum spinning reserves requirements to incorporate renewable energy, regional generation and transmission projects, and current contractual obligations.

Natural Gas Development Planning: PATRP will look to support MEDER in developing a natural gas strategy, which should cover legal, regulatory, institutional, technical and financial aspects. The World Bank has developed a very comprehensive program for MEDER linked to this support. MEDER has

requested that PATRP complement this program, providing an independent voice in analyzing outputs, and bridging gaps as they arise.

Facilitate Information Sharing and Donor Coordination

To maximize donor impact on the country's energy sector, the USAID Senegal mission, with the support of PATRP, intends to finalize the development of an online tool that will collect the most up to date information and documents relevant to the sector. Specifically, the tool will gather information associated with donors and government programs and studies that have been, are being and/or may be carried out. A Beta version has been developed and presented to donors, along with a process to upload and maintain the most up to date information. Key donors, including the World Bank, AFD and the EU, have provided feedback and are committed to actively participate.

DELIVERABLES:

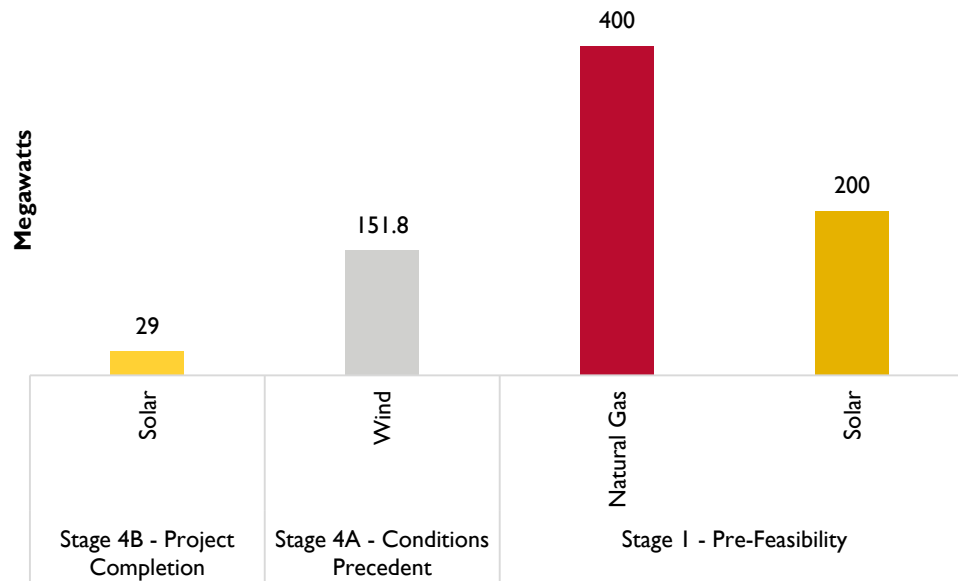
- Generation and Transmission Expansion Master Plan
- Inputs to Natural Gas Strategy
- Procurement of new generation framework: A report setting forth findings and recommendations on the way forward

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Number of new grid and off-grid projected direct connections:	25,000	0	0	0	0	25,000	The PATRP BTG team is working with the Government of Senegal, a number of mini-grid, and solar home-based system operators and businesses to scale up and increase market penetration by 25,000 new connections.
Generation Capacity Pending Financial Closure	300	0	0	300	0	0	PATRP will not include targets for FY 2017 but will continue to engage with new project developers to meet cumulative targets of 300 MW.
Transactions Pending Financial Closure	4	0	0	4	0	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Generation Capacity Reached Financial Closure; Unit MW	0	0	0	0	0	0	PATRP projects expected to reach financial close in FY 2017 in Senegal are under the West Africa pipeline. New projects added to the pipeline moving forward will be under the Senegal pipeline.
Policy; (Actions)	1	0	0	0	0	1	PATRP will deliver the demand projections and generation masterplan.

SENEGAL | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 4B - Project Completion		
Senergy I	Solar	29
Stage 3B - Financing		
Taiba N'Diaye Wind Farm	Wind	151.8
Stage I - Pre-Feasibility		
Dakar FSRU based LNG terminal and associated 400 MW Power station	Natural Gas	400
Scaling Solar Senegal Program I	Solar	100
Scaling Solar Senegal Program II	Solar	100
Proposed		
Stage 3A - Project Structuring		
Senergy 2/Bokhol	Solar	20
Energy Resources	Solar	20
Tenergy	Solar	20
Stage I - Pre-Feasibility		
Rural Electrification Senegal (ERSEN) Project	Solar	0
Weldy-Lamont Transmission Line & Rural Electrification Project	Solar	20
Stage 0 - Conception		
VITOL GE LPG Plant	LPG	200

14. SOUTHERN AFRICA



Power Africa Transactions & Reforms Program | Southern Africa Region Portfolio 2017

The Work Plan for Southern Africa covers activities and project in Lesotho, Madagascar, Mauritius, South Africa, Namibia, Swaziland and Botswana. The activities will be managed by the Lead Regional Transaction Advisor, with support from one other Regional Transaction Advisor.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

The Regional Transaction Advisors will continue to provide transaction support to various Power Africa stakeholders in Southern Africa's energy sector, as further described below:

Swaziland. PATRP has identified the following list of near term activities (in support of the Swaziland Electricity Company (SEC)) that it will undertake, namely:

- Support 46 MW of Solar PV proposed by selected IPPs in various locations -- all were to have been commissioned in 2016 but have stalled.
- Support Lavumisa – 5 MW Solar PV transactions.
- Support 5-20 MW of Solar PV – Tenders.
- Explore opportunity(ies) for biomass plant(s) with sugar cane growers (through Sugar Cane Growers Association) and millers (i.e., Illovo and RSSC).
- Determining existing likely capacity of grid to absorb renewable energy solutions
- Provide information on “guarantee” related products that might be available to SEC and/or Government.

A separate list of medium to longer term activities has also been identified, but will be implemented through the Southern Africa Energy Program (SAEP).

South Africa. PATRP's engagement in South Africa will be focused on the private sector. For instance, PATRP will continue to provide transaction advisory assistance to a 40 MW heat recovery project, which will generate electricity for on-site use. PATRP is providing commercial and legal assistance to the IPP developer. In addition, PATRP's Regional Transaction Advisors may provide support to private IPPs interested in the South African government's gas-to-power competitive procurement currently in an advanced planning stage. At this stage, PATRP is assisting developers in selecting local (BEE) partners and establishing consortia to bid. If new opportunities arise beyond transaction advisory assistance, PATRP will elevate this to USAID to determine how to best resource the activity, i.e. whether to pursue through PATRP or SAEP.

Lesotho. PATRP is assisting the Lesotho Electricity Company (LEC) in progressing the 37 MW Letseng Wind Project by providing overall commercial, structuring, and legal assistance, together with selecting a credible co-developer for the project. In addition, PATRP is supporting LEC with the new OnePower solar PV project, with a focus on reviewing project agreements and supporting

negotiations. If new opportunities arise PATRP will elevate this to USAID to determine how best resource the activity i.e. whether to pursue through PATRP or SAEP.

Botswana. In conjunction with USAID, PATRP will be codifying areas of potential support that can be provided by Power Africa to the Ministry of Minerals, Energy and Water Resources (MMEWR). Thereafter, there will need to be a discussion with USAID to determine how best to resource these areas of support (i.e. whether through PATRP or SAEP).

Namibia. PATRP is tracking 25 transactions, 14 of which relate to the pilot REFIT program, consisting of 14 x 5 MW (70 MW) transactions, of which 13 are solar and one is wind. Licenses have been issued and the selected IPPs are in varying stages of developing their projects. PATRP is also closely following a 37 MW solar PV tender from NamPower, as well as the Walvis Bay Gas-to-Power 200 MW transaction with Power Africa Partners involved. NamPower recently re-engaged with the sponsors after the court dismissed a lawsuit. Save for those transactions where PATRP is substantively engaged, it is likely that activities in Namibia will gradually transition over to the SAEP team.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

BTG

In South Africa, PATRP will be following up on a request for support from the City of Johannesburg as it looks to develop a program to install off-grid electricity supply to dwellings in informal settlements within the Metro's boundaries.

DELIVERABLES:

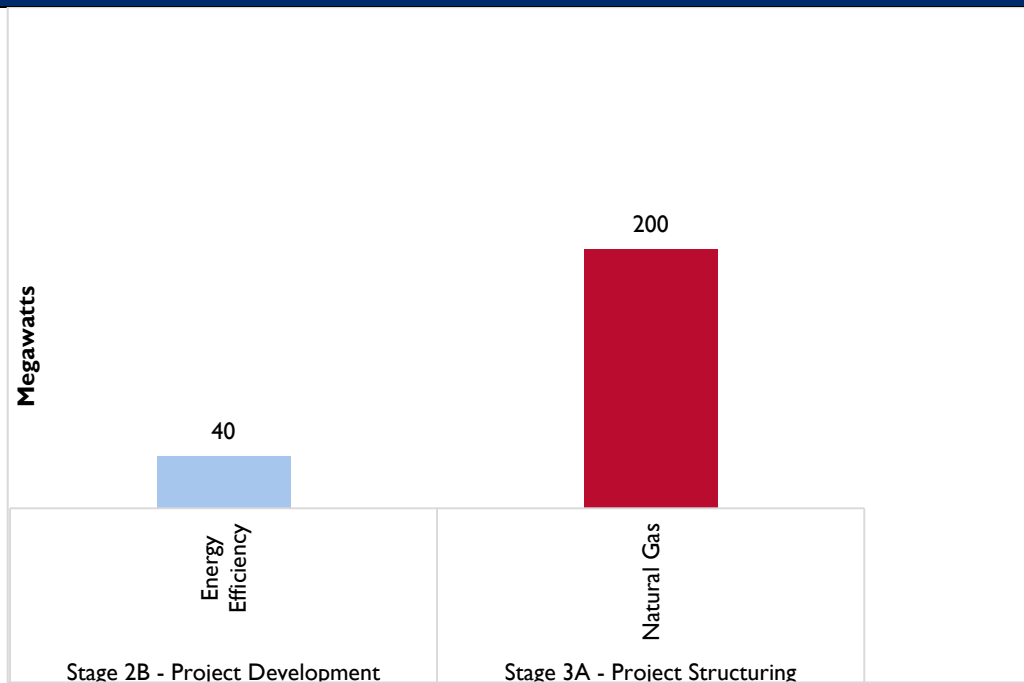
- N/A

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/16) & Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Q4-FY16-Total	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	600	427	260	38	300	167	300	PATRP is tracking an additional 300 MW, including a 600 MW LNG project and over 200 MW of solar.
Generation Capacity Reached Financial Closure	40	0	0	0	0	0	40	PATRP is tracking advancement to financial close for FY 2017 Wonderkop 40 MW.
Transactions Pending Financial Closure	3	9	3	3	3	6	0	This indicator is directly linked to MW Pending Financial Close and will be tracked and reported by PATRP but will not have targets for FY 2017. This indicator provides contextual assessment of the country or regional pipeline and aids in the analysis of performance management of both the project pipeline health and the engagement level of the transaction and technical advisor.
Training and Capacity Building Activities	0	75	0	0	0	75	0	PATRP does not anticipate capacity building for Southern Africa in FY 2017.

