



USAID
FROM THE AMERICAN PEOPLE

Annual Work Plan April 2015

USAID Power Africa Transactions and Reforms Program (PATRP)
Contract: AID-623-C-14-00003

April 24, 2015

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

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Prepared for: United States Agency for International Development

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Disclaimer

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

POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP) ANNUAL WORK PLAN APRIL 2015

Introduction

As stated in Section C.1 of the PATRP contract, “The purpose of this award is to provide technical assistance, capacity building and transaction support services under the U.S. President’s Power Africa Initiative.” While the core of PATRP’s approach centers on transactions, there will also be reform tasks that will include traditional power sector reform and commercialization activities. These disparate activities must be captured in a meaningful work management system along with the specialized activities involved in supporting the Office of the Coordinator. The PATRP contract lists four overarching **Objectives**:

1. Institutional Support to the Power Africa Coordinator’s Office
2. Late Stage Transaction Support for Projects Greater than 10 MW
3. Support for Small Scale Projects, Mini Grids, and Rural Electrification
4. Regulatory and Institutional Strengthening and policy Program

This document sets forth an approach to work planning, the definition of the work breakdown structure (WBS) that will serve as the framework for organizing activities under these Objectives, using a system of **Work Orders** and an outline of the Work Order development process under PATRP.

It is our understanding that the success of Power Africa will rest largely on one key result: the total installed new power capacity. In August 2014, President Obama raised the goal of Power Africa to 30 GW¹. The Power Africa approach is to keep track of various transactions, and count them once they reach financial close, providing Power Africa made a contribution toward moving them forward. The goal in PATRP’s contract is 8 GW of new capacity to be in various stages of development by the end of the third contract year (May 15, 2017)². Of these 8 GW, at least 2,000 MW should reach financial closure, 3,000 MW should be in the late stage pipeline, with the remaining 3,000 MW should be in early-mid stage of the pipeline.

The PATRP contract’s four Objectives involve concurrent interventions at the institutional (enabling environment) and project levels. The PATRP team will work simultaneously across the various countries and projects in the pipeline. This requires iterative approaches that advance both fronts in parallel. Financial closure is as much related to negotiating commercial agreements as it is to enhancing institutional capacity to induce risk-mitigating changes in the overall sector. The latter mobilizes the private sector and accelerates commercial arrangements to financial closure. This involves inter-related technical assistance and transaction advisory services.

¹ Units of power: 1 gigawatt (GW) = 1,000 megawatts (MW) = 1 million kilowatts (kW)

² section 1.3 page 12 of Technical Approach, which referenced by the first statement in italics in Section C of the PATRP contract on page 8 of 87

The work performed by the PATRP team will differ depending on each country's stage of institutional reform. Thus, we plan an overarching approach that provides a consistent methodology framework under a common philosophy, while remaining flexible to adapt to country circumstances and stage of the project cycle. The process identifies the necessary steps to go from transaction identification through closure, including the elimination of impediments. This will be applied dynamically and will be adapted to the unique needs of each situation.

Under the direction of the USAID PATA Coordinator's offices in Pretoria and Washington, and under the guidance of the relevant USAID Missions in Africa, the PATRP team of Key Personnel in Pretoria, Country Transaction Advisors (CTA) in various countries across Africa, and home office support staff will work together to develop activities. Activities under our work plan will position the PATRP team to build stakeholder consensus on both the project and public institution levels so transaction risk can be brought to bankable levels.

All activities will be carried out under **Work Orders**. Each Work Order will be agreed with the USAID COR. Each Work Order will have a scope of work, staffing plan and budget. Monitoring mechanisms ensure the team stays abreast of changing conditions, with timely information, to adapt activities. Key framework elements also help us set realistic milestones and quantify performance against objectives. As such, we can replicate successes and apply lessons learned to new activities, again under Work Orders.

Program Goals (Deliverables)

As stated in section F.3 of the PATRP contract, PATRP will directly contribute to the Power Africa Initiative by:

- Financial close of 2,000 MW by end of three year base period May 15, 2017
- Leveraging³ investment of at least \$2.5 billion in public and private funds for power sector projects by end of three year base period May 15, 2017
- Facilitating at least 500,000 household and commercial connections

The USAID Power Africa qualitative objectives⁴ are to:

- Improve the enabling policy environment, as well as the legal and regulatory framework for the energy sector;
- Foster improved legal and regulatory frameworks for natural gas in at least two countries;
- Improve the quality of electrical distribution and transmission services;
- Improve the financial performance of participating countries' electricity sectors;
- Improve the use of data and analytical tools for decision-making, particularly in the energy sector;
- Improve energy sector planning, including integrated resources planning;
- Enhance country capacity for low-emission, long-term planning;
- Increase the use of clean and renewable energy;
- Reduce GHG intensity of energy supply and long-term GHG emissions trajectories;

³ Power Africa is not a funding source, so the term "leveraging" requires definition of how it will be determined. We anticipate that it will be closely related to the activity of Power Africa Partners.

⁴ Some of these call for qualitative or subjective judgments

- Ensure energy resources are responsive to the needs of end-users including both larger consumers and the cross-section of communities and populations;

Conceptual Approach to Meeting Objectives

PATRP is organized into four major components, called Objectives, each with unique characteristics and each requiring a different mix of skills and resources:

Objective 1: Institutional Support to the Office of the Coordinator

This includes a broad range of outsourcing, back-office and administrative support, and the provision of other resources as well as the performance of other tasks that may be requested by the Office of the Power Africa and Trade Africa (PATA) Coordinator. This includes a broad range of tasks and activities, including recruiting and outsourcing staff required by USAID, providing specialized staff for budgeting, program analysis, communications and writing, providing office space, meeting support (logistics, set up, etc.) and conference planning and logistics, among others. These activities will include many tasks that will be defined as the work of the Coordinator's Office evolves and as needed to support the program. Responsibility will reside with the Project Office in Pretoria, but the PATA Office in Washington also requires support.

Objective 2: Late Stage Transaction Support

This objective has two main components: 1) the development of a pipeline of power generation projects from the concept phase up through late stage transactions, and 2) transaction project support to bring late-stage power generation, transmission and distribution projects to financial closure.

This objective seeks to shift the typical development paradigm to a transaction-centered approach that provides host-country governments in the Power Africa focus countries, the private sector, and donors with a focal point to galvanize collaboration around priority electricity generation, transmission and distribution transactions, with a focus on those that involve private sector participation⁵ and finance, helping to bring them to a close and on-line in an expedited time frame. In the process, PATRP must simultaneously help governments to drive systemic changes and fundamental reforms in the power sector that will facilitate even greater private sector involvement and investment over the long term.

The required interventions will be most effective if associated with a specific transaction around a defined project. As such, efforts to affect the enabling environment will gain context, be associated with project milestones, and gain momentum in view of the tangible project outputs envisaged. Much of our advisory role will focus on the government as a means of leveling the playing field with well-informed and well-funded developers, which is welcome by all parties, as it informs the government and allows for advancing the project.

Our work in this objective will be led by a Country Transaction Advisor for each country who will be responsible for leading the technical work and serving as PATRP's country manager. Transaction Advisors will operate under the guidance of our Senior Transaction Advisor, based in Pretoria.

⁵ As stated in the page 15 of the PATRP contract, USAID will endeavor to supporting open, transparent and, to the extent feasible, competitive transaction processes. While Power Africa primary objective is to advance private sector participation and investment in the power sector, public sector projects may also be considered for Power Africa support if they have a strong development impact and/or if they contribute to the sector's development thereby paving the way for greater private engagement in the future.

Objective 3: Support for Small-Scale Projects, Mini-Grids, and Rural Electrification

Small-scale power projects in SSA face many barriers in the eyes of traditional lenders, not the least of which are high project transaction costs and the lack of creditworthy off-takers. Because of the high transaction costs, development finance institutions (DFIs) and international banks often deem smaller projects ineligible for funding. There are also challenges associated with obtaining local debt finance for smaller projects. Meanwhile, the low probability of success of early-stage small-scale projects also causes many financiers to wait to commit their capital until projects are better defined, limiting the availability of early-stage financing (equity, in particular). Project developers may also lack the business skills to demonstrate the feasibility of their projects to financial institutions and adequate financial resources needed to close technical gaps, negotiate PPAs, and acquire legal services. At the same time, financial institutions lack access to projects and the specialized knowledge required to confidently invest in clean energy.

PATRP will emphasize support, where appropriate, to existing Rural Electrification Agencies (REA) to improve planning and to facilitate medium and low voltage grid extension, as well as updates, upgrades, and new installations of mini-grids and isolated systems. Key factors in achieving a high level of access to electricity are the adoption of a national strategy followed by the development of a detailed and realistic plan to increase access, and the systematic execution of that plan with a clear identification of the required funding sources. Our intention is to assist governments in the development and execution of access plans and strategies, with a flexible approach that will vary by country.

Objective 4: Regulatory and Institutional Strengthening and Policy

Here our work will go beyond a transactions focus and help governments address other issues. As per the PATRP contract, Objective 4 is broken down into four sub-objectives. We anticipate policy and regulatory issues to be identified by USAID Missions (or PATRP CTA's) and these will lead to Work Orders. Once approved, these in-country initiatives will be organized under the leadership of PATRP's Country Transaction Advisor with the expertise provided, as appropriate, from short-term advisors drawn from the cadre of experts available under PATRP.

- 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**

Work Order Structure

All activities under PATRP will be classified under unique Work Orders that define a unique set of activities with a common theme and producing clear results (deliverables). A work breakdown structure (WBS) is a conceptual (and real) framework that shows the links and relationships between and among Work Orders.

Ultimately, the sum of all Work Orders will represent the Work Plan. The sum of all Work Order budgets will equal total resources committed under PATRP. This will enable the PATRP team to link deliverables to objectives and to specific Work Orders. Similarly, it will enable us to evaluate the amount of resources committed to Objectives, Sub-Objectives and Deliverables.

The general taxonomy of Work Orders will follow the following work breakdown structure (WBS):

- Project Office (Pretoria, Washington DC)
 - Mobilization
 - Project Management
 - Key Personnel(COP, DCOP, Sr. Transaction Advisor, Small Scale Renewable)
 - Communications
 - Program Office Support Team
 - Support to the Coordinator’s Office
 - Africa Country Diagnostic
 - Private Sector Relationship Management
 - Logistical Support
 - Special studies to be defined
- Geographical Unit (Country, Region, etc.)
 - Country Transaction Advisor
 - Regional Transaction Advisor
 - Technical Advisors (long-term)
 - Transaction Support
 - Policy Support
 - Logistical Support

Coding Structure

The coding structure is based partly on geography, i.e. the basic building block is the country. This has been expanded to include regions and power pools as well as certain special issues such as geothermal.

The general coding structure is an seven-digit alphanumeric code, as follows:

xxx-AA-yy

The first three numeric digits xxx are the sequential work order number of PATRP overall, indicating the order in which a WO was established.

The next two alphabetic characters indicate a business unit—mostly countries—such as the following:

ET: Ethiopia
 KE: Kenya
 TZ: Tanzania
 NI: Nigeria
 GH: Ghana
 LI: Liberia
 ZA: South Africa
 EA: East Africa
 WA: West Africa
 US: Washington DC USA

yy: The last two digits are sequential in the order in which a Work Order is established for that country or region.

In addition, each Work Order is assigned to fit under one of the four Objectives, though such designation is not included in the Work Order number itself.

Work Order Methodology

The above is a representative listing of the WBS, which will continue to evolve as the project progresses. The Work Order Methodology will be implemented using a five-step process:

1. Define a Work Order scope of work, including a concise definition of the purpose and the expected results
2. Identify the USAID Activity Manager and the PATRP Counterpart
3. Develop a budget and schedule (including key milestones) based on the TLA
4. Submit the Work Order Package for review and approval

The Work Order will be assigned a unique number (as above) and, once it is approved by the USAID COR, it will be entered into the Work Order Tracker and project accounting systems to enable progress monitoring and expenditure monitoring.

The first step is to identify specific work packages that have a scope of work. Budgets are developed on a “Rough Order-of-Magnitude” (ROM) basis to enable PATRP to track the amount of the project’s budget that has been committed to all approved and proposed Work Orders. PATRP has developed a standard template to help formulate ROM estimates.

The goal is to establish Work Orders based on the consultative processes of Power Africa, such as the USAID Budget Working Group (BWG) or the inter-agency Power Africa Working Group (PAWG). On an ongoing basis, PATRP may be requested to provide technical advisory support, based on BWG or PAWG requirements. Country visits by PATRP Key Personnel from Pretoria to discuss each Mission’s ongoing power sector projects under Power Africa are expected to contribute to this process.

Approved Work Orders will be organized by Work Order number and filed sequentially as an integral part of the Work Plan. The Work Plan is a “living document” with new Work Orders being added as approved, using a “ring binder notebook” concept.

PATRP’s ACOP/Operations Manager shall be responsible for developing and/or obtaining the necessary details to complete all Work Orders and maintaining the Work Plan.

The Annex that follows provides:

- 1) the Summary of all Work Orders and budgets, sorted by Objective;
- 2) the Summary of all Work Orders and budgets, sorted by Work Order sequential work order number of PATRP overall;
- 3) the Scopes of Work for each Work Order, in sequence by work order number.

**POWER AFRICA
TRANSACTIONS AND REFORMS PROGRAM (PATRP)
ANNUAL WORK PLAN
APRIL 2015**

ANNEX

WORK ORDERS

Work Order List	
WO (sheet name)	Work Order Description
WO-000-ZA-00	Objective 1 - Support to PATA Coordinators Office (Pretoria)
WO-001-US-01	Communications Support - Washington
WO-002-EA-01	Geothermal Roadshow
WO-003-US-02	Partner Relationship Management - Washington
WO-004-ZA-01	Africa Country Diagnostic
WO-005-EA-02	Djibouti Workshop and Assessment
WO-006-EA-03	Geothermal Strategy
WO-007-EA-04	EAPP Advisor Part 1
WO-008-WA-01	Scoping Mission to West Africa on Placement of Regional Transaction Advisor
WO-009-GH-05	Ghana PSP Study Tour
WO-010-EA-05	Eastern Africa Regional Geothermal Advisor
WO-011-KE-06	Dandora Waste to Energy Pre Feasibility Study
WO-012-LI-01	Sr. Local Energy Advisor - Liberia
WO-013-LI-02	LEC Loss Reduction Program
WO-014-WA-02	West Africa Regional Transaction Advisor
WO-015-EA-06	East Africa Regional Transaction Advisor
WO-016-ZA-02	BWG and PATRP Planning Sessions
WO-017-US-03	Policy Support - Washington
WO-018-ZA-03	Support to Africa Power Vision - NEPAD
WO-019-GH-02	Gas Sector Transaction Advisor
WO-020-ZA-04	Advancing Gender Equality in Power Africa
WO-021-NI-03	Nigeria Local Professionals at Ministry and NBET
WO-022-GH-06	Ghana TA to MOPET
WO-023-GH-07	Ghana TA to ECG
WO-024-ZA-05	GIS- Based Africa Generation & Transmission Mapping
WO-025-ET-01	Country Transaction Advisor - Ethiopia
WO-026-GH-01	Country Transaction Advisor - Ghana
WO-027-KE-02	Country Transaction Advisor - Kenya
WO-028-NI-02	Technical Advisor to TCN - Nigeria
WO-029-KE-01	Senior Local Energy Advisor - Kenya
WO-030-TZ-02	Technical Advisor to REA - Tanzania
WO-031-NI-01	Country Transaction Advisor - Nigeria
WO-032-EA-07	Country Transaction Advisor - Djibouti
WO-033-EA-07	EAPP Advisory Part 2
WO-034-US-00	Objective 1 - Support to PATA Coordinators Office (Washington)
WO-035-NI-04	Nigeria TA to NBET and TCN
WO-036-US-04	Attendance at Power Africa Summit Washington
WO-037-US-05	Beyond the Grid, Support to Coordinators' Office
WO-038-ET-02	Ethiopia Scoping Mission
WO-039-KE-07	JDA for GDC Kenya
WO-040-EA-08	Assistance to EAPP-IRB
WO-041-WA-03	Senegal Grid Management Scoping Study
WO-042-ET-03	Ethiopia Corbetti Support
WO-043-ET-04	Ethiopia Grid Management Support
WO-0XX-TZ-01	Country Transaction Advisor Tanzania (TBD)
WO-0XX-TZ-03	Support to the Transmission System Operator (Tanzania)
WO-0XX-LI-03	Country Transaction Advisor - Liberia
No Worksheet; From Proposal	Grant Fund (including Tt indirect cost)
No Worksheet; From Proposal	Environment Mitigation Costs (including Tt indirect cost)
No Worksheet; From Proposal	Other US Small Business Commitment (including Tt indirect cost)

Work Order List	
WO (sheet name) ▼	Work Order Description ▼
Cost estimate, no details yet	SSRE Project Development
Cost estimate, no details yet	SSRE Access to Finance
Cost estimate, no details yet	SSRE Enabling Environment
Cost estimate, no details yet	Senegal Grid Management Study
Cost estimate, no details yet	Kenya Grid Management Follow-on
Cost estimate, no details yet	Ethiopia STTA for Renewable Generation Capacity Addition
Cost estimate, no details yet	Kenya STTA to Ken Gen for Olkaria I - EPC tender
Cost estimate, no details yet	Kenya STTA to Ken Gen for Olkaria VI - greenfield project mgmt
Cost estimate, no details yet	Support to West Africa Power Pool
Cost estimate, no details yet	Djibouti STTA support
Cost estimate, no details yet	Ethiopia STTA to support Corbetti
Cost estimate, no details yet	Kenya Community Engagement
Cost estimate, no details yet	STTA on environmental and social
Cost estimate, no details yet	Washington Support to USAID in RRB/classified
Cost estimate, no details yet	Country Transaction Advisor 1 - new country (est. start 8/15/15)
Cost estimate, no details yet	Country Transaction Advisor 2 - new country (est. start 8/15/15)
Cost estimate, no details yet	Country Transaction Advisor 3 - new country (est. start 9/15/15)
Cost estimate, no details yet	Country Transaction Advisor 4 - new country (est. start 9/15/15)
Cost estimate, no details yet	Country Transaction Advisor 4 - new country (est. start 9/15/15)
Cost estimate, no details yet	Country Transaction Advisor 4 - new country (est. start 10/15/15)
Cost estimate, no details yet	Country Transaction Advisor 7 - new country (est. start 10/15/15)
Cost estimate, no details yet	Country Transaction Advisor 8 - new country (est. start 10/15/15)
Cost estimate, no details yet	Country Transaction Advisor 9 - new country (est. start 11/15/15)
Cost estimate, no details yet	Country Transaction Advisor 10 - new country (est. start 11/15/15)
Cost estimate, no details yet	Other Year 2 & Year 3 Activity To Be Determined

WO-000-ZA-00
SOW – Institutional Support to Power Africa Coordinator’s Office
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

OBJECTIVE 1: Institutional Support to Power Africa Coordinator’s Office

The aim of this objective is to provide the Power Africa Coordinator’s Office and USAID Missions implementing Power Africa programs with a team of professionals for broad technical, logistical, and administrative support necessary to assist the Coordinator in tracking, managing, implementing, and publicizing the Power Africa Initiative. It is important to note that the Coordinator’s Office not only serves USAID, but is also responsible for overseeing the contributions of the other USG Agencies to the Initiative. The Contractor must advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions by hiring transaction advisors.

Illustrative interventions may include the following:

- Assist the Coordinator’s Office in tracking the activities of, and coordinating with, Power Africa implementers and stakeholders including other USG agencies engaged in the Initiative, host country governments, non-governmental organizations, international development partners, MDBs and regional institutions (including without limitation the Economic Community of West African States (ECOWAS), East Africa Commission (EAC), the Southern African Development Community (SADC), African Union Commission (AUC), West, East and Southern Power Pools (WAPP, EAPP and SAPP), the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE), EAC Renewable Energy and Energy Efficiency (EACREEE) among many others, and the private sector.
- Track energy activities of other bilateral and multilateral donors and non-government organizations to enable Power Africa to leverage other resources in furtherance of Power Africa goals
- Track energy and power sector trends and developments in focus countries, synthesize and analyzed key power sector and energy issues at the national and regional levels, including those relating to energy access and gender
- Organize and provide logistical support for USAID or Initiative meetings, conferences and training programs for implementing partners, regional government officials, and other African partner organizations, the private sector, local communities, and international, multi-donor, multi-agency conferences. This will include securing sites; planning and implementing logistics in support of meetings/conferences; preparing supporting materials and documentation for meetings/conferences; taking and distributing notes of meetings/conferences; and, assisting in the preparation of background materials for visiting officials.
- Coordinate with other USAID bilateral and regional implementing partners.
- Coordinate efforts with other Power Africa implementing mechanisms – including both planned USAID implementing mechanisms under development such as planned instruments to support the development of energy sector Delivery Units in select priority Power Africa countries and an Advisors’ Group support program, and planned USAID assistance to the African Legal Support Facility (ALSF), other USG Power Africa Agency efforts such as the OPIC-USTDA U.S.-Africa Clean Energy Finance Initiative (ACEF) activity and USAID Off Grid Challenge still under development.

- Provide communications and outreach support for the initiative directed at the American public, U.S. Congress, African partners (including advocacy groups), U.S. implementers, international donors and other stakeholders such as USG agencies, the USAID Africa Bureau, and USAID regional and bilateral missions participating in the Initiative. These efforts will include organizing webinars, managing an interactive website among others platforms for feedback from stakeholders during implementation of the Initiative (blogs, chats etc.), producing publications and periodic and regularly scheduled reports, PowerPoint presentations, weekly notes, briefers and success stories, magazine articles, and promotional and other materials highlighting the results of the initiative.
- Form partnerships with industry and relevant institutions to provide avenues for the transfer of lessons learned, best practices and scientific and technological information that will accelerate successful implementation and positive outcomes of the Initiative
- Provide technical and advisory services to support Power Africa project implementation, monitoring and evaluation. These efforts will include gathering information and evaluating projects for the USG PAWG.
- Track and monitor Power Africa targets, goals and objectives and government and private sector progress towards Power Africa commitments, conducting quantitative and qualitative evaluation studies and assessments (establishing baselines, mid-term and end of project) with a focus on lessons learned as to which interventions work and which do not.
- Convene relevant private sector partners to gather information regarding obstacles to power projects in SSA and to ground-truth reform work and technical assistance to host-country institutions.

KEY PERSONNEL

The key personnel proposed by the contractor are considered to be essential to the work being performed. Unless otherwise agreed to by the Contracting Officer, the contractor must be responsible for providing such personnel for performance of this contract. Replacement of key personnel cannot be made by the contractor without the written consent of the contracting officer. The listing of key personnel may, with the consent of the contracting parties, be modified from time to time during the course of the contract to add, change, or delete personnel and positions, as appropriate. The contractor must provide at a minimum the key personnel for the performance of this Contract as listed below. All key personnel must be long-term resident positions based in Pretoria, South Africa.

Chief of Party/Director

The contractor must maintain a Pretoria-based, full time COP for the term of the Contract to manage the entire Contract, and ensure that results, quality standards and schedules are met. The COP will define and manage overall contract requirements, including staffing, and cost and quality control of all tasks and assignments undertaken to achieve this contract's objectives. The COP must have the ability to speak for the contractor on all matters. This ensures that decisions can be made in a timely and efficient manner. The highly complex and demanding nature of this award necessitates that the Chief of Party (COP) must be an employee of the prime contractor and must have the following qualifications:

- A Master's Degree in business, management, economics, law, engineering, policy, or other areas relevant to the energy sector or leadership and management of complex programs.
- At least 10 years of experience in the energy sector with emphasis on most of the following areas in the developing world: power sector governance and regulation, electric utility operations, and IPP, PPP and privatization-related work. Africa experience is desirable.

- Demonstrated success in managing complex and diverse programs in similar development environments for at least seven years. This includes at least seven (7) years of experience as a COP or senior field management experience such as Project Director, Regional Director or Country Director role, demonstrating professional interaction with senior U.S. and foreign government officials
- Demonstrated capacity to build and effectively supervise a diverse team; effective organizational skills, strategy development and implementation skills; interpersonal and creative problem-solving skills along with demonstrated capacity to establish productive relationships with high-level host country officials and stakeholders.
- Fluency in spoken and written English with strong oral and written presentation skills .

His/her primary responsibilities must include:

- Serving as the main point of contact between USAID and the Contractor and reporting to both.
- Ensuring effective and efficient performance for all aspects of this contract, overseeing all quality control and reporting.
- Interacting professionally with senior Mission, Embassy, and government officials, other donors, and regional organizations.
- And serving as the senior technical advisor for the Power Africa initiative.

Deputy Chief of Party/Operations Manager (DCOP)

The Contractor must maintain a Pretoria-based, full time DCOP for the term of this contract to assist in managing the entire work under the contract, and ensure that quality standards and schedules are met. The DCOP must manage all contractual and support aspects of the contract and Contract. The DCOP must serve as the acting COP in the absence of the COP. The DCOP must have:

- A Master's Degree in business, management, economics, law, engineering, policy or other areas relevant to the energy sector or management of complex programs.
- At least 10 years of professional experience managing and implementing donor-funded projects with at least five (5) years working in the energy sector preferably with an emphasis on the following areas: power sector governance and regulation, electric utility operations, and IPP, PPP and privatization-related work). Africa experience is desirable.
- Prior experience in supervising long-term field staff and short-term U.S., third country, and local experts;
- Excellent spoken and written English with strong oral and written presentation skills.

Small Scale Renewable Project Development Advisor

The qualified candidate for the **Small Scale Renewable Project Development Advisor** position must be a senior level professional with:

- Bachelor's degree in energy-related engineering, policy, business, finance, economics or a related field, advance degree is preferred;
- At least 10 years' experience in developing and bringing to financial close small scale renewable energy projects (<10 MW in developing countries). Africa experience is desirable.
- Strong interpersonal and communication skills in English, sound project management experience, and experience working with the private sector and government institutions, businesses and regulatory agencies; and

- Experience working in the SSA energy sector with understanding of key issues and stakeholders involved in small scale renewable project development, appropriate policy and regulatory framework development and rural electrification will be an added plus.

Senior Transaction Advisor

The Senior Transaction Advisor will be expected to be based full-time in Pretoria and receive support from the Contractor's office in Pretoria and the home office. A field presence is critical to the identification and implementation of assistance and continued monitoring of project and reform implementation. The Advisor will accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries.

In addition to the key functions of the transaction advisors set out below, the Senior Transaction Advisor will have additional coordination and oversight functions. The Senior Transaction Advisor must:

- Coordinate and oversee the efforts of the transaction advisors from the other priority Power Africa countries
- Monitor the progress being made by the other transaction advisor and areas where additional support and USG engagement is needed.
- Interact with USAID and government officials to ensure that the other transaction advisors are well integrated and are meeting their established objectives and goals.
- Serve as a technical resource and Sr. advisor to other transaction advisors as well as to the Power Africa Coordinator's Office as needed.

The qualified candidate for the **Senior Transaction Advisor** position must be a senior level professional with:

- At least 10 years investment experience, including developing country work, in origination, structuring/execution and post-deal maintenance of various power sector transactions.
- Extensive experience in Power sector reform issues in the developing world is highly desirable.
- Ideal candidates should have deep experience in the relevant country/region, with a preference for diaspora hires.

USAID reserves the right to adjust the level of key personnel during the performance of this contract. The Contractor has the ultimate responsibility for managing the contract, for achieving the performance results in the activity areas, and for determining the appropriate staffing pattern in support of its technical approach. The Contractor must assemble a team with the required knowledge and experience in the components discussed above.

Minimum Requirements:

In addition, the Contractor must hire and manage Transaction Advisors that must advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions. One advisor must be placed on a long term resident basis in each of the Initiative priority countries, for a total of six, for at least the Base Period of the contract.

The Transaction Advisors must receive support from the Contractor's office in Pretoria and the home office. A field presence is critical to the identification and implementation of assistance and continued monitoring of project and reform implementation. Transaction advisors must accelerate project

development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Here are the key functions of a Transaction Advisor:

- a) Working with USAID to implement priority project assistance;
- b) Pipeline development for consideration by investors/lenders and the PAWG;
- c) Working with host country government to fast track project approval/implementation processes and specific projects;
- d) Monitoring and reporting on project development, assistance implementation, and reforms; and,
- e) Coordinating closely with other USG agencies and entities, such as Overseas Private Investment Corporation, Ex-Im Bank, and U.S. Trade and Development Agency, and the U.S.-African Clean Energy Development and Finance Center.

WO-001-US-01
SOW - Communications Support
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Long-Term Administrative Support for Power Africa Marketing and Communications Support
Washington, DC and Pretoria, ZA

1. BACKGROUND & INTRODUCTION

Power Africa will accelerate power generation, transmission, and expand distribution in focus countries in SSA by aligning commitments of those countries with the commitments made by private sector partners of the Initiative to increase investments in the power sector.

To support the achievement of results described later in this document, USAID will adopt the following approach:

- Transaction Focus: Power Africa will focus its efforts on an initial set of power projects and will aim to bring these projects to financial close and to construction.
- Committing to reforms: Power Africa will build upon existing reform agendas. It will include countries that have committed to or are likely to commit to key power sector reforms necessary to attract private sector investment and accelerate project development and implementation.
- Delivering Results and Effective Implementation: Power Africa will work directly with governments to help them improve their systems and capacity to deliver basic energy services
- Mobilizing Finance and the Private Sector: Power Africa, working with international partners, will address constraints to private sector participation and investment.
- Increasing Cross-Border Electricity and Energy Trade: Power Africa will work with the East and West Power Pools, among others in the region, to increase connectivity and cross-border trade in electricity to increase security of electricity supply and lower overall energy costs.

2. OBJECTIVES & TASKS

2.1 Objectives

- The Power Africa Initiative requires sustained support rolling out their marketing and communications plan, so that the Initiative can broadcast success stories to interested audiences and maintain engaged constituencies in the U.S. and across sub-Saharan Africa. As well in key partner countries in Europe given the involvement of several European governments’ aid agencies in the Power Africa Initiative.
- As a new, high-profile, whole-of-government initiative, Power Africa needs assistance maintaining a standardized, uniform brand and image to ensure consistency in outreach by all participating USG agencies.
- The Initiative seeks to engage constituencies in targeted sub Saharan African countries as well as in the U.S. beyond its initial announcement and start-up, including: host country governments, donor agencies, power project developers, citizens in Power Africa countries, private sector companies, entrepreneurs, USG partner agencies, universities, among others.
- As such, the Power Africa Initiative requests marketing and communications support, in terms of production, design, content development, and preparation of printed and electronic materials (fact sheets, brochures, newsletters), media monitoring, and distribution list organization. It is also imperative that Tetratex provide resources for having some of these materials translated into local languages.
- Help arrange for public outreach activities in the Power Africa partner countries.

2.2 Tasks

Illustrative tasks for this work order are the following:

- Help implement PA marketing and communications initiatives by working with the USAID Communications Team and Power Africa Coordinator's office to understand priorities, put in place schedules, and prioritize key deliverables and events, etc.
- Update and/or refine the Power Africa brand and logo, as directed by the client
- Execute research and content development projects to inform the communications pieces, including: interviewing subject matter experts; executing online surveys; supporting energy-related events and panels; collaborating with peer institutions; researching technical issues related to electricity access, electricity enabling environment issues, and other topics related to power project development
- Support the Power Africa team to produce conference materials, create schedules, oversee logistics, and provide on-site support for the Power Africa presence at external events and conferences
- Coordinate with the Power Africa field team, the communications team for Power Africa based in Washington, , host government counterparts, USG partner agencies, private sector partners, and other stakeholders to generate content for the communications and marketing pieces
- Support development of printed and electronic collateral marketing and communications materials for the Power Africa Initiative including: quarterly newsletters , fact sheets, brochures, and other marketing materials
- Support development of distribution lists for Power Africa materials, as requested.
- Monitor Africa-based print media, articles, and other press activity related to the Initiative, priority transactions, and other energy-related events across AfricaDraft and circulate analyses of the media and press activity related to the Power Africa Initiative for both internal and external consumption
- Draft monthly VIP Stakeholder Updates to inform Power Africa country stakeholders of relevant transaction closings, policy changes, and media activities in peer countries
- Provide assistance to the Power Africa Annual Report team to develop content, query the Power Africa private sector stakeholders on initial commitments, and aggregate relevant data, as needed
- Update and maintain the USAID Power Africa website.

3. DELIVERABLES

The consultant team will provide the following deliverables under this Scope of Work:

- Printed collateral (fact sheets, briefing papers, branding support, brochures, dashboards, etc.)
- Updated Power Africa branding materials and logo
- Help draft Talking Points and speeches and policy papers as needed
- Collecting high resolution photos from Power Africa field projects and activities, conducting interviews, gathering evidence to support Power Africa goals and objectives
- Two to three Quarterly Newsletters (March, June, and August)
- Dedicated conference marketing materials and schedules
- Biweekly press clippings and associated media analyses of the Power Africa Initiative and its priority transactions
- VIP Stakeholder Monthly updates on priority news and updates from the Power Africa countries

- Aggregated responses and drafted content from a survey of Power Africa’s private sector partners for the Power Africa Annual Report

4. STRUCTURE

4.1 Personnel Requirements

All work products will be supervised by the PATRP Chief of Party, Deputy Chief of Party, or Senior VP. It is anticipated that consultants working under this scope will have communications, marketing, and content development expertise as well as experience working in Africa. The majority of this work will be completed in the U.S., with an Africa-based consultant available for field interviews, content development, local media monitoring, and direct communication with the PA Coordinator’s office.

WO-002-EA-01
SOW - Short Term Technical Assistance to Develop Promotional Materials for the Power Africa
Geothermal Road Show
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

INTRODUCTION

The Power Africa Geothermal Roadshow will be a targeted tour of US cities and major events that will serve to showcase opportunities for US geothermal developers in East Africa. The delegation will be led by the Power Africa Coordinator and will comprise government representatives and private sector developers from Djibouti, Ethiopia, Kenya, Rwanda and Tanzania. The goal of the Roadshow is to create interest among US companies to invest up to \$1 billion in East Africa geothermal over the next three years, and to do so by increasing their understanding of opportunities available and East African market environments, including legal, policy, regulatory and financial constraints unique to each country.