SOUTHERN AFRICA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 3A - Project Structuring		
Walvis Bay Gas	Natural Gas	200
Stage 2B - Project Development		
Wonderkop Smelter	Energy Efficiency	40
Proposed		
Stage 0 - Conception		
Jaweng Mines / NW Region Power--Solar	Solar	100
Mariental Solar PV	Solar	37
SA LNG	Natural Gas	600
Stage 1 - Pre-Feasibility		
Solar Power 3	Solar	1.3
Stage 2A - Feasibility		
Solar Power 2	Solar	10
Electrawinds	Wind	50
KfW/GIZ Biomass to Energy	Biomass	0
VTB	Hydro	30
GreeNam	Solar	30
Usutu Biomass	Biomass	35
Stage 2B - Project Development		
Kudu Farm	Natural Gas	880
Stage 3B - Financing		
Solar Power 1	Solar	1

15. ANGOLA



Power Africa Transactions & Reforms Program | Angola Portfolio 2017

PATRP deployed its first Transaction Advisor to Angola at the beginning of FY 2017 (November 2016) who will support (i) the identification and facilitation of power generation projects to build a Power Africa project pipeline; (ii) the implementation of the Ministry of Energy and Water's priorities defined in the Vision 2025 Strategy related to the exploitation of renewable resources (namely solar PV, small hydro, wind, and biomass) and the expansion of energy services to rural areas; and (iii) the development of the enabling environment and policies that enhance the implementation of both grid-connected and off-grid energy projects in Angola. If new opportunities arise beyond those listed below, PATRP will elevate this to USAID to determine how to best resource the activity i.e. whether to pursue through PATRP or SAEP.

PLANNED ACTIVITIES¹⁴:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

The Transaction Advisor will work with both public and private sector actors in Angola to advance power generation projects beyond concept and feasibility stages. Currently, there are three early-stage private sector generation projects identified, including a 6 MW solar/gas hybrid project, a 50 MW solar PV project, and a 500 MW combined-cycle project. PATRP will work with USTDA to explore project preparation support for these projects. Outside of its mega-hydro projects, the Government of Angola (GoA) has sixteen medium-to-large hydro projects, representing 1,140 MW, noted in its Investment Plan (IP) that will be explored to assess the potential for public-private partnerships. Additionally, the Government has identified sites for the potential development of the following: three wind projects (100 MW), eleven solar PV projects (78 MW), ten mini-hydro projects (61 MW), and ten biomass projects (400 MW). The Transaction Advisor will work with the MoE to gain more visibility on the viability of these projects, and they will be pursued as warranted. The Transaction Advisor will also collaborate with the African Development Bank (AfDB), which has provided significant funding since 2014 to the GoA to implement energy sector reforms, and to identify potential opportunities in the AfDB's Private Sector Department's project pipeline.

Accordingly, the approach will be two-fold:

- **Transaction Assistance to the Ministry of Energy and Water (MINEA) and Rede Nacional de Transporte de Electricidade (RNT).** The Transaction Advisor will provide commercial and technical advice to MINEA in order to advance project concepts and power generation transactions. The Transaction Advisor will also provide inputs to clarify and formalize review and approval processes within MINEA and other entities within the ecosystem of the energy sector.
- **Transaction Assistance to the Private Sector.** The Transaction Advisor will provide developers and other private sector actors with inputs regarding project concepts and transactions and seek to remove roadblocks which may exist from time to time within MINEA and/or the broader ecosystem.

¹⁴ A detailed work plan of this activity has been prepared.

The Transaction Advisor will also actively seek out resources available from Power Africa partner entities to support and advance projects.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

BTG and Small-scale Support

In order to continue to advance the implementation of MINEA's rural electrification strategies, the Transaction Advisor will provide technical inputs and support to MINEA Directors. These activities will include a quick assessment of stakeholder activities, followed by an assessment of regulatory and technical assessment activities to support the private sector aimed to advance off-grid solutions. Specific activities are described below:

Stakeholder Mapping

PATRP will conduct a rapid in-country assessment of all current programs and projects in Angola to determine potential synergies and areas of collaboration. This rapid assessment will identify niche areas of BTG support, as well as leverage opportunities with other donors and stakeholders.

Assessment of Policy and Regulatory Environment

PATRP will carry out an assessment of the policy framework to understand barriers and challenges for private sector-led initiatives in the off-grid space. This assessment would highlight the binding constraints for the development of BTG solutions for enhancing access.

Other potential activities to support MINEA Directors might include:

- Developing template PPA and other project documentation with technical assistance from Power Africa partner entities
- TA support to mini-grid models and approaches to rural electrification (including private sector business models, regulatory considerations, role of governments/donors (subsidies and incentives) and distributed energy solutions)
- Support financing opportunities for private sector developers in the off-grid space, including PPF initiatives and others from the Power Africa toolbox

Promoting Renewable Generation

PATRP will support the Government as it looks to enhance the legal, policy, and regulatory framework to encourage the near-term development of the country's renewable energy resources, particularly with engagement of the private sector. PATRP will identify gaps and/or inconsistencies in the existing legal and regulatory framework and to draft relevant policy, regulation, and guidelines needed for the implementation of renewable energy projects.

DELIVERABLES:

- Report of Regulatory Environment Assessment (August 2017)

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16(Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	600	0	0	0	0	600	Three project concepts led by the private sector have been identified and are currently being evaluated for potential participation by USG entities and other partners in the Power Africa network. These early-stage projects would represent new generation capacity of approximately 556 MW, with targeted financial close expected in late FY 2018 or early FY 2019.
Policy; (Actions)	1	0	0	0	0	1	PATRP proposes to develop a template PPA in FY 2017.

16. MALAWI



Power Africa Transactions & Reforms Program | Malawi Portfolio 2017

PATRP has a resident Transaction Advisor in Malawi who will be focusing on supporting the state utility (ESCOM) as it looks procure new generation capacity and modernize its national grid to accommodate additional power. If new opportunities arise beyond those listed below, PATRP will elevate this to USAID to determine how to best resource the activity i.e. whether to pursue through PATRP or SAEP.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory Assistance

PATRP will continue to work with ESCOM as it procures new generation capacity. To this end, PATRP has developed an IPP Procurement Plan and an implementation approach covering the next 12 months, which will include development of project documents and negotiation of the same.

Bagasse. Bagasse developments will be either IPPs or PPPs, with cooperation from the Illovo sugar company required in either case. It is likely that the nature of ESCOM's bagasse power procurement projects will meet guidelines for sole sourcing, although aspects of the EPC value chain could be competitively tendered. A World Bank-sponsored feasibility study is underway, and ESCOM should seek, with PATRP support, to have the outcomes of this fast-tracked and act urgently to accelerate the potential bagasse generation developments.

Solar. Advanced negotiations with the small number of solar unsolicited IPPs who have signed ESCOM PPA term sheets was recommended to continue, however there were procurement concerns from the ODPP. ESCOM also considered a tendering process be carried out to incorporate solar IPPs that have signed MOUs with government. In the short term, a fast-track open tender process has been initiated, which should enable rapid development of credible solar IPPs. It is recommended that another solar PV tendering process be carried out later in 2017, subject to the results of grid capacity studies.

Mbongozi Hydro. ESCOM have signed a PPA term-sheet (offtake agreement) with HE Power, the IPP developer of Mbongozi Hydro. In addition, negotiations are well advanced on the full PPA and the major elements of the project have been agreed. Mbongozi meets the requirements for exemption from procurement tender rules and the project can, in principle, be sole-sourced. PATRP will support ESCOM to advance the finalization of outstanding aspects of this project, including confirming procurement exemption clearance.

Hybrid Solar/HFO. Power developments made up of a combination of solar and HFO meet many of Malawi's power requirements. These projects can be completed relatively quickly, they provide diversity, and can be dispatched. Plus, they are cost-effective and readily bankable. There are at least two hybrid solar/HFO projects with signed MOUs, and at least one of these has spent a substantial amount of time and money moving the development forward. PATRP will work with ESCOM to pursue these projects with the aim of quickly contracting up to 100 MW of capacity.

Wind. PATRP will support ESCOM as it engages potential wind developers in a procurement process covering the detailed quantification of the wind resource and associated IPP feasibility. The winning bidder/s would complete the project development required with the final electricity price dependent on the outcomes of the procuring process and the project development studies.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Planning for IPPs

Through its presence at ESCOM, PATRP will: (i) build capacity of an internal ESCOM IPP transaction team; (ii) develop IPP solicitation processes as required to meet the EIP targets; (iii) deliver capacity-building workshops related to the development and negotiation of transaction documents for IPP projects and on drafting reports and other written inputs to meet ESCOM requirements; and (iv) provide final revisions and approval of a Standard Form Solar PV PPA.⁴

Further, PATRP will provide technical assistance (as needed) to MERA and MNREM in updating the Renewable Energy Feed-In Tariff (REFIT) and establishing a framework for wheeling charges.

Grid Connections for New Generation

PATRP intends to build on an existing Grid Capacity Study, developed in July 2016, with additional site-specific dynamic load-flow studies to advise IPPs on locations where the grid can handle additional generation. PATRP will also advise on requirements to ensure that additional generation can be safely absorbed into the grid, making Malawi a more attractive investment market. For approximately five sites, PATRP will:

- Complete dynamic load-flow studies
- Perform site visits to confirm substation space, spare substation feeder bay, space for line turn, etc.
- Complete frequency stability studies
- Complete transient stability studies (if required) for a HFO/solar hybrid or hydro synchronous generation project

DELIVERABLES:

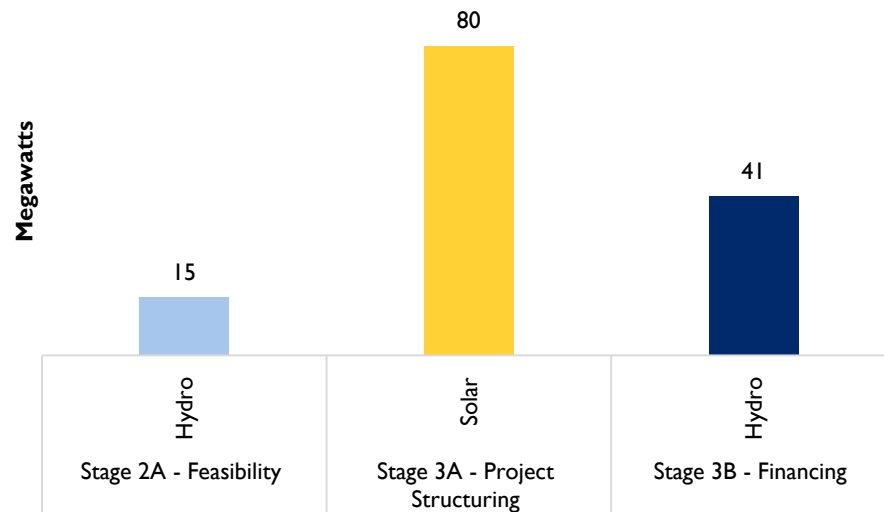
- Final Procurement Plan and Implementation Approach Draft
- Five site-specific reports for new generation grid connections

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure	181	0	0	81	0	100	PATRP is assisting ESCOM in developing a tender process for up to 70 MW of solar and anticipates a wind procurement, as well. We have also identified an additional 40 MW of hydro for inclusion in FY 2017.

MALAWI | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 3B - Financing		
Mbongozi Power	Hydro	41
Stage 3A - Project Structuring		
Blantyre Solar PV Project	Solar	40
Salima Solar PV Project	Solar	40
Stage 2A - Feasibility		
Luweya River--Hydro	Hydro	15
Proposed		
Stage 3A - Project Structuring		
RECAPO - Hospital PV at Mtengo wa Nthenga	Solar	0.05

17. ZAMBIA



Power Africa Transactions & Reforms Program | Zambia Portfolio 2017

PATRP was initially requested to deploy two new Technical Advisors to Zambia in FY 2017. One will work with ZESCO to improve the development and implementation of PPAs with IPPs. The second will provide transaction support to the Ministry of Finance (MoF). USAID is now reviewing whether these positions should be filled by PATRP or the SAEP. Depending on the outcome of this deliberation, the activities listed below may need to be adjusted.

In addition, (i) the country's captive power generation needs will be met by the Regional Transaction Advisors (for Southern Africa), and (ii) the BTG Pretoria team will continue to provide support to specific micro grid and SHS operators in Zambia. These activities will be performed in conjunction with the in-country USAID/Zambia team.