Every government representative in the delegation will articulate what incentives they have in place, as well those planned to attract accelerated investment. In addition, delegates will explain the procurement process in their respective countries. Private companies that have experience with IPP investment in the region will be part of the delegation to showcase their success in the East Africa and share ideas on strategies to navigate some of the perceived barriers in the region to enhance confidence among the targeted US developers. Power Africa will support local geothermal developers and government delegates from East Africa to prepare presentations and communication materials that resonate well with US developers.

1. OBJECTIVE AND TASK(S)

To support the preparation of effective promotional materials for the Power Africa Geothermal Roadshow, the US-East Africa Geothermal Partnership (EAGP) proposes to engage a Consultant to conduct in-country meetings in **Djibouti, Rwanda, Tanzania, and Ethiopia** with the East African public entities and private companies nominated to participate in the Roadshow. The purpose of these meetings will be to discuss project-specific information and information regarding each country’s geothermal market environment and how to present that material to US developers and investors while on the Roadshow.

Note: EAGP’s resident advisor, Mike Long, to the Geothermal Development Company (GDC) may be made available to draft geothermal promotional materials for Kenya and advise Kenyan delegates for the Roadshow under a separate scope of work.

Task 1: Meet with Power Africa Geothermal Roadshow Delegate Organizations to Develop Promotional Materials

The Consultant will travel to Rwanda, Tanzania, Ethiopia and Djibouti to meet with key representatives (and confirmed delegates if possible) of the organizations that have been nominated to participate in

the Power Africa Roadshow to prepare promotional materials and talking points for meetings with US developers.

The primary goal of these meetings will be to collect project-specific information and country-scale information on geothermal opportunities for the private sector in order to draft promotional materials for the Roadshow that will target US developers. The Consultant will work with the participant organizations to:

- Determine what opportunities they would like to highlight for developers;
- Identify legal, regulatory, financial and procurement-related information that should accompany promotional information about investment opportunities; and
- Collect resource information for the highlighted projects that will be necessary to engage developers.

If delegates have been nominated by time of the consultant's arrival in East Africa, the Consultant shall also arrange meetings to advise the delegates on the following:

- Preparation of essential talking points for use in business meetings with US developers and goods and services companies;
- Key points of interest for the private sector that should be discussed in any presentations made at international speaker sessions at the GEA Expo or GRC Annual Meeting;
- Informal Roadshow Orientation – The Consultant shall explain what delegates should expect at the GEA Expo and the GRC Annual Meeting, individual meetings with US industry representatives, and discuss any proposed site visits.

If delegates have not yet been confirmed from a particular organization, the Consultant may be made available to assist the appropriate USAID Missions to identify a nominee(s) to participate in the Roadshow.

Following in-country meetings, the Consultant will assemble draft promotional materials as detailed below.

2. DELIVERABLES

The Consultant will produce the following documents as deliverables from the in-country meetings held with representatives from Tanzanian, Ethiopian, Rwandan, and Djiboutian geothermal entities:

1. Trip report on findings and outcomes, including minutes from all meetings attended;
2. List with contact information of all contacts made and met with;
3. Draft documents containing promotional text geared toward US developer and investor interests, to cover the following:

- i. Tanzania country-level geothermal market information and/or project-specific information and opportunities
- ii. Rwanda country-level geothermal market information and project-specific information and/or opportunities
- iii. Ethiopia country-level geothermal market information and project-specific information and opportunities
- iv. Djibouti country-level geothermal market information and project-specific information and/or opportunities*

3. Targeted Cities:

Portland, Oregon (3 full days): The GEA Geothermal Energy Expo and GRC Annual Meeting (see brochure attached) with side events organized to highlight the East African delegation and a section of expo booths to showcase opportunities in each of the East African countries. EAGP will also reserve a side meeting room for meetings between members of US industry and EA representatives, and for potential briefings or side discussions on key transaction issues – e.g. procurement, concession regulations, PPP structures, specific projects etc. There will also be an International Luncheon during the event, organized by the State Department, which should include a speaker to represent the Roadshow delegation if possible.

Reno, Nevada (1.5 days): Site visit to a Geothermal Binary Plant and meetings with geothermal developers based in Reno, NV and the surrounding area, such as ElectraTherm, Enel, GDA, Gradient, Ormat, Terra-Gen and Ram Power.

Washington-DC (1.5 days): Meetings with OPIC, EXIM and USTDA on USG financing under Power Africa. (Understanding the \$7 billion Power Africa myth).

Note: There are possibility of the delegates meeting with Governors, Mayors during the city tours as well as members of US Congress and Senate in the cities or in Washington. This is in planning stages and yet to be confirmed on case-by-case basis.

4. Potential Sponsored Delegate:

The following are the potential delegates to be sponsored but the respective Missions of the target countries have the final say on which institutions will participate:

Kenya (3)

- Geothermal Development Company (GDC)
- Kenya Energy Generating Company (KENGEN)

- Ministry of Finance-PPP Unit

Ethiopia (2)

- Ethiopian Electricity Power (EEP)
- Ministry of Finance

Djibouti (3)

- Ministry of Finance
- Geothermal Development Agency (ODEGG)
- Djibouti Electric Company (EDD)

Rwanda (2)

- Ministry of Finance
- Electricity Water and Sanitation Authority (EWASA)

Tanzania (2)

- Ministry of Energy and Minerals
- Ministry of Finance

Potential Un-sponsored Delegates from:

Kenya

- Investment Promotion Services (AKFED)
- Ormat Kenya Limited
- Africa Geothermal International Limited (AGIL)
- Akiira Geothermal Company

Tanzania

- Geothermal Power Tanzania

Uganda

- Katwe Geothermal Power Project Limited (KGPPL)
- Pawakom International, LTD
- AAE Systems
- Clean Source Energy Partners

Ethiopia

- Private companies such as Orchid Business Group

Djibouti

- Merrick and Company

WO-003-US-02
SOW - Private Sector Relationship Management
USAID/ Power Africa Transactions and Reforms Program ("PATRP")
(AID-623-C-14-00003)

1. BACKGROUND & INTRODUCTION

This SOW is for management of the relationships with private sector entities with which Power Africa is involved. The initiative was founded using a private sector oriented-approach, as mobilization of private capital has been recognized as critical to achieving development goals and is a new model for development, in particular within USAID. At the launch of Power Africa, companies committed over \$9 billion toward transactions that would help achieve Power Africa's goals. With the launch of Beyond the Grid and in the lead up to the ALS, additional partners are being brought on as well. PCGA has handled these relationships to date, but there is not yet an overarching strategy for engagement with partners and Power Africa needs to more explicitly define what being a partner entails.

One of the key reasons Power Africa has been successful to date is that it listens to the private sector. Numerous forums are held, discussions are convened and venues are organized with the intention of hearing from partners as to what constraints they face and how they think the USG could address those constraints. Power Africa has listened and adjusted, and received praise for its ability to adapt. Thus, becoming an official partner gives a company access to Power Africa decision makers to provide feedback on what's working, what's not and what the private sector's perspective is. It also provides great exposure for the company. A number of partners have presented to the interagency during the biweekly meetings. This allows the company access to all 12 USG agencies in one meeting to discuss projects and investments in a comprehensive way. Additionally, USAID has transaction advisors on the ground and regularly makes connections with those individuals. Furthermore, Power Africa intends to expand its services and offer platforms for matchmaking among companies which would be available to partners who are interested. Some companies appreciate that when the US Government is willing to partner with them, it enhances their reputation as a sound company worth partnering with. This can be important to investors and developers who aren't familiar enough with doing business in sub-Saharan Africa to feel comfortable partnering easily.

As a means for welcoming new companies into the initiative, Power Africa established a general email address to receive all public inquiries directed at the initiative. This is a critical function for the initiative to be responsive to the general public and, more importantly, serves as a venue by which companies can inquire about partnering with Power Africa. The email receives inquiries from: GDA concept note applicants, companies interested in partnering, companies seeking information, individuals seeking employment, NGO's and others seeking funding, and other interested parties. Companies include developers, financiers, equipment providers, small-scale product developers, consultants, engineers, utilities, and others. Responses are provided to all emails based on various templates and the latest information and opportunities available. See Attachment 2 for template information.

This workstream includes handling general partnerships with new and existing partner companies, fostering those ongoing relationships, providing enhanced meaning and substance to the benefits of being a Power Africa partner and long-term management of the Power Africa general inquiry system

2. OBJECTIVES & TASKS

This work order will assist in fulfilling Power Africa's objectives of increasing MW generation and electricity access, as private investment is essential to achieving financial close on transactions. It involves thinking through the broader topic of Power Africa's private sector engagement in general, and then the pieces which involve official partners, interested companies, responsiveness to the public, interagency interests, and other stakeholder involvement.

The work will take place primarily in Washington, but will also require field staff to mobilize engagement in-country.

This work will be ongoing throughout the life of the initiative, though it will evolve as needed.

Task 1 – Customer Relationship Management for Power Africa Partners– Given that partnership is an integral component of the initiative, USAID has developed a document entitled “Partnering with Power Africa” to address benefits, expectations, and limitations of partnership. This document seeks to define partnership with Power Africa, and will guide Task 1. As the number of private sector commitments continues to increase, TetraTech in close coordination with USAID will develop a plan for private sector relationship management. This includes outlining a process for ongoing engagement with existing official partners, including potential areas like tiered membership, periodic updates on transactions, participation in Power Africa and industry events, and monitoring of transaction support provided by the initiative. This also includes building out a robust CRM system to track details on each partner and their progress towards commitments. In addition to a draft process for existing partners, TetraTech will advise on the articulation of a clear strategy for solicitation of new partners and support the preparation of due diligence for these partners. As requested, TetraTech will meet with these partners or facilitate events featuring these partners.

Task 2 – Enhanced Private Sector Services - This task is directly related to Task 1, in that those who may not be considered as official partners, may still want to engage with Power Africa in a meaningful way. Therefore, TetraTech will explore the best platform for and establish a system through which the Power Africa agencies can support a greater variety of entities involved in the power sector. This could include development of a platform or webpage on which companies could exchange public information on their activities which will be accessible to developers/investors involved in Power Africa transactions. This could also include convening these groups in a trade association model.

Task 3 – Email Address - Power Africa currently manages inquiries via its mailbox, powerafrica@usaid.gov. With supervision from USAID, Tetratech will co-manage the Power Africa inbox, responding directly to inquiries for public information on Power Africa, its focus countries, activities, etc. TetraTech, through its transaction advisors in the field, should also be able to route inquiries direct to USAID missions. Those inquiries that are related to USAID internal matters like employment, procurement, etc will be routed directly to USAID/W or mission PoC.

Task 4 – Inquiry Tracker - Though most inquiries come through the main mailbox, many come directly through personal email contact. In order to maintain an official record of all inquiries, each communication and response is required to be logged into a tracker. TetraTech will manage this tracking system that maintains a record of the conversations with various companies. The spreadsheet is currently housed on USAID Google Drive and contains basic information on the company or entity, including headquarters,

sector or sub sector focus, interest in Power Africa countries, and the text of the inquiry. The document should be sortable, user-friendly, and attempt to capture field conversations and be presentable to entities such as the interagency or Power Africa field staff.

3. DELIVERABLES

- Mock up of partner slide/template, which will later be run as a report from the Salesforce platform. See attached template for fields to be included on mock up.
- Build Salesforce platform for partner relationship management and private sector inquiries. Attached template shows fields needed.
- Hire/designate associate who can work as both the database manager (helping to build database, input private sector inquiries, run reports, etc.), inquiry manager (fielding initial inquiries, sending form emails, etc.)
- Hire/designate more senior-level person that can field calls with interested private sector and has the background to ask the screening/vetting questions and pass on to appropriate USG contacts; this person would also be responsible for coordinating due diligence work (not necessarily writing memos, but reviewing to ensure that all significant issues are appropriately addressed and providing partnership recommendation for USAID).
- Develop broader services plan for partners and private sector, and implement portions of plan. Example of services to private sector partners could include (but not limited to) the following:
 - Email blasts with Power Africa news
 - Communications of events
 - Newsletter
 - Development of platform/webpage for exchange of information
 - In-country networks, potentially leveraging existing networks
 - Events/stakeholder meetings

WO-004-ZA-01
SOW - Africa Country Diagnostic
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

1 Desktop Study

The desktop study will comprise of research of the latest published information on the power sector, market and regulatory framework for the Sub-Saharan Africa region. Research will include the following data on the countries:

1.1 Demographics, including:

- GDP/Capita;
- GDP Real Growth Rate;
- Public Debt;
- Industries; and
- Imports and Exports
- Energy – Electricity: installed generation capacity; Oil production etc.; Refined Petroleum production etc.; Natural Gas production etc. and; CO2 emissions from energy consumption.

1.2 Energy Governance Factors:

Security of supply:

- Ownership diversity – State, State-owned entity and private sector;
- Supply option flexibility – competition, IPP’s etc.;
- Fuel diversity – natural gas, bio-fuels etc.;
- Network quality – transmission, distribution etc.; and
- Capacity Concerns

Energy Sources:

- Access levels;
- Industry Structure/Framework;
- Degree of independence; and
- Energy Mix – Renewable Energy

Pricing:

- Competitive procurement;
- Tariff Structures - clear subsidy framework; and
- Cost recovery

Regulation:

- Planning – Integrated Energy Planning (specifically off-grid and micro-grid);
- Role of Government;
- Regulatory Framework;
- Regulatory Barriers;
- Energy Regulator;
- Effective and efficient regulation;
- Energy Policies; and
- Emergency Preparedness

Integrated Demand Management:

- Energy Efficiency programmes; and
- Demand-side management programmes

Sovereign Ratings

- Institutional and governance effectiveness (previously "political risk")
 - Economic structure and growth prospects
 - External liquidity and international investment position
 - Fiscal performance and flexibility, as well as government debt burden
 - Monetary flexibility
- BDOCS's final report will include the latest rating for each country that is part of the study.

Other:

- Information Communication Technology (ICT) – specifically mobile banking systems; and
- Existing and confirmed Power Markets and Energy Flows

2. Survey

Based on our understanding of the requirements, the desktop study should be supported by a survey to be completed by US Embassies in the countries that form part of the scope of this study. The survey will provide background to the questions that comprise the survey. Some of the high-level information on existing power markets and energy flows will be included in the background document to give context to the survey.

The following questions will form part of the survey:

- Investment Climate Issues, including details on:
 - Customs;
 - Taxation (Energy and Environmental); and
 - Legislation and Regulation
- Private Sector Presence and Interest:
 - Who is driving private investment and reform of the sector?
- Are there capacity constraints?
- Are there competing government priorities?
- How does government deal with donor community?
- Donor Mapping:
 - Is there good donor coordination in general;
 - Is there specific coordination in the energy sector (same detailed questions about off-grid and micro-grid);
 - How large and active are donors; and
 - How crowded is the donor landscape.
- There should also be some donor mapping in the energy sector, for example:
 - Which donors are active in what energy areas?
 - What opportunities are there for a PA program, and
 - What are our relationships with other donors like?
- What is the relationship between the host country and the US?
- How might this relationship progress under Power Africa?
- Has the host country actively sought to join Power Africa? And what level of interest is there?
- Would the host country be prepared to sign a MoU with commitments?

- Information about the Embassy, for example:
- What is the current level of staffing for work in the energy arena?
- What staff resources would post be willing to make available to help achieve generation and access benchmarks for their host country;
- Where does power sector reform, generation, and access stand in post' priorities; and
- What are the relationships like and opportunities available for developing power sector work?

WO-005-EA-02
SOW - Energy Workshop and Assessment in Djibouti, Oct. 19-24, 2014
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Energy PPP Training Module

The proposed workshop will lead off with two days of PPP training focusing on the power sector. Based on discussions with USAID in Djibouti and other members of the Tt team, it is clear that the most urgent need from a training standpoint will be to review with key Djiboutian officials in Ministry and at EDD the main challenges facing Djibouti in its effort to introduce private investment in the generation of geothermal power. This training workshop is intended to highlight how PPPs and the BOT project finance structure affect the lenders’ and developers’ perceptions of the key risks in IPPs. We will pay particular attention to the special features of Djibouti’s power sector and its geothermal and renewable energy resources. The focus of the workshop will be multi-disciplinary and will blend in the legal, financial and technical risk factors involved in planning, developing and implementing successful PPPs. The role of international trading and transmission systems, bulk sale purchasing schemes and regional energy sharing arrangements will be discussed to provide context to the interconnection with Ethiopia. The role of off-grid, renewable energy options (solar, wind and biofuels), feed in tariffs (FIT) and regulatory issues will also be covered.

The training module will be conducted in French. Case studies tailored to the needs of the program will be incorporated to illustrate key points in the presentations. The outline of the module, key issues and tentative daily schedule are listed below.

Day 1: (Time)	Session Title	Key Points
9:00am – 9:20am	1.1 Introduction	<ul style="list-style-type: none"> • IP3 Introduction and Workshop Overview • Participant Introductions
9:20 am – 10:30am	1.2 Overview of PPP Concepts and Models in the Power Sector	<ul style="list-style-type: none"> • What is a PPP? • Rationale for PPPs and the contractual modalities in the power Sector • Introduction to PPP contractual options in power sector: PPA, Management Contracts and ESCOs • Introduction to Value for Money in PPPs in power
10:30 am – 10:45am	Coffee Break	
10:45 am – 12:00am	1.3 Introduction to Project Finance as applied in IPPs and BoTs in the energy sector (Jacques Cook and Warren Chase)	<ul style="list-style-type: none"> • The Project Finance Model v. Corporate Finance - Advantages and Disadvantages • Financial parameters in project finance transactions • Sources of Financing • Role of Credit enhancements and guarantees • An IPP financing term sheet • Case Study of Geothermal power project financial parameters
12:00am-1:00am	Lunch	

1:00pm – 2:30am	1.4 Examination of Power Purchase Agreements and Fuel Supply contracts (Warren Chase and Jacques Cook)	<ul style="list-style-type: none"> • Key clauses in PPAs- Criteria for a bankable contract • Capacity and Availability curves • Tariffs, Energy Price and Capacity Price • Heat Rates, Penalties and mandatory buy outs • Events of Default and Remedies • Negotiation Issues • Dispute Resolution
2:30pm– 2:45 pm	Coffee Break	
2:45pm – 4:00pm	1.5 Geothermal Power options in Djibouti- Examination of Risk matrix (George Tadros)	<ul style="list-style-type: none"> • Review of status of Geothermal projects in Djibouti and ongoing challenges • The Risks matrix in geothermal and options for mitigating exploration and development costs • Financing options for private sector • Review of case study
Day 2: (Time)	Session Title	Key Points
9:00 am – 10:30am	2.1 PPP feasibility and procurement processes	<ul style="list-style-type: none"> • The PPP project cycle pre-procurement, development of the base case and financial model • Procurement modalities--Unsolicited bids and Competitive processes • Role of Transaction Advisors • PPP Monitoring and Evaluation -Role of Independent Engineer and Technical Advisors
10:30am-10:45am	Coffee Break	
10:45am-12:00am	2.2 Implementation Agreements and Direct Agreements in infrastructure PPPs	<ul style="list-style-type: none"> • Mitigation techniques for political risk and institutional gaps • Role of tax benefits in PPPs • Political Force Majeure-gov't and off-taker liability • Fuel Supply risks in IPPs • Enhancing off-taker credit for IPPs-role of PRI and Partial Credit Guarantees, role of multilaterals • Expected Government Support--Letters of Comfort / Sovereign Guarantees, Project Debt & Equity Leverage Approvals, Convertibility & Remittance of Foreign Exchange
12:00am – 1:00pm	Lunch Break	
1pm – 2:30pm	2.3 Institutional Framework for PPPs	<ul style="list-style-type: none"> • PPP Laws and regulatory factors in PPPs • Tariff systems and their impact on PPPs: Establishing a Tariff Framework - Levelized Tariff

		Structures vs Fixed Price Tariff Structures; Tariff Components--Pass Through of CAPEX, OPEX, Fuel Costs, etc.; Adjustment Mechanisms in Fixed Price Tariff Structures <ul style="list-style-type: none"> • Feed In Tariffs and Renewable energy projects • Role of regulators and auditors • Renegotiation Risks in PPP contracts
2:30pm –2:45 pm	Coffee Break	
2:45 pm –4:00 pm	2.4 Power Pools and PPPs (Georges Tadros)	<ul style="list-style-type: none"> • Role of power pools in bridging the financing gaps • Role of system operator and international systems of transmission and distribution • Examples in Africa and Latin America
4:00pm- 4:30pm	2.5 Wrap and Review	<ul style="list-style-type: none"> • Review and Discussion of lessons learned

Energy Assessment

Following the two day training program, our multi-disciplinary team will be conducting an energy assessment of Djibouti, with special attention to geothermal and renewable energy opportunities and the barriers to increased private sector investment in the electricity sector in Djibouti. This assessment will be carried out through the review of existing documents, interviews with key stakeholders inside and outside of government, including suppliers, industrial users and international donors.

The team will examine the state of play of the existing pipeline of projects and engage in discussions with key stakeholders within the government to determine the most efficient way of moving these projects to the procurement and financing stages. Potential PPP projects will be described and ranked based on the following criteria:

- Degree of preparedness--existence of prefeasibility or feasibility studies for the proposed project or similar projects in the country
- Investor or supplier interest--existence of private developers or suppliers with an expressed interest in commercial opportunities in the sector
- Financial feasibility--credit worthy off-takers (industrial customers and anchors, distribution companies etc)
- Economic viability--availability of affordable fuel supplies or energy sources (solar, geothermal)
- Sources of Financing--availability of financing both on shore and off shore
- Precedents--existence of other projects serving as benchmarks of investor appetite
- Institutional and Regulatory framework-- existence of a suitable institutional and regulatory framework for energy projects

The assessment will pay particular attention to identifying key institutional, technical, legal and policy barriers that affect the ability of Djibouti to attract private investors and developers for IPPs and PPPs in geothermal and renewable energy. This will include identifying those opportunities for addressing the barriers with the greatest potential impact.

The assessment will also look at the barriers to improving the viability of national utility (generation, transmission and distribution company Electricite de Djibouti - EDD), reducing losses, improving collections and putting them on sound economic footing. This will include assessing the capacity of the national power company, EDD and the strength and viability of the transmission and local distribution system and the existing capacity of the EDD to manage it. (This can be looked at in greater depth down the road but should still be initially addressed).

The assessment will evaluate Djibouti's political economy and commitment to reforming the electric utility and energy sector and the key obstacles to bringing about such reforms.

The team will provide recommendations on how to make the country's electricity sector more efficient, sustainable, transparent and accountable.

The report should include a discussion with DOD/Camp Lemonnier to get an understanding of the hard lines that they have for considering external sources of energy (e.g. security, reliability, transmission concerns).

The team will evaluate options for building the capacity of the Office of Geothermal Energy Development (ODDEG) and recommendations for how it might be structured given that the capacity now lies with the national power company, EDD and the geothermal research unit within the National Center for Research and Studies (CERD), Under the Ministry of Higher Education. This will include support options for assisting ODDEG develop an application to the GRMF.

The assessment will seek to determine where to place a highly qualified transaction advisor within the government to facilitate the development of bankable IPPs.

The team will document what other organizations and international donors are doing at the national level on electricity reform and how USAID might best engage with them.

The assessment should also identify other regional Power Africa activities or programs that Djibouti might participate in.

It is expected that this assessment will be completed within 20 business days from the completion of the workshop and consultations with the local authorities.

The following are key headings that the assessment team will consider in drafting its report (not necessarily in order):

1. Government/political/legal system
2. National and regional economic drivers
3. Overview and status of the country's electricity generation, transmission and distribution sector
4. Key institutions in the energy sector and their capacity
5. Political economic analysis
6. Regulatory framework and enabling environment (tariffs, PPP & IPP frameworks, subsidies, incentives)
7. Status of the electric utility (generation, transmission, distribution) and electricity generation, distribution and transmission system planning

8. Capacity to regulate and implement PPP/IPP projects
9. Priority large-scale electricity projects and opportunities
10. Donor engagement in the energy sector and project support and opportunities for USAID engagement
11. DOD/Camp Lemonnier security, reliability, transmission concerns and conditions for considering external sources of power.
12. USAID Opportunities & Recommended Interventions

Personnel

The following experts will participate in the program:

- Jacques Cook, legal expert, PPP workshop leader
- Georges Tadros, renewable energy engineering expert
- Jay Dick, geothermal expert

WO-006-EA-03
SOW - Geothermal Strategy, Amanda Lonsdale
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Work Stream	Description	Days	Trips⁶
1. Development of Power Africa support risk mitigation facility	<ul style="list-style-type: none"> • Continue efforts to develop risk mitigation facility for geothermal exploration and production drilling. • Lead the development, structuring and capital raise for the facility. • Coordinate with Power Africa agencies, donors, governments, and private sector to coordinate interests, broker negotiations, and secure commitments. • Design administration of risk mechanism • Coordinate with legal, regulatory entities on structuring and closing 	75	3
2. Institution building	<ul style="list-style-type: none"> • Lead efforts to determine appropriate structure and mechanism/institution to carry on geothermal coordination efforts • Guide development of institution/ organization <ul style="list-style-type: none"> ○ Conduct needs assessment ○ Assist in establishment of vision and mission ○ Provide guidance on assistance program to donors • Work with institution to establish it as the main coordinating body for geothermal in the East Africa region • In the interim, continue donor coordination efforts until they can be handed over to Power Africa resident personnel (i.e., Jay Dick) 	25	2
3. Transaction advisory	<ul style="list-style-type: none"> • Working with Power Africa resident personnel, continue efforts providing advisory services on transactions in Power Africa countries. Sample transactions include: <ul style="list-style-type: none"> ○ Longonot (AGIL) ○ Akiira (Marine Power/Ram Power) ○ Ngozi (Geothermal Power Tanzania) 	10	1
4. Country strategy development	<ul style="list-style-type: none"> • Working with Power Africa resident personnel, develop more detailed country strategies for geothermal development based on the multi-donor geothermal strategy for East Africa. • Ensure Power Africa efforts are coordinated with and complementary to other donor efforts to ensure maximum effectiveness of PA funds. 	10	2

⁶ Note: Some trips may serve multiple purposes and are not cumulative.

5.General advisory services	<ul style="list-style-type: none"> • Provide advisory services to Power Africa, USAID missions, USAID/Washington, other contractors, and other donors on an as needed basis. Examples may include: <ul style="list-style-type: none"> ○ Advise on study tours and roadshows ○ Advise on workplans (in the context of donor coordination and geothermal development strategy) ○ Advise on, and participate in workshops on geothermal related topics 	5	0
TOTAL		125	4-5

WO-007-EA-04
SOW - Scoping Mission to East Africa Power Pool
on placement of Transaction Advisor (TA)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objective

The objective of the scoping mission is to establish a sound information basis for providing transaction advisory for power projects in support of the development of the East Africa Power Pool (EAPP), identify capacity building needs, identify early stage activity options for technical teams, and provide a detailed SOW for an EAPP Transaction Advisor. The initial proposal is for the proposed regional transaction advisor to reside in Addis Ababa in the EAPP office to manage and accelerate a number of prospective transactions forward towards completion. The scoping mission will be in Addis Ababa for at least two days of meetings, followed by discussions in Pretoria.

Background

The energy development policies in the EAPP countries under consideration generally share these common concerns: (a) an optimal mix of natural gas, hydro, bio-energy, coal, renewables etc. (b) interconnection with the regional power pool, in order to establish optimal markets and allow for economies of scale; (c) regional regulatory environments to enable cross-border trading; (d) energy security and country-wide energy access; (e) liberalization of the sector, permitting Independent Power Producers; (f) reducing sector subsidies and rationalizing tariffs; and (g) institutional reforms and strengthening regulation of the sector. The WB and other multilateral agencies have many power projects and investments supporting generation, transmission, EAPP, distribution, and rural energy developments. Consequently, an EAPP Transaction Advisor (TA) would assist in managing projects/initiatives which involves many actors and which fits the goals of Power Africa.

The focus of the scoping mission would include but not be limited to:

1. Explaining the possible roles of a transaction advisor and understanding policy and project priorities in the region.
2. Identifying and meeting EAPP and other stakeholders to determine:
 - a. Hurdles in the timely development of transmission transactions to increase power generation capacity and access in the region;
 - b. Potential scope of work for an EAPP Transaction Advisor;
 - c. Acceptability to embed the EAPP; and
 - d. Initial identification of potentially viable transmission (and other) projects that the TA could focus on.

Deliverables

The consultant will deliver a trip report summarizing:

- the key observations and findings of the mission;
- a summary justification (or lack thereof) for embedding an EAPP transaction advisor at EAPP.
- a preliminary list of the potential power sector transactions that may be the focus of the EAPP Transaction Advisor; and
- a list of the types of short-term technical assistance that may be needed to assist with potential policies, grid management, projects and transactions.

Personnel

Joellyn Murphy – Energy strategy expert

Jaap du Preez – Transaction Advisor, East Africa Region

WO-008-WA-01
SOW for - Work for Scoping Mission to West Africa
on placement of Regional Transaction Advisor (RTA)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objective

The objective of the scoping mission is to establish a sound information basis for providing transaction advisory for power projects in Francophone West Africa, identify capacity building needs in project finance and implementation, identify early stage activity options for a technical team (such as a Grid Management Support program), and provide a detailed SOW for a Regional Transaction Advisor. The initial proposal is for the proposed regional transaction advisor to reside in Dakar, Senegal in the World Bank office to manage and accelerate a number of prospective transactions forward towards completion. The scoping mission will be for two weeks in Senegal and/or other countries in the region (to be determined). At a minimum, the mission will visit Ghana, Senegal and Benin. An additional country may be visited, in consultation with USAID W Africa Mission.

Background

The energy development policies in the countries under consideration generally share these common concerns: (a) an optimal mix of natural gas, hydro, bio-energy, coal, renewables etc. and interconnection with regional power pools; (b) energy security and country-wide energy access; (c) liberalization of the sector, permitting Independent Power Producers; (d) reducing sector subsidies and rationalizing tariffs; and (e) institutional reforms and strengthening regulation of the sector. The WB and other multilateral agencies have many power projects and investments supporting generation, transmission, WAPP, distribution, and rural energy developments. Consequently, a Regional Transaction Advisor (RTA) would assist in managing projects/initiatives which involves many actors and which fits the goals of Power Africa. The focus of the scoping mission would include but not be limited to:

1. Explaining the possible roles of a transaction advisor and understanding policy and project priorities in the region.
2. Identifying and meeting stakeholders (Regional and local USAID Missions and US Embassies, WAPP, ECREEE, local World Bank offices, relevant NGOs, existing and potential IPP partners, key host country energy sector actors, other potential donors, etc.) to determine:
 - a. Hurdles in the timely development of IPP or PPP transactions to increase power generation capacity and access in the region;
 - b. Potential scope of work for a Regional Transaction Advisor fully taking into account the roles of the two PFAN and WAPP transaction advisors; ,
 - c. Potential location to embed the RTA; and
 - d. Role and mode of operation outside of country of placement.
 - e. Initial identification of potentially viable IPP and PPP projects that the RTA could focus on taking into account the roles of the two PFAN and WAPP transaction advisors.

Deliverables:

3. The consultant will deliver:
 - a. a trip report summarizing the key observations and findings of the mission;
 - b. a summary description of the hurdles to the timely development of IPP and PPP transactions in the region
 - c. a summary justification (or lack thereof) for a regional transaction advisor;
 - d. a summary justification for embedding the RTA (if one is justified) in the World Bank regional mission at Dakar or an alternative better location in Senegal or another W African country. A draft scope of work/terms of reference for the regional transaction advisor (if one is justified);
 - e. a preliminary list of the potential power sector transactions that may be the focus of the Regional Transaction Advisor; and
 - f. a list of the types of short-term technical assistance that may be needed to assist with potential policies, grid management, projects and transactions.

Personnel

Andre Larocque – Transaction Advisor, Electricity Finance Expert

Local Assistance and Tetra Tech Oversight

Tetra Tech may engage short term local expert(s) to help make the visit of the expatriate expert most productive. Continued guidance from Tetra Tech Senior Transaction Advisor will be crucial for the success of this scoping mission.

WO-009-GH-05
SOW - Ghana PSP Study Tour
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Study tour to explore concession and partial privatization options in the distribution sector

Background

The GOG committed to a long term concession or a partial privatization of the Electricity Company of Ghana (ECG) in the Ghana Power Compact signed August 5, 2014. The April 2014 PSP workshop funded by USAID/Power Africa contributed greatly to the GOG’s understanding of the lessons learned and pros/cons of PSP. This greater understanding was key to successfully reaching an agreement on PSP in the Compact.

A key Compact entry into force (EIF) condition is the release of the tender documents for a private sector participation (PSP) transaction. In order to meet this condition, the GOG must first select between the two PSP options agreed to in the Compact (long-term concession and partial privatization) before the tender documents can be structured with support of a Transaction Advisor that will be hired using Compact funds. The GOG will need to consult with and get buy-in from key GOG and non-GOG stakeholders before making a final decision. An opportunity to expose these stakeholders first hand to PSP models in various countries could contribute greatly to the decision making process. The target date for EIF is mid-2015, therefore the GOG needs to make a final decision on the model before the end of 2014.

Objective of trip

The objective of the trip is to expose GOG and non-GOG potential “influencers” to distribution utility long term concession or partial privatization models in other developing countries. This opportunity would allow influencers to better understand these PSP models and to hear directly from electricity distribution utility management and staff, government agencies, regulatory bodies, IPPs, industries, consumer groups, and financial institutions the lessons learned, benefits and challenges of PSP in distribution. USAID has an existing agreement with the US Energy Association (USEA) that could be an excellent vehicle for conducting the study tour(s). Given the potential number of countries (4 – 6) and stakeholders (22), the option of conducting two separate tours should be considered.