PLANNED ACTIVITIES:



POWER AFRICA ROADMAP PILLAR I: GETTING TO 30,000 MW

Transaction Advisory and Technical Assistance

PATRP plans to deploy a new Technical Advisor who will work with ZESCO to improve the development and implementation of PPAs with IPPs. Activities will include: (i) advising ZESCO in developing agreements with IPPs that encourage private investment while also ensuring cost-effectiveness and appropriate risk allocation; (ii) identifying and leveraging Power Africa tools and technical assistance resources to build ZESCO capacity to develop renewable energy PPAs; and (iii) streamlining the internal review process for PPAs for renewable projects. Some of these activities will cross over into Pillar 3; however, the principal thrust of the assistance remains MWs.

Further, due to load shedding on the Zambian grid and its impact on business productivity, a number of agribusiness, commercial, industrial and manufacturing entities are considering alternative power solutions to meet their electricity requirements. Thus, the Lead Regional Transaction Advisor is working with private sector parties in the development of a new model, which foresees (i) a private developer providing a turnkey solution that includes design, development, financing, construction and management of the power facilities; and (ii) the off-taker(s) (the businesses that need reliable power), who will provide payment that enables the IPP to recover its capital with a reasonable profit. An initial pilot transaction is now at feasibility stage and a pipeline of other potential investments are consideration. As required, community engagement and involvement programs are also developed and undertaken.

Power Africa has been closely following the KfW-sponsored GET FiT program for Zambia (the follow-on to the USAID-supported REFIT program). To the extent required, PATRP may provide technical assistance and advisory support in the development of this program, working closely with USAID/Zambia.



POWER AFRICA ROADMAP PILLAR 2: GETTING TO 60 MILLION CONNECTIONS

Support for Off-Grid Initiatives

PATRP will provide the services of the Lead Regional Transaction Advisor on an as-needed basis to spur additional off-grid MWs by partnering with existing donor and private sector initiatives, such as the Swedish Off-Grid Innovation Fund, which identifies and finances rural power solutions. PATRP assisted the Fund Manager in reviewing the proposals submitted during Round 1, for which €18 million have been allocated. PATRP will support micro-grid and other off-grid solution companies in Zambia in their efforts to access commercial lending and grants for their projects and operations.



POWER AFRICA ROADMAP PILLAR 3: UNLOCKING ENERGY SECTOR POTENTIAL

Increase the Role of IPPs in Zambia through an Improved Enabling Environment

PATRP plans to deploy a Private Sector Partnership Advisor to the MoE. This advisor will provide expert analysis and advice on policy, regulatory, and procedural issues that impact private sector investments in the renewable energy sector. Further details on this engagement will be defined in the advisor's terms of reference.

Tariff support

The Energy Regulation Board (ERB) proposes the introduction of a Multi-Year Tariff Framework (MYTF). This is in response to addressing the needs of the evolving and expanding electricity supply industry in Zambia. The current framework has been found to be inadequate as it does not provide certainty in the industry. In order to ensure price stability and predictability for both the utility and the consumers, the ERB has embarked on an exercise to develop a MYTF. PATRP will undertake a comprehensive review of the current legislation and other regulatory tools, including the Electricity Act Chapter 433 of the Laws of Zambia, the ERB Act Chapter 436 of the Laws of Zambia, the Energy Policy, the Electricity License Conditions, the Tariff Filing Guidelines, etc., with a view to harmonizing the draft MYTF methodology and Rules and Regulations with existing and/or proposed legislation.

DELIVERABLES:

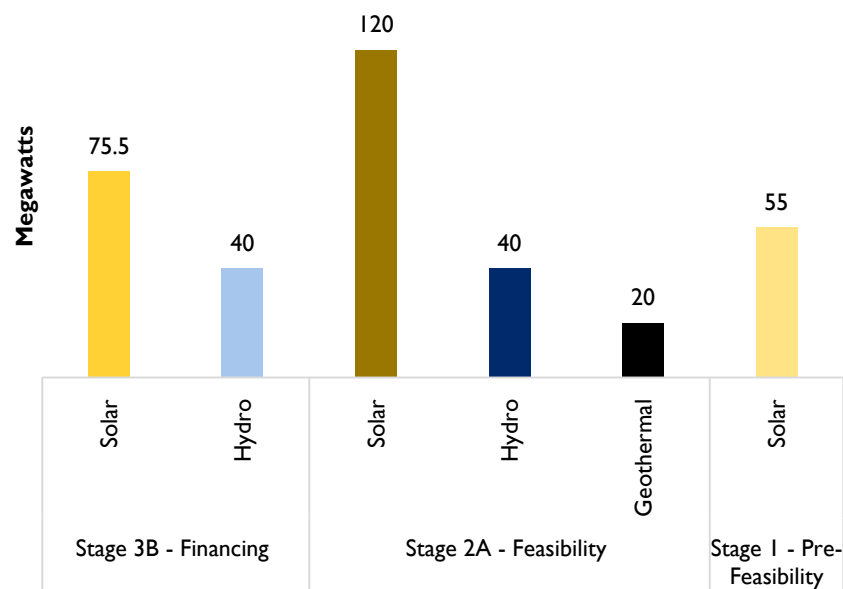
- Multi-Year Tariff Determination Methodology

KEY TARGETS:

Indicator Name	Total Targets 3 Base Years (May/14 - Sept/17) and Expansion	Cumulative Actual (May/14 - Sept/16)	Actual FY15 (May/14 - Sept/15)	Target FY16	Actual FY16 (Oct/15 - Sept/16)	Target FY17	Comments
Generation Capacity Pending Financial Closure:	200	0	0	200	0	0	PATRP is tracking and performing due diligence on REH ROR hydro 30 MW and Solar 35 MW for FY 2017 inclusion as Power Africa projects. PATRP will not provide targets for Zambia for FY 2017, but will continue to submit new transactions to meet cumulative targets of 200 MW.
Generation Capacity Reached Financial Closure	75.5	0	0	0	0	75.5	PATRP is tracking advancement to financial close for FY 2017 for scaling solar projects 75.5 MW Ngonye and Bangweulu.

ZAMBIA | TRANSACTION DASHBOARD | TECHNOLOGY & STAGE

Graphs are Active Transactions



Name	Technology	MW
Active		
Stage 3B - Financing		
Kabompo Hydro	Hydro	40
Scaling Solar Zambia 1 - Ngonye	Solar	28
Scaling Solar Zambia 2 - Bangweulu	Solar	47.5
Stage 2A - Feasibility		
Ngonye Falls Hydro	Hydro	40
Kumi Zuba	Solar	100
PVN Geothermal	Geothermal	20
E. Province Solar	Solar	10
Luapula Solar	Solar	10
Stage 1 - Pre-Feasibility		
Rural Clinic Rooftop Solar	Solar	5
Ngonye Solar	Solar	50
Proposed		
Stage 2A - Feasibility		
Kitwe Solar PV	Solar	15
Huntley Farm - Chisamba	Hybrid	4
Stage 1 - Pre-Feasibility		
REH ROR Hydro	Hydro	30

18. ENVIRONMENTAL COMPLIANCE

The scope of work of the PATRP Environmental and Social (E&S) Specialist for 2017 is determined by the conditions set forth in PATRP's Initial Environmental Examination (IEE), as further particularized below.

Condition 1: Environmental and Social Impact Screening and Rescreening of USG-Supported Transactions. PATRP-supported transactions are subjected to a two-stage screening process in order to determine their relative risk based on environmental and social considerations. Following the initial identification of suitable transactions, a detailed Preliminary Environmental and Social Review Methodology (PESRM) Checklist is completed by the E&S Specialist for PATRP supported transactions.¹⁵ The PESRM Checklist serves as the tool for monitoring and evaluating of E&S considerations throughout the planning phase of a transaction, prior to its implementation.

In FY 2017, PATRP transactions will continue to be subjected to the PESRM checklist process. At present, there is no backlog of transaction awaiting screening. PESRM checklists will be updated as transactions move through their respective stages until reaching Financial Close. The number of PESRM Checklists to be completed in 2017 will depend primarily on the number of new PATRP transactions added and how many stage changes occur, as most transactions have already undergone the PESRM process. Most transactions in later stages will continue to be monitored by PATRP.

Condition 2: Power Africa Decision-Making Based on Screening. Following screening of the transaction through the PESRM Checklist, remedial actions to be taken by PATRP in order to verify or promote environmental and social good practices are provided. Any transactions for which a significant level of environmental and social risk are identified are flagged in the PESRM Checklist and the concerns communicated to the Coordinator's Office, who will make the decision whether to continue with, suspend or withdraw support, depending on the circumstances.

For FY 2017, PATRP will continue to identify transactions, which due to their potential E&S risks merit escalation to the Coordinator's Office for review. By way of illustration, there are certain hydropower transactions in their early feasibility stages that have already been screened. Many of these are expected to move into their ESIA stages, thereby allowing PATRP to review and make more informed decisions on whether to continue support.

Condition 3: ESIA Requirement. This condition requires that Environmental and Social Impact Assessment (ESIA) Reports completed by third parties are reviewed for all PATRP-supported transactions, and by no later than Stage 4 (of a transaction's progress). The review includes an evaluation of whether a transaction demonstrates adequate environmental and social compliance, and also whether the ESIA Report is of an acceptable standard to allow such determinations to be made by PATRP. This is done by confirming in the PESRM Checklist that the ESIA report meets minimum reporting requirements for ESIA in accordance with good practices. In cases where the ESIA is found to be deficient, the developer/partner is requested to provide further supplementary

¹⁵ In accordance with PATRP Standard Operating Procedures, for USG-Supported Transactions directly involving one or more USG agencies, International Financial Institutions (IFIs) or Multilateral Development Banks (MDBs), this requirement will be satisfied by confirming that the applicable USG agency, IFI or MDB is conducting environmental and social impact screening using its own policies and procedures.

information, or in more severe cases it is recommended that the ESIA process be revisited. For the majority of Stage 1 and 2 transactions, a review of pre-feasibility information is required to further progress the transaction to later stages. ESIA Reports for PATRP transactions at Stage 2 and above will be sourced, and in cases where ESIA reports are not made available by partners for contractual reasons, Environmental Authorizations will be obtained. To date, ESIA Reports or equivalent have been sourced for all existing PATRP Stage 4 transactions.¹⁶ PATRP will continue to monitor this in FY 2017.

Condition 4: Resources. PATRP has sourced E&S policies/procedures for OPIC, MCC, USADF, Exim Bank, and USTDA, in addition to IFC performance standards and guidelines, the Equator Principles, and policies of other MDBs. This information is currently hosted on PATRP's SharePoint site. Dissemination of the information to TAs will also occur periodically when E&S training is conducted (see Condition 6).

Condition 5: Staffing. In FY 2017, the PATRP E&S Specialist will continue to comply with the conditions of the IEE and ensure alignment of PATRP's activities with the conditions. No activities are anticipated that will impact on E&S staffing requirements in 2017.

Condition 6: Training. Condition 6 of the IEE requires training to promote environmental and social soundness within PATRP. In FY 2016 PATRP took steps to build the capacity of the transaction advisors to integrate environmental and social aspects into their activities at the country and transaction level. E&S course content was updated in collaboration with USAID and delivered to TAs (primarily new staff) in September 2016. Through internal capacity building, facilitated by the E&S Specialist, PATRP ensures that its transaction advisors understand the environmental and social issues of their respective transactions.

PATRP will continue this training, as necessary, following: (i) consultation and feedback from field-based staff on E&S development; (ii) identifying lessons learned from transaction-based experiences; and, (iii) addition of any material deemed necessary by the Coordinator's Office.

Condition 7: Advising. Advisory support to Power Africa private sector partners will continue in FY 2017, in the following manner:

- Following reviews of ESIA Reports and identification of any significant deficiencies, the PATRP E&S Specialist will recommend interventions in order to bring deficiencies in line with good practices.
- On request by a Power Africa partner, or on an as-needed basis, PATRP's E&S Specialist will continue to provide technical assistance to such partners in order to bring their E&S management plans/procedures in line with good practices.

Condition 8: Reporting. In 2016, the E&S Specialist developed a risk monitoring report detailing recommendations, deficiencies, concerns, and associated PATRP actions for all transactions subjected to the E&S Checklist process. The report will be updated as PATRP's recommendations are implemented. The report will be shared and any significant vulnerabilities reported for appropriate action by the Coordinator's Office (see Condition 2). The E&S Specialist will continue to provide input into the quarterly and annual reports.

¹⁶ The Taiba N'Diaye Wind Farm is a Stage 4 transaction for which no ESIA Report has been provided to PATRP as E&S compliance is deferred to OPIC as lead USG and financier.

19. GENDER INTEGRATION

PATRP has a Gender Advisor who serves as a resource to all PATRP staff, including by supporting staff to identify entry points for gender integration within their specific work streams. While the Gender Advisor serves as a resource, it is understood that gender integration is an issue for all staff to address to the extent possible within their scopes of work. The nature of those activities is defined as opportunities arise, and is informed by the objectives of both the Power Africa and PATRP gender integration strategies. The Gender Advisor's responsibilities include reviewing key PATRP documents, such as work plans, Country Implementation Plans, and country-level technical policy and regulatory frameworks to ensure the inclusion of gender components, where relevant.

On an ongoing basis, the Gender Advisor supports information sharing with, and capacity building of, PATRP staff. This will remain a priority in FY 2017. Given that the TAs and the policy and regulatory teams are providing technical support at the country and/or regional level, they are best placed to integrate gender in the context of PATRP's support. To do so, they need to be equipped with an understanding of relevant concepts and information on gender and energy. When possibilities to consider gender in their activities are identified, the appropriate support and guidance will be provided. As such, TAs will remain mindful of the importance of considering gender in their projects, especially amidst competing priorities.

The Gender Advisor shares relevant information and maintains the internal electronic library of resources on gender and energy. Beyond sharing existing general resources, in FY 2017 the Gender Advisor will focus on developing resources specifically tailored to advance Power Africa's gender-related goals. These include:

- Documentation of small-scale energy projects supported by PATRP that empower women and/or are women-led. Lessons learned and good practices will be extracted from the research for purposes of informing future BTG projects and identifying practices for sharing amongst Power Africa partners and for replication. The output will also inform PATRP's reporting on gender integration.
- Development of a toolkit on integrating gender into off-grid energy company business models.
- Analysis of gender considerations in financing mechanisms for clean energy projects in Africa, particularly those supported by Power Africa. The analysis will include a list of regional financing mechanisms that target or prioritize projects that are women-owned, have significant female leadership or staff, or those projects that impact women's empowerment in any way. The output of the analysis will be an information brief on gender and renewable energy financing.

Other guidance notes, toolkits, and resources may be developed as needs are identified or in response to requests from the Coordinator's Office. In addition to ongoing in-house capacity building, in FY 2017 steps will be taken to strengthen gender integration into PATRP-supported capacity-building activities in countries. This will go beyond ensuring women's participation on an equal basis with men in order for women to benefit from capacity building, and will include identifying ways to integrate gender into the content of trainings.

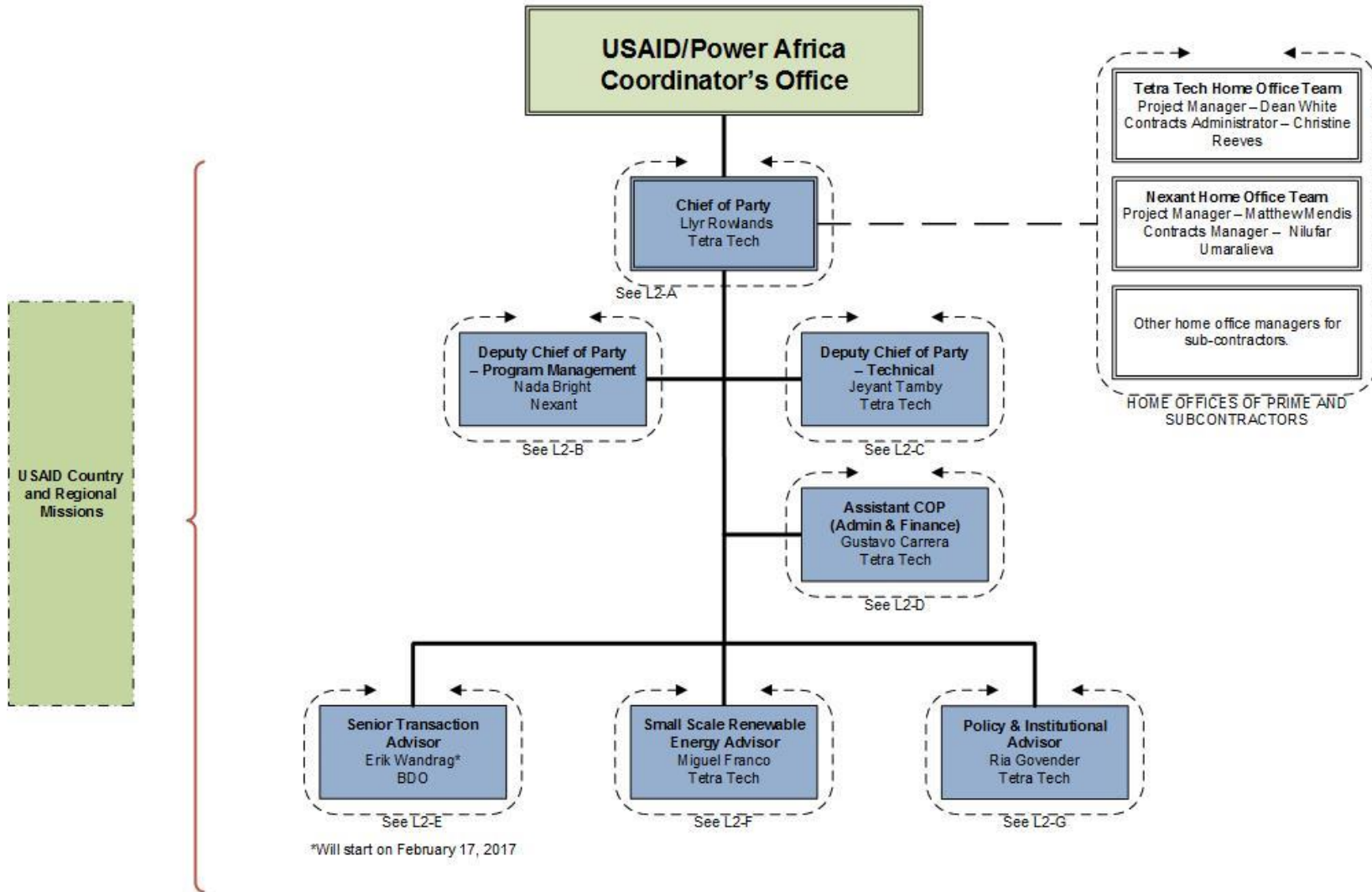
The Gender Advisor will provide technical guidance and implementation strategies for country-level energy sector regulatory, legal and policy frameworks that will lead to an improved enabling environment for women's empowerment and the advancement of gender equality in the energy sector. This will include supporting the Coordinator's Office in its support to ECREEE to develop a

regulation for gender assessment in energy infrastructure development. Depending on the policy intervention and the nature of PATRP's support, examples of the types of guidance to be provided include identifying and sharing existing good practices with partners and government entities, integrating a gender component into consultative processes around energy sector reform, and undertaking gender analysis to ensure policy, legislative, or regulatory reform is evidence-based and designed to ensure that the energy needs of women are not overlooked.

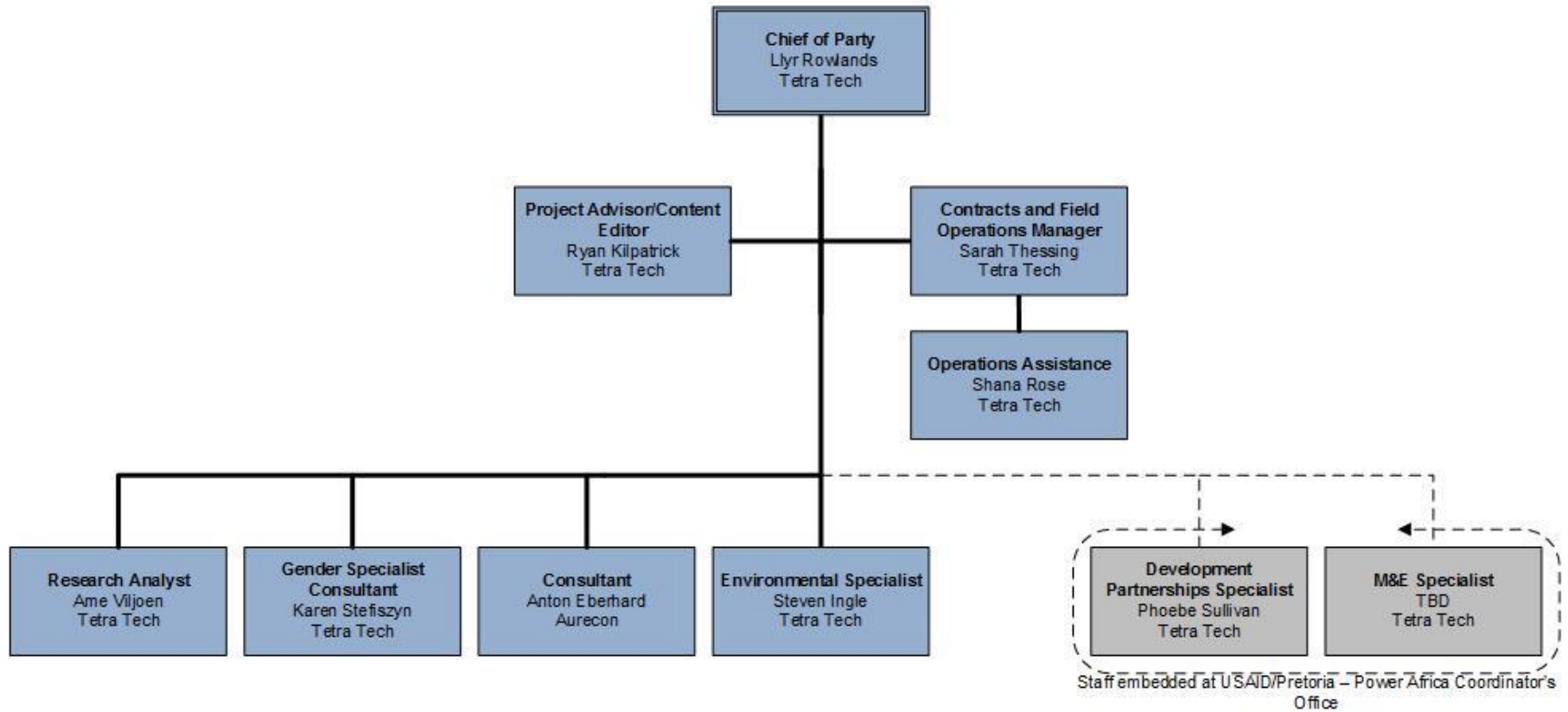
In addition to the specific activities related to integrating gender into PATRP's work, PATRP will also remain committed to gender diversity within its team structure. Where new staffing needs are identified, PATRP will take steps to broaden the recruitment pool to include female candidates. Vacancies will be circulated within the Women in African Power (WIAP) network, for example. PATRP remains mindful of its obligation to promote women's participation in the energy sector, including and especially within PATRP.