Where. Countries with either concession or partial privatization – preferably each group should see one of each. Suggest starting with the companies that participated in PSP workshop since some level of familiarity on both sides:

- Uganda (20 yr. concession)
- Kenya (partial privatization)
- India (partial privatization)
- Brazil – State of Ceara (30 yr. concession)
- Other countries that have concession or partial privatization as recommended by USEA)

Who should participate: Influencers could include:

- GOG

- Rep from MOEP (Deputy Minister Jinapor + Sulemana Abubakar)
 - MOF (Deputy Minister or other Sr. level person)
 - Rep ECG Board of Directors Member
 - Rep ECG management
 - Rep ECG staff (e.g. employers union)
 - Rep PURC & EC
 - Chair of Millennium Development Authority (MiDA) (should be appointed by end Sept)
- Non-GOG
 - Rep of think tank (e.g. ACEP, IMANI, Centre for Policy Analysis (CEPA))
 - Rep of civil society organization (e.g. TUC, Center for Democratic Development)
 - Rep from private sector (e.g. AGI, Private Enterprise Foundation)
 - Rep from Parliamentary Committee on Energy
 - Rep from Parliamentary Committee on Finance
 - Rep from Journalist/media

Timing: Tentatively early November

Cost: TBD (work with USEA on estimate)

Immediate next steps:

- Confirm cost and source of funding
- Confirm GOG interest and list of participants
- Meeting with USEA to firm up list of countries & itinerary
- After confirmation of above, develop trip planning document and implement

WO-010-EA-05
SOW - Eastern Africa Regional Geothermal Advisor
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Station: Nairobi, Kenya
Reporting: Regional Energy Specialist, Power Africa Nairobi Office

Regional Geothermal Development Energy Support

A. Providing technical support for geothermal and related activities in Power Africa Priority Countries (Ethiopia, Tanzania and Kenya)

1. Work with Power Africa Missions in Eastern Africa to advise and support respective governments with the development and implementation of a new geothermal energy strategy and legal and regulatory framework;
2. Assist the respective utilities and geothermal development agencies in managing ongoing and planned geothermal projects
3. Work with private sector to accelerate geothermal investments in the respective countries
4. Coordinate technical support provided by other Power Africa USG agencies in the respective countries
5. Provide technical support to Kenya Mission in close coordination and collaboration with Kenya’s geothermal advisor
6. Assist countries in reviewing, evaluating and organizing their geothermal resource data

B. Providing technical support for geothermal and related activities to Non-Power Africa Priority Countries (Rwanda, Uganda, Djibouti and Comoros)

1. Work with respective Missions to advise and support respective governments with the development and implementation of a geothermal energy strategy and legal and regulatory framework;
2. Assist the respective utilities and geothermal development agencies in managing ongoing and planned geothermal projects
3. Coordinate technical support provided by other Power Africa USG agencies in the respective countries
4. Work with private sector to accelerate geothermal investments in the respective countries
5. Assist countries in reviewing, evaluating and organizing its geothermal resource data

C. Regional Geothermal Capacity Building & Institutional Support

1. Work with UN Environment Program (UNEP) African Rift Geothermal Program (ARGEO) and other donors to help document capacity needs to develop geothermal energy and develop a capacity building and institutional strengthening plan for Rwanda, Ethiopia, Uganda, Rwanda, Comoros and Tanzania.

2. Coordinate capacity support and institutional strengthening activities provided by Tetra Tech and USEA under the East Africa Geothermal Partnership (EAGP) and other USG agencies in collaboration with other donors.
3. Interact with local universities and research institutions in the region and to identify opportunities for public-private partnerships.
4. Interact with key geothermal institutions in the region and in the US to assist in planning and establishment of a regional geothermal institute

D. Support the Development of Private Geothermal Energy Projects

1. Identify potential IPP concessioned geothermal energy projects in the region that Power Africa can support and identify ways in which Power Africa can move the project forward.
2. Advise country governments in developing its model of private geothermal energy development
3. Help governments to facilitate the development and adoption of a sound and transparent legal and regulatory framework
4. Advise governments in the development and implementation of their legal and regulatory frameworks

E. USAID Mission and Bilateral Donor Management

1. Help manage relationships with host country governments and USAID bilateral missions
2. Develop relationships with donors in each country and track their programs, interact with their consultants and report findings back to USAID and other Power Africa Partners (AUC, AfDB, World Bank, UNEP ARGeo, among others).

F. Power Africa Inter-Agency and US Business Support

1. Work with Power Africa national and regional transaction advisors and representatives from USTDA, OPIC, EXIM to identify projects and areas where the USG can support geothermal energy development.
2. Provide leads and updates to the inter-agency working group and business opportunities to US industry associations (GEA, GRC, CCA etc)
3. Review unsolicited proposals submitted to USAID relating to geothermal energy
4. Meet regularly with private developers, equipment suppliers, and investors in EA to understand their needs, the barriers and roadblocks they face, and areas where Power Africa can help move projects forward.
5. Coordinate with EAGP in organizing business and industry geothermal events and related activities

G. Technical Geothermal Energy Support to the African Development Bank (AfDB)

1. Working with the Regional Coordinator, provide advisory services to AfDB on its geothermal energy projects in East Africa with a focus on Kenya, Ethiopia, Tanzania and Djibouti.
2. Help the bank and its partners to develop their terms of reference for geothermal projects and where applicable assist in the evaluation and review of applications.
3. Provide technical and strategic advice to AfDB in management and oversight of bank projects and financing instruments (SEFA, ADF etc).
4. Provide advice and support to AfDB project implementers.
5. Assist the bank in the identification and development of new geothermal support programs.

H. African Union Commission

1. Provide technical support by advising on specific activities under the AUC Geothermal Development Program
2. Provide updates to AUC on policy and technical needs as well as actions of other donors
3. Provide support to EA countries and private companies in the development of their Geothermal Risk Mitigation Facility (GRMF) applications.
4. Advise the AUC on best practices for harmonizing legal and regulatory framework for geothermal in the region.
5. Provide advisory services to AUC on how to accelerate projects funded under the GRMF

Note: The Regional Energy Advisor will not necessarily carry out the task solely by himself but will lead and coordinate efforts by a pool of consultants from Tetrattech, Nexant, USEA/EAGP and any other as deemed necessary.

WO-011-KE-06
SOW - Kenya Dandora Waste-to-Energy
Pre-Feasibility Study
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Summary

Kenya’s Dandora Municipal Dump Site is the only dumping location for waste in Nairobi, East Africa’s most populous city, and serves as a provocative starting point for understanding the growing health, poverty, and sanitation problems facing the rapidly expanding capital and region.

Located 8 km from the central business district, the 30-acre Dandora site is located nearby the households of nearly 1 million people living in nearby slums. Tetra Tech proposes to conduct and deliver a pre-feasibility analysis that evaluates alternatives to convert MSW to beneficial energy in relation to the market, technical, financial, economic, and management conditions existing in Kenya. Specific emphasis will be given to the methodology of waste collection, the role of the citizenry in existing solid waste disposal and the existing energy infrastructure. The goal of the evaluation is to identify and quantify key factors or conditions necessary for feasible and viable solutions that can be successfully integrated into a viable project for Kenya Dandora. Analysis of each considered alternative and respective recommendations will be provided.

Introduction

The complexity of developing and executing a bioenergy project of this nature includes multiple subjects and variables which need to be addressed on a waste to energy project. Examples include: aligning the acquisition and transport of waste products to serve as feedstock for the facility with an applicable energy conversion technology, making sure the energy produced can be uploaded to the existing energy grid system and beneficially used. Issues that will be addressed in the study include: feedstock quantity available to a project, composition of feedstock available to a project, options for sourcing and delivery of the feedstock, applicable technologies for processing and energy recovery and utilization of energy, including interconnection with the electrical grid.

A kickoff meeting to be conducted in Kenya will begin the project. In order to allow a more efficient and productive visit it is important that available information about local waste practices is made available prior to the visit. During the kick-off meeting we will be soliciting input of the project stakeholders to confirm and accomplish project scoping. During this trip the Tetra Tech (Tt) project team (which may include Nexant) intends to visit local operations and collect information related to evaluation of feedstock, site location, logistics, and other factors impacting the viability of a waste-to-energy facility Tetra Tech/Nexant will send a project team of three bioenergy experts to the on-site.. The project team will spend one week on-site gathering project data and meeting with project stakeholders.

Scope of Work

Task 1: Analysis of Waste Production, Management, and Material Flow

The project team will conduct a review of the available biomass-based waste material (“feedstock”) resources locally available on the Dandora/Nairobi region. This analysis will consider a number of factors, depending on the information that the team will be able to collect, including:

- Feedstock supply volume, type, and characterization
 - including BTU content and hazardous materials and potential toxins generation

- Variability, both in composition and seasonal changes
- Location and ownership of feedstock
- Transport of feedstocks to the potential project site, including cost of transport and handling

The project team will look at the materials available with the goal of developing a reliable, consistent product flow of municipal solid waste (feedstock) to fuel a waste-to-energy conversion technology system. The project team will estimate quantity of MSW collected and potential RDF that can be sorted from the refuse for power generation, all based on the information available collected or provided by the project stakeholders. The quality and quantity of RDF that can be produced will be estimated. The estimate will be verified with the stakeholders to be used as a pre-design basis to develop an integrated RDF to energy project. The design basis will be used for pre-selection of most appropriate technologies for power generation. The handling and operations characteristics (and potential challenges) of each feedstock will be weighed against direct costs to determine which make the most sense for the project. As part of this task, the team will provide a preliminary evaluation of other variables that may have a significant impact in a) costs (capital and operational) such as collection, handling or purchase, transportation costs, byproducts generated and b) energy production potential for the optimum feedstock(s) based on their availability, expected performance, and technological advantages and challenges. Similar analysis conducted on previous projects will also be used for the development of costs and energy production potential.

With the understanding of the parameters above, the team will provide the estimated energy values for each type of feedstock available, based on laboratory analysis of the waste stream if such data is available from previous work (supplied by others), and otherwise project experience and empirical data. Individual components of the feedstock will be compiled to produce an expected composite waste for the facility. The estimated energy values of each individual component will be utilized by its percentage of the total to create the composite energy value of the “as received” and “as processed” waste. We will utilize our energy experts to establish an energy balance analysis.

Based on the results of the analysis, the team will produce a feedstock report with recommendations to maximize energy production and reduce operational costs for the project. This input will influence the facility scale determination conducted as the following project step, in conjunction with energy off-take demands and engineering and site constraints.

Task 2: Identification of Viable Technologies/Equipment

The technology evaluation process will consider the general characteristics of the identified feedstock, the form of heat and power energy required, and other technical and economic factors in the identification of viable waste-to-energy conversion technologies that can be implemented at project site.

The evaluation will include the a range of facility options, including waste collection and handling techniques and equipment, processing equipment and energy conversion (from municipal solid waste), energy utilization upload to the existing energy grid, and air pollution control (APC) equipment and permitting, where applicable. This pre-feasibility phase will consider generic equipment ‘suites’ and processes only, and not be specific to any one vendor. This analysis will also take into account availability of in-country infrastructure.

A technical analysis and decision matrix using a set of critical factors as proven on other projects will be used to provide a basis of technology analysis and potential recommendations; potential alternatives to be considered in future development phases will also be included. These criteria will be the basis of a

"decision tree" evaluation process. Based upon this multi-step evaluation process, a technology recommendation will be made.

Task 3: Market Analysis

The TT project team will review and estimate the potential of entering the markets served by a waste-to-energy facility. Electricity is the anticipated primary product, and therefore the main focus of the review. The potential to produce electricity for use by the facility (behind the electric meter) or upload it to the electrical grid via net metering arrangement or various power sales agreement structures will be evaluated. If possible, during the on-site visit the project team will meet with local utility companies and other potential energy off-take partners. This will need to be supported and organized by local authorities.

Electricity and energy product pricing will be estimated based on empirical data and discussions with stakeholders. The available data will be evaluated to determine the production potential and revenue (or cost savings) the project can be expected to produce.

Task 4: Cost-Benefit Financial Analysis

This task will include an initial assessment of economic viability of the selected technology or technologies, if several technologies appear viable and a comparison of costs and benefits is determined to be useful. These costs will be compared to the baseline scenario.

The TT project team will supply expected average costs for waste-to-energy technologies in order to understand the major components and expenditures that will be necessary. Associated with this will be an estimate of the labor, operations, and maintenance requirements for the system at the proscribed scale.

Using the calculated fuel inputs and efficiency of conversion to usable energy (thermal energy and/or electrical energy) gathered in previous steps, the amount of energy generated by the system will be estimated. The project team will produce preliminary mass balance calculations and an indication of the thermal / electrical output of the waste-to-energy facility, taking into account parasitic load, conversion efficiencies, and feedstock characteristics and calorific value (BTU content) of the fuel.

Task 5: Pre-feasibility Report and Recommendations

The project team will compile the information gathered into a single project report. The report will summarize the finding of the pre-feasibility study and layout recommendations for next steps and an eventual implementation of the identified solutions. This will include a summary of the different technologies that can be considered for implementation of the project and the most appropriate system configuration based on findings during this study.

Project Assumptions

1. During the kick off meeting with the stake holders and USAID, a project organization will be set-up with stake holder designating a single point of contact for communication and agreement on Terms of Reference for the SOW.
2. The proposed schedule is estimated to be 10 weeks from the Notice to Proceed (NTP). Delays exceeding a reasonable amount of time will result in corresponding schedule and cost adjustments, as appropriate.

Biomass energy production equipment and vendor(s) will be recommended for the project, but not specified in detail, nor selected, procured, and/or contracted under this scope. As a prefeasibility, detailed engineering as a prelude for construction will not be completed as part of this scope.

WO-012-LI-01
SOW - Senior Local Energy Advisor Liberia (Acting Transaction Advisor)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Energy and Security Group (ESG), under subcontractor from Tetra Tech

THE POWER AFRICA PROGRAM

The Power Africa Transformation and Reform Program (PATRP) in Liberia aims at promoting an enabling investment environment in new power generation and distribution projects to improve access to electricity, one of Liberia’s greatest challenges to development, enhance energy access to grid and off-grid communities, and improve the quality, affordability, and reliability of energy supply in the country. Power Africa’s approach focuses on partnerships driven by connecting the private sector investors and entrepreneurs with the Government of Liberia to improve business opportunities in coordination with the U.S. Agencies and multilateral and bilateral donors.

PATRP is aimed at introducing strategies for energy sector development, promoting efficient resource management and accelerating private sector investments to develop resources, build electric power generation, distribution and transmission facilities and expand the reach of electricity grid, mini-grid and off-grid clean energy generation capacities through a transaction – centered approach and driving forward the needed energy sector reforms in Liberia that pave the way for future investments and energy technologies.

USAID engages the Transaction Advisor (TA) for an initial duration of one year (renewable), in line with the below Statement of Work (SOW).

1.0 DUTIES OF THE TRANSACTION ADVISOR (TA)

1.1 Transaction Selection/Pipeline Development/ Private Sector Engagement

The first duty of the transactions advisor will be to meet with stakeholders, GoL and understand the status of the support in the energy sector, especially considering the challenges of Ebola Virus Disease (EVD). The TA will then develop a comprehensive package of technical support and workplan according to the needs and timelines requested of the GoL, and that package of support will be further elucidated as deliverables. These services shall include, but not be limited to, working with key GoL energy sector institutions, such as the Ministry of Lands, Mines and Energy (MLME), the Liberia Electricity Corporation (LEC), and the Rural and Renewable Energy Agency (RREA) in coordination with the USAID Power Africa Liberia Team, the Energy and Security Group (ESG), and other members of the PATRP team to develop achievable program of activities, implementation process, schedules/timeline and deliverables.

No activity will go forward without a clear request from the GoL and USAID/Liberia, including sequencing of requested support. The activities will be expected to be memorialized in joint communications to sector actors. In this process, the Transaction Advisor shall assist in the collection of baseline data/information for supporting the decisions/setting up of the targets, priorities and implementation schedule including the following:

- a. **Professional and Support Staff/Capacity Requirements and Budget:** The Transaction Advisor (TA) in consultation with USAID and ESG shall propose professional and support staff needs from time to time during the course of the assignment, for USAID’s engagement and support for the development and operations of an appropriate Power Africa Transaction Advisory Services Office, including organization of a Technical Working Team, and required equipment, logistics, materials and supplies, along with realistic budget estimates for approval and funding.
 - b. **Historical data:** The TA with supporting documents and other relevant information from the USAID, and the relevant GOL ministries and agencies (MLME, RREA, LEC), and ESG and other sources from the PATRP team, shall review current and previous Liberia’s Power Africa programs and projects as well as other related energy sector program initiatives (e.g. AGI and others) to coordinate cooperate with the overall program pipeline development process.
 - c. **Master Plans:** The TA will work in coordination with the aforementioned GoL energy institutions to develop a Master Plan for the expansion of the energy sector. Drawing from previous studies and technical reports, the TA will work with GoL officials to identify a key strategic plan for energy growth, and the expansion of the energy infrastructure in the country. The TA will work with the GoL to implement the Master Plan as a policy instrument to frame government policies, laws and regulation to facilitate the strategic development of the energy sector and promote energy investments from the private sector, local, regional, and international.
 - d. **A review of Plans and Policies** in place for the energy sector in Liberia;
This includes but not limited to the National Energy Policy, RREA Act, LEC Act, Proposed Liberia Energy/Electricity Law, Investment Incentive Code, Structure of Energy Institutions – both public and private, ongoing legislative, policy and regulatory reforms process in the energy sector and propose activities directed at mitigating existing barriers to drive the needed reform process necessary to ensure the integration of the private sector in Liberia’s energy operations.
- 1.2 The Ebola epidemic is the predominant issue in Liberia at the present time. The national efforts and the USAID Mission activities are now focused on the immediate needs of the Ebola epidemic, and Mission USG programs are intended to help the GoL on solutions to mitigate the crisis. The role of the Transaction Advisor – shall be, in consultation with the USAID Power Africa Team, to propose activities that can be funded under the PATRP - according to the specific conditions prevalent in Liberia, so the Mission and Power Africa can adapt efforts and resources to the required critical needs.

This shall include, but not limited to conducting a rapid assessment of the energy/electricity, water system supply and other relevant needs for EBOLA Treatment Centers, hospitals, clinics and others to develop a feasible solution and Power Africa intervention.

- 1.3 The Transaction Advisor (TA) shall undertake a technical review to identify potential off-grid projects, such as the Mein River hydroelectric project and others, for short term development in

collaboration with MLME, LEC, and RREA as partners. The TA shall coordinate with the Tony Blair Africa Governance Initiative (AGI) to advance long-term GoL energy initiatives and reforms while helping on immediate Ebola response issues.

- 1.4 The Transaction Advisor shall Work with LEC to identify current investment constraints and design quick interventions to facilitate LEC and boost its performance as a local utility, and work with RREA on technical support activities. Two key PATRP interventions at LEC include a loss reduction program and a management option analysis of a private sector operation at LEC. The loss reduction program should be designed to achieve operational efficiency and service levels of a modern electric utility company. The management option analysis should initially focus on the anticipated operational and commercial conditions at LEC at the end of the existing management contract. The management option analysis should then identify the possible private sector models for LEC, such as performance-based contracts, leases, or full divestiture.
- 1.5 The Transaction Advisor (TA) shall coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center (USCEDFC), established by the Overseas Private Investment Corporation (OPIC), Export-Import (EX-Im) Bank of the US, Millennium Challenge Corporation (MCC), State Department, and U.S. Trade and Development Agency (USTDA). The TA shall seek to understand the available USG mechanisms, funding constraints, and develop a working relationship with a key person at the Mission and in Washington, DC.

For this activity, the TA shall pursue opportunities provided by the USG agencies and entities such as the CEDFC which provides a coordinated approach to renewable energy projects development, including but not limited to technical and financial support for renewable energy projects development, for example, solar; wind; biomass; hydropower; biofuels (including biodiesel and biogas); energy efficiency; smart grid, and mini-grid development, all of which have high potentials for replacing petroleum-based power generation in Liberia . The TA shall also seek to avail Liberia of the CEDFC Initiative which also aims to align USTDA's project planning expertise and OPIC's financing and risk mitigation tools in new ways, to support private sector investment and increase support for Liberia's clean energy sector.

The TA shall also seek to forge Liberia's engagement with the Millennium Challenge Corporation (MCC) to assist the country make progress toward the UN Millennium Development Goals (MDGs) through transforming Liberia's power sector.

- 1.6 Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions.

This includes but not limited to organizing and developing bid rounds for priority projects, negotiations and other selection methods and evaluations of potential transactions in accordance with USAID/ESG and GOL approved standards and guidelines.

- 1.7 Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g. project merit, competence of project sponsor, risk factors). This shall include identifying available funding sources and potential for USG assistance.

This shall also include but not limited to application of project factors such as cost-benefit and other acceptable economic and engineering project evaluation techniques, environmental impact assessments, and evaluation of technical and financial capacities of proposed project sponsors and where acceptable, identifying funding sources, including promotional activities, negotiations..

- 1.8 Maintain close relationships with private sector and government actors, project developers, regulatory bodies, commercial banks, investment and pension funds, and other donors.

This includes, but not limited to developing and maintaining mutual contacts and data base, website and organizing acquaintance, discussion and promotion forums for private sector and government actor, project developers, regulatory bodies, commercial banks and pension funds and donor institutions and other information and communication links.

- 1.9 Serve as the lead for development of GDAs, APS, DCAs, IPP Study Follow up or Project Prospectus, Investment Guide(s) to help achieve the goals of the Power Africa in Liberia.

This shall include but not limited to preparation of promotional packages/guides or prospectus (such as policies, laws and regulations, best practices, pre-feasibility and other studies). In this connection, the TA shall make appropriate consultations with the USAID Power Africa Team, ESG, and relevant GOL agencies and financial/legal experts in the above stated framework development of GDAs, APS, DCAs, IPP and make recommendations of the best feasible model and capacity development for the application of a range of U.S. government tools to support investment in Liberia's energy sector specific projects.

2.0 **Transaction Advisory Services and Capacity Building**

The TA shall seek support for Liberian manpower capacity and skills building, and institution development of Power Africa Advisory and long-term financing and coordinated support to help Liberian and other partners expand electricity generation capacity and access.

- 2.1 Assist Embassy, MLME and RREA in accelerating and closing priority transactions by providing independent advice as needed to achieve project milestones.

The TA in consultation with ESG, USAID/Embassy, MLME and RREA shall prepare for approval, achievable project milestones, timeline and requirements for the systematic execution of the works and tasks under this assignment.

- 2.2 Provide technical assistance on prioritizing projects and preparing transaction documents.
- 2.3 Lead promotion of USAID's Beyond the Grid efforts with investors and implement outreach campaigns, participate in trade shows and workshops to promote Power Africa Initiative in Liberia.
- 2.4 Provide guidance, expertise and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment.

The TA in this regard and in reference to applicable regulation/policies in the power sector, shall in consultation with and support of USAID, ESG and GOL relevant agencies (MLME, RREA, NIC, LEC, etc.) organize a Power Africa Technical Committee/Team or Inter-agency technical persons' forum for discussions and validation of appropriate reforms documents for GOL decision makers approval.

2.5 Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.

The TA in this regard, shall maintain appropriate contacts with the relevant GOL ministries and agencies, Power Africa Liberia, ESG, USAID and experts to address these issues and propose activities/programs and practical actions for implementation.

2.6 Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

This shall include contacts and consultations with other Power Africa member countries TAs for technical and other helpful exchanges of mutual benefits.

3.0 **PATRP Acting Country Manager**

At some point in time, following the end of the period of Ebola crisis, an expatriate professional may be assigned as Country Manager under PATRP. In the meantime, the TA shall serve as Acting Country Manager for PATRP in Liberia. As Acting Country Manager, the TA will coordinate (expatriate nationals) and manage (Liberian nationals) the work of such others as may be retained under PATRP to work in Liberia.

4.0 **Reports and Deliverables**

The TA shall prepare monthly reports to highlight the status of power sector transactions as outlined herein.

WO-013-LI-02
SOW - LEC Loss Reduction Program
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objectives

1. USAID’s Power Africa team will support activities that can create the conditions necessary for successful design and implementation of MCC and SREP financed programs.
2. Successful completion of activities started under LESSP and LEC FARA
3. Other high impact activities that support Power Africa’s private sector led approach.
4. Because of Ebola Crisis in Liberia, delivery of services may need to be provided utilizing innovative methods either or in combination from Monrovia, Liberia; Pretoria, South Africa; Accra, Ghana or the United States. Perhaps through reliance on video and telephone communications for outreach, business marketing, in-country technical assistance and knowledge sharing.

PATRP Activities

A. Liberia Electric Corporation

Development and Implementation of a LEC Loss Reduction Program

- To improve the performance of LEC, Power Africa will assist in the design and possibly partial implementation of a loss reduction program. Activities may include:
 - Analysis of existing conditions of the Liberia Electricity Corporation (LEC).
 - Definition of customer database.
 - Identification of baseline and targets.
 - Planning, implementation.
 - Procurement of technical services, site monitoring, software and metering hardware as requested by USAID/Liberia.
 - Possible support provided from South Africa and/or Ghana.

WO-014-WA-02
SOW - West Africa Regional Transaction Advisor
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Client: USAID Power Africa and USAID East Africa Regional Mission
Project: Power Africa Transactions and Reforms Program (PATRP)
Reports to: PATRP’s Senior Transaction Advisor and/or COP depending on final organization
Time Frame: November 2014 – May 2019
Position: Transaction Advisor/West Africa Regional

General Summary of Position:

This document describes work the resident Transaction Advisor in West Africa Region is to perform under USAID’s Power Africa Transactions and Reforms Program (PATRP).

The Transaction Advisor (TA) will be embedded within World Bank in Dakar, Senegal. It is expected that the TA will also spend considerable time with IFC in Dakar.

Region of coverage: Services will be provided not only on-site in Senegal, but also through travel assignment to locations in the West Africa region, including, but not limited to:

- Benin
- Togo
- Burkina Faso
- Mali

It should be noted that there are or will be other Power Africa Transaction Advisors working in other West African countries (Ghana, Nigeria, Liberia, and West Africa Power Pool in Benin) and so it is not expected that the West Africa Transaction Advisor will focus on projects there, except when asked to fill in for the other resident Transaction Advisors and to supplement their needs if their workload necessitates additional assistance.

The interface of the Transaction Advisor’s region of coverage with the West African Power Pool is notable, and it is expected that there will be close collaboration with WAPP, and specifically with the Power Africa Transaction Advisor to be embedded in WAPP, to ensure adequate transmission system development to serve the region of coverage.

Services will be provided in other locations as requested by the Client. These services may include the Power Africa head office in Pretoria, South Africa, or could include work in other parts of West Africa, or in Francophone countries in Central Africa (such as DRC or Cameroun).

The Transaction Advisor’s key functions are to:

Transaction Selection/Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.
- Coordinate closely with other USG agencies and entities, such as the U.S.-African Clean Energy Development and Finance Center, established by the Overseas Private Investment Corporation, Ex-Im Bank, MCC, State Department, the Department of Commerce, the Department of Treasury, and the U.S. Trade and Development Agency. The advisor will need to understand the available USG mechanisms, funding constraints, and develop a relationship with key personnel in Pretoria and Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions in West Africa to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g. project merit, competence of project sponsor, risk factors, etc.). This effort will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors in the West Africa region of coverage.
- Work with U.S. government agencies such as the Department of Commerce to flag tenders for energy infrastructure projects that could create new investment and sales opportunities for companies.

Transaction Advisory Services and Capacity Building

- Assist in the implementation of such new electricity sector reforms or IPP frameworks developed in the countries included in the region of coverage listed above.
- Develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and off-grid solutions including mini-grids and micro-grids, especially those using renewable energy sources, as well as adoption of policy reforms and project implementation in the region of coverage.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise and direction to host agency (World Bank/IFC in Senegal) and applicable ministries or agencies in region of coverage on adoption of reforms necessary to increase private sector investment.
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring and Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions or removing obstacles.
- Conduct regular reporting and check-ins with the agency USAID and other interagency partner, as well as public and private sector partners (e.g., the World Bank, AfDB, the Government of Sweden, and host government partners).
- Liaise on a regular basis with the USAID and members of the USG Power Africa Working Group in country.

WO-015-EA-06
SOW - East Africa Regional Transaction Advisor
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Client: USAID Power Africa and USAID East Africa Regional Mission
Project: Power Africa Transactions and Reforms Program (PATRP)
Reports to: PATRP’s Senior Transaction Advisor and/or COP depending on final organization
Time Frame: September 2014 – May 2019
Position: Transaction Advisor/East Africa Regional

General Summary of Position:

This document describes work the resident Transaction Advisor in East Africa Region is to perform under USAID’s Power Africa Transactions and Reforms Program (PATRP).

The Transaction Advisor will be embedded within an appropriate agency (agency) in East Africa, probably in Kigali, Rwanda. USAID will select the agency and will obtain agreement with the agency, after which agreement USAID will assign the Transaction Advisor to assume his/her position there. It is expected that USAID will make the assignment within 60 days.

Region of coverage: Services will be provided not only on-site in Rwanda, but also through travel assignment to locations in the East Africa region, including, but not limited to:

- Uganda
- Burundi
- DRC

It should be noted that there are or will be other Power Africa Transaction Advisors working in other East African countries (Kenya, Tanzania, Ethiopia, Djibouti) and it is not expected that the East Africa Transaction Advisor will focus on project there, except when asked to fill in for the other resident Transaction Advisors and to supplement their needs if their workload necessitates additional assistance. In addition, Power Africa is placing Transaction Advisors in East Africa in the East Africa Power Pool (Ethiopia) and with the African Development Bank (Geothermal Advisor in Nairobi), and perhaps others.

The interface of the Transaction Advisor’s region of coverage with the East African Power Pool is also notable, and it is expected that there will be close collaboration with EAPP, and specifically with the Power Africa Transaction Advisor to be embedded in EAPP, to ensure adequate transmission system development to serve the region of coverage.

Services will be provided in other locations as requested by the Client. These services may include the Power Africa head office in Pretoria, South Africa, or could include work in other parts of East Africa

The Transaction Advisor's key functions are to:

Transaction Selection/Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.
- Coordinate closely with other USG agencies and entities, such as the U.S.-African Clean Energy Development and Finance Center, established by the Overseas Private Investment Corporation, Ex-Im Bank, MCC, State Department, the Department of Commerce, the Department of Treasury, and the U.S. Trade and Development Agency. The advisor will need to understand the available USG mechanisms, funding constraints, and develop a relationship with key personnel in Pretoria and Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions in East Africa to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g. project merit, competence of project sponsor, risk factors, etc.). This effort will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors in the East Africa region of coverage.
- Work with U.S. government agencies such as the Department of Commerce to flag tenders for energy infrastructure projects that could create new investment and sales opportunities for companies.

Transaction Advisory Services and Capacity Building

- Provide advisory services on electricity aspects to appropriate units of the Nile Basin Initiative, including the coordination unit for Nile Equatorial Lakes Subsidiary Action Program (NELSAP) located in Kigali.
- Assist in the implementation of such new electricity sector reforms or IPP frameworks developed in the countries included in the region of coverage listed above.
- Develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and off-grid solutions including mini-grids and micro-grids, especially those using renewable energy sources, as well as adoption of policy reforms and project implementation in the region of coverage.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.

- Provide guidance, expertise and direction to host agency in Rwanda and other applicable ministries or agencies in region of coverage on adoption of reforms necessary to increase private sector investment.
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring and Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions or removing obstacles.
- Conduct regular reporting and check-ins with the agency USAID and other interagency partner, as well as public and private sector partners (e.g., the World Bank, AfDB, the Government of Sweden, and host government partners).
- Liaise on a regular basis with the USAID and members of the USG Power Africa Working Group in country.

Special Provisions

- Assist in project launch, by serving in senior role in Pretoria until project is fully staffed.
- Other duties as assigned

WO-016-ZA-02
SOW - BWG and PATRP Planning Sessions
October 26 – November 1, 2014
Johannesburg, South Africa
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Definitions:

PATRP is the name of the Power Africa contract for USAID being implemented by Tetra Tech and its partner firms (Nexant, BDO, SNV, ESG, Aurecon, etc.).

The PATRP Working Group consists of those senior professionals working on PATRP expressly invited to attend the meeting. All international travel will require prior approval by USAID.

Purpose:

The PATRP Working Group meeting coincides with the USAID Power Africa Budget Working Group (BWG) meeting. The purpose of the PATRP meeting is

- 1) to support the USAID BWG;
- 2) to hold internal discussions of the PATRP team, in order to set the stage for working together as a team and to plan for the coming year.

Background:

USAID’s BWG is a semi-annual meeting of USAID representatives from each of the Power Africa focus countries and regions to discuss strategy and propose activities for funding. This year, the autumn BWG meeting will be held in Johannesburg, South Africa for three days of intensive discussions from October 27-29, 2014. The purpose of the USAID BWG meeting is threefold: (1) sharing experiences and lessons learned during the first year of the Power Africa Initiative; (2) applying those lessons and experiences into achieving the newly expanded Power Africa goals; and (3) discussing how to best align resources to achieve results. The USAID BWG provides a forum for all USAID Power Africa staff and field personnel to receive and provide feedback about specific activities as well as learn from colleagues.

A few PATRP personnel will attend the USAID’s BWG, but regrettably many will not be invited due to space limitations. PATRP personnel attending USAID’s BWG will generally be the PATRP Key Personnel (KP)⁷ and Country Transaction Advisors (CTA, one per country)⁸. These persons are shown in the footnotes below, collectively the “KP and CTA”.

Prior to USAID’s BWG, the PATRP KP and CTA will meet Sunday afternoon October 26 in Johannesburg to discuss the BWG and rehearse their presentations.

⁷ Key Personnel = Chief of Party (Jim Hogan), Deputy Chief of Party (Linda Burton), Senior Transaction Advisor (John Works), Small-scale renewable energy advisor (Ad Dankers), Assistant COP (Gustavo Carrera), and Home Office Managers (David Keith, Matthew Mendis)

⁸ Country Transaction Advisors for Nigeria (Robert O’Brien and Tom Simpson), Ghana (Greg Martin), Ethiopia (Neb Girma), Tanzania (Steve Wasira), Kenya (Steven Meyer), West Africa (Andre Larocque), East Africa (Jaap duPreez), and EAPP (Joellyn Murphy).