APPENDIX A: ORGANIZATIONAL CHARTS

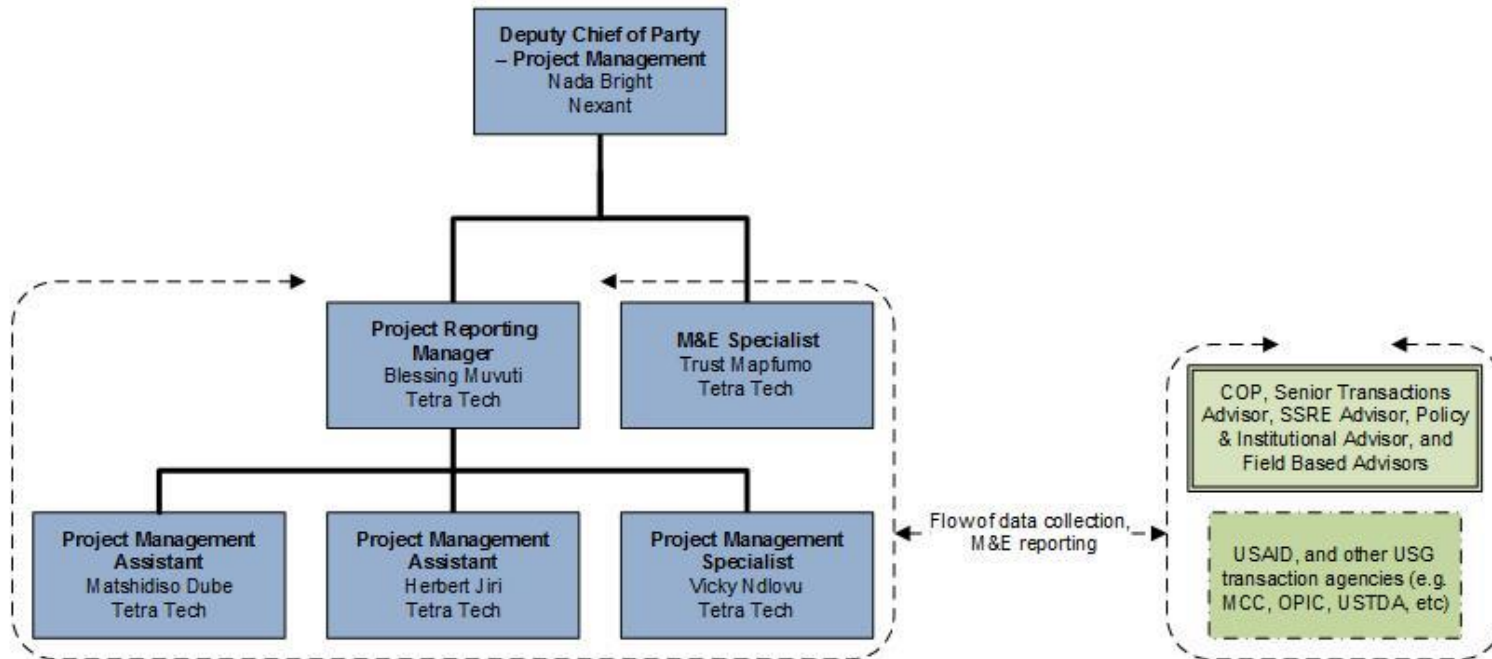
PATRP Team Organization: Senior Staff (L1)



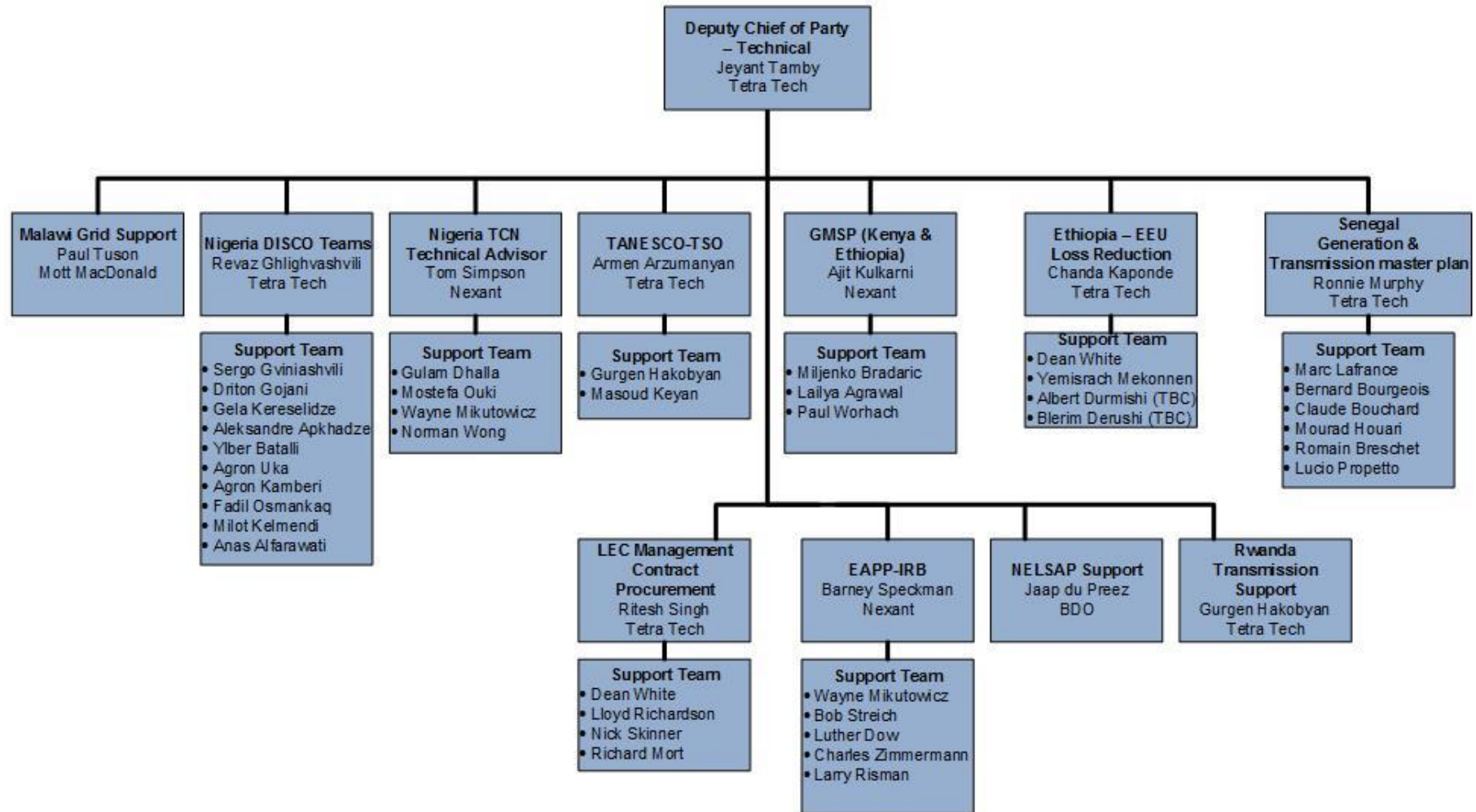
PATRP Team Organization: Chief of Party (L2-A)



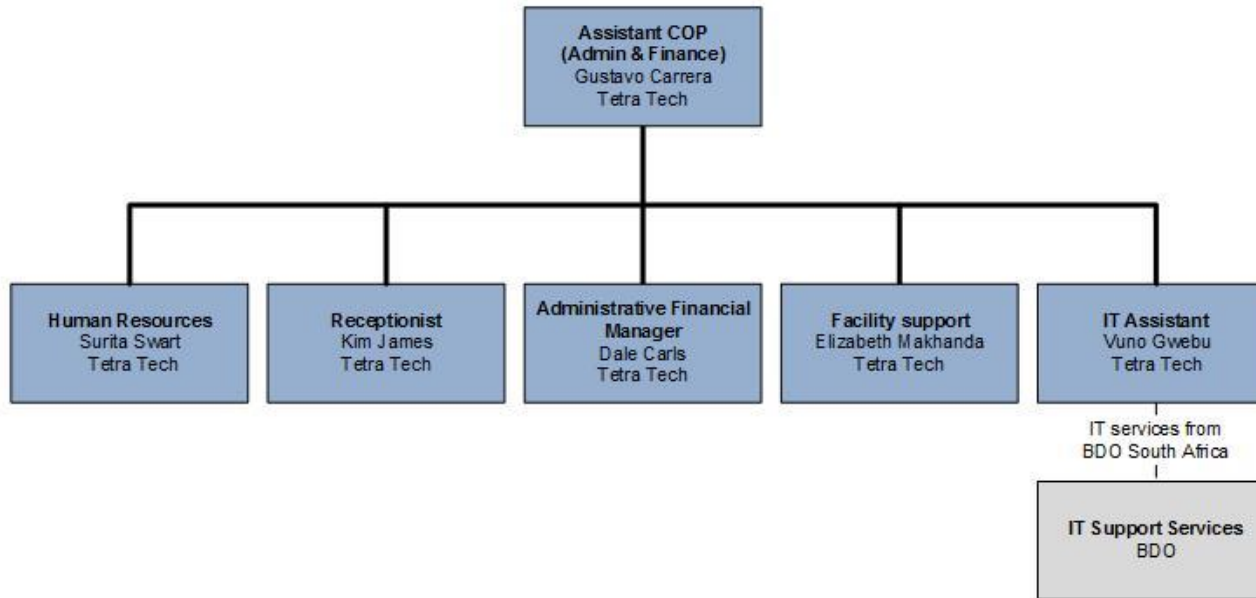
PATRP Team Organization: Project Reporting & Monitoring (L2-B)



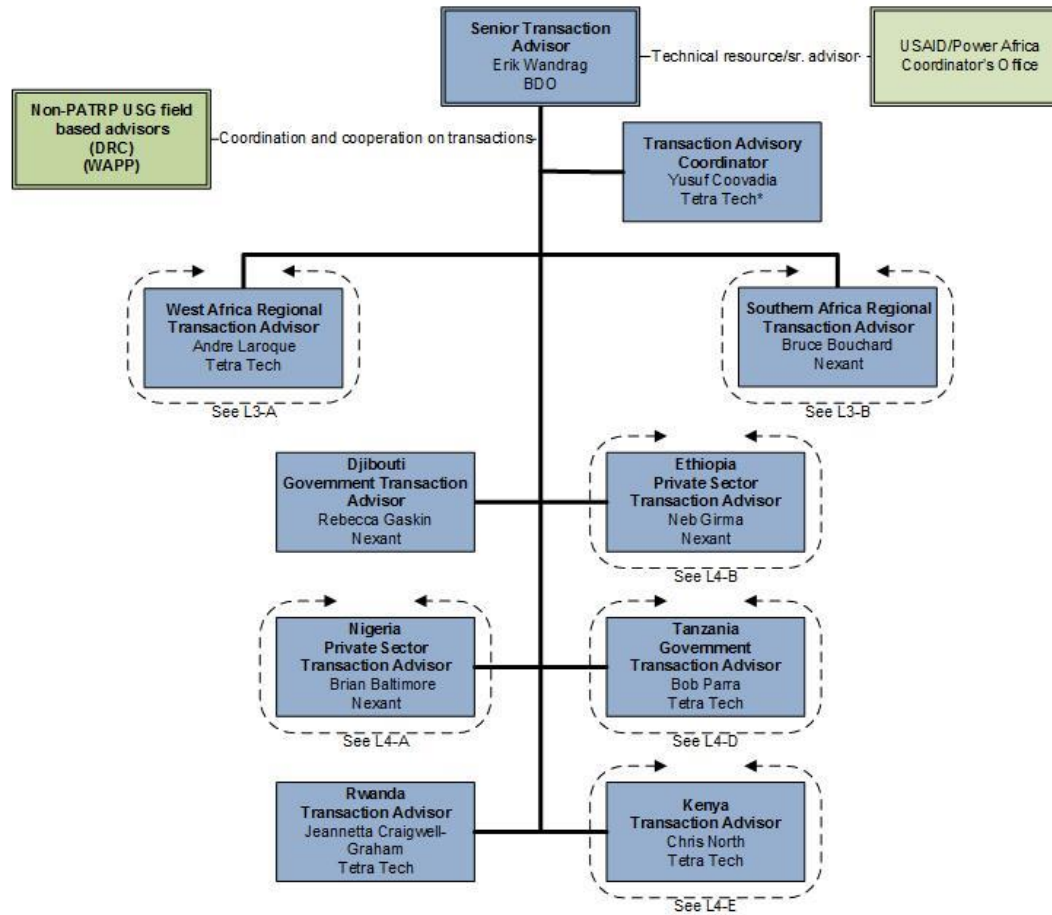
PATRP Team Organization: Transmission & Distribution (L2-C)