Following the USAID's BWG, PATRP will hold Working Group team meetings in Johannesburg. The PATRP team members (KP and CTA) who attended USAID's BWG will remain for these meetings October 30-November 1. They will be joined by other PATRP team members. Those traveling internationally will require USAID approval. Others will be senior staff of the local PATRP team based in South Africa.

WO-017-US-03
SOW - Policy Support
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

1. BACKGROUND & INTRODUCTION

This SOW is for the PATRP consortium led by Tetra Tech (the TT Team) to provide support to Power Africa in achievement of power sector governance and policy related goals. This SOW is guided by and will submit findings to the Policy Sub-Group, co-chaired by Bob Ichord (State Dept.) and Roseann Casey (USAID).

Power Africa is focused on transactions, yet the theory behind Power Africa is that achievement towards transactions will lead toward improvement in the enabling environment for market-driven development and increased investment. Focused effort in support of policy reforms, regulation, and improved power sector governance is needed to achieve and sustain private investment.

In this regard, the Power Africa Policy Sub-Group has articulated a set of guiding principles which prioritize:

- Credit-worthy utilities
- Sound financial management of existing operations
- Appropriate use of private investment
- Increased integration of clean energy, with particular support for renewables
- Strengthened regional power pools, rooted in a common legal and regulatory framework
- Focus on meeting demand growth and increasing access
- Procurement policies and practices aligned with international best practices
- Promotion of OECD’s Guidelines on Corporate Governance of State Owned Enterprises
- Respect for The UN’s Global Compact Governance Principles
- Awareness of and respect for the UN Guiding Principles on Business and Human Rights

These principles involve distinct but inter-related professional disciplines. Each has its own set of issues, methodologies, possible interventions, and failure modes. Power Africa’s strategy is guided by the above principles which highlight the key elements for achieving our goals of increasing sustainable and equitable access to energy in Sub-Saharan Africa.

An important, but often difficult, first step is to separate energy policy from regulation, and from operation. In Africa, it is too often the case that government (which should set policy) is also involved in regulation where political imperatives often lead to discouraging price increases. In many cases, governments set tariffs either directly or behind the scenes. There are a variety of forms of involvement in or influence of operational matters of state-owned electricity companies, including non-payment of electricity bills of public sector consumers and influence over hiring decisions. The cumulative impact of

inappropriate government involvement in and influence over state-owned electric companies continues to hobble Africa's power sector.

Changing a country's policy environment requires overcoming the inertia of politicized bureaucracies and the bad behaviors that have become ingrained as part of an organization's culture. Power Africa can help champions of reform build capacity and create the will to liberate a sector that is hostage to poor governance, traditional bad behaviors and dysfunctional incentives.

Energy sector reform in Africa generally requires changing a market dominated by a government monopoly and operated by an inefficient state-owned utility. Successful reform results from a continuous process of improvement backed by a powerful champion to accomplish, among other things:

- Cost-reflective tariffs
- profitable and sustainable commercial operations
- Ability to effectively manage new capacity additions / system expansion
- Effective, independent and transparent legal and regulatory mechanisms
- Sound load forecasting and system planning
- An effective capital construction planning and management process
- new energy policy and modern market-oriented energy laws
- independent, effective and transparent regulation

The power sector in each country will exhibit a different stage of maturity with differing needs and problems. Each will require interventions tailored to its own unique needs.

2. OBJECTIVES & TASKS

This work order will assist in fulfilling Power Africa's objectives of increasing power generation capacity by 30,000 MW and electricity access by 60,000,000 connections. Policy reform is essential to achieving sustainability and establishing a market for future transactions. The work involves specific activities tailored to the conditions of each Power Africa country.

The work will be managed by PATRP's project office in Pretoria, although reach-back support, especially for desktop research and analysis, may include Washington based staff. Activities will require short-term travel for engagement in each country. The policy initiatives/analysis must be closely coordinated with the local USAID Mission and PATRP's Country Transaction Advisor. In fact, each Country Transaction Advisor has the lead responsibility to identify impediments to transactions and to propose policy, legal, regulatory and operational interventions to address them. That, we believe, must be done in collaboration with the local USAID Mission as well as policy-makers and governmental and power sector leaders.

Both the Mission and the Transaction Advisor should guide the advisors as they work in country, remain informed as the work progresses, review and affirm the policy observations and conclusions, and monitor progress toward goals related to the policy objectives as work progresses and circumstances evolve over time.

Some of the activities below are an analytical exercise that will occur in the fall of 2014 to affirm and benchmark policy related performance and priorities for Power Africa and our partners. Monitoring and reporting activities will be ongoing throughout the life of the initiative, though it will evolve as needed.

Task 1 – Country Desk Studies. For each of the Power Africa countries, the TT team will obtain materials from USAID and others, including an on-line literature search to assemble basic information regarding energy policy, including the latest news. Resources should include recent publications or analytical work by the World Bank (including the recently developed RISE tool), ClimateScope, SE4All, and other Power Africa Partners and relevant stakeholders as appropriate. The information assembled and reviewed will include electricity tariffs, laws, regulations, power sector development plans, renewable energy plans, experience with IPPs, rural electrification (and access), and reliability/load shedding. Resources provided by USAID will include existing “Policy Summaries” (which are produced by each Power Africa Focus Country mission), MOUs signed by the USG and each Focus Country, and other relevant documents. The review should note any gaps or inconsistencies in these various documents, and may identify areas of concern or questions for the Mission and PATRP’s Country Transaction Advisor, or the need for follow-up field trips by policy advisors.

This task must be coordinated with and done in close collaboration with the respective Country Transaction Advisor for each country.

Task 2 – In-Country Due Diligence. The TT team will undertake targeted trips to Power Africa Focus Countries to carry out interviews and other due diligence to confirm the findings of desk research and affirm / prioritize policy related objectives and recommended interventions or support. The field based review will be done in close coordination with the PATRP Transaction Advisor and the USAID Mission. The visit should be organized in advance, with meetings organized in concert with and assistance of the USAID Mission. The typical due diligence field trip for this policy review exercise will be about two weeks’ duration and will seek to review the full scope of stated policy objectives with key sector actors, validate relevance and priorities, and identify gaps in the guiding documents and action plans , including progress against stated objectives in the MOUs. When a gap or misalignment is noted, the Country Transaction Advisor, supported by the policy advisory team should recommend interventions to be taken by specific stakeholders. Stakeholders to be engaged and interviewed during this process include:

- USAID Mission
- Other relevant USG Power Africa participants that have local representatives
- Host country government (e.g. Ministry of Energy) responsible for electricity and for gas
- Other host country ministries and agencies, as appropriate
- Electricity sector regulator
- Electricity companies (state-owned)
- Rural electrification agency
- Private electricity companies (such as operating IPPs)

- Private developers seeking to invest in electricity sector
- Gas supply company
- Local renewable energy companies (e.g., geothermal, wind, solar)
- Other donors and development partners
- USAID / USG implementing partners (especially Power Africa partners)
- Consultants working on relevant projects
- Exit briefing with USAID, USG, and host government

The field trip will result in a Draft trip report, within 10 days after the trip, to include:

- Description of activities, list of meetings
- Findings, news, and other observations
- Conclusions and recommendations:
 - Additions / changes to Power Africa’s Policy Objectives for each Focus Country (as represented in the MOU and Policy Summary document), noting:
 - Gaps / overlap / alignment with other donor activity
 - Key events (elections, legislative calendars, etc.) that are likely to support or inhibit progress
 - Horizon – any sense of upcoming policy shifts
 - Additional study / analytical work needed
 - Relevant regional issues / priorities; recommended interventions
 - Summary of recommended interventions (by PATRP or other partner(s)) [NOTE: Additional PATRP interventions will be defined by subsequent SOWs]
 - Summary product to be shared with host government
- Meeting notes (annex) - substantive meetings will be documented with meeting notes

Following completion of the submission of the trip reports, a TT policy advisor will make a formal presentation to the Policy Sub-Group in Washington, D.C. to include discussion of the findings, the proposed methodology for tracking progress, and the proposed format for regular quarterly updates to the Policy Summary document/template. The Policy Sub-Group will consider possible revisions to the Policy Summary. [NOTE: this may be broken up by country or region, pending recommendation by TT on time needed for review and discussion per country].

Revisions will be made to all related documentation as needed.

As policy reform is a process of continuous improvement, follow up to this due diligence will occur regularly through monthly reviews and submission of quarterly Policy Summary documents. Additional due diligence (repeating in whole or in part the initial due diligence process) may be recommended / required on a country-by-country basis, pending consultation with the Mission and PATRP’s Country Transaction Advisor and the quality of the quarterly reporting and availability of information. Regularizing monitoring efforts would allow better understanding of progress and impediments to reform, and the likelihood of achieving objectives defined in instruments such as MOUs. The objective of these efforts is to prioritize

and optimize technical assistance and to enable maximum learning by power sector actors, leading toward achievement of reform objectives.

Task 3 – Policy Summaries. As introduced above, Policy Summaries for each focus country will be produced quarterly. These will be produced in coordination with the Focus Country Mission; specifics of the process and ownership of specific elements of work will be agreed to on a country-by-country basis. Quarterly Policy Summaries will be produced and submitted to the Policy Sub-Group and the Coordinator’s Office by each Mission (or by TT on behalf of the Mission), and shared by Power Africa with host governments as well as other stakeholders and Power Africa partners. Deliverables for this task include, within 30 days of conclusion of in-country due diligence (or sooner if practical), in consultation with Missions and the Policy Sub-Group co-chair:

- Proposed methodology for regular tracking activity towards policy related objectives and benchmarks
- Proposed format for quarterly updates to Policy Summary

Policy Summaries will be completed on a quarterly basis, to begin with the presentation of the due-diligence report.

Task 4 – After Action Report on Closed Deals. As a critical element of the learning process for Power Africa, TT should perform an "after action review" on closed transactions to document key agreements, policy, governance, or regulatory related elements that were achieved or not achieved, and the impact of related issues on the successful close and operationalization of a transaction. An After Action Review with a corresponding report should be completed 90 days after the close of each transaction.

Task 5 - Private Sector Feedback Loop. As part of the day-to-day monitoring activities and quarterly reporting activities, TT should provide feedback from Transaction Advisors related to private sector participation in the power sector such as impediments to investment, or other policy related areas of concern. This feedback can be attributed to specific deals and/or private sector partners at the discretion of the advisor / as relevant. Urgent issues should be brought to the attention of the Mission and the PA Policy Sub-Group (via the co-chair) as quickly as possible. General feedback should be included in monthly engagements with Mission and quarterly reports.

Task 6 – MOUs. All current Focus Countries have signed an MOU with the USG which outlines general and specific intentions / commitments. As Power Africa further defines the expansion process, it is likely that additional countries may become partners or Focus Countries. In this

case, TT will be asked to support the process of drafting MOUs for new partner countries. This activity will be only as directed by the COR in coordination with the Policy Sub-Group Co-Chair⁹.

Task 7 – Participation in Working Groups. Various Energy Sector Working Groups exist at the country level; the Power Africa Policy Sub-Group convenes monthly in Washington D.C. Members of the TT team will not be official members of the groups, but will attend regular working group meetings, including the Power Africa Policy Sub-Group meetings, as invited to track and report on policy related achievements, goals and issues. Based on Tasks above, input from Transaction Advisors, regular engagement with Mission Power Africa teams, and other factors, the TT team will make suggestions to the USAID co-chair of the Policy Sub-Group prior to monthly meetings. If attending, and if asked to do so, TT will develop meeting minutes.

USAID's plan to implement policy-related work relies on three mechanisms: the AGI Senior Advisors Group, a potential Delivery Units award, and PATRP. Activities under these awards are distinct yet complimentary, and in some instances, possibly overlapping. Regular coordination and communication will be required to clarify lines of responsibility, to ensure alignment and consistency, and to avoid duplication of effort. Regular communication with each partner is required, as is communication with the PATRP COR regarding any issues or areas of concern.

3. DELIVERABLES

1. Plan for work order – within 30 days of WO launch
2. Country Desk Studies – one for each Power Africa country within 45 days of WO launch
3. Proposed format for in-country due diligence, to include list of questions, issues, topics, and actors to be interviewed. (on a per country basis; the general scope should be consistent across all countries but adapted as required to meet specific circumstances and needs) within 30 days of WO launch
4. In-country Due Diligence study completed in each country within 60 days of WO launch
5. Following each Policy Due Diligence In Country trip (within 10 working days)
 - a. Draft Trip report
 - b. Summary Product to share with each host government, including recommended interventions to address and resolve impediments to the financial close of transactions and/or to create a more hospitable environment to attract capital
 - c. Presentation in Washington to the Policy Sub-Group on the baseline studies and recommended interventions (timing TBD with co-chairs)

⁹ MOUs are signed with all current focus countries; TT may support the effort to develop MOUs with new partner countries, pending expansion decisions. This element will require further direction from USAID.

- d. Revisions to documentation¹⁰ and templates for ongoing reporting (if required)
- 6. After Action Reviews / Reports on closed transactions.
- 7. Monthly engagement with Missions and Power Africa Stakeholders leading to Quarterly Policy Summary Reports, in coordination with Power Africa lead in country.
- 8. Preparation of MOUs for new Focus / Partner Countries as directed.
- 9. Other as required (such as minutes of Policy Sub-Group meetings attended)

¹⁰ The timeline for this requires clarification. It could extend for months if not prioritized. Thus, it might be best to bundle West Africa and East African countries and manage them separately. Also, policy advisor(s) for each region or individual countries need to be identified and assigned in the Work Order.

WO-018-ZA-03
SOW - Support to Africa Power Vision – NEPAD - PHASE I
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

1. BACKGROUND & OBJECTIVE

On 11th September 2014, Power Africa signed an MOU with the NEPAD Agency to collaborate and accelerate development of energy projects throughout the continent. The NEPAD Agency is a technical agency charged with implementing the African Union’s (AU’s) development agenda by coordinating efforts to accomplish priority programs in key sectors on a regional and continent-wide basis, including:

- Regional Integration and Infrastructure
 - Energy Sector (Energy Security, Availability & Affordability)
- Agriculture & Food Security
- Climate Change & Natural Resource Management
- Human Development
- Economic & Corporate Governance; and
- Cross-Cutting Issues of Gender & Capacity Development

This new collaboration will build on Power Africa’s transaction-centric approach and NEPAD Agency’s Regional Integration and Infrastructure agenda (Energy Sector). The NEPAD Agency and Power Africa share a common purpose to foster the development of energy infrastructure throughout Africa. The ultimate goal is to improve the day-to-day lives of ordinary Africans and to stimulate the economic growth by providing adequate, accessible, reliable, affordable and clean energy.

The NEPAD Agency was appointed to lead the Africa Power Vision (APV), a recently-launched initiative proposed by African leaders at the 2014 World Economic Forum in Davos, Switzerland. APV, “From Vision to Action,” aims to identify high priority energy projects with broad-ranging regional impacts for rapid implementation. An important success factor for the initiative will be project development to bankability, financial closure and implementation.

As such, the NEPAD Agency-Power Africa critical partnership is to advance the implementation of Power Africa and APV projects through the following ways (reference to the MOU):

- (a) **Power Africa Support to NEPAD to finalize the selection of Africa Power Vision priority projects** (Phase I)
- (b) **Power Africa-APV Transaction Advisors** (Phase II)
- (c) **New Transaction Advisors to Support APV Projects** (Phase II)
- (d) **Power Africa Senior Advisors Group to Advance APV Goals and Priorities** (Phase II)

PHASE I - Leading up to NEPAD HSGOC January 2015 Objectives:

- **Finalize APV Concept Note DRAFT** – Bringing the Vision to Action (Operationalize the vision by proposing an overall strategy referring to Project Prioritization and Acceleration Processes for implementation)
- **Project Prioritization** – Methodology for Selecting Energy Projects for Acceleration
 - Finalize APV Prioritization Methodology (NEPAD APV Project Prioritization Consideration Tool (PPCT))
 - Utilize the Tool to filter 10+1 shortlisted projects
 - Finalize Project Brief Draft 10+1
 - Short Paper showing Prioritization / PPCT Methodology, rationale and processes
- **Finalize the APV Package for NEPAD HSGOC Meeting – January 2015 including:**
 - Executive Summary (Concept Note & PPCT)
 - Concept Note
 - Final PPCT and Short Paper (Rationale, Process and APV Project Assessment using the tool)
 - Final 10+1 Project Profile Briefs

Phase II - Post NEPAD HSGOC/ AU Summit January 2015 Objectives:

Develop a 10-year implementation plan as per Dr. Zuma's request to the NEPAD Agency to incorporate APV as a tool for achieving Agenda 2063. Some of the components of the 10-year implementation plan are but not limited to:

- **Further Prioritization (3-6 Projects) after receiving feedback from HSGOC**
- **Acceleration Process**
 - Project Preparation & Packaging
 - Project Management & Implementation Strategy
 - Project Structuring & Financial Close

Note that Phase I and II will be detailed out in a common work plan. Phase II scope of work will be further elaborated once Phase I is completed.

In July 2010, African leaders launched the Programme for Infrastructure Development in Africa (PIDA). Endorsement of PIDA Priority Action Plan (PAP) was achieved in January 2012 by AU Heads of State. Led by the AU, NEPAD Agency and supported by African Development Bank (AfDB) and other key stakeholders, the overall goal is to promote socio-economic development and poverty reduction in Africa through

improved access to integrated regional and continental infrastructure networks and services. PIDA is responsible for developing a framework strategy for infrastructure development at the regional and continental level covering Transport, Energy, Trans-boundary Water, and ICT. PIDA is the AU/NEPAD's key planning document guiding the infrastructure development agenda for the continent, including policies and investment priorities in the key sectors for 2011 – 2040.

To ensure the political support of the APV initiative at its highest level, the NEPAD Agency will submit the APV Package (as defined below) for endorsement by the NEPAD Heads of State and Government Orientation Committee (HSGOC) meeting in January 2015. Of the 15 projects under PIDA, four are Transmission Corridor projects, nine are Hydro projects, one is a Gas pipeline project and one is an Oil pipeline project. PIDA focuses on projects of regional and continental nature. NEPAD Agency is also coordinating with the UN's Sustainable Energy for All (SE4ALL) program. The current draft APV project shortlist (10 projects altogether and 1 solar project to be added) has engaged key stakeholders, some of which include African Union Commission (AUC), NEPAD Agency, and Ministers of energy and finance.

The immediate task USAID will conduct in support of NEPAD Agency is preparing the APV Package for the HSGOC meeting, which is detailed below. This Package will allow the NEPAD Agency to request the HSGOC to endorse the APV initiative and its processes to gain high-level support going forward. Considering the limited time available, the final APV HSGOC Package is to be delivered to USAID on 1st December 2014 and to NEPAD Agency on 8th December 2014.

2. TASKS

Task 1 – Data Gathering & Review

Gather all relevant, updated data from the NEPAD Agency and other sources as necessary that will serve as the input information for the Draft Paper. This includes the following:

- APV Concept Note prepared by the global consultancy McKinsey & Company (Draft to be finalized).
- APV list of projects proposed by APV key stakeholders and project briefs.
- NEPAD APV Project Prioritization Consideration Tool (PPCT) prepared by McKinsey & Company (Draft to be finalized).
- An additional Mini-Grid and/or Solar Project for inclusion in the APV list to be proposed by NEPAD Agency and possibly the Ghana 1000 gas project.
- Any other background document NEPAD Agency finds to be useful as input for the Draft Paper.

Considering NEPAD Agency's pressing deadline to submit the APV package to the HSGOC, a Dropbox was created and all the documents were provided to USAID (Gary Shu and Elizabeth Cohan) on 3rd November 2014 (https://www.dropbox.com/sh/b29i0qc1gll7vt1/AAAEborJbry8iQPAvuj_85Bna/APV?dl=0). The Dropbox will also serve as a platform to streamline the tasks to operationalize the MOU.

Task 2 – NEPAD HSGOC APV Package Drafting

The APV Concept Note Finalization will focus on the following areas:

- a. Background and rationale for APV**
- b. Contextualizing APV as it relates to PIDA**

c. Explanation of the five pillars to achieve the APV strategy:

- Leverage domestic energy resources
- Drive GDP growth with electrification
- Scale up through regional integration
- Run assets efficiently
- Mobilize all available resources

d. Explanation of the project selection criteria as contained in the APV PPCT

e. List of the proposed APV projects and updating and finalization of the project briefs for each (subject to information available):

- Nigeria-Algeria Gas Pipeline
- Sambangalou Hydropower Project
- Zambia-Tanzania-Kenya Transmission Line
- Batoka Gorge Hydropower Project
- Inga III BC Hydropower Project
- Central African Interconnection Transmission Line
- West Africa Power Pool – Domunli and Maria Gleta Regional Power Projects
- Baringo-Silale Geothermal Field
- North South Transmission Project
- Boulenouar Wind Project
- An additional Mini-Grid/Solar or other Project proposed by NEPAD Agency and Ghana 1000 gas project

f. Keeping the five pillars in mind, assessment of each proposed project against the criteria contained in the PPCT)

g. Update of the proposed projects briefs against objective technical, financial, economic realities and constraints, noting how this might impact the obstacles or benefits of implementing these.

Task 3 – Internal Review of the Draft NEPAD HSGOC APV Package

Internal Power Africa review of the Draft Paper as follows:

- Tetra Tech Team
- USAID Team
- Consolidation of comments and redraft incorporating comments

Task 4 – Draft NEPAD HSGOC APV Package submitted to NEPAD Agency

Draft **NEPAD HSGOC APV Package** will be submitted to USAID on 1st December and to NEPAD Agency on 8th December 2014. NEPAD Agency will internalize the package to ensure that it reflects the Agency's views before presenting it to the NEPAD HSGOC meeting in January 2015.

3. DELIVERABLES – Deadlines:

10. Draft NEPAD HSGOC APV Package to be submitted to USAID for internal Power Africa Review on 1st December 2014.
11. Comments from internal review by USAID received by c/o/b 2nd December 2014.

12. Draft Package to be submitted to NEPAD for internal review by c/o/b 3rd December 2014.
13. Comments from internal review by NEPAD received by c/o/b 4th December 2014
14. Final NEPAD HSGOC APV Package by 8th December 2014 latest. (Note: NEPAD Agency will be closed from 15th December 2014 – 5th January 2015).

WO-019-GH-02
SOW - Gas Sector Transaction Advisor (Gas to Power) - Ghana
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

The Gas Sector Transaction Advisor for Ghana requires practical experience in the development, operation, monitoring, inspection of natural gas infrastructure ‘upstream & mid-stream’ components (from gas wells to power generation plants) and in the development & enforcement of regulations for the safe operation & maintenance and of gas infrastructure. A good knowledge of the power sector, generation & transmission infrastructure and its operation would be an added advantage.

1. Current SOW flows from the Nexant/AIP contract that provided the services of an Embedded Gas Sector Advisor to the Energy Commission of Ghana. The Advisory Services are to be continued under the PATRP Contract. This position requires the fulfillment of the following Scope of Work (SOW).

1.1. Development, Implementation, Monitoring, Inspection & Enforcement of Gas Processing Plant and Pipeline Regulations

The Energy Commission (EC) requested assistance from USAID/Nexant to help in the development and implementation of regulations relating to its newly developing gas sector, to learn how to regulate construction, operations, monitoring and inspection of gas sector assets, to be able to enforce rules, regulations, and procedures in order to ensure the safety and soundness of the country’s gas processing plant and pipeline systems.

1.2 Specific Tasks

- Provide expert advice to the EC in handling the regulatory issues of the under construction gas processing plant and onshore gas pipeline system.
- Develop Technical & Safety Regulations for natural gas processing plants.
- Review existing rules/regulations/codes for natural gas pipelines, to suggest modifications where necessary, to improve their effectiveness.
- Develop Operating Licenses to be issued to the Operators of natural gas processing plants and natural gas transmission pipelines.
- Formulate monitoring & inspection procedures for the enforcement of rules/regulations, to equip EC personnel with proper training to fulfill the EC’s mandate to regulate, monitor and inspect Ghana’s gas sector.

1.3 Capacity Building

- Institution building of the EC, definition of minimum number and qualifications of personnel required to monitor, inspect, and enforce rules, regulations, and procedures--including ongoing training and qualification/certification requirements as well as recommending the hiring and training of any additional staff.

- To ensure adequate transfer of knowledge to EC through a combination of formal and informal lectures/seminars/ workshops, to more fully explain the regulatory requirements, and contemporary international best practices.

1.4 Specific Topics for Training Workshops/Seminars

- Pipeline system design principles
- Pipeline Access Codes
- Pipeline Operations and Safety Practices.
- Pipeline Integrity Management, leak detection, cathodic protection, intelligent PIGs etc.,
- Gas Processing Plant, safety, hazard prevention, accident prevention, fire fighting system, emergency procedures, operational safety, health, environment and hazard mitigation.

1.5. Act as local Coordinator of the TA

Monitor and coordinate the implementation of the 'Gas Sector Action Plan' (GAP), particularly the scheduling and agenda of Working Group Sessions (WG1, WG2 and WG3 as defined in the GAP implementation MOM and Schedule). This includes:

- WG1 (where the Gas Sector Advisor acts as Lead Consultant): Completion of "Jubilee First Gas Facilities", including monitoring, follow-up of the Independent Engineer' Safety Audit, and subsequent actions;
- WG2: *Assistance to the MOEP, as MOEP may request, in drafting of Gas Sector "Structuring" Agreements between: GOG-Ghana Gas (performance and support agreement); GNPC-GNGC agreement; GNGC-BOST agreement; and GNGC/BOST-WAPCo (interconnection agreement with WAGP).*
- WG2 : Assistance to the Petroleum Commission, on the granting of approvals and permits for the Jubilee and Sankofa gas Facilities;
- WG3: *Assistance to the MOEP, as MOEP may request, in the negotiations of gas commercial agreements: Jubilee and Sankofa gas supply agreements; securitization (including a Gas Sector Securitization Plan), connection and transportation agreements; and gas sales agreements with VRA/IPPs.*
- Advice to the negotiators on the GOG side will be delivered, including an approach and the modeling for the determination of the Jubilee "post 200 Bcf" and Sankofa raw gas purchase price.

II. PATRP Assignments

- 1.** The Gas Sector Adviser shall be the primary Adviser to the MOEP and other Gas sector regulators (as approved by the MOEP) and shall act as local Coordinator for the activities linked to the following SOW that would involve additional Advisers on short term TA”.
- 2.** The SOW shall be endorsed by the MOEP under the form of an exchange of letters, or the MOU as was discussed during AIP last mission;
- 3.** Beyond the budget assigned to the Gas Sector Adviser (one-person budget), there will be some allocation covering additional Advisers, as needed from time to time for specific assignments. This additional budget shall be consistent with the resources offered by PATRP and the USAID Ghana Mission. It is estimated that such budget will be about \$1.5M over 12 months period, Oct 2014-Sept 2015, in the spirit of the continuation of the GAP effort. (This estimate will have to be re-evaluated based on the final SOW requested/approved by the MOEP.)

WO-020-ZA-04
SOW - Advancing Gender Equality in Power Africa
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

1. BACKGROUND & INTRODUCTION

Power Africa aims to accelerate power generation and transmission, and expand power distribution in focus countries in SSA with a goal of increasing generation capacity by 30,000 MW and increasing connectivity by 60 million connections.

To support the achievement of these results, USAID has adopted the following approach:

- **Transaction Focus:** Power Africa will focus its efforts on bringing power projects to financial close. Power Africa Transaction Advisors work in collaboration with private sector and government actors to identify and address obstacles inhibiting financial close.
- **Committing to Reforms:** Power Africa will work with focus country governments to advance the key power sector reforms necessary to attract private sector investment and accelerate project development and implementation. To the extent possible, Power Africa will build upon existing reform agendas.
- **Delivering Results and Effective Implementation:** Power Africa will work directly with governments to help them improve their systems and capacity to deliver basic energy services.
- **Mobilizing Finance and the Private Sector:** Power Africa, working with international partners, will address constraints to private sector participation and investment.
- **Increasing Cross-Border Electricity and Energy Trade:** Power Africa will work with the East and West Africa Power Pools, among others in the region, to increase cross-border trade in electricity to increase security of electricity supply and lower overall energy costs.

At the center of Power Africa is the recognition that energy is a driver of the economic growth critical to achieving transformational development. As with all sectors within the development sphere, the energy sector has the potential to advance the human development opportunities available to both men and women. These opportunities, however, are contingent upon thoughtful decisions that are informed by analysis of their potentially differential impact on men and women.

Energy related projects, programs and policies that explicitly consider these impacts and intentionally strive to reduce inequities and foster effective engagement of all will result in better outcomes, both in terms of the sustainability of energy services as well as the human development opportunities available to women and men.

This explicit consideration would give attention to issues associated with gender equality throughout the sector; from decision making within the sector from the local to national levels (both within public and private sectors), to participation within the sector’s workforce, to the beneficiaries of its services.

Power Africa is dedicated to increasing the generation of and access to power in Africa through support to activities that are informed by and intended to meet the different needs of men and women. The Power Africa model is based upon a dual pronged approach: advancing catalytic transactions, while simultaneously supporting key power sector policy reforms aimed at creating an environment attractive to private sector investment. Opportunities to close gender gaps exist on both the private sector/transactions and the public/policy sides of the energy sector.

2. OBJECTIVES & TASKS

2.1 Objectives

The Power Africa Initiative requires sustained support developing and implementing a gender strategy to ensure that our programs capitalize on opportunities to empower women as participants in, and beneficiaries of, Africa's energy sector, and to advance gender equality.

- Ensure Power Africa considers the gender related impacts of its projects; mitigating for potential harmful impacts while strengthening programs and policies that not only advance gender equality, but by doing so, also ensure greater likelihood of success for Power Africa and its partners.

2.2 Tasks

Develop and implement a gender strategy that articulates Tetra Tech's approach to gender mainstreaming throughout Power Africa's activities. The purpose of the strategy is not to identify stand-alone gender activities, but rather to ensure the integration of gender considerations throughout the Initiative. To the extent that stand-alone activities for women are developed, they should only be utilized within a broader and clearly defined approach to build women's capacity to engage in mainstream activities.

Power Africa's activities are implemented through three complimentary mechanisms: Power Africa Transactions and Reform Program (PATRP), the Senior Advisors' Group, and the Delivery Units. PATRP activities implemented by TetraTech sub-contractors and sub-grantees should be incorporated into the strategy.

The Senior Advisors' Group and Delivery Unit awards both include requirements to address gender equality within their scopes of work. The gender strategy should reference and strengthen the gender relevant aspects of these complimentary mechanisms.

In its analysis of the opportunities for gender inclusion within the PATRP contract, the strategy should consider – but not be limited to - PATRP's four objectives which include:

- Institutional Support to Power Africa Coordinator's Office
- Late Stage Transaction Support
- Support for Small Scale projects, Mini-grids and Rural Electrification
- Regulatory and Institutional Strengthening and Policy Reform

The strategy will include illustrative activities and indicators, as well as an approach to how they will address shortfalls should monitoring demonstrate a lack of actual integration.

Illustrative tasks under each of the PATRP objectives as well as additional areas of support include:

- Institutional Support to Power Africa Coordinator's Office:
 - Track gender relevant indicators within Power Africa's Monitoring and Evaluation plan. Ensure collection of sex-disaggregated data as required.
 - Track and analyze energy sector trends including those relating to energy access and gender,
 - Lead and participate in communities of practice active in gender and energy sector and share lessons learned, and state of the art thinking with the Power Africa team.
 - Develop a resource library including references, toolkits, and other relevant materials to inform Power Africa staff; and identify a cohort of gender and energy thought leaders who can be called upon to shape and ensure gender integration throughout Power Africa.
 - Participate in Power Africa Gender Working Group
 - Maintain dialogue with Senior Advisor Group and Delivery Unit staff on opportunities for increasing attention to gender issues within their scopes of work.
 - Ensure that sub-contractors and sub-grantees are aware of and implement gender integration principles and practices.
- Late Stage Transaction Support:
 - Early Stage Transactions: While the PATRP contract highlights Late Stage Transaction Support, early stage intervention is critical to advancing gender considerations. Gender considerations should be addressed in Power Africa's due diligence process in assessing the viability of a given transaction.
 - Ensure that all Power Africa Transaction Advisors are provided training related to gender and energy.
 - Ensure that Power Africa Transaction Advisors participate in efforts to identify key entry points for the inclusion of women in both late and early stage transactions.
 - Develop training materials and resources for Transaction Advisors.
- Support for Small Scale Projects, Mini-grids and Rural Electrification:
 - Document gender sensitive rural electrification frameworks.
 - Document gender sensitive lessons learned – both positive and negative - from small scale projects that might be applied to larger scale programs. Develop tools that can assist Power Africa staff in taking to scale the lessons learned from small scale projects.
 - Ensure collection of sex-disaggregated data on small scale, off-grid and rural electrification projects
- Regulatory and Institutional Strengthening and Policy Reform
 - Conduct a gender analysis of policies relevant to the energy sector. The gender policy within each country should be analyzed to determine its mandate relevant to the energy sector. The analysis would include the six Power Africa focus countries as well as stand out developed or developing countries as points of reference. The analysis might include

but need not be limited to country specific gender policies, energy policies, and rural electrification policies. The scope should not be limited to policies that focus on women as end users, but also address women as decision/policy makers within the sector. The analysis would identify “gold standard” policies, areas in need of strengthening within the Power Africa focus countries, and approaches for implementing change.

- Power Africa has engaged the African Governance Initiative (AGI) to provide high level Policy Advisors in limited Power Africa focus countries. Collaborate with Policy Advisors to identify gender champions within focus country governments, and opportunities for advancing gender sensitive policy reforms.
- Private Sector Partner Engagement
 - Work with Power Africa private sector partners to identify points of entry for empowering women and advancing gender equality within their spheres of influence. This should include points of entry for advancing gender equality with respect to end users and decision makers.
 - Develop needed toolkits, checks lists or other resources identified by partners.