PATRP Team Organization: Contracts & Administration (L2-D)

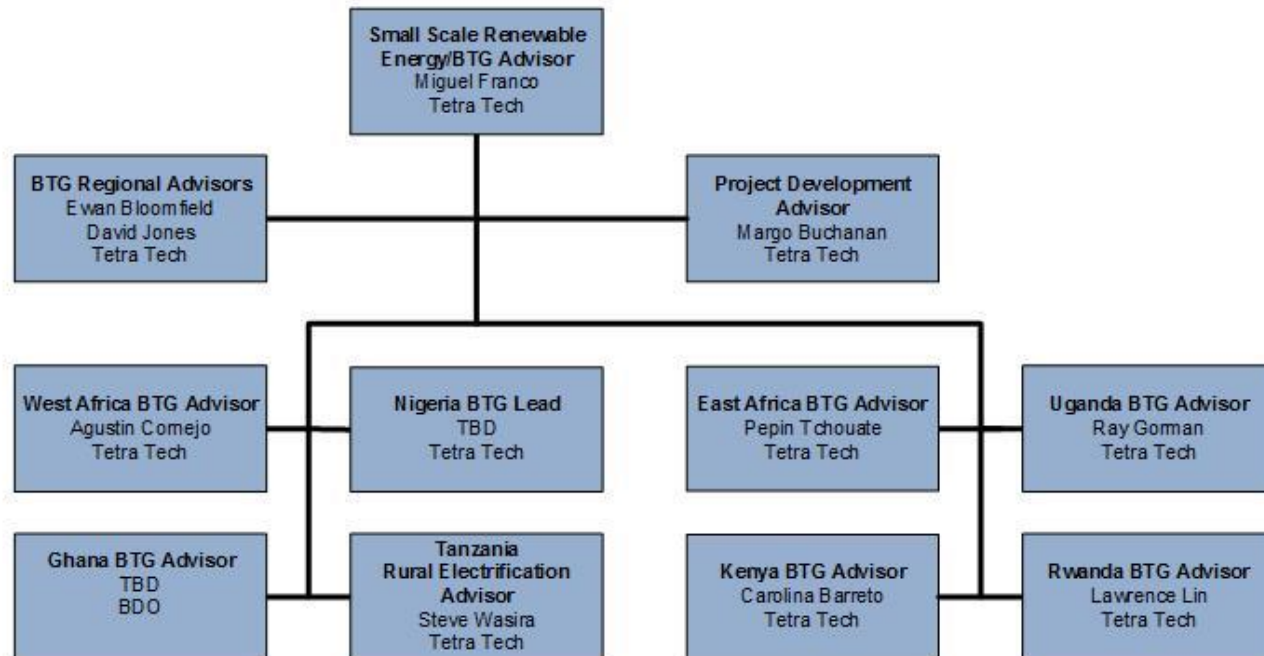


PATRP Team Organization: Transaction Advisory (L2-E)

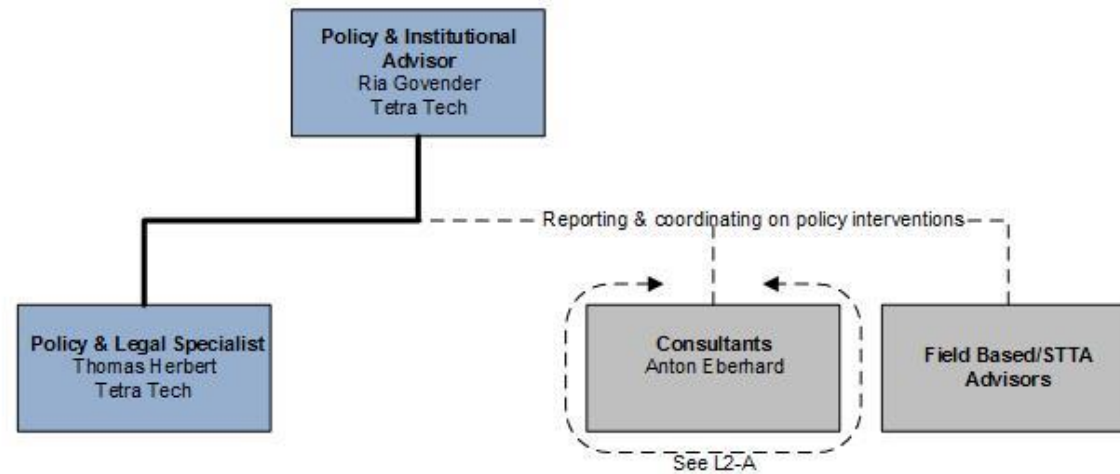


*Will transition to this role after leaving current role of NEPAD transaction advisor

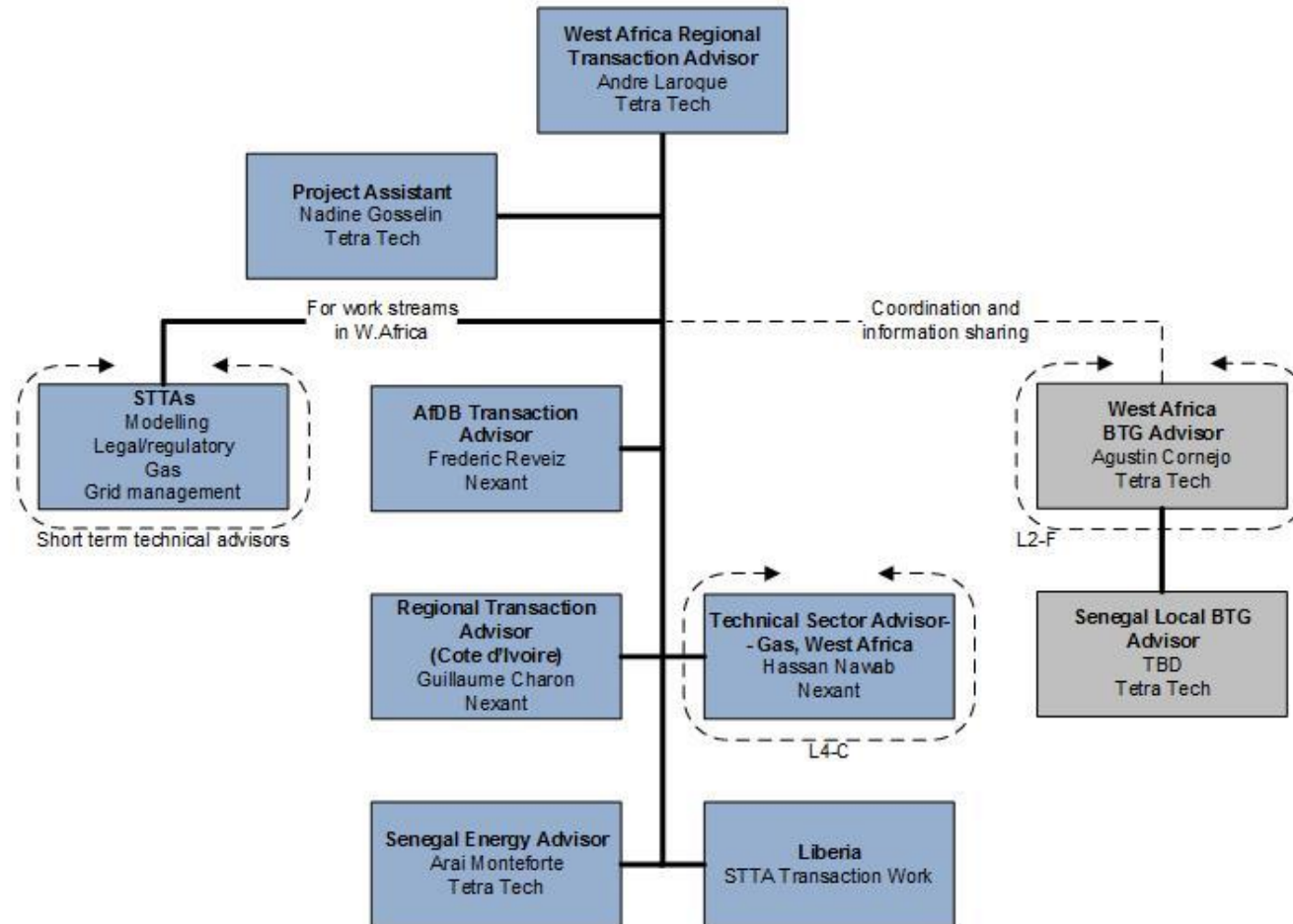
PATRP Team Organization: Small Scale Renewables & BTG (L2-F)



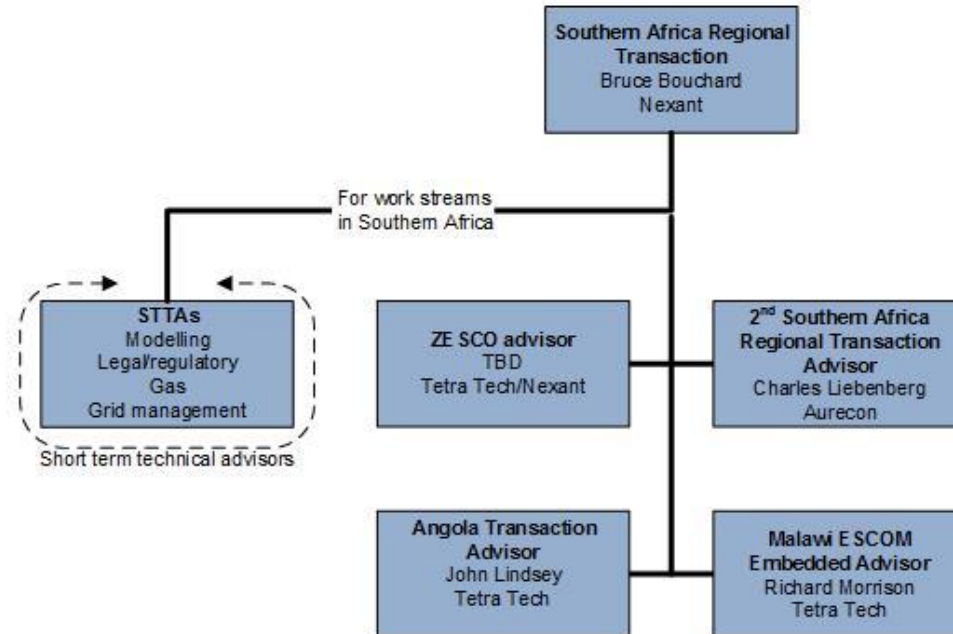
PATRP Team Organization: Policy & Institutional Support (L2-G)