3. DELIVERABLES

The consultant team will provide the following deliverables under this Scope of Work. Each deliverable will be reviewed and approved by USAID:

- Gender Strategy: Development of a strategy that outlines Tetra Tech’s approach to integrating the implementation of activities that advance female empowerment and gender equality throughout Power Africa’s programming.
- Gender trainings and training materials: Development and delivery of training materials for Power Africa Transaction Advisors. Additional trainings may be developed and delivered for Power Africa staff, and private sector and government counterparts.
- Resource Development: In addition to training materials, toolkits, templates, checklists, talking points, case studies and other resources will be developed for and shared with Power Africa stakeholders as appropriate. Materials will be informed by analyses described in the illustrative deliverables below.
- Resource library: Develop a library of existing state of the art resources on the topic of gender and energy. Resources could be used to inform analyses described in the illustrative deliverables below and shared with Power Africa stakeholders as appropriate.
- Implementers Working Group: Establish working group among Power Africa implementers (PATRP, Senior Advisors Group, Delivery Units) to ensure sharing of lessons learned and strategic planning.

Illustrative deliverables under this Scope of Work include:

- Mentoring programs: Identify opportunities for the development of women’s mentoring or scholarship programs within the energy sector. Opportunities might exist within both public and private sector.

- Gender analyses and toolkits: Conduct analyses on topics including, but not limited to, the ideas listed below. Analyses should result in the development of toolkits or other useful resources for Power Africa staff and stakeholders (Transaction and Policy Advisors, Government Counterparts). The analyses should include assessments of a specific issues as well as recommendations for potential interventions to address weaknesses identified. The toolkits or other resources should focus on articulation of implementable actions or solutions.
 - rural electrification frameworks: Do frameworks adequately address gender equity issues, if not, how might they be strengthened.
 - lessons learned from small or large scale projects (including from other infrastructure and utility sectors and regions) that can be adopted by Power Africa countries
 - gender and energy policies (strategies/action plans/implementation plans/monitoring plans) at the national and regional government levels: Do gender policies address energy issues? Do energy policies address gender equity issues? Identify the opportunities for collaboration between appropriate policy makers.
 - Opportunities for private sector promotion of women’s empowerment and gender equality. Including assessments of:
 - Barriers to participation at the industry level
 - Access to influence over decision making at the industry level
 - Capacity of private sector to address gender issues
 - Opportunities for public sector promotion of women’s empowerment and gender equality. Including assessments of:
 - Barriers to participation
 - Capacity of government to address gender issues
 - Significant regional laws, policies and regulations
 - Relevant international human rights commitments relating to women’s empowerment and gender equality

4. STRUCTURE

4.1 Personnel Requirements

All work products will be supervised by the PATRP Chief of Party, Deputy Chief of Party, or Senior VP. It is anticipated that consultants working under this scope will have complimentary energy sector and/or gender expertise as well as experience working in Africa. The work will focus mostly in Africa, ideally in Pretoria, with regular communications with Power Africa staff in Africa and DC.

The point of contact for the contractor at USAID is Denise Mortimer.

Level of Effort: A full time Gender Advisor should be dedicated to this effort for the initial 4 months, in order to conduct the analyses needed to develop the gender strategy. The Gender Advisor should have access to energy specialists with strong Transactions and Policy experience. Upon completion and acceptance of the strategy, a part time Gender Advisor will manage the implementation of activities

included in the strategy, working in close collaboration with other PATRP staff, for the duration of the contract.

WO-021-NI-03
SOW - Nigeria Local Technical Advisors
USAID/ Power Africa Transactions and Reforms Program ("PATRP")
(AID-623-C-14-00003)

General Summary of Positions:

This document describes scope of work of several local Nigerian experts to serve as advisors to local entities, under USAID's Power Africa Transactions and Reforms Program (PATRP). The advisors will be embedded at Ministry of Power and at the National Bulk Electricity Trader, but will also generally provide support to the PATRP team and USAID Nigeria.

1) Ministry of Power /Presidential Task Force on Power (PTFP)

Advisor: Paul Anike

- Liaison between the Minister of Power's office and developers of Independent Power Projects, interface with other agencies, the IPPs and the Ministry/PTFP draw; capacity building, and technical, budgetary and political support to continue to make the Ministry a more effective participant in development of the IPP industry and more ready to face the emerging challenges in the power sector
- Security Partnership – Monitor/ Manage/ and Report Security Department of NIPP, TCN, and Discos in relation to any security issues affecting Power delivery on schedule. E.g. issues on Power line vandalization, gas to power pipeline vandalization, Power theft or any other Power installation issues that is not a core responsibility of the Generation, Transmission, Distribution, Fuel to Power or Admin Unit of PTFP.
- Community/Institution/ State Partnership – Monitor, Manage and Report, Community / Institutional issues; e.g. Community (Youth) restiveness under wayleave settlements, Labour issues, none responsiveness to Power issues arising from other Government Agencies, Donor Agencies, International and Local Institutions, that can cause any kind of delay in Power delivery as scheduled.
- Port Issues – Monitor/Manage and collaborate with the various contractors, Terminal Operators, Shipping Company, and Customs, CBN, Inspection Agents e.t.c. to ensure release of power equipment on arrival at the various port terminals to the various contractors. This has being helping the contractors meet up with the power delivery timelines. Including the release of the stranded power equipment in various terminals to the project owners/contractors.
- Power Sector Duty Waiver – To prepare a global duty waiver document aimed at granting Zero Percent Duty waiver to all Power Sector imported machinery, and equipment. An incentive aimed at encouraging investors into the Power Sector. To Monitor, Manage and Report the use of this waiver to avoid abuses from the IPP beneficiaries.

- Immigration Issues - To Monitor, Manage, and report Immigration issues that might impede the scheduled power delivery timelines. Providing support to the various power stakeholders – NIPP, TCN, IPPs, Generation and Distribution Companies - through their power expatriate consultants, employees etc.; like processing of international Passports, expatriate quotas, business visas, temporal work permits, transit visas, etc.
- Right of Way issues (Wayleave) – Monitor, Manage and Report various NIPP, TCN, DISCOs Right of Way (ROW) issues; Line route approvals, wayleave compensation payments, site acquisition for construction of the substations etc.
- Liaise with donor agencies, to develop additional capacity building, technical, budgetary and political support that will continue to make IPPs, NIPP and Generation and Distribution Companies more robust and solution provider in the power sector, and where applicable introduce lighting efficiency intervention programs that will provide immediate impact on energy supply to the people.
- To Monitor and Report the operational status; resolved and unresolved issues of Nigerian Electricity Liability Management Company (NELMCO), to ensure they operate within their scope. E.g. consistently report the number of court cases, reduction in claims against FGN, Increase or decrease in assets and liabilities of NELMCO.

2) Nigerian Bulk Electricity Trading (NBET)

Power Procurement Consultant: Omotayo Hassan

- Communicate directly with power wholesale suppliers, and regulatory staff on issues related to power procurement
- Lead in originating and negotiating Power Purchase Agreement (PPA) with Independent Power Producers
- Provide support in the development of NBET's regulatory positions regarding power procurement
- Lead procurement documents and procedures for new generation and associated transmission additions
- Lead and Coordinate in business planning and the analysis of utilities energy planning
- Monitor projects and ensure compliance with license requirements and milestones
- Conduct periodic assessments of power supply portfolio risks and communicate risk issues to the various stakeholders

- Prepare regulatory filings to the Nigerian Electricity Regulatory Commission (NERC) on power procurement planning and activities
- Participate in regulatory proceedings on market design, market operations and energy planning issues
- Serve as a Power Procurement Lead with a team of 8 team members providing assistance in the NBET power procurement process
- Lead the planning and coordination of all aspects associated with structured competitive bulk power acquisitions
- Drive process improvement through understanding and application of software tools
- Manage projects and special studies of moderate complexity to implement improvements in NBET's forecasting and business planning processes.

3) Nigerian Bulk Electricity Trading (NBET)

Local Legal Advisor: Chiedu Ugbo

- Work as Embedded Adviser in the office of the NBET CEO, providing legal advise as required
- Work with Nexant Principal Consultant, Legal and Project Finance, David Hunt, on Nigerian legal issues;
- Review all relevant documents to assure compliance with Nigerian law;
- If required by NBET, meet with parties to NBET transactions;
- Conduct legal due diligence as required;
- Support the negotiations as needed;
- Assist in the drafting/review of the power purchase agreements (PPA);
- Assist in the review and drafting of any other legal documents pertaining to PPA transactions.

WO-022-GH-06
SOW - Ghana - Technical Assistance to the Ministry of Energy & Petroleum (MoEP)
Under the Gas Action Plan
October 1, 2014 -- September 30, 2015
USAID/ Power Africa Transactions and Reforms Program ("PATRP")
(AID-623-C-14-00003)

1. General Approach

The purpose of the Technical Assistance (TA) to be delivered to the Ministry of Energy and Petroleum (MOEP) is to reinforce the capacity of the MOEP to play its leadership and monitoring roles in the Ghanaian gas sector; and to help the Ministry advance certain critical transactions and reforms currently taking place in the sector, as summarized in the Gas Action Plan (GAP) dated June 17, 2014 (GAP) and approved by the Minister.

Such assistance will be provided by a long-term Gas Transaction Advisor (GTA) resident in Ghana and available to MOEP and its associated agencies. The GTA will draw on the PATRP Contractor's pool of short-term advisors as necessary to meet the objectives of this TA.

The GTA will be the Coordinator of the advisory services delivered to the MOEP in the framework of the implementation of the GAP. The TA's Statement of Work is delineated below. It includes *inter alia* helping MOEP meet the Conditions Precedent set by the Millennium Challenge Corporation in the context of the MCC Ghana Compact 2.

2. Detailed Statement of Work (SoW)

The scope of work would be aimed at short- and medium-term assistance to MoEP in initiating the gas deliveries through the Western Corridor Gas Infrastructure, and strengthening the foundations of the gas industry in Ghana using state-of-the-art and international best practice in the industry's technical, commercial and financial areas. The SoW will cover the following key activities, but also recognize it will evolve.

2.1 Completion and operation of Western Corridor Gas Infrastructure (ongoing)

- (i) Advise the MOEP in strategy and decision-making with regard to the completion of the facilities;
- (ii) Strengthen the capacity of the Energy Commission and the Petroleum Commission (EC / PC) as per their mandates for regulating and monitoring the operation of gas infrastructure in general and of the Western Corridor Gas Infrastructure in particular as related to mechanical completion, pre-commissioning, commissioning, start-up and operation of facilities; and
- (iii) Assist EC, PC and MOEP in following-up recommendations made by the independent auditor of the Western Corridor Gas Infrastructure as they relate to safe operation and maintenance.

2.2 Policy-Regulation-Sector Structuring

Policy

- (i) Gas Master Plan (GMP): Review the final report and provide comments as appropriate;
- (ii) Natural Gas Pricing Policy (NGPP): Prepare an Advisory Briefing Paper considering the potential revision of the NGPP; and
- (iii) Liquefied Natural Gas (LNG): Develop a Strategy Paper including a framework for evaluating unsolicited LNG investment proposals.

Regulation

- (i) Assist EC in the development of a Memorandum of Understanding explaining and harmonizing the roles of the regulatory commissions; i.e., EC, PC, National Petroleum Authority (NPA), and the Public Utilities Regulatory Commission (PURC); and
- (ii) Build the capacity of PC and develop documentation as necessary for it to grant relevant approvals and permits for off-shore facilities.

Sector Structuring

- (i) Performance and Support Agreement (PSA): Assist MOEP in the development and negotiation of PSAs between the MOEP and Ministry of Finance & Economic Planning (MOFEP) with Ghana National Gas Co (GNGC) or with whatever entity emerges as the manager, aggregator, processor and on-seller of Ghana's gas resources;
- (ii) Capacity Building of the Bulk Oil Storage & Transportation Company (BOST): Assist BOST in the definition of a strategy to acquire necessary capacity and resources to operate the national gas pipeline transmission network.

2.3 Commercial Contracts and Securitization

Commercial Contracts

- (i) Assist and advise the MOEP in its monitoring role to advance commercial contracts that underpin the Jubilee, TEN and Sankofa gas value chains, and assist in resolving stumbling blocks. Contracts include:
 - Jubilee Partners-GNPC GSA
 - GNPC-GNGC On-sale Agreement
 - GNGC-VRA Gas Supply Agreement

- GNGC-Sinopec Pipeline and GPP O&M Agreement
 - GNGC-BOST Pipeline Use Agreement
 - GNPC-GNGC Deep Water Line Transfer Agreement
 - LPG-Isopentane-Condensate sales and transport agreements with Offtakers
 - OCTP-GNPC Sankofa GSA
 - GNPC-GNGC Sankofa On-sale Agreement.
- (ii) Deliver capacity building and transaction advisory services to PC on the Sankofa plan of development (ongoing)
- Capacity building on financial modeling; and
 - Review of Sankofa NAG financial model and related assumptions.

Securitization

- (i) Refine and support the implementation of a gas sector securitization plan (ongoing) including:
- Project and sector financial modeling;
 - Identification, validation and ranking of securitization sources;
 - Validation of securitization strategy for each project (Jubilee, TEN, Sankofa and LNG Imports); and
 - Assistance to MOEP and MOFEP in closing commercial negotiations of projects on securitization aspects.
- (ii) Assist MOEP, MOFEP and other GOG agencies as necessary in the design and implementation of a comprehensive securitization package to ensure functionalization and risk mitigation of the entire gas-to-power value chain and advise on:
- Drafting the legal instruments that would establish the structure for securitizing the value chain;
 - The preparation of a security package for state-owned entities entering into gas purchase obligations with the private sector, including cash collaterals and escrows, letters of credit backed by risk guarantees from multilateral financial institutions; and
 - The securitization for inter-state owned entity obligations, including between GNPC and GNGC or GNGC and VRA to ensure the value chain remains viable.

3. Deliverables

- Briefing notes / position papers, and comments on reports and documents of sector stakeholders
- Templates for Performance and Support Agreements
- Strategic operation paper for BOST
- Monitoring reports for MoEP on the implementation of commercial agreements
- Advisory papers on important activities under 2.1, 2.2, and 2.3, above
- Reports on the analyses of financial models for the development and commercialization of gas resources from the Sankofa and TEN fields
- Gas to energy value chain and securitization – a securitization plan and draft legal instruments for the structuring, functioning and risk mitigation of the entire value chain

4. Reporting

The Project Manager or his designee will submit reports as follows:

- Bi-weekly summaries of implementation progress and important outcomes; and
- Quarterly reports for the quarters ending 31 Dec 2014, 31 March 2015, 30 June 2015 and 30 Sept 2015. The March '15 report will be a mid-term report that summarizes achievement from the start of WO implementation to that point, and the Sept '15 report will be a report of the full year of WO implementation. These reports will: i) summarize progress of project inputs (mainly TA) in capacity building, institutional strengthening and toward the completion of important documents, strategies, plans, legal instruments and policies; document the achievement of results/impacts as tracked by indicators in the M&E plan; and discuss issues and challenges to implementation and steps taken to overcome obstacles. A section of these reports – a Transaction Status Report – must focus specifically on the status of priority transactions that are affected by the TA under this WO.

5. Key Staff

We expect that the project activities can be completed by the following team of consultants who bring expertise in all areas of the gas-to-power value chain:

Alain Rosier

Mr. Rosier is a Senior Oil & Gas Advisor, and as the Project Manager, he shall oversee all the activities under this SoW. Mr. Rosier will provide high-level inputs and supervision on the following tasks:

- Strategic advice on the completion and commissioning of the Western Corridor Gas Infrastructure;
- Policy recommendations on GMP, NGPP, and LNG imports;
- Assistance on sector restructuring including, but not limited to, finalization of PSA and strategic framework for the long-term development of BOST;

- Assistance to MoEP and MoFEP on gas sector securitization plan, and its impact on the long-term financial viability of the sector;
- Provide other policy advice as sought by the client from time to time;
- Mobilize appropriate short-term TA - e.g., legal counsel for drafting legal instruments – as required from time-to-time in the implementation of this WO and achievement of its desired outcomes and results; and
- Completion and timely delivery to MOEP, GOG agencies and USAID of all reports, plans, strategies, draft legal instruments, draft policies, regulations, operational manuals and all other project documentation.

Hassan Nawab

Mr. Nawab is a Senior Gas Expert, has managed large gas infrastructure, and in 2014 provided TA to Ghana EC, PC and MOEP in many of the tasks outlined in 2.1, 2.2, and 2.3 of this WO. Mr. Nawab will be assigned the following tasks:

- Provide technical advice and appropriate documentation that guide the monitoring, inspection and enforcement of pipeline rules and regulations;
- Provide timely TA to GOG agencies that are responsible for the efficient and financially viable operation and maintenance of the Gas Processing Plant (GPP) at Atuabo. Assist in drafting SOWs and budgets for competitively procured strategic partner(s) in the operation of the GPP and associated infrastructure. Participate in tender review and selection committees;
- Participate in the deliberations of technical committees on the development and management of natural gas resources as convened by MOEP, EC, PC, Ghana National Petroleum Corporation, NNGC and BOST;
- Assist and advise all GOG agencies involved in the operation, maintenance and oversight of Ghana's gas-to-power supply chain to perform their mandated roles and responsibilities;
- Assist in the implementation of the Gas Action Plan, and provide inputs on Gas Master Plan;
- Prepare briefing notes, technical risk summaries, position papers on issues of concern in the gas sector; and
- Undertake any other activity incidental to the development, sustainable operation and securitization the gas sector in Ghana.

Anil Vijayachandran

Mr. Vijayachandran is the Associate Director of Synergy Consulting, and a Senior Project Finance Specialist. Mr. Vijayachandran will be assigned the following tasks:

- Review the gas-to-power value chain, and provide advice on gas pricing policies including cost of gas as commodity, processing and transmission charges, and end-user price (which takes into account government-take and any other development levy for the sector);

- Develop the securitization framework for the optimal functioning, mitigation of risks, and the mobilization of private-sector investments in Ghana’s gas sector as related to production, processing and transmission of the resource;
- Develop financial models to undertake sensitivity analyses for establishing a securitization levy under various supply, demand, and capital cost scenarios;
- Undertake capacity-building activities in transferring financial modeling know-how to GOG stakeholders;
- Assist MoEP in contract negotiations with various private-sector investors for increasing gas production and supplies in Ghana;
- Prepare briefing notes, technical papers on issues of financial concern in the gas sector; and
- Undertake any other activity incidental to the financial analysis of the energy sector in Ghana

6. Monitoring Indicators and Results Framework

Activity	Process Indicator	Target	FY16-FY18	Power Africa Goals
Technical Assistance on the completion of the Western Corridor Gas Infrastructure	On-going technical support to MOEP, EC & PC in the audit, testing, pre-commissioning and commissioning of facilities. <u>Outputs:</u> 1. Technical Notes / Briefs. 2. Completion Permits by EC & PC.	Jan 31, 2015	Sustained supply of 120 mmscfd of gas from the Jubilee field.	Contributes to the sustained generation from existing power plants in Ghana. Incentivizes private-sector investments in additional capacity, and helps achieve the Power Africa goal of 30 GW.
Technical Assistance on Policy-Regulation-Sector Structuring issues	Development of policy and regulatory framework would be in accordance with good industry practices with all the sector entities operating in an efficient and harmonized manner. <u>Outputs:</u> Position Papers and Briefing Notes. MOU with regulatory entities; PSA with GNGC; and Strategic Framework for BOST's operation.	Sep 30, 2015	Attracting private-sector investments in gas production, processing and transmission infrastructure of \$500 million by FY2018.	Contributes to the power generation capacity expansion (30 GW), when new gas sector investments result in the availability of fuel supplies in Ghana.
Support on Commercial Contracts and securitization of sector revenues.	No contractual disputes are encountered and gas-sector entities operate in accordance with signed agreements. The securitization of revenues lowers the risk-perception and facilitates private-sector investments. <u>Outputs:</u> 1. Signed commercial agreements. 2. Draft legal instruments 3. Approval of the fuel-to-power securitization plan by GoG.	Sep 30, 2015	Private-sector investment in gas production, processing and transmission infrastructure (\$250 million) is announced in FY16	Contributes to the cost-effective generation capacity expansion (30 GW).

WO-023-GH-07
SOW- Ghana - Technical Assistance to the
Electricity Company of Ghana
October 1, 2014 -- September 30, 2015
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

1. General Approach

With specific assistance provided by USAID in the energy sector in Ghana, it is proposed to selectively support ECG and other related stakeholders by providing high level international financial, legal and power system experts to work under the supervision of the Power Africa Transaction Advisor based in Accra. Nexant’s overall approach will support successful financial closure of priority IPP projects, including the Ghana 1000 (Gh1K) project by General Electric and partners, and to enable ECG to negotiate Power Purchase Agreements (PPAs) with potential private-sector electricity suppliers on the best terms for the consumers in Ghana. Another important outcome of this assistance is to lay the foundations of competitive acquisition of new generation capacity in the future.

Nexant will accomplish this by:

- Assisting ECG in consolidating its business strategy project-by-project;
- Providing specific financial advice to ECG on the proposed bids and project PPAs, including ECG credit enhancement;
- Identifying stumbling blocks to the financial closure of projects while delivering strategic advice to remove them and building capacity to negotiate PPAs; and
- Assisting the establishment of a well-resourced Private Power Unit to act as a single-window for the acquisition of new generation capacity through competitive processes.

To maximize the leverage of USAID funds in the delivery of power infrastructure, support may be given to ECG on several projects at the same time, in line with ECG’s procurement program. The issues to be addressed in these projects will be those that are critical to financial closure. Working on PPAs will allow identification of most of these critical issues as they generally impact PPAs.

2. Detailed Scope of Work

2.1 Transaction Advisory

(i) Gh1K MW Power Project (LNG importation and IPP generation):

- a. Assist ECG in the due diligence and negotiation on the project proposal and preliminary Term Sheet;
- b. Provide a gas sector expert with competence in LNG fuel supply markets and infrastructure to review and validate the LNG InfraCo project proposal and proposed gas sourcing arrangements; and
- c. Provide comprehensive transaction advisory services upon the finalization of the project proposal including:
 - Tariff review and commercial due-diligence of the project;
 - Support the negotiation of project agreements from legal and commercial perspectives; and
 - Support the optimization of project structuring arrangements.
- d. Based on the request of the Gh1K Sponsors, for the provision of USAID Development Credit Authority (DCA) to guarantee a bond issue for the LNG InfraCo component, undertake the necessary due diligence to support decisions whether to recommend DCA involvement in the project.

(ii) Other high priority projects

- a. 512 MW Rotan Power Project with associated LNG storage facility, located at Aboadze and expected to come online in 2018
 - Same as Gh1K a, b, and c, above;
- b. 450 MW Symbion Power Project, located at Domunli;
- c. 200 MW Amandi Power Project, located at Aboadze; and
- d. 360 MW Jacobson Power Project, located at Aboadze
 - Same as Gh1K a, b, and c, above minus LNG.

2.2 Capacity Building

(i) ECG Capacity-building for negotiating Power Purchase Agreements (PPAs)

- a. Training and hands-on familiarization *inter alia* to the contractual framework, financial modeling, allocation of risks, and risk-mitigation instruments which underlay the PPA;
- b. Review the Template PPA, introduced by the Energy Commission of Ghana, in which the focus is on the technical aspects of projects;
- c. Assist and support ECG in reviewing key commercial aspects of the PPA;
- d. Develop and conduct training sessions on international best practices and suitability to Ghana of key commercial terms addressed in PPAs (covering latest draft EC PPA and with reference to the recently concluded Cenpower PPA) including:
 - ❖ Tariff principles:
 - Calculation of capacity and energy payments
 - Debt repayment and project financing
 - ❖ Tariff payment mechanism:
 - Payment Procedure
 - Compatibility with the security arrangement
 - ❖ Termination & Step-in rights
 - ❖ Principles of Termination payments
 - ❖ Principles of Liquidated Damages payments
 - ❖ Force Majeure and consequences
 - ❖ Transfer and handover mechanism
 - ❖ Cost/tariff adjustment mechanism
- e. Negotiation of tariff optimization including hedging strategy, optimization of reserve accounts, payment security, etc
- f. Development and use of tariff models for negotiation with IPPs, and billing models for operational use
- g. Development of negotiation skills in finalizing the PPAs with private sector investors.

(ii) Competitive acquisition of new power generation capacity in the long-term:

- a. Institutional framework for the competitive acquisition of new generation capacity, including the establishment of a well-resourced Private Power Unit for a 'one-window' operation;
- b. Clear delineation of responsibilities including the interface with the "Private Power Unit" by sector institutions (MoEP, VRA, GridCo, ECG, NEDCo PURC, PC, EC, GNGC, and BOST);
- c. Development of an incentive framework for private-sector investments in mini-hydro, OCGT, CCGT, steam plants, and renewable energy projects;
- d. Prepare an IPP Procurement Package, including the development of standard templates for PPAs, Fuel Supply Agreements, Implementation Agreements, and Government Consent and Support Agreements (GCSA).
- e. Develop of rules and regulations for launching international competitive bidding (ICB) for power generation in coordination with donor institutions and other stakeholders.

3. Deliverables

Expected deliverables for each IPP project:

- Initial & final draft PPA
- Initial & final draft tariff methodology
- Initial & final draft GCSA or PCOA
- Advisory briefing papers
- Capacity-building workshops and the case studies, references and material necessary to conduct them
- Blueprint for the competitive acquisition of new power generation capacity, including definition of roles and responsibilities, standard templates, and rules and regulations.

4. Key Staff

We expect that the project activities can be completed by the following team of consultants who bring expertise in all areas of the IPP business:

David Hunt

Mr. Hunt is a Senior International Lawyer and Project Finance Specialist. Mr. Hunt will be assigned the following tasks:

- Strategic advice on issues such as major terms and conditions, due diligence steps, and use of standard forms of PPAs and any necessary revisions
- Assistance in developing form PPAs

- Capacity building for ECG staff regarding negotiations (*e.g.*, how to avoid excessively customized PPAs) and due diligence (*e.g.*, what documentation to be required, what level of scrutiny to be applied) with regard to each transaction Assistance in developing processes and relationships to maintain a constructive relationship with PURC, such as the documentation to be provided, the form of applications, interactions with PURC and the need for approvals
- Assist in resolving issues on PPAs/VCs for pending sales
- Assist in structuring working capital, PRGs and other support to ECG from WB and AfDB
- Develop forms for IPP PPAs

Aman Sachdeva

Mr. Sachdeva is a Senior International Project Finance Specialist. Mr. Sachdeva will be assigned the following tasks:

- Strategic advice on issues such as major terms and conditions, due diligence steps, and use of standard forms of PPAs and any necessary revisions
- Assistance in developing form PPAs and addressing commercial elements and bankability issues from a project financing standpoint
- Capacity building for ECG staff to cover the following:
 - Financial model audit and development
 - Tariff negotiations with potential IPPs
 - Project finance concepts
 - PPA and other project agreements
 - Assistance to ECG in presenting tariff and other commercial aspects of the PPA and overall risk allocation to PURC
 - Assist in ECG cash flow model and analysis to prepare due diligence document for the potential IPP lenders
 - Assist with commercial and tariff schedules for the form IPP PPAs.

5. Monitoring Indicators and Results Framework

Activity	Process Indicator	Target	FY16-FY18	Power Africa Goals
GE Ghana1000 MW Power Project (LNG import and power generation), and development of other high-priority IPPs.	Due-diligence of GE project, and decision on the provision of DCA for LNG component completed; due-diligence of other IPPs also completed. <u>Outputs:</u> 1. # of transactions supported 2. # of MWs of transactions supported by USG.	Sep 30, 2015	GE adds 360 MW of new capacity by FY17; one other high-priority IPP (200 MW) comes on line by FY18.	Contributes to the generation capacity expansion (30 GW). Generation will enable greater access goal (60 m)
ECG Capacity-building for negotiating Power Purchase Agreements (PPAs)	Officials of ECG and other relevant GOG agencies are able to negotiate PPAs which meet the standards of international best practice (PPA compared with international benchmarks). <u>Outputs:</u> # of people / Person hours of training or capacity building activities completed with USG assistance. Number of energy agencies, regulatory bodies, utilities and civil society organizations undertaking capacity strengthening with USG assistance.	On-going	New IPPs come on stream (about 560 MW) by FY2018.	Contributes to the generation capacity expansion (30 GW).
Competitive acquisition of new power generation capacity in the long-term	Institutional framework for the establishment of a well-resourced Unit, delineation of responsibilities, development of incentive framework, preparation of Procurement Package, development of rules and regulations is completed. <u>Outputs:</u> Institutional Framework, methodologies and standard Bidding documents are drafted, presented, and adopted by GoG.	Sep 30, 2015	At least one International Competitive Bidding (ICB) is launched in FY16	Contributes to the cost-effective generation capacity expansion (30 GW).

WO-024-ZA-05
SOW - GIS-Based Africa Generation & Transmission Mapping
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objective of assignment:

The objective is the development of an interactive GIS web base platform to allow the Power Africa Transactions & Reforms Program (PATRP) project offices to access information on the backbone transmission system and generation data in Sub Sahara Africa countries for strategic planning purposes.

The application must provide access to different users across the continent as per the PATRP organizational structure. The application must allow for different levels of user authorization. Administrative data and information applicable per country will be available to users through the web platform. Development of the platform will be phased with the first phase focusing on making initial data available as soon as possible in order for PATRP to leverage current knowledge for the main assignment.

The assignment will be led by Aurecon from their Pretoria offices.

Web based GIS platform:

Database design – define and agree objects to spatially model including attributes per object. The database design will be forward looking to ensure attributes are included such as those needed for future network load flow studies

Application interface design – design and agree the application interface. Aurecon will use an existing web based platform as the core of the application. As such the design must fit within the application core. This has the added benefit of leveraging of an existing proven core solution that will not be developed from the ground up. The design will include aspects such as:

Screen layout

GIS object symbology (including coloring per attribute)

Management reports & queries:

Red lining or other mechanisms to allow user feedback with regards to the network data

Data model Implementation – Following the design phase, the data model will be implemented in the database. Interface development – the interface will be setup and required development work done in accordance with the application specification.

Data capturing:

Populate the GIS platform to include backbone transmission networks and grid power stations in Sub Saharan Africa (lines, substations, power generation stations), existing and planned/future. The following sub tasks will form part of this activity:

- a) Load background data (Bing vector maps & images, Digital Globe Images, Open source vector data)
- b) Identify existing sources of Aurecon in-house data and obtain approval to use the same.¹¹

¹¹ Aurecon may require assistance from USAID to engage relevant stakeholders to obtain approval for data use

- c) Initial Data capturing (available information sources)
 - i) conversion/import of available GIS/CAD data,
 - ii) desktop capturing of network lines and points, major substations and power stations
- d) Prepare a status quo report highlighting missing data and potential sources of data/data owners
- e) Data owner engagement to obtain further data via support of PATRP regional and country transaction advisors and USAID to countries with 'letter of introduction' from USAID and relevant Non-Disclosure Agreement documentation as needed.
- f) Receive & catalogue data
- g) Further data conversion, data capturing & data upload to application database.

Scope Exclusions and Understandings

The current scope excludes:

- Load flow modelling which is earmarked as a future phase. This will not be done within the web application, but load flow scenario results can be made available through the web interface.
- The monitoring and evaluation of the PATRP project itself.

Data

It should further be noted that this project will rely on data made available by various data owners. It is not possible to quantify to what extent information would be made available and as such the project can only commit to capturing and modelling available data. The specific activity to capture and model data will be limited to the time and level of effort allowed. Should more information become available requiring effort exceeding that proposed, the project team will highlight this to PATRP to increase scope & budget to allow capturing of the data.

Web based GIS platform

The web based GIS application that will be used is Aurecon's property and will remain so. The activity will include provision to make the application available for the duration of the PATRP project (3 years plus options). Should PATRP require the application to be hosted beyond the project period, Aurecon can accommodate this at additional costs to be agreed with the PATRP.

WO-025-ET-10
SOW - Country Transaction Advisor Ethiopia
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USTDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor, Ethiopia

1. Introduction

Same as in Transaction Advisors Scope of Work.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work.

3. Key Functions

Perform these tasks as described in the Transaction Advisors Scope of Work.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work.

WO-026-GH-01
SOW - Country Transaction Advisor Ghana
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor, Ghana

1. Introduction

Same as in Transaction Advisors Scope of Work.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work.

3. Key Functions

Perform these tasks as described in the Transaction Advisors Scope of Work.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work.

WO-027-KE-02
SOW - Country Transaction Advisor Kenya
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USTDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor, Kenya

1. Introduction

Same as in Transaction Advisors Scope of Work.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work.

3. Key Functions

Perform these tasks as described in the Transaction Advisors Scope of Work.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work.

**SOW - Technical Advisor to Transmission Company of Nigeria (TCN)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)**

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor to TCN, Nigeria

1. Introduction

Same as in Transaction Advisors Scope of Work.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work as they relate to TCN.

3. Key Functions

Perform these tasks as described in the Transaction Advisors Scope of Work as they relate to TCN.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work as they relate to TCN.

WO-029-KE-01
SOW - Senior Local Energy Advisor – Kenya
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

General:

David Mwangi (or, the Contractor) will serve as Senior Energy Advisor on the Power Africa Transactions and Reforms Program (PATRP) with a principal focus on Kenya and, as appropriate and authorized by USAID Kenya or duly authorized PATRP project management, power sector development issues in East Africa. The Contractor will be based in Nairobi and he shall complete the support and analyses under this scope of work, and seek technical guidance from USAID/Kenya’s Agriculture, Business and Environment Office (ABEO) Office per the instructions of PATRP’s Contracting Officer’s Representative (COR). Contractor will abide by the policies for routine work as established for the PATRP project and as consistent with the policies and practices of Tetra Tech as prime contractor. The Senior Energy Advisor reports to PATRP’s Senior Transaction Advisor, until such time as Kenya Country Transaction Advisor (CTA) is in place in Nairobi, at which time he will report to CTA.

Specific tasks:

- (1) keep abreast of trends and issues in the Kenyan energy sector; review and analyze developments; conduct research and technical analyses; and collaborate with the Government of Kenya including its ministries and agencies and power sector companies as well as private sector players, and donor organizations to identify utility, legal and regulatory reforms needed to enable and accelerate the development of energy projects in Kenya. He will use his knowledge and analyses to advise USAID on necessary policy reforms and support required by the GOK to institute such reforms;
- (2) support the Mission in improving its understanding of private sector participation in the electricity sector, including project development and financing, through greater engagement with public and private sector energy companies, project developers, and financiers;
- (3) support the Geothermal Development Corp. (GDC) in expanding the development of geothermal resources in Kenya;
- (4) address the challenges to the financing of both large-scale and small-scale private sector energy investments through the utilization of various financial structures, methods, and tools;
- (5) enable and/or accelerate the development of energy projects in Kenya. USAID/Kenya seeks to strengthen the institutional and human capacity in the energy/power sector to support the implementation of new policies and practices in the key government and private sector electricity sector stakeholders; and
- (6) as directed, be responsible for maintaining strong and supportive relations with appropriate stakeholders within the USG, the GOK, the private sector, the donor community, associations,

research institutes, and other NGOs;

- (7) complete other tasks as directed by the USAID COR or Tetra Tech COP or PATRP's Country Transaction Advisor (CTA) / Country Manager for Kenya.

Deliverables and Outputs:

1. Weekly lists of:

- Activities for the week
- Completed tasks
- Issues and/or problems
- Planned tasks for the coming week
- Longer term tasks and progress as required

2. Analytical reports per the COR/Mission request.

3. A report on progress and recommendations for actions to enable and/or accelerate key energy projects and to inform Power Africa's strategy in Kenya due at the end of the task order.

Availability for travel:

1. The Senior Energy Advisor should be available, as requested by USAID, to travel as follows:

- (a) one-night trips to secondary Kenya towns;
- (b) two-night trips to secondary Kenya towns.

2. Once travel has been requested by USAID, the Consultant must inform project management (PATRP's Country Transaction Advisor / Country Manager) and provide BDO Kenya with details for travel at least three days in advance. The request must be authorized by PATRP's CTA before travel and approved by BDO Kenya's partner in charge. The Contractor will abide by per diem rates authorized by USAID for Kenya.

Equipment, Transport and Supplies:

1. The Consultant will be issued the following upon signing appropriate check-out forms:

- (a) 1500 KES in airtime per month; and
- (b) Basic set of supplies for routine work.

2. Transport will be provided to meetings outside of Kenya upon request by PATRP's CTA or COP or other duly-authorized representative of PATRP. BDO will arrange transportation and will not accept receipts, unless travel authorization was obtained from PATRP project management in advance.

WO-030-TZ-02
SOW - Technical Advisor to Rural Energy Agency of Tanzania (REA)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries.

Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USTDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor to REA, Tanzania

1. Introduction

The International Energy Agency (IEA) expects the number of people lacking access in sub-Saharan Africa (SSA) to rise from 41% (2009) to 54% by 2030. Low population density outside major urban and peri-urban areas seriously complicates grid expansion given the high per capita connecting cost. Most countries in SSA have adopted a hybrid approach including both grid extension and mini-grids to

improve access. Project developers may also lack the business skills to demonstrate the feasibility of their projects to financial institutions, close technical gaps, negotiate PPAs, and acquire legal services. At the same time, financial institutions lack access to projects and the specialized knowledge required to confidently invest in clean energy.

The Power Africa sub-initiative ‘Beyond the Grid’ seeks to reduce the small project financing gap for grid connected--as well as distributed generation projects--by creating and/or strengthening existing platforms to match project developers and investors, and national and regional financing networks, for small scale projects. Small-scale power projects in SSA face many barriers, not the least of which are high project transaction costs and the lack of creditworthy offtakers in the eyes of traditional lenders. Because of the high transaction costs, development finance institutions (DFIs) and international banks often deem smaller projects ineligible for funding. There are also challenges associated with obtaining local debt finance for smaller projects. Meanwhile, the low probability of success of early-stage small-scale projects also causes many financiers to wait to commit their capital until projects are better defined, limiting the availability of early-stage financing (equity in particular).

Thus, the Transaction Advisor must identify small scale energy projects at an early stage and appoint project developers and businesses to provide coaching and mentoring to develop their business plans, investment pitches, and growth strategies, as well as facilitate linkages with investors and financiers—significantly enhancing the possibility of financial closure. The Transaction Advisor must design a comprehensive and sustainable transaction support project, building on ongoing initiatives throughout the region to advance the development of bankable--primarily clean energy--early and late-stage, small-scale private sector electricity generation or distribution transactions in Tanzania. The Transaction Advisor must identify and pursue small-scale grid connected as well as distributed generation projects and businesses (mini-grids). Activities will include technical, advisory, legal, financial, fiscal, analytical, and policy support and assistance to private developers, financial institutions, and government entities, as appropriate, to facilitate private sector investment and participation in small-scale clean energy projects.

2. Host Country Power Sector

Refer to Generic Scope of Work for Transaction Advisors and perform these tasks with respect to small scale power projects.

3. Key Functions

- Identify critical policy, legal, regulatory and other non-technical and non-financial barriers to investment in clean energy projects and mini-grids, and work with appropriate stakeholders and policymakers to effect modifications. In more general terms, design an implementing strategy and mechanism based on a constraints analysis to reduce barriers to private investment--and improve the enabling environment for small-scale grid and off-grid projects--within the resources available for this activity in Tanzania.
- Identify and assist with the development of potential small-scale projects, developers, and other partners to work with in line with Power Africa project selection criteria that will be made available by the PATRP Senior Transaction Advisor in the form of a Project Prioritization Matrix.

- Strengthen the capacity of businesses to develop high-quality projects and proposals, by providing technical assistance to developers in the design and development of new small-scale clean energy grid connected--as well as distributed generation and off-grid/mini-grid power projects--helping with project design, business, and financial plans to make projects attractive to private investment, and assist with matching developers with finance institutions or other partners to bring projects to financial closure.
- In collaboration with other donors and other USG agencies and programs, provide early stage project support, including grant funding for early stage development costs.
- Build the capacity of financial institutions to better understand and evaluate clean energy projects and more effectively assess and invest in such projects.
- Provide technical assistance to host country governments to develop and/or implement (Renewable Energy) Feed-In Tariffs ((RE)FITs).
- Emphasize support, where appropriate, to Tanzania's existing Rural Electrification Agency (REA) to improve planning and to facilitate medium and low voltage grid extension, as well as updates, upgrades, and new installations of mini-grids and isolated systems.
- Key factors in achieving a high level of access to electricity are the adoption of a national strategy followed by the development of a detailed and realistic plan to increase access, and the systematic execution of that plan with a clear identification of the required funding sources. The Transaction Advisor should assist the Tanzanian government in the development and execution of access plans and strategies.

4. Enabling Environment Improvements

Refer to the Generic Scope of Work for Transaction Advisors and perform these tasks with respect to small scale power generation (on/off-grid) and distribution (mini-grids) projects.

5. Reporting

The Transaction Advisor reports to the Senior Transaction Advisor with copies to the PATRP Small Scale Renewable Energy Advisor.

WO-031-NI-01
SOW - Country Transaction Advisor Nigeria
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries.

Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.

- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USDA. Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.
- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses

- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.
- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government’s power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor’s understanding of the host country’s power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa’s goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor, Nigeria

1. Introduction

Same as in Transaction Advisors Scope of Work.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work.

3. Key Functions

Perform these tasks as described in the Transaction Advisors Scope of Work.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work.

WO-032-EA-07
SOW - Transaction Advisor for Djibouti
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Part 1 – General Conditions for Transaction Advisor

1. Introduction

Transaction Advisors report to the Senior Transaction Advisor. Transaction Advisors advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions to financial close. Transaction Advisors accelerate project development, provide independent advice on key transaction issues to host governments as requested, and build the capacity of key ministries. Following are the key functions of a Transaction Advisor--

- Work with USAID to implement priority project assistance.
- Pipeline development for consideration by investors / lenders and the Power Africa Working Group (PAWG).
- Work with host country governments to fast track project approval / implementation and reforms.
- Coordinate closely with other U.S. Government (USG) agencies and entities such as OPIC, US Ex-Im Bank, USTDA, and the US-African Clean Energy Development & Finance Center.

2. Host Country Power Sector

- Become and remain completely knowledgeable about the host country’s power sector, and gas sector to the extent it can provide fuel for the power sector.
- Update and keep current, at least on a quarterly basis, the host country’s Power Sector Assessment Report (attached to the Power Africa RFP), particularly the country’s political situation and the maturity of its private sector enabling environment.
- Update and keep current, at least on a monthly basis, a Table of Current & Active Power Projects, both state and privately sponsored / owned.
- Update and keep current, at least on a monthly basis, a Table of Proposed Power Projects, both state and privately sponsored / owned, and each project’s maturity status

3. Key Functions

Transaction Selection / Pipeline Development

- Act as both originator and driver of priority projects under the Power Africa initiative to deliver results.
- Coordinate closely with other USG agencies and entities, such as the US-African Clean Energy Development and Finance Center, OPIC, US Ex-Im Bank, MCC, US State Department, and USTDA.

Develop an understanding of the available USG mechanisms and funding constraints, and develop a relationship with a key person from each agency in Washington, DC.

- Assist Power Africa to analyze the universe of potential transactions to select those that may be assisted in achieving financial closure, and present recommendations to USAID for prioritization among the selected transactions. Recommend which projects should be onboarded to and offboarded from the Priority Projects list (“Slide Deck”) in accordance with agreed methodologies. Work only on transactions on the Slide Deck, except to the extent a potential transaction could be onboarded to the Slide Deck.
- Review and prepare an analysis of promising private sector driven, high-impact energy projects and carry out preliminary due diligence (e.g., project merit, competence of project developers, risk factors, etc.). This will include identifying available funding sources and potential for USG assistance.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Capacity Building

- Assist in the implementation of new IPP frameworks, and develop strategies that address capacity shortcomings and thus contribute to accelerated implementation of the IPP framework and adoption of policy reforms and project implementation.
- Assist in accelerating closing on priority transactions by providing independent advice to host government decision makers as needed to achieve project milestones.
- Provide technical assistance on prioritizing projects and preparing standardized transaction documents for energy projects.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to increase private sector investment. (See Section 4 below).
- Promote due attention to issues concerning environment, social soundness, clean energy, climate change, gender and energy, poverty and energy, and the like.
- Liaise with other Power Africa implementing partners, in particular those involved in providing advisory services.

Monitoring & Progress Reporting

- Develop accountability and monitoring mechanisms for tracking progress of Power Africa goals/objectives.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Prepare and maintain the country / region budget, and track actual revenues and expenses vs budgeted revenues and expenses
- Prepare all reports required by USAID , including Annual Work Plans, Bi Weekly, Monthly, and Quarterly Progress Reports, Quarterly Financial Reports, Institutional Strengthening Reports, environmental compliance reporting, and compliance with the agreed Performance Management Plan (PMP), in formats required by USAID.
- Prepare all reports required by the Senior Transaction Advisor, including Weekly Progress Reports and Travel Reports, in formats prescribed by the Senior Transaction Advisor.

- Conduct regular reporting and check-ins with the host country government and USAID parties.
- Liaise on a regular basis with the USAID and members of the USG PAWG in country.

4. Enabling Environment Improvements

- Review all key existing and proposed host government power sector policies, regulations, laws, and investments framework to become familiar with the existing regulatory framework governing private and public power sector investments. Documents to be reviewed should include any national power policy documents that will allow the Transaction Advisor to develop an in-depth understanding of the key issues faced by project developers and banks developing and financing projects in the power sector in the host country. He/she should also review previous work completed by various international agencies (USAID, USTDA, OPIC, U.S. Ex-Im Bank, AfDB, IFC, World Bank, and others), including financial institutions and host country and international credit agencies, to develop an understanding of what changes should be made to key laws, regulations, policies, etc. that might prevent a project from reaching financial close.
- Prepare a summary 4-6 page White Paper of the host government's power sector reforms necessary for projects to reach financial close. The White Paper should summarize the Transaction Advisor's understanding of the host country's power sector, key barriers to investment in privately-sponsored power projects, and make recommendations on key policy, regulatory, legal, and investment modifications that may be necessary, without which it would not be possible to raise counterpart financing for a project. The set of reforms to be identified should be ones that can be implemented in minimal time and effort and result in timely financial closure of power projects in accordance with Power Africa's goals.
- The Transaction Advisor will assist other Power Africa STTAs involved in the reform process to assist in implementing necessary reforms.

Part 2 – Specific Conditions for Transaction Advisor, Djibouti

1. Introduction

Access to electricity remains a key constraint on Djibouti's economic growth and development potential. Energy tariffs are among the highest in the world (and twice the Africa average), in part due to reliance on fuel imports. Power outages are frequent, requiring businesses to purchase generators to ensure regular business operations. According to the World Bank, the country's electrification rate is estimated at 50%. The current energy grid covers only Djibouti City and its outskirts, and does not have the capacity to support key commercial and industrial establishments that are supplied by captive self-generation power sources.

Djibouti receives approximately 70% of its energy from a hydropower connection with Ethiopia. Djibouti's utility monopoly--Electricité de Djibouti (EDD)--produces the remaining 30% through the burning of heavy fuel. Approximately one-third of EDD's US\$ 62 million total annual budget is spent on diesel and heavy fuel. Electric bills account for approximately 25% of business expenses in Djibouti, hindering national competitiveness and industrial development.

EDD officials predict a 4.5% increase in demand annually for the next 5 years, requiring Djibouti to have the capacity to supply 160 MW of electricity in the near term and more than 280 MW by 2022. Future high-power consumption projects (i.e. new port facilities in Tadjourah and Ghoubet) will drive the increase in demand. Djibouti plans to invest more than US\$ 150 million in network upgrades and renewable energy exploration. Djibouti and Ethiopia recently signed an agreement to develop a second high voltage inter-connection, scheduled for completion in 2017. In addition, Djibouti signed a loan agreement with the Kuwait Fund for Arab Economic Development to construct a new diesel power plant, which would increase Djibouti's diesel energy production capability to 100 MW.

The Government of Djibouti (GODj) has requested US Government support to hire a Transaction Advisor to assist the country accelerate implementation of its priority energy projects. GOJ expects the Transaction Advisor to be a full-time position, based in Djibouti City. The Transaction Advisor will be embedded in the Ministère de l'Énergie chargé de Ressources Naturelles (MERN) to accelerate project development, provide independent advice on key transaction issues to the host governments as requested, and build the capacity of key ministries, and is funded by USAID/Djibouti.

2. Host Country Power Sector

Perform these tasks as described in the Transaction Advisors Scope of Work.

3. Key Functions

In addition to performing those tasks as described in the Transaction Advisors Scope of Work, also perform the following Key Functions--

The Transaction Advisor will act as both an originator and driver of priority projects in Djibouti, embedding finance and project development expertise into existing ministries to deliver results. Roles include (i) developing prospective/potential energy projects for consideration by donors and private sector investors, (ii) working with USAID/Djibouti, the Embassy, and the USAID/Africa Bureau to implement priority project assistance, (iii) advising the GODj on priority reforms necessary to fast track implementation of priority projects and approval / implementation processes, and (iv) monitoring and reporting on project development, assistance implementation, and reforms.

Development of Prospective / Potential Energy Projects--30%

- Prepare a feasibility analysis of currently contemplated host-country government energy projects, including available funding sources and potential for USG assistance.
- Identify new potential high-impact energy projects, determine financial viability of projects, potential for USG assistance, and preliminary due diligence (e.g., competence of project sponsor, risk factors, etc.) required for presentation to the USAID/Djibouti.
- As needed, assist USAID/Djibouti with data collection and standardization of project documents.
- Maintain close relationships with important private sector and government actors, including project developers, regulatory bodies, commercial banks, investment funds, pension funds, and other donors.

Transaction Advisory Services & Institutional Support--50%

- Provide technical assistance to MERN and EDD to prioritize their strategy project by project.

- Assist in accelerating the closing of priority energy projects by providing independent advice to host government decision makers as needed to move closer to project milestones.
- Assist in the preparation of standardized transaction documents for energy projects such as PPAs and PPPs.
- Provide capacity building within the host country for negotiating PPAs and PPPs.
- Provide technical and financial advice for capacity building to negotiate unsolicited and solicited bids and project PPAs, IAs, and credit enhancements, etc.
- Provide building capacity including credit enhancement; institutional in order to negotiate PPAs; IAs, etc. as well as solicited bids through competitive and competitive processes;
- Provide capacity building within the host country government to evaluate the commercial viability of energy projects, including possible financing sources.
- Provide guidance, expertise, and direction to host ministry and/or applicable ministries on adoption of reforms necessary to private sector investment.
- Provide technical assistance to MERN and EDD in preparing policy briefs / documents for approval by the Cabinet.
- Design and develop strategies that address capacity shortcomings and contribute to accelerated adoption of reforms and project implementation.

Monitoring & Progress Reporting--20%

- Develop accountability and monitoring mechanisms for relevant ministries and ITG.
- Identify and track key milestones required to complete transactions, and recommend courses of action for expediting transactions.
- Conduct regular reporting and check-ins to ITG, the ITG Secretariat, and key host country ministries on pipeline development, key opportunities, reform adoption, using standard practices outlined by Secretariat.

4. Enabling Environment Improvements

Perform these tasks as described in the Transaction Advisors Scope of Work.

WO-033-EA-07
SOW – Advisory to East Africa Power Pool Phase 2
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objective

The objective is to follow-up the initial scoping mission which was carried out in September 2014. In that initial mission, Pam Quanrud (State Dept.) and Roseann Casey (USAID) were joined by PATRP Advisors Joellyn Murphy and Jaap du Preez.

The objective of this Phase 2 is for Ms. Murphy to spend at least two weeks in Addis Ababa in October 2014 to further determine the basis for providing transaction advisory for power projects in support of the development of the East Africa Power Pool (EAPP), and provide a detailed SOW for an EAPP Transaction Advisor. The follow-up mission will be in Addis Ababa, followed by discussions in Pretoria in October and November 2014. This will be followed by further missions as required, and continued support through March 31, 2015.

Background

The energy development policies in the EAPP countries under consideration generally share these common concerns: (a) an optimal mix of natural gas, hydro, bio-energy, coal, renewables etc. (b) interconnection with the regional power pool, in order to establish optimal markets and allow for economies of scale; (c) regional regulatory environments to enable cross-border trading; (d) energy security and country-wide energy access; (e) liberalization of the sector, permitting Independent Power Producers; (f) reducing sector subsidies and rationalizing tariffs; and (g) institutional reforms and strengthening regulation of the sector. The WB and other multilateral agencies have many power projects and investments supporting generation, transmission, EAPP, distribution, and rural energy developments. Consequently, an EAPP Transaction Advisor (TA) would assist in managing projects/initiatives which involves many actors and which fits the goals of Power Africa.

The focus of the follow-up mission(s) would include but not be limited to:

3. Drilling deeper into the current situation at EAPP.
4. Explaining the possible roles of a transaction advisor and understanding near-term project priorities in the region.
5. Iterations on the potential scope of work for PATRP assistance to EAPP.
6. Meetings/calls with donors, but only as approved by State/USAID assignment managers..
7. Attendance at Council of Ministers, or Steering Committee, or EAPP sessions in January 2015 (or other times), as approved by State/USAID assignment managers.
8. Meetings in Pretoria with State/USAID assignment managers in conjunction with trips to Addis.

Deliverables:

The consultant will deliver a follow-up report summarizing:

- Current situation at EAPP
- Draft scope of work for PATRP assistance to EAPP

- Pro's and Con's embedding an EAPP transaction advisor at EAPP.
- Review of AIP, USEA and NARUC work products for EAPP, and advise on suitability of following on under PATRP.
- Recommendations on the types of short-term technical assistance that may be needed to assist EAPP development in the coming 12 months

Personnel

Joellyn Murphy – Energy strategy expert

**SOW – Institutional Support to Power Africa Coordinator’s Office Washington Based
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)**

OBJECTIVE 1: Institutional Support to Power Africa Coordinator’s Office

Washington-Based

The aim of this objective is to provide the Power Africa Coordinator’s Office and USAID Missions implementing Power Africa programs with support in the Washington DC metro area from a team of professionals for broad technical, logistical, and administrative support necessary to assist the Coordinator in tracking, managing, implementing, and publicizing the Power Africa Initiative. It is important to note that the Coordinator’s Office not only serves USAID, but is also responsible for overseeing the contributions of the other USG Agencies to the Initiative. The Contractor must advance Power Africa priority transactions by tracking key actions, engaging with transaction stakeholders, and recommending specific technical assistance to either remove obstacles or to expedite the transactions by hiring transaction advisors.

The support in Washington will augment the field presence in Pretoria as well as across Africa. The support will serve to backstop the principal office in Pretoria (and Key Personnel) as well as the various field offices where Transaction Advisors are based.

Illustrative interventions may include the following:

- Assist the Coordinator’s Office in tracking the activities of, and coordinating with, Power Africa implementers and stakeholders including other USG agencies engaged in the Initiative, host country governments, non-governmental organizations, international development partners, MDBs and regional institutions (including without limitation the Economic Community of West African States (ECOWAS), East Africa Commission (EAC), the Southern African Development Community (SADC), African Union Commission (AUC), West, East and Southern Power Pools (WAPP, EAPP and SAPP), the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE), EAC Renewable Energy and Energy Efficiency (EACREEE) among many others, and the private sector.
- Track energy activities of other bilateral and multilateral donors and non-government organizations to enable Power Africa to leverage other resources in furtherance of Power Africa goals
- Track energy and power sector trends and developments in focus countries, synthesize and analyzed key power sector and energy issues at the national and regional levels, including those relating to energy access and gender
- Organize and provide logistical support for USAID or Initiative meetings, conferences and training programs for implementing partners, regional government officials, and other African partner organizations, the private sector, local communities, and international, multi-donor, multi-agency conferences. This will include securing sites; planning and implementing logistics in support of meetings/conferences; preparing supporting materials and documentation for

meetings/conferences; taking and distributing notes of meetings/conferences; and, assisting in the preparation of background materials for visiting officials.

- Coordinate with other USAID bilateral and regional implementing partners.
- Coordinate efforts with other Power Africa implementing mechanisms – including both planned USAID implementing mechanisms under development such as planned instruments to support the development of energy sector Delivery Units in select priority Power Africa countries and an Advisors’ Group support program, and planned USAID assistance to the African Legal Support Facility (ALSF), other USG Power Africa Agency efforts such as the OPIC-USTDA U.S.-Africa Clean Energy Finance Initiative (ACEF) activity and USAID Off Grid Challenge still under development.
- Provide communications and outreach support for the initiative directed at the American public, U.S. Congress, African partners (including advocacy groups), U.S. implementers, international donors and other stakeholders such as USG agencies, the USAID Africa Bureau, and USAID regional and bilateral missions participating in the Initiative. These efforts will include organizing webinars, managing an interactive website among others platforms for feedback from stakeholders during implementation of the Initiative (blogs, chats etc.), producing publications and periodic and regularly scheduled reports, PowerPoint presentations, weekly notes, briefers and success stories, magazine articles, and promotional and other materials highlighting the results of the initiative.
- Form partnerships with industry and relevant institutions to provide avenues for the transfer of lessons learned, best practices and scientific and technological information that will accelerate successful implementation and positive outcomes of the Initiative
- Provide technical and advisory services to support Power Africa project implementation, monitoring and evaluation. These efforts will include gathering information and evaluating projects for the USG PAWG.
- Track and monitor Power Africa targets, goals and objectives and government and private sector progress towards Power Africa commitments, conducting quantitative and qualitative evaluation studies and assessments (establishing baselines, mid-term and end of project) with a focus on lessons learned as to which interventions work and which do not.
- Convene relevant private sector partners to gather information regarding obstacles to power projects in SSA and to ground-truth reform work and technical assistance to host-country institutions.

WO-035-NI-04
SOW- Nigeria - Technical Assistance to the
Nigeria Bulk Electricity Trader (NBET) and the Transmission Company of Nigeria (TCN)
December 1, 2014 -- September 30, 2015
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

A. Project Background

In 2013, the Nigerian Bureau of Public Enterprises successfully privatized most of the distribution and generation Successor Companies of the formerly state-owned Power Holding Company of Nigeria. The transitional stage electricity market (“TEM”) is expected to be initiated by yearend 2014, at which time the private sector market participants will conduct transactions according to contracts, and Generation Companies and other Services Providers will be paid on a timely basis according to cost-reflective contract prices and tariffs.

A critical part of the transitional process has been the creation of the Nigerian Bulk Electricity Trading PLC (NBET), which is assigned pre-existing PPAs¹² for resale of power to Distribution Companies. NBET is also assigned the responsibility for negotiated generation procurements and competitive tenders for new generation on behalf of the Distribution Companies, in accordance to the power procurement conditions and procedures defined in the Market Rules for the Transitional Stage.

Transmission Company of Nigeria is the only remaining PHCN Successor Company that will remain 100% government owned for the foreseeable future. TCN is being restructured into two transmission licensees: Transmission Services Provider and Independent System Operator, and the company is embarking on a major rehabilitation and expansion program to keep pace with the hoped-for rapid expansion of the Nigerian electric sector.

B. Recent USAID Technical Assistance in the Power Sector Under AIP

USAID technical advisors in the Nigerian power sector, led by Nexant under the Africa Infrastructure Program (AIP), have been conducting the following tasks:

- (i) Assistance to the Nigeria Bulk Electricity Trading Company (NBET) in the negotiation of Power Purchase Agreements (PPA) and other key project agreements for the projects identified by NBET as priority IPP projects, such as Azura, MPN QIPP (ExxonMobil), Supertek/ Symbion Ajaokuta, JBS WindPower, Century Power, Nigeria Solar Capital Partners, Ikot Abasi Power, and Proton Energy.

NBET has developed a list of “priority projects” based on project due diligence performed by NBET and the policy of the Government of Nigeria. Nexant’s work on these project agreements is developed on an “as and when needed” basis, according to the priorities identified by NBET, the progress of the negotiations and Nexant’s expertise necessary to complement the work of the Transaction Adviser. Typically, Nexant experts work on specific, high level issues such as closing out PPA negotiations and developing credit enhancement instruments such as the Put-Call Option Agreement (PCOA) for the Azura and MPN QIPP projects.

¹² Pre-existing PPAs are Power Purchase Agreements signed prior to the initiation of the Electricity Market.

- (ii) Technical Assistance to Transmission Company of Nigeria: Under WO-028-NI-02, Nexant provides an embedded advisor to TCN (Tom Simpson) who manages a technical assistance program focused on transactions and institutional reforms. Priority projects include:
- Rehabilitation and replacement of existing transmission system
 - Completion of ongoing transmission projects
 - System expansion projects to achieve initial target of 10 GW of overall transmission system transfer capability
 - Tariff-based cost recovery of revenue requirements
 - Preparation of systems, processes and human resources for TCN's roles in the Transitional Electricity Market
 - Unbundling of TCN into Transmission Service Provider and Independent System Operator
- (iii) Assistance to BPE in the negotiation of Omotosho and Olorunsogo PPA and related key project agreements: These projects were given priority by President Jonathan at the beginning of the Power Reform and were negotiated with investors as opposed to being bid out like in the privatization of the Successor Companies.

C. Work Plan for November 2014 to October 2015

NBET, TCN and Ministry of Power, among others, have affirmed to USAID/Nigeria the need to continue the ongoing USAID technical assistance to the Nigerian electricity supply industry. USAID wants to continue and expand its support to NBET, TCN and the privatized generation and distribution companies through the provision of technical assistance focused on transactions and institutional reforms. Accordingly, the Work Plan for October 2014 to September 2015 is comprised of the following two Tasks:

1. Assistance to the Nigeria Bulk Trading Company (NBET) in the closure of IPP projects and state-owned plant sales;
2. Assistance to the Transmission Company of Nigeria (TCN) on transactions and institutional reforms

I. Assistance to NBET

(I). NBET Capacity and Needs

NBET has the mandate to engage in the purchase and resale of electrical power and ancillary services from Independent Power Producers (IPPs) and from the successor generation companies and has been made responsible for the procurement, negotiation, and closure of all IPP projects, with Power Purchase Agreements (PPAs) as anchors to project development and closure. Also, NBET is an essential intermediary for sales of power to Discos through Vesting Contracts. Given its ambitious mandate, NBET has an incredibly challenging and crucial task ahead of it, hence the need for support and the request made to USAID.

Interest by NBET in continuous support from USAID was confirmed by Mr. Rumundaka Wonodi, NBET CEO to USAID/Nigeria. Capacity building requested by NBET is legitimated by the following:

- NBET staff lack critical skills and need capacity building and training.

- NBET requires expertise in procuring and evaluating forms of PPAs, and in the negotiation of PPAs and related project agreements, including credit enhancement such as World Bank PRG or PCOA (Put-Call Option Agreement) when required.
- NBET is now under way and there currently some 70 projects/procurement processes in progress including PPAs that will have to be negotiated and closed. At this stage, the following projects have been included by NBET in its priority list: Azura, Century Power, ExxonMobil Qua Iboe, Ikot Abasi Power, Supertek/Symbion, Ajaokuta, JBS WindPower, Nieria Solar Capital Partners and Proton Energy. Several more may proceed on a fast track basis when development hurdles are met.

(II). Approach and methodology

With USAID funding, the approach will be to selectively support NBET by providing high level international financial, legal and power system experts to work under NBET's direction. Nexant's overall approach will be to carry out realistic and practical technical support that will lead to successful financial closure of priority IPP projects and operational closure of privatized power assets. Nexant will accomplish this by:

- Assisting NBET in consolidating its business strategy;
- Providing specific strategic business advice to NBET on the proposed bids and project PPAs, including NBET credit enhancement as will be necessary.
- Identifying project stumbling blocks while negotiating PPAs and delivering strategic advice to remove them.

In order to maximize the leverage of USAID funding in the delivery of power infrastructure, Nexant will support NBET concurrently on several projects and will address those issues that are critical to financial closure. Working on the project agreements will help identify the most critical of these issues which impact the financial closure process. Project priority ranking will be given by NBET's CEO and Nexant will work under the direction of the CEO.

(III). Detailed Scope of Work

1. General Assistance

- (i) Support in the negotiation of the Power Purchase Agreements (PPA) and other project agreements as deemed necessary between NBET and IPPs and/or privatized plants, and other related transactions.
- (ii) Supporting NBET in its credit enhancement mechanisms, advising MoF on its support for NBET credit enhancement and projects, and advising both on market-wide credit mechanisms protecting NBET and its contract counter-parties.
- (iii) Identifying project stumbling blocks in negotiated PPA transactions in order to deliver strategic advice on how to overcome them.
- (iv) Strategic advice in the implementation of NBET business plans and strategy.
- (v) Advising on and supporting NBET due diligence on IPP projects.

2. Advice on Projects (with date of implementation indicated)

Successful signing of PPAs is a critical condition for the related projects (IPPs or plant privatization) to help reach financial or operational closure. Currently, NBET has declared that the following projects are on its priority list: Azura; ExxonMobil Qua Iboe; Supertek/Symbion Ajaokuta; Ikot Abasi Power; Century Power; JBS WindPower; Nigeria Solar Capital Partners and Proton Energy. Additional priority projects will be identified from another 62 IPP projects on NBET's list of active IPP developments and added to the priority list. In contrast, the O&O Plant transactions have closed and Chevron Agura seems to be stalled indefinitely.

- Strategic advice on issues such as major terms and conditions, due diligence steps, and use of standard forms of PPAs and any necessary revisions – 4Q 2014-3Q 2015
 - Assistance in developing form PPAs – 4Q 2014-3Q 2015
 - Capacity building for NBET staff regarding negotiations (*e.g.*, how to avoid excessively customized PPAs) and due diligence (*e.g.*, what documentation to be required, what level of scrutiny to be applied) with regard to each transaction – 4Q 2014-3Q 2015
 - Assistance in developing mechanisms to maintain a constructive relationship with NERC, such as the documentation to be provided, the form of applications, interactions with NERC, and the need for approvals – 4Q 2014-3Q 2015
 - Assist in resolving issues on PPAs/VCS for privatizations – 4Q 2014-3Q 2015
 - Assist in structuring working capital, PRGs and other support to NBET from WB, AfDB and FGN – 4Q 2014-3Q 2015
 - In depth examination of financial models used to develop negotiated tariffs, suggestions for optimization, negotiation with developers to reduce tariff structures – 4Q 2014-3Q 2015
 - Assistance with project specific due diligence structures – 4Q 2014-3Q 2015
 - Review of proposed tariffs using the financial model developed through USAID support, with revisions as changes are deemed necessary structures – 4Q 2014-3Q 2015
3. Advice on Procurement Mechanisms:
- Development of a large scale grid-connected renewable energy procurement mechanism
 - Implementation of the gas procurement process

(IV). Deliverables

Expected Deliverables to NBET would include the following, for each IPP project:

- Comments on drafts of PPAs that were prepared by NBET counsel
- Initial draft of tariffs, due diligence, and comments on drafts prepared by NBET counsel
- Initial draft PCOA, and comments on drafts prepared by NBET counsel
- Formal and Informal recommendations, advice and analysis through email – as needed
- Revised NBET financial model when the need for revisions is identified

II. Assistance to Transmission Company of Nigeria

Transmission Company of Nigeria (TCN) is a parastatal company that is the nation-wide licensee, owner and operator of the Nigerian transmission system. TCN is responsible for transmitting electricity from

generation to load over high voltage 330 kV and 132 kV facilities. The company is ring-fenced in two business units: Transmission Services Provider (“TSP,” which constructs, owns and maintains 330kV and 132kV high voltage lines, substations and other transmission facilities), and Independent System Operator (combination of System Operator and Market Operator). Manitoba Hydro International (MHI) has taken executive management control of TCN under a three-year concession agreement.

Much of the Nigerian transmission system is old, has suffered from neglect of maintenance and needs refurbishment. Transmission system reliability and security is wholly inadequate for the current level of power system development, let alone the major generation expansion projects that Niger Delta Power Holding Company (NDPHC) is completing, and that new IPPs and Successor Generation Companies want to build. FGN officials have identified the weak state of the transmission system as a major risk to the power sector privatization and reform program and the government’s goals for expanded access to electricity.

Within TCN, TSP is responsible for refurbishment, replacement and expansion of HV lines, substations and associated facilities. USAID advisors have been working with TSP to develop the scope of required rehabilitation and expansion, and publicize these investment opportunities to the public and private sectors. TSP is currently embarking on a series of major procurements to retain qualified contractors to carry out, region-by-region, a nationwide program of rehabilitation, replacement and system expansion projects. The full scope of procurements will likely be constrained by limited funding, and there is an urgent need to unlock new sources of capital funding whether from FGN, development banks, sovereign funds or the private sector through public-private partnerships.