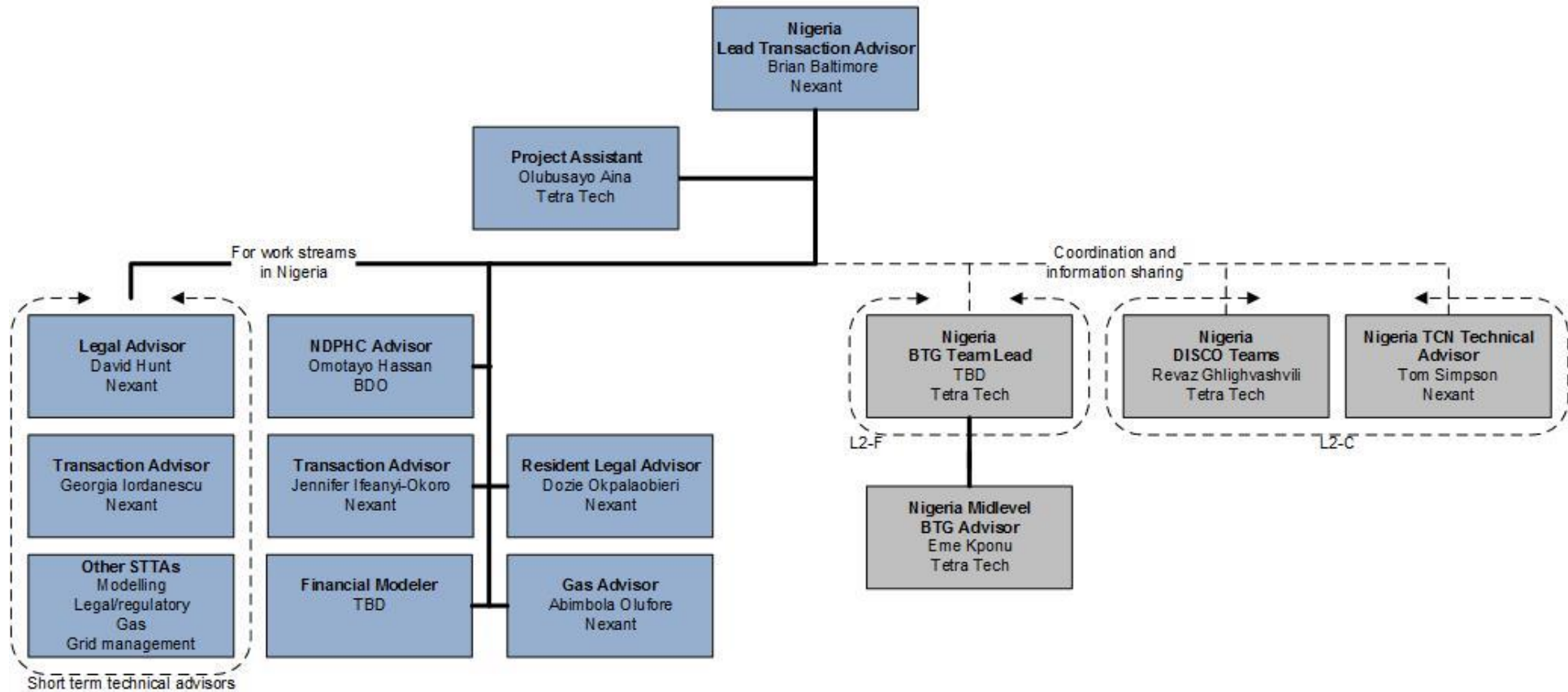
PATRP Team Organization: West Africa (L3-A)



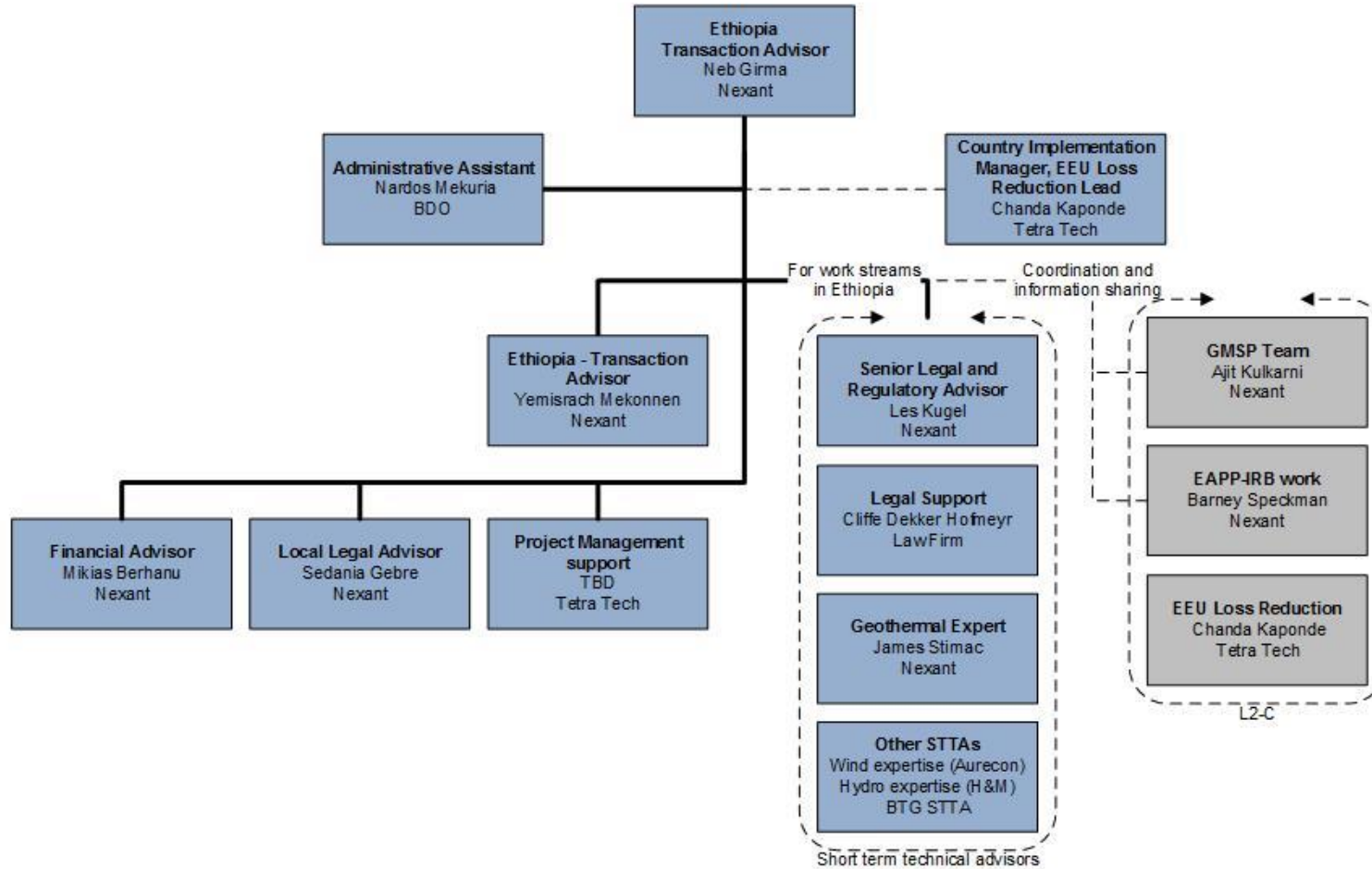
PATRP Team Organization: Southern Africa (L3-B)



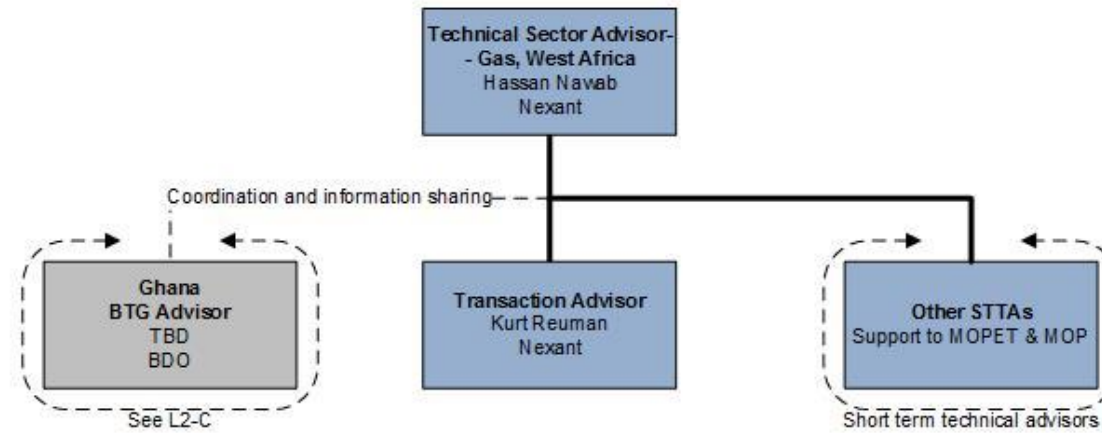
PATRP Team Organization: Nigeria (L4-A)



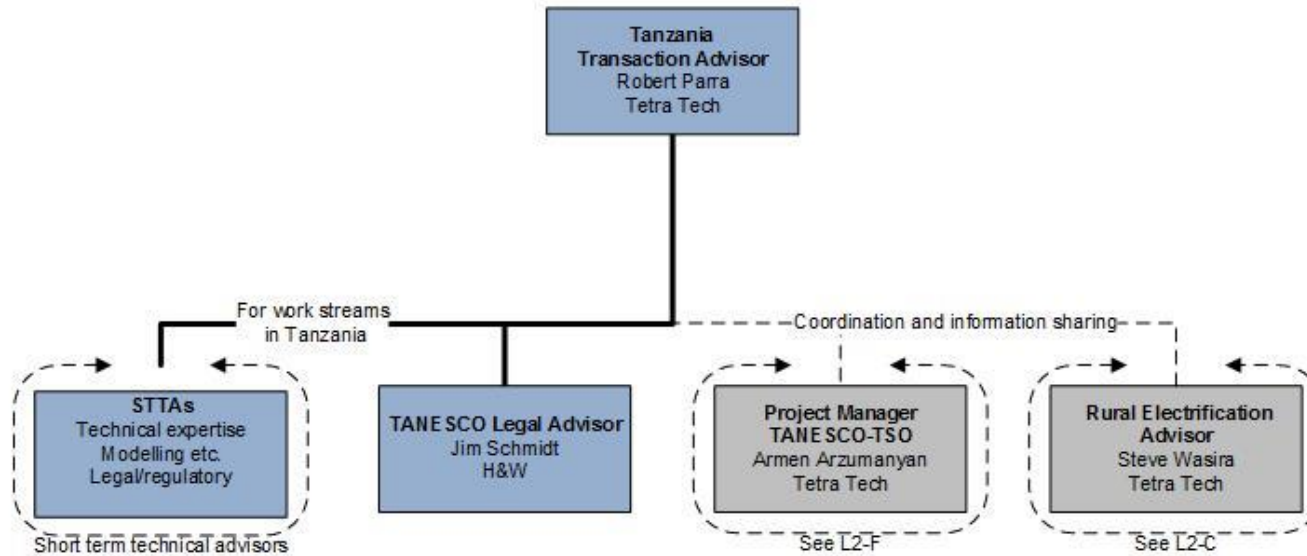
PATRP Team Organization: Ethiopia (L4-B)