USAID under PATRP currently supports TCN by providing a full time embedded advisor, Mr. Tom Simpson. Mr. Simpson will need to be supported by financial, legal/regulatory and technical subject matter experts who contribute on an as-needed basis.

(i) TCN Request for Technical Assistance

In July 2014, TCN CEO/MD Mr. Mack Kast wrote to USAID/Nigeria Mission Director Mr. Michael Harvey, in the context of the start-up of the Power Africa Transactions and Reforms Program (PATRP), requesting that USAID provide a Transaction Advisor to support TCN’s initiatives for rehabilitating and expanding the Nigerian transmission system. Essentially, this is a request for continuing the current project as Nexant is already embedded within TCN under AIP in the capacity of transaction advisor, among other technical assistance activities. In response to the letter from TCN, USAID/Nigeria authorized Nexant’s appointment as Transaction Advisor to TCN, and TCN relayed the information to the Ministry of Power, NERC and the Nigerian Infrastructure Concession Regulatory Commission (ICRC). Notifying ICRC satisfies a regulatory requirement that a government agency embarking on PPPs must appoint a qualified independent transaction advisor. Nexant has now met with all of the above mentioned agencies in the role of transaction advisor.

(ii) Approach and Methodology

Under this Work Order, Nexant will mobilize a team of consultants to support for embedded technical advisor to TCN, Mr. Tom Simpson. The team includes financial, legal, regulatory and technical advisors on an as-needed basis.

The Nexant team will mainly support TCN in the areas of procurements and transactions, assist the CEO's Office and Finance and Admin Department with financial planning and tariffs, and advise the ISO on preparing for TEM. The Work Plan is structured to address the following priority initiatives:

- Procurements and transactions for transmission rehabilitation and expansion projects:
 - Government funded EPC projects
 - Contractor funded projects
 - Public private partnerships
- Financial planning and tariff-based cost recovery of revenue requirements
- Preparation of systems, processes and human resources for TCN's roles in the Transitional Electricity Market, including unbundling of TCN into Transmission Service Provider and Independent System Operator

Other key areas of USAID technical assistance may be developed by the embedded advisor, in coordination with TCN/MHI and USAID/Nigeria over the course of the assignment. The embedded advisor will update the Work Plan on a continuous basis, making any necessary changes in response to the needs of USAID and TCN.

Advice to be provided as it relates to the subject matter will draw on international best practice while also being cognizant of the local factors/constraints pertinent to Nigeria and the region. Capacity Building initiatives will be carefully crafted together with TCN and other stakeholders and Market Participants, in order to ensure that the appropriate skills are meaningfully transferred to the appropriate organizations and persons, and are sustainable for the institutions going forward.

(iii) **Scope of Work**

1. Scope for Financial Planning and Tariff Based Cost Recovery

- i. Assist with development of budgets and revenue requirements, provide tariff analyses, and develop tariff-related submissions to NERC.
- ii. Represent TCN in NERC hearings/discussions on transmission tariffs and Financial Plan, and help ensure NERC approval of cost-reflective charges.
- iii. Support CEO's office in obtaining favorable actions by FGN agencies and ministries related to tariffs, cost recovery and capital funding.
- iv. Prepare financial scenarios and assist in developing the annual Financial Plan and financial reporting.
- v. Assist as requested in arrangements for funding from FGN, development banks, sovereign funds and private sector, and assist in developing credit security arrangements for PPPs.
- vi. Assist TCN in its work with the World Bank team conducting a loan assessment for a proposed US\$ 700 million facility, and, if requested, serve in a similar role for other lending from development banks and sovereign funds.
- vii. Liaise with lenders and international donors, as needed.
- viii. Provide capacity building in finance and tariffs.

2. Scope for Preparation for Transitional Electricity Market and Other Technical Assistance

Activities will be prioritized by USAID, TCN CEO and Nexant Embedded Advisor. Some potential areas for USAID TA include:

- i. Assess System Operations and provide expert advice on improving processes, organization and systems used by the TEM Unit for managing real time market transactions, and provide related capacity building.
- ii. Assist with implementation of ring-fencing of the ISO and TSP Business Units.
- iii. Assess transmission planning function companywide and advise on improvements including but not limited to implementation of models, organization and staffing, training requirements, processes and systems.
- iv. Develop standards and specifications for transmission facilities.
- v. Provide capacity building on project management.
- vi. Conduct technical studies of the reliability and security of the grid, taking into account generation and transmission projects both existing and in the pipeline; assess project alternatives; assist TCN in prioritizing projects; advise on optimal project phasing.

(IV) Deliverables

USAID technical assistance to TCN in 2014-15 will deliver the following actions:

- Complete the procurements currently in the pipeline for 1) China EximBank loan-projects and 2) contractor-financed projects, including negotiation of contracts and completion of multiple transactions with preferred contractors.
- If possible, complete new funding arrangements with FGN, development banks and sovereign funds for TCN's capital program, and launch additional procurements as additional funding is made available.
- Complete the TCN Annual Financial Plan and budgets.
- Obtain favorable action from NERC on TCN request for cost-based tariff charges.
- Complete the Outline Business Case for Transmission PPP, obtain favorable action from MoP, NERC, ICRC and Federal Executive Council to put in place the enabling environment, and launch a PPP pilot in coordination with government agencies, development banks, USAID and other aid agencies.

Implement systems, processes and human resources for TCN's roles in the Transitional Electricity Market.

WO-036-US-04
SOW Attendance at Power Africa Summit Washington
(January 26-30, 2015)
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Objective

The purpose of this WO is to document and capture all costs related to the travel of the new Transaction Advisors and other PATRP team members to Washington during the week of January 26-30, to meet with key Power Africa partners from the US Government as well as from the Private Sector.

In addition, PATRP expects to support USAID during the week of January 25th by supporting meeting logistics, such as note-taking and registration, for meetings taking place January 26-30. Tetra Tech will also organize payment for printing and distribution of documents, catering, and other logistics/costs as directed by USAID.

Additionally, this WO will capture the costs of the participation of the Transaction Advisors as well as other PATRP team members in the Power Africa Summit, which will take place at the Regis Hotel in Washington DC during January 28-30. To date, EnergyNet/Power Africa registration has been arranged through PATRP for the following individuals:

Name	Title
Thom Wallace	Communications Director
John Works	Senior Transaction Advisor
Ad Dankers	Senior Advisor, Small-Scale Renewable Energy
Andre Larocque	Transaction Advisor, West Africa
Amanda Lonsdale	Transaction Advisor, Geothermal
Jacob Sandikie	Transaction Advisor, Liberia
Albert Boateng	West Africa Transaction Advisor
Tom Simpson	Transaction Advisor, TCN, Nigeria
David Hunt	Transaction Advisor, NBET, Nigeria
Georgia Iordanescu	Assistant Legal Transaction Advisor, NBET, Nigeria
Bruce Bouchard	Energy Finance Advisor
Matthew Mendis	Vice President

PATRP team members attending meetings and EnergyNet Jan 26-30, 2015 will bill their time and expenses towards this Work Order.

Following is the planned schedule for the week of Jan 26-30, 2015:

Sunday, January 25

Arrival in Washington DC

Monday, January 26

9:00-10:00 am: Meeting with DAS Murray and Commerce Team

Location: Commerce Building (conference room to be confirmed)

POC: Chris Christov (chris.christov@trade.gov)

10:15-10:55 am: Meeting with USAID Power Africa Leadership Team

Location: Ronald Reagan Building, Room 4.6-005

POC: Melanie Vant (mvant@usaid.gov)

11:00-11:30 am: Coffee break

11:30-12:30 pm: Meeting with USAID Power Africa Transactions Team

Location: Ronald Reagan Building, Room 4.7-002

POC: Chris Troy (rtroy@usaid.gov)

12:30-1:15 pm: Lunch

1:30-2:00 pm: Meeting with USAID Power Africa Technical Team

Location: Ronald Reagan Building, Room 4.7-002

POC: Kate Steel (ksteel@usaid.gov)

2:00-3:00 pm: Meeting with USADF Team

Location: Ronald Reagan Building, Room 4.6-005

POC: Michele Rivard (Mrivard@usadf.gov)

3:00-4:30 pm: Meeting with USAID Gender and Environment

Location: Ronald Reagan Building, Room 4.8 B

POC: Denise Mortimer (dmortimer@usaid.gov) and Alexis Erwin (aerwin@usaid.gov)

4:30 – 5:00 pm: Meeting with USAID Development Credit Authority

Location: Ronald Reagan Building, Room 4.8 B

POC: Mike Muldoon (mmuldoon@usaid.gov)

Tuesday, January 27

9:00-11:00 am: Meeting with OPIC Managing Directors Team

Location: OPIC Offices, 1100 New York Ave. NW, Europe Room

POC: Laura Taylor-Kale (Laura.Taylor-Kale@opic.gov)

11:00 -1:00 pm: Lunch and Travel to USTDA Offices

1:00-2:30 pm: Meeting with USTDA Team Leads

Location: 1000 Wilson Boulevard, Arlington VA

POC: Lida Fitts (lfitts@ustda.gov)

2:30-3:00 pm: Travel to 1299 Pennsylvania Ave. NW

3:00-4:00 pm: Meeting with Ex-Im Power Africa Team Leads

Location: 1299 Pennsylvania Ave. NW, Warner Building, 5th Floor, South Room: 5000

POC: Ben Todd (ben.todd@exim.gov)

4:00-5:00 pm: Meeting with Department of Energy Power Africa Team Leads

Location: 1299 Pennsylvania Ave. NW, Warner Building, 5th Floor, South Room: 5000

POC: Blair Pasalic (blair.pasalic@hq.doe.gov)

Wednesday, January 28

8:30-12:00 am: Beyond the Grid Meeting (BTG)

12:00-1:00 pm: Lunch

1:00-5:00 pm: Meeting with Private Partners

Thursday, January 29

Attendance at the Power Africa Summit Conference

Whole day event

Friday, January 30

Attendance at the Power Africa Summit Conference

Whole day event

Saturday, January 31

Departure from Washington, DC

WO-037-US-05
SOW Technical Assistance to Beyond the Grid
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)
January 1, 2015 -- September 30, 2015

1. INTRODUCTION

On June 30, 2013 in Cape Town, South Africa, President Barack Obama announced Power Africa — an Initiative to increase the number of people with access to power in sub-Saharan Africa. Power Africa differentiates itself from historic aid interventions through a strong transaction focus assisting project developers, owners and investors with the acceleration of their investment projects that generate clean energy power; create additional connections and energy access for millions of currently underserved people in Sub-Saharan Africa (www.usaid.gov/powerafrica).

2. BEYOND THE GRID

Given the constraints to expanding access through grid extension alone, Power Africa has developed an off-grid and mini-grid sub-initiative focused on fostering clean and hybrid energy solutions in partnership with impact investors and other organizations active in this space. An increased focus on off-grid and mini-grid applications also has the potential to leverage significant donor partner resources, NGO networks, energy service providers, social enterprises, and impact investor groups. This sub-initiative – called Beyond the Grid (BTG) – aims to increase generation and improve access, thereby jump-starting economic growth for Sub-Saharan Africa households and businesses.

The sub-initiative builds upon early efforts by multi-lateral agencies, the international donor community, US Government initiatives, the private sector and civil society to address issues around energy access. BTG shares many of the top-line objectives (increasing energy access; improving the renewable energy mix) of the United Nations’ *Sustainable Energy for All*, and will be implemented in partnership with this multi-stakeholder global initiative.

At the same time, in keeping with Power Africa’s transaction focus, BTG will continue to leverage private sector solutions and harness private capital through innovative mechanisms. Power Africa is already supporting over 50MW of generation in off-grid, mini-grid projects through grants, guarantees, and transaction advisory services, and has partnered with several companies offering distributed energy solutions. BTG will build on this set of transactions and partners, and cultivate new projects and private sector commitments, to scale up the delivery of energy via off-grid and mini-grid solutions. This includes working with Beyond the Grid’s 40 partners who have committed to invest over \$1 billion in off-grid and small scale energy solutions (www.usaid.gov/powerafrica/beyond-the-grid).

3. THE CHALLENGE

- Nearly 600 million people in sub-Saharan Africa (SSA) —two out of three—lack access to electricity;
- Rural electrification rates are well below five percent in many SSA countries – the lowest in the

world¹³;

- Large generation projects are not a comprehensive solution on a continent that remains largely rural, where national grids neither extend to rural areas nor have sufficient generation capacity¹⁴; and
- Increasing access to reliable and affordable electricity is a key element in poverty eradication and economic growth in SSA.

4. THE OPPORTUNITY

- According to the International Energy Agency, the least-cost scenario for providing universal energy access by 2030 requires the use of off-grid or mini-grid solutions for 70% of rural areas; and
- Some sustainable, private sector led business models for off-grid or small scale solutions are beginning to succeed in the marketplace.

5. BEYOND THE GRID OVERALL PROGRAM OBJECTIVES

At a high level, Beyond the Grid seeks to:

- Advance systems under 10 MW, including:
 - Standalone lantern and solar home systems;
 - Micro and mini-grids; and
 - Grid connected and captive power.
- Provide extensive advisory assistance services to accelerate small-scale renewable energy investments:
 - Increase economic activity through productive use of electricity by households and businesses in Power Africa countries;
 - Expand energy access to households, businesses, and public sector facilities;
 - Generate power from off-grid and small scale systems;
 - Facilitate private sector investment; and
 - Improve enabling conditions for off-grid and small scale electricity services, generation, and distribution.

BTG program objectives are threefold:

- Apply Power Africa's innovative transaction-focused model in developing and implementing small scale and off-grid projects;
- Mobilize private sector investments and solutions to finance, build, and operationalize small scale and off-grid projects; and
- Create an enabling environment by addressing legal, policy, regulatory, institutional, financial, and other barriers to off-grid and small scale projects.

Through these activities, Beyond the Grid and its partners are helping Power Africa to meet and exceed its objective of providing energy access to 60 million new connections for households and businesses. Like Power Africa, and in line with its partnership approach, Beyond the Grid primarily develops activities that help to fill gaps in the market and avoid replication of efforts by other stakeholders.

¹³ Burkina Faso, Central African Republic, Chad, Congo, Democratic Republic of Congo, Gambia, Guinea, Liberia, Madagascar, Malawi, Mauritania, Niger, Rwanda, Sierra Leone, Somalia, and South Sudan rural access below 5 percent on average (IEA 2014).

¹⁴ More than 30 countries in SSA suffer from systematic generation shortages (Foster and Briceño-Garmendia 2010).

6. BEYOND THE GRID KEY COMPONENTS

Beyond the Grid activities fall within either of 2 key components: Private Sector Engagement or Enabling Environment. Both components are further detailed in this section.

7. PRIVATE SECTOR ENGAGEMENT

- Energy access in Africa will hinge upon the innovation of entrepreneurs and small businesses that create and commercialize decentralized energy systems;
- Increased access also depends upon the ability to increase private sector finance flows into sustainable, small-scale project models that can be replicated across markets;
- Efforts to scale up investment in small-scale clean energy technologies are often unsuccessful because debt or equity financing are unavailable at various points along a project or business lifecycle; and
- Through financial and technical support, Beyond the Grid will seek to test and invest in different business and project models, identifying technically and financially viable solutions.

Beyond the Grid financial and accompanying technical assistance will be focused towards activities that:

1. Provide financial and technical assistance for Small and Medium Enterprise (SME) innovation and scaling (via USAID Development Innovation Ventures (DiV), Overseas Private Investment Corporation (OPIC) and US Trade and Development Agency (USTDA) US-Africa Clean Energy Finance (ACEF) initiative, Powering Agriculture, the USADF Off-Grid Energy Challenge);
2. Catalyze increased private sector investment for small-scale projects with credible developers and sustainable business models through risk mitigation, technical assistance, and finance (via transaction advisory services, the Development Credit Authority (DCA) the Private Financing Advisory Network (PFAN)); and
3. Spur partnerships with impact investors and practitioners in the small-scale and off-grid space to mobilize financial resources in combination with targeted technical expertise (via USAID Global Development Alliance, investor forums).

8. ENABLING ENVIRONMENT

- Growth of the African power sector hinges on the public sector providing transparent regulatory and policy regimes that deliver clear, predictable rules for project development, investment and operation;
- Existing policies and regulatory frameworks do not support the variety of new and emerging business models;
- There is a shortage of information in the public domain regarding regulatory frameworks and business opportunities;
- In order to catalyze the private sector and the significant resources it can bring to bear, the public sector must also have the capacity to act as a reliable, capable counterpart; and
- Awareness of quality products and supply side support is sometimes lacking in the sector, increasing the risk of market spoilage and limiting the growth of a commercial market.

Through targeted interventions with governments, donor partners and other stakeholders, Beyond the Grid supports activities that create an enabling environment for private sector development and

investment in small-scale energy projects. As part of this component the following activities will be undertaken:

1. Institutional, policy and regulatory planning, development and reform focused on off-grid and small-scale development and financing (via USTDA, Renewable Energy Feed in Tariff support, etc.);
2. Public sector capacity building that enables or promotes private sector small-scale project development and investment, and improves the public sector's capacity to act as an effective counterpart (development of capacity of rural energy agencies);
3. Provision of market intelligence and information, including information assessing the environment for clean energy investments (for example, Climatescope); and
4. Developing and implementing quality assurance frameworks (for example, quality assurance framework for mini-grids, and Global LEAP for grid lighting and appliances).

9. PROJECT LEVEL ACTIVITIES

To move forward with Power Africa's focus on transactions, an increased focus on Kenya, Tanzania, and Nigeria is recommended. For Ghana, Liberia and Ethiopia, it is recommended Power Africa continue to support transactions in an opportunistic manner while systematically working to address sector reforms in line with the program's transaction-based reform focus.

Specific barriers and areas of engagement for Power Africa for the calendar year 2015 are outlined below. Priorities are given to efforts that 1) do not duplicate USG or other donor efforts, 2) leverage partnerships with other donors, 3) can have a more direct impact on transactions, 4) build on existing mechanisms and avoid extended lead times for design/implementation, 5) minimize the implementation burden on the missions, and 6) provide opportunity for multi-country impact.

The activities included in this Scope of Work are specific to PATRP and form part of a larger portfolio of work that is designed and managed by the BTG Activity Manager in Washington DC.

Annex 1 to this Scope of Work provides an overview of the most important financial, technical and other instruments that are at the disposal of PATRP to assist the design and implementation of Beyond the Grid activities.

10. EARLY STAGE SUPPORT FOR PROJECT IDENTIFICATION AND PREPARATION

Given Power Africa's late stage transaction focus to date, there have been limited interventions on early stage support. Companies, government counterparts, and other donors have identified project preparation as an area where there is a gap in support. Power Africa has supported many of the most promising projects in the sub-sector, additional efforts will be required to support a sustained pipeline and help bring existing deals to the point of bankability. These efforts would be complimentary to ongoing support through AfDB SEFA, OPIC, ACEF and USTDA, which also aim to improve the bankability of projects and strengthen the pipeline.

An emerging area of opportunity is support to companies developing portfolio approaches for small grid-connected renewables and for mini-grids. This approach has been long considered as potentially game changing given that it builds economies of scale for both developers and financiers. In many instances, support is required on project preparation and formulation of deal structure. Beyond the Grid seeks to

provide in depth support for these, starting with Tanzania. Typical project categories identified to date include 10-12 hydro projects with a combined capacity of 30-50 MW in Tanzania and 12-14 biomass projects with a combined capacity of 100-120 MW in Kenya.

Immediate assistance for project development has been identified for Mini-Grids that could be partially grid connected to export excess power. Facilities for financing such well-developed projects are under preparation through for example the DfiD funded Green Mini-Grid Program focusing on East Africa. PATRP will further investigate and possibly assist with setting up a dedicated Project Development Facility to pro-actively support the above.

Core project development activities could include technical feasibility studies, environmental and social impact studies, support in obtaining required permits, business plan refinement, etc. Dedicated teams may engage in both support to portfolio approaches and early stage pipeline development. Identification of appropriate skills will be developed in consultation with other donors. Given broad donor interest, particularly in East Africa, development of these efforts will focus on leveraging technical and financial support of other donor partners.

11. COUNTRY LEVEL TRANSACTION ADVISORY SERVICES

Power Africa's transaction focus translates directly to providing support to medium-late stage transactions that have been identified by the resident, large-scale transaction advisors, the USAID local mission or other relevant parties. Support ranges from technical, financial, environmental, social- and community issues to be tailor made for the investment project dealt with. This support will be provided through PATRP.

12. COMMUNITY BASED MANAGEMENT AND OPERATION

Often the focus during project development is on licensing, capital expenditures, and financing thereof. For proper and sustainable, long-term operations of mini- and micro-grid projects, the active involvement of the communities where mini-grids are located is extremely relevant. Various community, or customer-based, engagement models have been developed over the past decades; e.g. Cooperatives, Membership based Associations. PATRP will provide assistance in selecting and adapting the most appropriate community based management and operation models as part of mini-grid development engagement.

13. INVESTOR FORUMS

BTG, though it's 40+ partner network is in a position to identify equity and debt investors that could invest in promising private sector operations. BTG considers such efforts to be part of its overall portfolio and an important component of Power Africa's financing facilitation for energy projects strategy. Under this activity, BTG will sponsor or host investor forums that enable investors to gain first-hand insight into the investment potential of this rapidly growing market. Forums will facilitate dialogue between the investment sector and the industry – identifying best practices and pathways to financial support.

14. ENABLING ENVIRONMENT ACTIVITIES

14.1. POLICY AND REGULATORY FRAMEWORKS

Policy and Regulatory Frameworks applicable to the BTG sub-sectors vary widely for the Power Africa focus countries and throughout Sub-Saharan Africa. Listed below are indicative interventions that could be supported through PATRP after a detailed assessment has been undertaken to fully understand the issues at hand. Please note that this list is not exhaustive and further issues and activities could be added as appropriate:

- Strong, transparent legal and regulatory framework that facilitates both public and private investment in the power sector;
- Promoting universal electricity access, achieved through the strategic use of on-grid, off-grid, and small-scale solutions;
- Streamlined and transparent processes for project development;
- Integrating off-grid, micro-grid, mini-grids into rural electrification plans;
- Quality Assurance frameworks for mini-grids (e.g. DOE) and individual solar solutions: solar lanterns and solar home systems (e.g. Lighting Africa);
- Explore impacts of removal and/or reduced import duties and VAT on imported solar products and possibly other imported small-scale renewable energy products;
- Renewable Energy Feed in Tariffs or similar instruments (e.g. reverse auctions) to assist small-scale grid connected renewable energy projects;
- Cost-reflective tariff setting for private operators of micro- and mini-grids; and
- Standardized PPAs for grid-connected projects below 10 MW.

15. Direct Support to the Coordinator's Office

A variety of activities will be supported by the BTG Team, to include financial management and planning; project administration; contract and proposal support; and partner coordination and assistance, including match-making between investors and developers. Further, a key aspect will be on communications, outreach, and monitoring and evaluation to include support to the home office as follows:

- Coordinating with the 12 USG Agencies engaged in Power Africa;
- Conducting donor outreach and support, to include World Bank, IFC, African Development Bank, bilateral development agencies, SE4ALL, UN Foundation, etc.;
- Monitoring, collecting, and organizing information on off-grid activities linked to PATRP;
- Providing input to PATRP website and links to social media;
- Contributing to PATRP newsletters, documents, etc.;
- Promoting information and materials to off-grid energy partners, consumers, policy makers, etc.
- Developing press releases and articles as appropriate;
- Responding to other requests, as needed;
- Monitoring, evaluating, tracking, and reporting on the BTG program. This will include assessing program performance, progress, and impact against stated objectives, and as needed, making course adjustments.

Main deliverables are digestible, accessible, quality, timely information on BTG activities for use by the PATRP management team, broader Power Africa management, and key partners in support of their

reporting, knowledge management, and outreach needs. The above activities will be coordinated with the broader PATRP Communications team.

16. KNOWLEDGE MANAGEMENT AND COMMUNICATIONS

An important role for BTG is to provide information, and communications on activities conducted. This will include:

- Timely knowledge and communications on BTG activities and results for the USG, host country governments, donors, and private sector partners, among other audiences, seeking to address the off-grid and small scale market;
- Employing various marketing strategies to reach target audiences, including sharing lessons learned reports; conference papers, presentations, and market studies; and contributions to the Power Africa and BTG websites once in full operation;
- Preparing and distributing success stories from both PATRP and other USG efforts. These will be documented and featured to share lessons that could be valuable to others as they consider/advance off-grid efforts. This could include summaries of successful projects or programs, impactful policies that strengthened the sector, and/or innovative financing programs, among others.

Main deliverables are up-to-date knowledge on BTG activities and subject matter in order to respond to information requests in a timely, quality manner. Increased awareness and shared knowledge on BTG activities through a variety of mechanisms to include active participation in conferences, and upkeep of the BTG and Power Africa websites/tools.

17. CONVENING AND MATCHMAKING

- Developing partner profiles to facilitate matchmaking and increase partner visibility;
- Leading/participating in meetings and events to include conferences, workshops, seminars, exhibitions, networking events, roundtables, retreats, press conferences, trade events, webinars and on-line conferencing mechanisms (typically include either video or audio with slides), and other relevant platforms to gain, maintain, and share knowledge, and facilitate developer/investor matchmaking;
- Events can range from country-specific, to regional, to international depending on the goals, objectives, and desired audience. For example, they could vary from a renewable energy industry trade fair, to support for the Off-Grid Energy Access Investor Conference to be held with the Global Off-Grid Lighting Association (GOGLA). They can be independently supported by PATRP or in conjunction with other entities.

Main deliverables are preparation of profiles for BTG's 40+ partners, organization and participation in 2-4 forums on off-grid and small scale energy or related events, and response to broader inquiries.

18. BEYOND THE GRID GEOGRAPHICAL COVERAGE

As efforts have progressed, various differentiating factors have become apparent between the countries. In Kenya, Tanzania, and Nigeria, the team has identified higher numbers: (1) of companies/developers and investors expressing interest; (2) of active Beyond the Grid partners; and (3) of activities seeking and ready for transaction advisory support, including those efforts that are reaching scale and are close to

bankability. In these countries, there is also increased donor engagement and interest and favorable enabling environments, including existence of policies that encourage private investment.

While interest has been expressed by various private sector players, barriers in countries such as Ghana, Liberia, and Ethiopia limit their ability to participate in the sector. Though not identical in all countries, these barriers may include lack of financing access, currency risks, limited investment flows, limited sector liberalization, limited incentives to private sector participation, restrictions to private sector participation in the generation or distribution of electricity and energy services, and lack of awareness on off-grid and small-scale opportunities.

To move forward with Power Africa's focus on transactions, an increased focus on Kenya, Tanzania, and Nigeria is recommended. For Ghana, Liberia and Ethiopia, it is recommended Power Africa continue to support transactions in an opportunistic manner while systematically working to address sector reforms in line with the program's transaction-based reform focus.

Additional countries could be added later in 2015. If and when this occurs an addendum to this Scope of Work, will be prepared.

19. PROGRAM MANAGEMENT AND IMPLEMENTATION

The activities listed in this Scope of Work, except for those listed in sections 16-18, will be further designed, implemented and managed by the PATRP Beyond the Grid Program Manager is Mr. Ad Dankers, a full-time Technical Advisor based at the PATRP Office in Pretoria, South Africa. Mr. Dankers, reports to the BTG Activity Manager, Mrs. Maria Hilda Rivera from the Power Africa Coordinator's Office. Mrs. Rivera is based at USAID Headquarters in Washington and will further design, implement and manage activities listed in sections 16-18.

In addition to the current transaction advisors hired through PATRP (Tanzania, Kenya, Liberia), it is anticipated that additional transaction advisors will be hired by the USAID missions to support BTG activities.

Short-term consultants will provide support on a variety of technical, financial, and management activities that will be required to address program needs. As the work expands, regional short-term consultants that provide business support to early stage companies or project preparation services complimentary to those of the in-country based transaction advisors will be considered.

The Netherlands Development Organisation (SNV), with properly staffed and equipped offices in Ethiopia, Kenya and Tanzania will be engaged as appropriate for activities listed in this Scope of Work.

Tetra Tech USA is anticipated to provide major support to the Washington DC-led activities listed in sections 16-18.

20. RESOURCE REQUIREMENTS

The following table summarizes the budget for the period 1 April 2015 to 15 May 2016 to enable PATRP to successfully undertake activities listed in this Scope of Work.

PATRP – Beyond the Grid Activity	k USD	Fees	Other	Remarks
(for the period 1 April 2015 - 15 May 2016)				
Project Level.				
Early stage support for Project Identification and Preparation				
Aggregating portfolios	225	180	45	SNV to assist
RE Mini-grids Facility	225	180	45	SNV to assist
Country level Transaction Advisory Services	250	200	50	SNV to assist
Community Based Management & Operation	150	120	30	SNV to take a lead role
Investor Forums	150	90	60	Tetrattech DC to assist
Enabling Environment.				
Policy and Regulatory Frameworks	225	202,5	22,5	SNV to assist, Tetrattech DC to assist
Washington DC-led Activities.				
Direct Support to the Coordinator's Office	275	247,5	27,5	Tetrattech DC to assist
Knowledge Management and Communications	175	105	70	Tetrattech DC to assist
Convening and Matchmaking	225	135	90	Tetrattech DC to assist
Unforeseen	150	90	60	
Totals	2050	1550	500	

WO-038-ET-02
SOW Grid Management Support Program (GMSP) for Ethiopia
Scoping Mission
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)
January 23, 2015 – March 9, 2015

OBJECTIVE

Main objective under this task is to define a program of activities that meets the goal and objectives of Power Africa Initiative for Ethiopia. Based on preliminary discussions, the Scoping Mission work is designed to discuss and define program of activities to support and strengthen Ethiopia’s power system for integration of new generation (conventional and renewables) and for sustainable and efficient operation of the National Grid for delivery of quality and reliable electrical services to consumers.

The program is anticipated to support and assist the Ethiopian Electricity Agency (EEA) as the energy sector regulator and the Ethiopian Electric Power Corporation as System Operator and the National power utility to manage system planning and operations with the integration of new generation such as large hydro, geothermal, thermal and renewable projects as part of rapid expansion of the national power grid.

AREAS OF SUPPORT

Managing the rapid growth of the power system is a major concern of project lenders, regulators and system operators. Renewable generation can add to these challenges. The current system operations in Ethiopia is based on existing practices in the generation, transmission and distribution sectors and does not take into account technological advancements, integration of renewables, and international best practices. It is therefore imperative that the power system be designed and equipped to deal with new generation projects and impacts of renewable energy. It is also critical that the energy sector regulation is strengthened and effective. Key component of good regulation is compliance with the Grid Code. In Ethiopia, Grid Code has to be developed and adopted to ensure compliance by all participants, open and fair access to the grid, as well as improve system reliability and assure new project financing.

The Grid Management Support program will be designed to assist Ethiopia transition to a more economic and reliable power system that makes better use of its natural resources. In order to achieve this goal, our Scoping Mission will look into need for conducting a technical study; an examination of the current systems, tools and processes for grid operations in Ethiopia and a grid code development. Those independent but related areas of support include:

- Task 1. System Expansion/Renewable Integration Study (RIS)
- Task 2. Grid Code Development (GCD)
- Task 3. System Operation Gap Analysis (SOGA)

Each area of support is briefly described below:

Task 1. System Expansion/Renewable Integration Study (RIS)

The objective of this task is to conduct a system study using information on the state of the current grid and planned additions to comprehensively evaluate the technical and operational aspects needed to

ensure that the power system that is planned and developed and put in operation will work harmoniously, reliably and efficiently.

An important component of this study is to explore varying assumptions through the use of scenarios. In the Base Case, as well as scenarios, emphasis will be on a comprehensive analysis of impacts from large traditional and new renewable projects on the generation reserves and grid operations. The difference between the results from Bases Cases to scenarios is used to assess the impacts to the system. Factors such as impact on the commitment and dispatch of the system and the associated cost implications; impacts to emissions, cycling of other generation; levels of ancillary services; ramping; etc. can be determined. Finally, study could evaluate the possible renewable absorption levels for all scenarios to the network as well as to the system operations.

Task 2. Grid Code Development (GCD)

The Grid Code document is necessary to ensure the reliability, safety and security of an efficient and modern grid system and to enable development and financing of additional capacity from conventional or renewable sources. Ethiopia power system seems to be lacking Grid Code document, so work on this task will include developing entirely new document. Nexant staff just finalized development of the Kenya Grid Code, starting from an earlier version and using best practices in Africa and around the world. Nexant also created a new Renewables section for and reviewed the draft Lesotho Grid Code. We will apply this experience in developing new Grid Code for Ethiopia. We will also take into account existing utility documents and practices. The Grid Code will include sections on renewables to ensure compliance with the international best practices in the industry.

Task 3. System Operation Gap Analysis (SOGA)

The purpose of SOGA task is to assess existing systems and procedures for operating the system today in order to identify the operational requirements that would help support and strengthen Ethiopia's power grid for integration of new generation (conventional and renewables) sources with a view to sustainable and efficient operation of the National Grid for delivery of quality and reliable electrical services to the end users. The SOGA primarily involves three steps:

- Determination of the "As Is" environment – i.e., how the system is operated today;
- Determination of the "To Be" environment – how the system needs to operate in future. Input from tasks 1 and 2 as defined above will play significant role in this step; and
- Assessment of the gap between "As Is" and "To Be" – this involves determination of the gaps in the way the system is operated now that should be fixed in the future, esp. as new renewable resources are brought on-line.

STEPS

During Scoping Mission we will:

- Confirm the need for support in each GMSP area.
- Get the buy-in from stakeholders and the agreement to support this program.
- Describe each task in more details.
- Estimate resources and list data required for each task.

Estimate budget and timing for conducting each task and the entire GMSP.

PROPOSED TIMETABLE

The proposed timetable for the Scoping Mission is estimated at 1.5 months. A visit to Ethiopia is scheduled for the second half of January 2015.