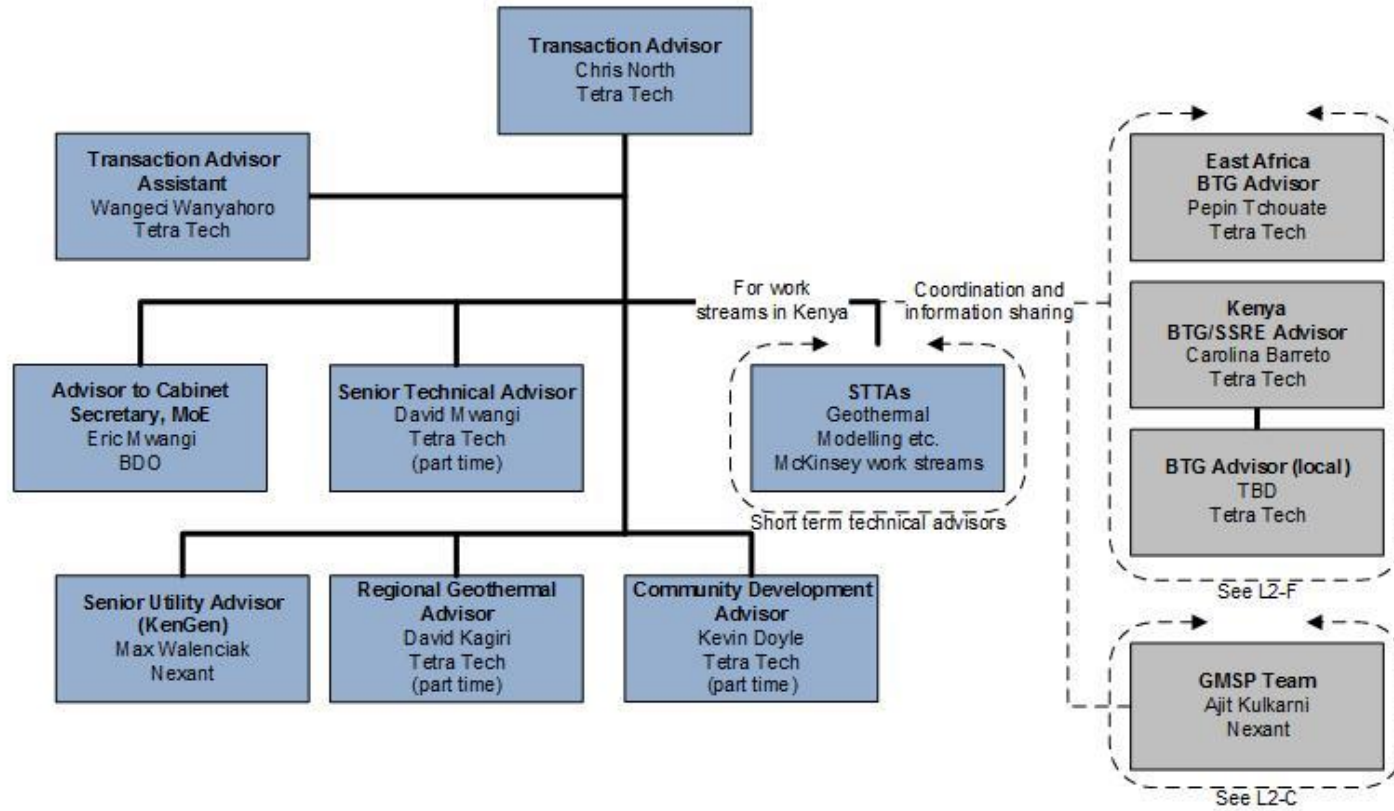
PATRP Team Organization: Ghana (L4-C)



PATRP Team Organization: Tanzania (L4-D)



PATRP Team Organization: Kenya (L4-E)



APPENDIX B: STTA STAFFING

The following tables list the projected staffing requirements for short-term technical assistance over the next 12 months. Based on the changing demands of the projects, it is likely that additional short-term technical assistance will be needed, and this will be discussed and approved with USAID ahead of time in the usual manner.

Table 19-1: East Africa/EAPP

NAME	Role	Task	Time in-Country (Days)	Total Level of Effort (days)
Charlie Zimmermann	Economist	EKT and Bilateral Support	20	60
Bob Streich	PM, Engineer	IC Compliance	100	155
Tony Rodrigues	Engineer	IC Compliance	25	100
Barney Speckman	PM, Engineer	PM, EKT, Bilateral Support	25	130
Bob Stuart	Technical Expert	IC Compliance	20	40
Ted Reece	Technical Expert	IC Compliance	15	30
Tom Simpson	Engineer and Economist	EKT and Bilateral Support	30	100
Wayne Mikutowicz	Economist	EAPP/IRB Plans and Mandates	20	60
Maryam Variani	Technical Support System Planning	EKT and Bilateral Technical Support	-	25
Les Kugel	Lawyer	EKT Legal Support	70	70
Luther Dow	Technical Expert	IC Compliance	7	30
Jake Zhang	Analyst	Technical Support	-	20
Ashok Sundaram	Technical Expert Distribution Systems	Technical Support	-	20

Table 19-2: Ethiopia/GMSP

NAME	Role	Task	Time in-Country (Days)	Total Level of Effort (days)
Ajit Kulkarni	PM & Technical Lead - Grid Code, and SIS	Ethiopia-GMSP	50	140
Laliya Agrawal	Grid Code	Ethiopia-GMSP	10	100
Paul Worhach	SIS, Grid Code	Ethiopia-GMSP	10	30
Miljenko Bradaric	SIS	Ethiopia-GMSP	40	205

Table 19-3: Kenya/GMSP

NAME	Role	Task	Time in-Country (Days)	Total Level of Effort (days)
Ajit Kulkarni	PM & Technical Lead - Grid Code, SIS	Kenya-GMSP	50	93
Laliya Agrawal	Grid Code	Kenya-GMSP	20	90
Paul Worhach	SIS, Grid Code	Kenya-GMSP	40	180

Miljenko Bradaric	SIS	Kenya-GMSP	0	15
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Table 19-4: Tanzania/TSO

NAME	Role	Task	Time in-Country	Total Level of Effort (days)
Gurgen Hakobyan	Power System Adviser	Market analysis, Forecast & Planning; Transmission Network Investment requirements	70	100
Masoud Keyan	Senior Energy Adviser	Business plan	30	45
Carl Potter	Safety Adviser	Policy for safeguard measures	10	10
Richard Orsmond	Security Adviser	Policy for safeguard measures	10	10

Table 19-5: Djibouti

NAME	Role	Task	Time in-Country	Total Level of Effort (days)
Les Kugel	Legal/Regulatory	IPP tendering process, trade	20	35
Charles Zimmerman	Economist	IPP tendering process, trade, IRP development & Strategy	25	65
Babul Patel	Engineer	IPP tendering process, trade, IRP development & Strategy	35	145
Barney Speckman	Engineer	Cross border trade	10	35
Miljenko Bradaric	Engineer	IRP development	5	14
Charles McKeown	Geospatial, and outreach specialist	IPP tendering process, trade, IRP development & Strategy	35	92

Table 19-6: Nigeria

NAME	Role	Task	Time in-Country	Total Level of Effort (days)
Georgia Iordanescu	Transaction Advisor	Support to NBET	70	230
David Hunt	Transaction Advisor	Support to NBET	30	105
Dhanika de Silva	Consultant	Support to Developers	115	230
Justin Miller	Consultant	Support to Enabling Environment and Policy	115	230
Tom Simpson	Technical Advisor	Support to TCN	115	230

Table 19-7: Nigeria DISCO Support

NAME	Role	Task	Time in-Country	Total Level of Effort (days)
David S. Victor	PMO implementation / three discos	DISCO support	40	50
Wissam Mahfouz	PMO Implementation Abuja	DISCO support	65	80
Reda Benaddi	PMO Implementation Eko and Benin	DISCO support	65	80
Luis Aguiar	PMO Implementation Abuja and Eko	DISCO support	65	80
Rami Semaan	PMO Implementation Eko and Benin	DISCO support	65	80

Table 19-8: Rwanda

NAME	Role	Task	Time in-Country	Total Level of Effort (days)
Gurgen Hakobyan	Senior Power System Adviser	Development of draft procedures and investment plan, reporting, workshops, capacity building.	80	105

APPENDIX C: DELIVERABLES AND WORK PRODUCTS

COUNTRY/REGION	DELIVERABLES	WORK PRODUCTS
East Africa	<ul style="list-style-type: none"> ▪ Final IRB-approved EKT Transmission Service Agreement and Tariff 	<ul style="list-style-type: none"> ▪ EKT Loss Study Report ▪ Report on fully implemented EAPP Interconnection Code Compliance Program ▪ Completed Gap Analysis and Mitigation Plan (EAPP Interconnection Code)
Djibouti	<ul style="list-style-type: none"> ▪ Integrated Resource Plan (IRP) ▪ IPP Action Plan 	<ul style="list-style-type: none"> ▪ Implementing Regulations under IPP Law ▪ Electricity Law ▪ IRP Implementation Strategy
Ethiopia	<ul style="list-style-type: none"> ▪ Final Grid Codes adopted – Q4 FY2017 	<ul style="list-style-type: none"> ▪ Draft SIS results – Q1 FY2017 (final Q4 FY2017) ▪ Wind Strategy and Implementation Framework
Kenya	<ul style="list-style-type: none"> ▪ Final adoption and operationalization of Gazetted Grid Code ▪ Development of an off-grid strategy ▪ Community Engagement Framework report for private developers ▪ Standard forms for off-grid license agreements 	<ul style="list-style-type: none"> ▪ Report with recommendations for off-grid finance platform ▪ Establishing an off-grid innovation lab (Report) ▪ Intermediate/draft System Integration Study results – some years and scenarios ▪ Report with grid code recommendations for micro grids
Rwanda	<ul style="list-style-type: none"> ▪ Operational Planning and Dispatch Procedures and Investment Plan ▪ Implementation Roadmap for RES ▪ Report on off-grid market assessment opportunities ▪ Report on support, recommendations, and implementation efforts to at least five off-grid companies 	<ul style="list-style-type: none"> ▪ N/A
Tanzania	<ul style="list-style-type: none"> ▪ Somanga PPP studies: (1) Bathymetry study, (2) mapping of the site; and (3) geotechnical assessment of the site. These will be completed in FY 2017. 	<ul style="list-style-type: none"> ▪ N/A

COUNTRY/REGION	DELIVERABLES	WORK PRODUCTS
West Africa	<ul style="list-style-type: none"> ▪ Generation and Transmission Expansion Master Plan 	<ul style="list-style-type: none"> ▪ N/A
Ghana	<ul style="list-style-type: none"> ▪ Gas Pricing Policy ▪ LNG Policy and Action Plan ▪ Mobile Finance Sector Assessment ▪ Off-grid Market Assessment 	<ul style="list-style-type: none"> ▪ Gas Pricing Model & Training Material ▪ Gas Act ▪ WAGP Reverse Flow Transportation Agreement ▪ Regulatory and Policy Assessment ▪ Report on Increased Sales and New Loans for Off-grid Sector ▪ Financial analysis and restructuring, cash waterfall and debt-resolution mechanisms ▪ Screening criteria for pipeline of new IPPs
Liberia	<ul style="list-style-type: none"> ▪ Final RFP for new LEC Management Contract ▪ LEC Management Services Contract 	<ul style="list-style-type: none"> ▪ N/A
Nigeria	<ul style="list-style-type: none"> ▪ Annual Report on Improved Collections; reduced losses; increased number of paying customers ▪ Produce a comprehensive approach for access to liquidity (Q2 FY 2017) ▪ Report on TCN Strategy for Power Africa 	<ul style="list-style-type: none"> ▪ Draft Report on Mobile Finance Pilot Projects ▪ Report on establishment of efficient internal audit departments for three DISCOs being supported (Q2 & Q3 FY 2017)
Senegal	<ul style="list-style-type: none"> ▪ Generation and Transmission Expansion Master Plan ▪ Inputs to Natural Gas Strategy ▪ Procurement of new generation framework: A report setting forth findings and recommendations on the way forward 	<ul style="list-style-type: none"> ▪ N/A
Southern Africa	<ul style="list-style-type: none"> ▪ N/A 	<ul style="list-style-type: none"> ▪ N/A

COUNTRY/REGION	DELIVERABLES	WORK PRODUCTS
Angola	<ul style="list-style-type: none"> ▪ Report of Regulatory Environment Assessment (August 2017) 	<ul style="list-style-type: none"> ▪ Template PPA (September 2017) ▪ Summary Concept Note for Rural Electrification Fund (September 2017)
Malawi	<ul style="list-style-type: none"> ▪ Final Procurement Plan and Implementation Approach Draft ▪ Five site-specific reports for new generation grid connections 	<ul style="list-style-type: none"> ▪ Complete standard form Solar PV PPA
Zambia	<ul style="list-style-type: none"> ▪ Multi-Year Tariff Determination Methodology 	<ul style="list-style-type: none"> ▪ Multi-Year Tariff Rules and Regulations