DELIVERABLES

Nexant will submit a Scoping Mission report containing a trip report and GMSP scope and work plan for tasks outlined above that USAID can support in Ethiopia.

**SOW - Legal and Financial Advisory Services for the Creation of a Term Sheet leading to a Joint Development Agreement Template for the Geothermal Development Company of Kenya
USAID/ Power Africa Transactions and Reforms Program ("PATRP")
(AID-623-C-14-00003)**

A. Introduction

The United States created the Power Africa initiative to help designated countries in sub-Saharan Africa increase the number of people with access to electricity. To accomplish this goal, Power Africa is working with these countries to add a significant amount of cleaner, more efficient electricity generation capacity. The US is undertaking this assistance, in part, through the Power Africa Transactions and Reform Program (PATRP).

Kenya is one of the designated Power Africa countries. Kenya has an ambitious program to increase clean electrical generating capacity. Part of this program is for the Geothermal Development Company (GDC), a state owned company, to increase the amount of geothermal generating capacity. GDC plans to form partnerships with private investors to help it to meet its objectives. PATRP is offering assistance to GDC to help form these partnerships. GDC is seeking this assistance in the form of a Joint Development Agreement (JDA) template that it would be used as the basis of the partnership agreement between the private investors and GDC.

This Scope of Work describes the PATRP plan to produce a JDA.

B. Background

GDC is registered under the Companies Act and incorporated in 2008. GDC has committed to supporting the Government of Kenya's (GoK's) Vision 2030 objectives. GDC developed a near term business plan to accelerate geothermal exploration, drilling and development programs to realize 5,000 MW of geothermal electricity generation by 2030. In addition, GDC has committed to support the GoK's 5000+ MW by 2017 program to accelerate the energy supply growth. Under the 5000+ MW program, GDC has slated to provide 810 MW of geothermal power via projects at Menegai, Suswa and Silali. This includes an initial 200 MW development at the Silali resource block.

The Silali Project will consist of initial surface exploration, installation of site infrastructure, exploration drilling, appraisal drilling, production drilling, steam field above ground gathering system (SAGS), power plant(s), interconnection to the national grid and long term operation and maintenance (O&M).

Electricity generation from the Project will be sold to Kenya Power under a long term power purchase agreement (PPA) under a defined geothermal tariff rate. The terms of the PPA will be regulated under the independent Energy Regulatory Commission.

GDC intends to develop the project through a private sector joint investment program. The joint investment program will involve engagement of the private sector through the Kenya Public Private Partnership (PPP) program regulated under the GoK Public Private Partnership Bill, 2012. GDC intends to participate in the joint investment program as a minority investor in the steam field. The private investor will contribute the balance of the project equity and 100% of the project debt requirements. It is GDC's intent to lead the geothermal resource development program in coordination with the private investor and to provide the long-term O&M of the resource and SAGS. The investor will lead the development of the power plant and grid interconnection and provide the long term O&M of the power plant.

The structure of the GDC-Investor PPP will be governed through the JDA which will define the structure of the project financial structure, governance, project development, operation and maintenance of the project.

C. Objective

The objective of this assignment is who has retained a qualified team of professionals (Consultant) to create a Joint Development Agreement template for the Baringo-Silali geothermal prospect. This JDA is to be consistent not only with GDC's proposed structure and business objectives but also one that is acceptable to geothermal developers, geothermal project lenders, and third party equity participants.

The initial part of this assignment will be to develop a Term Sheet (TS) that will be the foundation of the JDA template.

The TS shall be based on a draft joint development plan term sheet and market analysis previously carried out by GreenMax Capital and delivered to GDC and USAID under a separate contract.

D. Scope of Assignment & Deliverables

The assignment shall be divided into two key tasks:

Task 1: Prepare a Term Sheet that will be the foundation of the JDA Template.

The Consultant will provide the legal and financial advisory assistance to GDC to prepare a Term Sheet for a JDA template for the Bogoria-Silali geothermal prospect that, to the extent possible, satisfies GDC corporate requirements, market conditions, as well as Kenyan legal and regulatory statutes.

The draft term sheet from GreenMax will be reviewed and revised as necessary , and presented to GDC. Feedback to the TS given by GDC will be incorporated in the JDA template by the Consultant.

Key activities to be undertaken in this task consist of the following:

1. Review and update the GreenMax TS to assure that the structure is legal based on the research and analysis undertaken by GreenMax.
2. Review the responses to the GreenMax questionnaire. Assure that the TS is consistent with the responses to the questionnaire.
3. Contact lenders and geothermal developers to determine and/or update assumptions.
4. Develop a revised TS.
5. Present revised TS to the executive management of GDC.
7. Revise TS taking into consideration the comments from GDC

Task 2: Prepare Joint Development Agreement Template

Under this task, the Consultants will confirm the capital and operating cost assumptions for the overall project (steam field, power plant, and interconnections) along with schedule, and other assumptions specific to geothermal development. In order to successfully execute this task, it is expected Furthermore, the assumptions for the financing (both debt and equity), power plant operations costs, and other financing details shall be reviewed accordingly. The tax assumptions including import duties, VAT, corporate tax, and withholding tax, as well as the integrity of the overall model will be carried out.

The activities to be undertaken under this task consist of the following:

1. Review the pro-forma financial model to assure that the assumptions are correct related to the following:
 - a. overall model input assumptions
 - b. capital cost
 - c. financing
 - d. tax
 - e. operating cost
2. Review model calculations for integrity.
3. Prepare a sensitivity analysis of key financial model outputs
4. Revise JDA structure where necessary.
5. Effect revisions to the pro-forma and document reasons for changes.
6. Present draft JDA to GDC
7. Revise the draft JDA incorporating GDC comments.
8. Submit the final JDA to GDC.

Deliverables

The following shall be the deliverables for the assignment.

- A bi-weekly report including a brief summary of meetings held or conversations held with GDC personnel, and private investors regarding the development of the TS, and a list of individuals at these meetings with names, titles, and email addresses.

- Final TS with revisions made, to the extent possible, pursuant to comments from GDC.
- Financial Model with Sensitivity Analysis
- Notes summarizing outcomes from any meetings or email correspondence with GDC personnel regarding the JDA
- Draft JDA template
- Memorandum on meeting with GDC where the JDA is presented
- Final JDA template

E. Duration of Study & Activity Schedule

It is expected that the entire assignment shall be completed within 12 weeks, based on the

General Timeline GDC JDA												
	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
Commencement of work	★											
Review & analysis of existing documentation	■	■	■									
Complete TS Draft				★								
Discussion with GDC staff & feedback on draft			■	■								
Presentation to GDC executives & GDC feedback				★								
Revise TS				■	■	■	■	■	■			
JDA production					■	■	■	■	■	■		
Information to be provided by GDC				★								
Financial & tax structuring review						■	■	■				
Completion of JDA draft									★			
Discussion with GDC staff & feedback on draft									■	■		
Presentation to GDC executives & GDC feedback										★		
Final revision of JDA											■	■
Completion												★

activities outlined below and based on timely feedback from GDC.

F. Key Staff

The following shall be the key staff responsible for executing the assignment

1. Mike Long Project Manager & Geothermal Technical Expert
2. John Works Financial Expert
3. Roger Wagner Legal Expert
4. Stephen Meyer Transaction Advisor
5. Miguel Soriano, Financial Analyst
6. Charles Muchuha Kenya Tax Advisor

When necessary, additional personnel shall be engaged on short-term basis to provide support in areas such as taxation matters and analysis.

G. Facilities/Services to be provided by GDC

GDC will provide the Consultant with access to budgetary cost estimates for development of the Silali field, including; infrastructure, water supply, drilling costs, installation of the steamfield above ground gathering system (SAGS), electrical interconnection costs and GDC internal costs (site purchase/lease costs, environmental/permitting, engineering, project management, general overhead allocation, insurance).

GDC will provide an estimate of the planned number of production and injection wells. Estimated average output (MW or tonnes/hr), estimated annual decline rate, make up drilling rate (number of wells and year to be added post commercial operation), operating cost for the resource and SAGS.

H. Communications

The contact person for the Consultants shall William Madara- wmadara@usaid.gov.

WO-040-EA-08
SOW Assistance to EAPP and IRB
February, 2015 – March, 2016
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

Project Background

Ethiopia intends to build 11,200 MW of hydropower capacity and to develop up to 1,000 MWs of geothermal power in the near future. The Government of Ethiopia (GOE) has been successful in increasing installed capacity from 783MW in early 2009 to 1,503MW by early 2010 and to 2,062MW by 2012, by mobilizing concessionary financing for GOE-owned hydro projects. Ethiopia aims to quadruple installed capacity in the near future. Large hydro as a Renewable Energy resource and substantial geothermal additions will be the major focus in the near future.

Ethiopia’s energy strategy focuses on the construction of transmission interconnections to allow electricity to be traded with neighboring countries. An Ethiopia-Djibouti Interconnector started power trading in 2011 and the Ethiopia-Sudan Interconnector began a test run on December 17, 2012 to enable power trade in 2013. The Ethiopia-Kenya Power Interconnection Project is expected to begin operations by 2017. Separately, an Egypt-Sudan interconnector has been proposed for initial operation in 2016, and other lines are under consideration. When completed, these lines together will connect the grid from Kenya to Egypt. In addition, Ethiopia just signed an MOU for sale of electricity to Tanzania (through Kenya) and is in the process of negotiating an MOU with Rwanda (through Sudan & Uganda).

A key aspect of Ethiopia’s power sector planning is the aim to export very large amounts of electric energy over these newly developed transmission interconnections. One of the key focuses of the East Africa Power Pool (EAPP) is to support the reliable interconnection of EAPP countries to facilitate reliable power trading and the establishment of a regional power market.

The number of high voltage transmission interconnections between EAPP countries is increasing rapidly and by about 2016 every EAPP country will have at least one interconnection with another EAPP country. The importance of being able to support long term power trade transactions is very important.

Recent USAID Technical Assistance in the Power Sector under AIP

One of the key focuses of EAPP is to support the reliable interconnection of EAPP countries to facilitate reliable power trading and the establishment of a regional power market. The objectives of USAID assistance are to 1) provide EAPP and its members with transaction support to accelerate establishment of a regional power market in Eastern Africa and 2) to assist the EAPP Independent Regulatory Board (IRB) to be an effective regional regulator for the power market in Eastern Africa.

In 2014 the Africa Infrastructure Program of USAID (AIP) implemented by Nexant provided the following assistance to EAPP.

- Presented the concept of a pilot process to support the development of the necessary arrangements and tariff settings principles for the planned power sale transaction from Ethiopia

to Tanzania. When completed, this could be the basis for the process to be used for future transactions.

- Presented a concept note on the IRB Regulatory Process for the Ethiopia-Kenya-Tanzania (EKT) power sales transactions
- Conducted several meeting in Addis Ababa to establish the Transaction Working Group (TWG) to support EKT transactions and to begin the development of a wheeling agreement and tariff. The AIP team reviewed the Approach and Principles document to be developed with the support of the TWG. The key participants were drawn from utilities such as EPP/Ethiopia, KETRACO/Kenya, TANESCO/Tanzania as well as regulators such as EAA/Ethiopia, ERC/Kenya, EWURA/Tanzania and staff from the EAPP Permanent secretariat. The EAPP Independent Regulatory Board-IRB Chairman, who is the Director General of EWURA/Tanzania, led the discussion during the meeting. In January 2015 the IRB Board approved the two documents developed by the TWG with support of Nexant this position the pilot project to enter into the development stage.

Work Plan for February 2015- March 2016

In 2014 the AIP program initiated a Pilot Project to develop a long term wheeling agreement and tariff for a long term power sale that originates in Ethiopia and terminates in Tanzania with wheeling across the systems of KPLC and KETRACO in Kenya.

One of the major milestones in the Pilot Project is the approval of the two documents by the IRB at its January 2015 meeting - a Process document that specifies the process to be used to develop the Wheeling Agreement (WA) and Tariff (T) and the Principles document which provides guidance as the overall approach to be taken in drafting the WA and T. With the approval of these two documents, the Pilot project shifts into an implementation mode. This mode will include 1) USAID team developing a Pro-Forma WA for a long term wheeling transaction which will be used as the starting point for KETRACO to develop a WA for the EKT transaction, 1) USAID team facilitating KETRACO's development of the EKT WA and the many steps needed to develop the EKT T, 3) USAID team working with the Transmission Working Group (TWG) established in the early stages of Pilot to reach consensus on a EKT WA and T package and presenting it to the IRB.

In addition there is a need to develop standard generic documents for use on future long term wheeling agreement and tariff projects as there are several interested in developing a wheeling agreement and tariff using processes similar to the EKT's.

The Work Plan for February 2015-March 2016 comprises the following Tasks:

1. Support to EAPP Permanent Secretary/ IRB – Complete the EKT Wheeling Agreement and Tariff Transaction
 2. Support the EAPP Secretariat / IRB – Develop Standardized Process and Principles Documents and Update Pro-Forma Wheeling Agreement
 3. Support the EAPP Secretariat / IRB – Support Development of the EAPP and IRB Action Plans that will be presented to the SC/COM in late March 2015
 4. Support to EAPP Permanent Secretary - Interconnection Code Gap Analysis Workshop.
- 1. Support to EAPP Permanent Secretary/ IRB – Complete the EKT Wheeling Agreement and Tariff Transaction**

The purpose of this task is to complete the EKT Pilot Project by facilitating the completion by KETRACO of an EKT WA and T that is acceptable to the directly impacted parties (represented by the TWG membership) and the IRB which represents the remaining EAPP members. The project will include up to three working meetings of the TWG to deal with reviewing the cost allocation methodology and the contents of the wheeling agreement with the goal of reaching agreement among the parties regarding the service to be provided and the price to be paid.

2. Support the EAPP Secretariat / IRB – Develop Standardized Process and Principles Documents and Update Pro-Forma Wheeling Agreement

The purpose of this task is to develop standard documents to be used by parties in the development of long term wheeling agreements. These documents would be developed using the EKT specific documents as a starting point. That includes the EKT Process, Principles and Pro-Forma Wheeling Agreement. The final products would be approved by the IRB and then given to the COM for approval.

The task would include up to two EAPP stakeholder meetings, review and approval by the IRB Board and approval by the COM.

3. Support the EAPP Secretariat / IRB – Support Development of the EAPP and IRB Action Plans that will be presented to the SC/COM in late March 2015

The small budget is to cover the cost of providing support to the EAPP and IRB in their development of their Action Plans that are due to be completed and presented to the Steering Committee and Council of Ministers in late March 2015. The USAID office has asked Nexant to facilitate coordination of the plans of PATRP, USEA and NARUC.

4. Support to EAPP Permanent Secretary - Interconnection Code Gap Analysis Workshop

The purpose of this workshop is to support the countries that are nearing interconnection to prepare their personnel and systems to be in full compliance with the EAPP Interconnection Code. The AIP team developed an Interconnection Code Gap Analysis Tool that was rolled out in 2011. It was used on a pilot basis with Ethiopia and Kenya who were the first two EAPP countries planning to develop a new interconnection. A workshop was held and part of it was devoted to the Kenya Ethiopia Gap Analysis Pilot.

This planned workshop will focus on up to five countries that are planning to develop new interconnections. The workshop will focus on supporting these countries to perform a gap analysis on their utility. The countries to be included in the Interconnection Code Gap Analysis Capacity Building are Tanzania, Rwanda and Uganda and two other countries to be determined. Each country may have up to two attendees at the workshop.

This task will require the following effort or cost:

- Six days to prepare the materials
- Two person weeks to present the workshop
- One person weeks to support questions from the three countries after the workshop
- Travel and lodging for up to 10 individuals from the participating countries
- Travel and lodging for the Workshop presenters

WO-041-WA-03
SOW - Grid Management Support Program (GMSP) for Senegal
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

OBJECTIVE

Main objective under this task is to define a program of activities that meets the goal and objectives of Power Africa Initiative for Senegal. Based on preliminary discussions, the Scoping Mission work is designed to discuss and define program of activities to support and strengthen Senegal’s power system for integration of new generation (conventional and renewables) and for sustainable and efficient operation of the National Grid for delivery of quality and reliable electrical services to consumers.

The program is anticipated to support and assist the Electricity Regulatory Commission CRSE (La Commission de Regulation du Secteur de L'Electricite) and SENELEC as System Operator (Espace Operateur) and the National power utility to manage system planning and operations with the integration of new generation such as renewables (e.g., Taiba Wind Farm), large hydro, geothermal, and thermal as part of significant expansion of the national power grid.

AREAS OF SUPPORT

Managing the rapid growth of the power system is a major concern of project lenders, regulators and system operators. Renewable generation can add to these challenges. The current system operations in Senegal is based on existing practices in the generation, transmission and distribution sectors and does not take into account technological advancements, integration of renewables, and international best practices. It is therefore imperative that the power system be designed and equipped to deal with new generation projects and impacts of renewable energy. It is also critical that the energy sector regulation is strengthened and effective. A key component of good regulation is compliance with the Grid Code. In Senegal, the Grid Code has to be developed and adopted to ensure compliance by all participants, open and fair access to the grid, as well as improve system reliability and assure new project financing.

The Grid Management Support program will be designed to assist Senegal transition to a more economic and reliable power system that makes better use of its natural resources. In order to achieve this goal, our Scoping Mission will look into need for conducting a technical study; an examination of the current systems, tools and processes for grid operations in Senegal and a grid code development. Those independent but related areas of support include:

- Task 1. System Expansion/Renewable Integration Study (RIS)
- Task 2. Grid Code Development (GCD)
- Task 3. System Operation Gap Analysis (SOGA)

Each area of support is briefly described below:

Task 1. System Expansion/Renewable Integration Study (RIS)

The objective of this task is to conduct a system study using information on the state of the current grid and planned additions to comprehensively evaluate the technical and operational aspects needed to

ensure that the power system that is planned and developed and put in operation will work harmoniously, reliably and efficiently.

An important component of this study is to explore varying assumptions through the use of scenarios. In the Base Case, as well as scenarios, emphasis will be on a comprehensive analysis of impacts from large traditional and new renewable projects on the generation reserves and grid operations. The difference between the results from Bases Cases to scenarios is used to assess the impacts to the system. Factors such as impact on the commitment and dispatch of the system and the associated cost implications; impacts to emissions, cycling of other generation; levels of ancillary services; ramping; etc. can be determined. Finally, study could evaluate the possible renewable absorption levels for all scenarios to the network as well as to the system operations.

Task 2. Grid Code Development (GCD)

The Grid Code document is necessary to ensure the reliability, safety and security of an efficient and modern grid system and to enable development and financing of additional capacity from conventional or renewable sources. Senegal seems to be lacking Grid Code document, so work on this task will include developing entirely new document. If a draft Grid Code is available and appropriate to use, it may provide a good starting point for this effort. Nexant staff just finalized development of the Kenya Grid Code, starting from an earlier version and using best practices in Africa and around the world. Nexant also created a new Renewables section for and reviewed the draft Lesotho Grid Code. We will apply this experience if we are to develop, revise or review the Senegalese Grid Code. We will also take into account existing utility documents and practices. The Grid Code will include sections on renewables to ensure compliance with the international best practices in the industry.

Task 3. System Operation Gap Analysis (SOGA)

The purpose of SOGA task is to assess existing systems and procedures for operating the system today in order to identify the operational requirements that would help support and strengthen Senegal's power grid for integration of new generation (conventional and renewables) sources with a view to sustainable and efficient operation of the National Grid for delivery of quality and reliable electrical services to the end users. The SOGA primarily involves three steps:

- Determination of the "As Is" environment – i.e., how the system is operated today;
- Determination of the "To Be" environment – how the system needs to operate in future. Input from tasks 1 and 2 as defined above will play significant role in this step; and
- Assessment of the gap between "As Is" and "To Be" – this involves determination of the gaps in the way the system is operated now that should be fixed in the future, esp. as new renewable resources are brought on-line.

STEPS

During Scoping Mission we will:

- Confirm the need for support in each GMSP area.
- Get the buy-in from stakeholders and the agreement to support this program.
- Describe each task in more details.

Estimate resources and list data required for each task.
Estimate budget and timing for conducting each task and the entire GMSP.

PROPOSED TIMETABLE

The proposed timetable for the Scoping Mission is estimated at 1.5 calendar months. This includes a two week trip to Senegal.

DELIVERABLES

Nexant will submit a Scoping Mission report containing a trip report and GMSP scope and work plan for tasks outlined above that USAID can support in Senegal.

WO-042-ET-03
SOW Assistance to the Government of Ethiopia on Corbetti Geothermal Project
April 1 – May 15, 2015
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

A. Project Background

Ethiopia intends to build up to 11,200 MWs of hydropower capacity and to develop up to 1,000 MWs of geothermal power in the near future. The Government of Ethiopia (GOE) has been successful in increasing installed capacity from 783 MWs in early 2009 to 1,503 MWs by early 2010 and to 2,062 MWs by 2012, by mobilizing concessionary financing for GOE-owned hydro projects. Ethiopia aims to quadruple installed capacity in the near future. Large hydro as a renewable energy resource and substantial geothermal additions, which are also renewable energy resources, will be the major focus in the near future.

The Corbetti Geothermal Project is a potential 500 MW geothermal electricity generation project in Ethiopia, with a total capital cost of approximately US\$ 2 billion, to be developed in several stages.

The project developer is Reykjavik Geothermal (Iceland) with other equity provided by Iceland Drilling. African Renewable Energy Fund (AREF), which is managed by Berkeley Energy, is the majority shareholder. Ethiopia’s state-owned utility, Ethiopian Electric Power (EEP), will be purchasing the electricity produced by the plant as the project’s offtaker.

B. Recent USAID Technical Assistance in the Power Sector under AIP

The Africa Infrastructure Program of USAID (AIP) has been assisting the GOE since 2013.

The AIP team assisted in structuring the PPP arrangements for the GOE’s first private sector engagement of an IPP, the Corbetti Geothermal Project. They prepared a high-level IPP White Paper outlining the policy advantages of private sector investment in Ethiopia’s power sector. These initiatives contributed to the buy-in by government officials to introduce private investment in power generation and recognize the need for capacity building for IPP negotiations and designing legal frameworks.

The later assistance to the GOE and its Corbetti negotiating team has been through capacity building.

In 2013 the AIP team delivered a training workshop for the GOE’s power sector participants captioned “Private Sector Investment in Ethiopia’s Power Sector: Focus on Geothermal Power Generation and the Corbetti Geothermal Project”. 25 participants, including one female participant, attended this two-day workshop.

On March 3-6, 2015 the AIP program held a series of two additional workshops in Addis Ababa, Ethiopia for the Corbetti Geothermal Project negotiating team, captioned “Geothermal Reservoir Appraisal and Financial Modeling for Geothermal Projects”. 14 to 17 participants, including one female participant, attended each day of this four-day workshop series.

C. Work Plan for April 1 - May 15, 2015

During the week of April 06, 2015, there will be an all-hands meeting of project developer, equity provider, and GOE in Addis Ababa to finalize two critical deal documents—the Power Purchase Agreement (PPA) and the Implementation Agreement (IA). After learning the positions of the project developer on key negotiation issues from the meetings scheduled early in the week of April 06, the GOE team (supported by Power Africa) will arrange briefings with the Ministry of Finance, National Bank of Ethiopia, and Ministry of Energy to bring them up to date on the key issues and ask decision makers to respond to the project developer's positions that may determine the future of this transaction.

The PATRP experts, Senior Transaction Advisor John Works and Transaction Advisor for the GOE Neb Girma, will attend these meetings. We have determined that in order to provide the best advice to the GOE, Power Africa needs to add 3 more experts to its team, each of whom needs to be present in Addis Ababa the week of April 06, 2015. Brief SOWs for these 3 experts follow.

Tariff & Financial Modeller-- Ankit Jain

The finance expert will review and verify the soundness of all financial calculations included in the PPA/IA such as:

- Schedule 5--Payments (lots of work here)
- Termination Values
- Review the project developer's financial model and provide an assessment on how the tariff is calculated to help the team understand the composition of the tariff
- Look at the manner of how the tariff is designed to better understand the effects of variables / sensitivities to the tariff
- Issue a formal report on the assigned engagement and lessons learned from this exercise.

Geothermal Technical Expert--Jim Stimac

The geothermal expert will provide technical input on the terms and conditions of the Corbetti PPA/IA and assist the GOE negotiating team in the following:

- Provide technical input/review on the Corbetti legal provisions to be drafted by the GOE's legal team and Power Africa's geothermal legal expert (from a technical perspective)
- Advise the GOE in the quantification of the Corbetti geothermal resource by reviewing the geologic and reservoir engineering aspects of the project, including the project developer's proposed drilling strategy and techniques
- Be available beyond execution of the PPA and IA (as needed)
- Issue a formal report on the assigned engagement and lessons learned from this exercise.

Geothermal Legal Advisor--Les Kugel

Currently there is no geothermal law, or rules and regulations governing geothermal energy production in Ethiopia. The PATRP legal advisor will:

- Review the current laws, rules, and regulations in Ethiopia and determine their effect on the Corbetti project
- Review the provisions of the PPA/IA to determine what additional interim laws, rules, and regulations will be needed to give the project legal, valid, and binding effect
- Draft those additional laws, rules, and regulations for the Corbetti project and assist, as necessary, to get them approved by the necessary legislative or other authorities in Ethiopia

WO-043-ET-04
SOW - Grid Management Support Program (GMSP) for Ethiopia
USAID/ Power Africa Transactions and Reforms Program (“PATRP”)
(AID-623-C-14-00003)

OBJECTIVE

Main objective under this Scope of Work (SOW) is to define a program of activities that meets the goal and objectives of Power Africa Initiative for Ethiopia. Program of activities is designed to support and strengthen Ethiopia’s power system for integration of new generation (conventional and renewables) and for sustainable and efficient operation of the national power grid for delivery of quality and reliable electrical services to consumers.

The program is anticipated to support the entire electric power sector, including the Ethiopian Energy Authority (EEA), Ethiopian Electric Power, the national control center, distribution control centers, independent power producers (IPPs), etc. The program should be of great interest and provide valuable assistance to those interested in furthering the sector, investing in the sector, lenders, project developers, planners, operations staff, and regulators.

AREAS OF SUPPORT

Managing the rapid growth of the power system and renewable intermittence is a major concern of project lenders, regulators and system operators. The current system operations in Ethiopia is based on existing practices in the generation, transmission and distribution sectors and does not take into account technological advancements, integration of renewables, and international best practices. It is therefore imperative that the power system be designed and equipped to deal with new generation projects and their characteristics, such as the impacts of renewable energy. It is also critical that the energy sector regulation is strengthened and effective. A key component of good regulation is compliance with the Grid Code. In Ethiopia, Grid Code has to be developed and adopted to ensure compliance by all participants, open and fair access to the grid, as well as improve system reliability and assure new project financing.

The details of a potential Grid Management Support program were discussed during a scoping mission in January 2015. The key players in the sectors were very interested in participating in and benefiting from the proposed GMSP. As we have observed in other assignments of this type, sector participation is crucial. In order to fully engage the sector, as was done most recently in Kenya, in addition to one-on-one meetings, we anticipate creation of a Technical Review Working Group (TRWG). The TRWG would consist of representatives from each of the entities participating in the GMSP. We would expect to host meetings of the TRWG in Addis Ababa during most, if not all, of our visits. The meetings will allow us to go over the status of the GMSP, discuss any issues we may be encountering as well as potential solutions, present interim results and make adjustments to components of the GMSP based on interim results and TRWG feedback. It is expected to be an efficient way to collectively engage the representatives of the sector and have them actively participate in and take ownership of the GMSP.

The Grid Management Support program will be designed to assist Ethiopia transition to a more economic and reliable power system that makes better use of its natural resources. In order to achieve this goal SOW includes conducting a technical study; an examination of the current systems, tools and processes for grid operations in Ethiopia and a grid code development. Those independent but related areas of support include:

- Task 1. System Integration Study (SIS)
- Task 2. Grid Code Development (GCD)
- Task 3. System Operation Gap Analysis (SOGA)

Each area of support is briefly described below:

Task 1. System Integration Study (SIS)

Objective of this task is to conduct a System Integration Study (SIS) to examine the state of the current grid and planned additions and comprehensively evaluate the technical and operational aspects needed to ensure that the power system that is planned and developed and put in operation will work harmoniously, reliably and efficiently.

An important component of this study is to explore varying assumptions through the use of scenarios. In the Base Case, as well as scenarios, emphasis will be on a comprehensive analysis of impacts from large traditional and new renewable projects, interchange (exports and imports) on system operations and reserves.

1.1 Analysis Tools

In order to accurately evaluate the system impacts on Ethiopia's power system, a production simulation analysis will be performed for selected years and scenarios. A production simulation analysis will be conducted using the PLEXOS state-of-the art power system simulation program for all the study cases and scenarios listed in following section. The analysis will be done using hourly time steps.

PLEXOS includes a hydro-thermal unit commitment optimization, transmission constraints can be fully integrated with the production model (SCOPF), and long, medium and short-term modeling is fully integrated. PLEXOS models energy, fuel, emission and any other user-definable constraints and automatically decomposes them to shorter term constraints suitable for detailed modeling. PLEXOS optimizes run-of-river and reservoir storage hydro resources, including cascading hydro networks, and pump storage plants. Energy and ancillary services co-optimization is comprehensive and fully integrated. The model has been used for many system integration studies.

In addition, we also plan to use National Renewable Energy Labs (NREL) System Advisor Model (SAM) model to develop hourly renewable generation profiles. A SAM model is designed to make performance predictions and cost of energy estimates for grid-connected renewable power projects based on installation and operating costs and system design parameters that user specifies as inputs to the model.

1.2 Data Collection

A complete and accurate database representation of the Ethiopia power system will be critical for this analysis. The accuracy of the outputs and results of this study is dependent on the quality of

data in this database. We will leverage existing databases and studies in this assignment, and work with the Ethiopia counterpart team in verifying data, and filling in any data gaps. Database will also include detailed representation of the Kenya power system to allow analysis of combined systems and the impact of interconnection via HVDC line under development. The Kenyan database has already been built and extensively used in a recent Kenyan study.

Key input data for the System Integration Study are the assumptions about the dispatch flexibility of both existing hydro and thermal units as well as assumptions about the future generation resources and their characteristics. EEPO and IPPs will be requested to review input data assumptions and make necessary changes/ additions to the data request form. In addition to generation, detailed representation of demand, transmission, fuels, emissions, etc. will be included. Existing datasets and studies will once again be leveraged for this assignment, with the assistance of the designated staff from Ethiopia counterpart entities.

1.3 Data Sources

In developing input dataset we plan to use following main data sources:

- Ethiopia Generation Development Plan, Ethiopian Power System Expansion Master Plan) including projected demand growth and the matching generation additions
- Data files that were used for developing the above plans
 - Hourly load data for all study years
 - List of all existing and committed units
 - List of unit additions and characteristics
 - Existing and new unit technical and economic parameters
- Transmission planning studies, reports and datasets
- Renewable profiles and measurements from EEP planning and project developers
- Additional data required for the study will be obtained from EEP and IPPs. Additional list of data required for detailed modeling of thermal and hydro units includes ramp rates, start-up/shut-down time and costs, minimum up/down time, reserve capabilities (current and with additional investments)
- System requirements and constraints from the National Dispatch Center

1.4 Key Study Assumption

Years for Analysis

Several years during the next 10 to 15 year period, corresponding to the period used for the current planning study, will be selected for the power system impact analysis using the PLEXOS model. First years will capture any issues with the existing system and near term impacts as the

first large projects are planned to become operational. Later years will capture longer term impacts and issues.

Study Scenarios

Integration studies will involve performing simulation analysis for scenarios representing different system configurations:

- Base Cases (one for each year based on the Generation Development Plan)
- 3-4 scenarios

Scenarios will be used to test the sensitivity of the results to changes in input assumptions and by varying assumptions such as the amount of renewable generation, renewable generation characteristics (e.g., profiles, locations), demand, installation/retirement of other generation, interconnections/interchange to Kenya and other countries. Depending on the initial study results and the amount of available time, additional scenarios may be simulated and analyzed later.

Renewable Generation Location and Profiles Data

Location of renewable generation will be based on information from the Generation Development Plan, measurement data and information obtained from IPP developers.

1.5 Integration Analysis

Description

The objective of the analysis is to estimate all relevant system integration requirements and costs including the generation upgrades, operational measures and ancillary services required for increased integration of traditional and renewable generation.

Because conventional generators need time to be committed and dispatched to a desired megawatt level, scheduling and load following processes will need to use wind and solar power production forecasts, in addition to load forecast, to determine measures and services needed to achieve future system balance. Uncertainties in forecasting the output of intermittent resources such as wind and solar generation, as well as system loads, are not reflected in existing tools used for generation commitment and dispatch.

Generation from wind and solar plants are intermittent (e.g. depending on the variations in the wind speed and solar radiation). As the result, integration of wind and solar plants into the Ethiopia power system will cause issues for other generators. Additional reserve requirements and type of fuel displaced will vary by year and system generation resources, and will also depend on the specific generation operating on the margin. The impacts will vary depending on the season, day and hour. Adding wind and solar will also result in different committed capacity during some periods of time. In addition, hydro (including mini-hydro) can have significant seasonal variations. Power systems are generally required to maintain the following types of reserves:

Operating Reserve: The generation capacity above firm system demand required to balance the system against load forecasting error and load variability, equipment forced outages, and in general to maintain reliable system operations. It consists of

regulation reserve, spinning reserve and non-spinning reserve.

Regulation Reserve: An amount of reserve responsive to automatic generation control (AGC), automatically responsive to frequency deviations, which is sufficient to provide normal regulating margin. Increased penetration of wind and solar generation leads to growing uncertainty and increased regulation reserve requirements.

Spinning Reserve: Unloaded generation that is synchronized, and ready to serve additional demand. This generating capacity is necessary to be provided on short notice to replace generating capacity and energy lost due to forced outages of generation or transmission equipment.

Non-spinning Reserve: Generating reserve that is not connected to the system but capable of serving demand within a specified time from its activation. This generating capacity is necessary to permanently replace generating capacity and energy lost due to forced outages of generation or transmission equipment.

The impact on reserves listed above, fuel consumption and the unit commitment schedules as a result of the renewable integration all have system impacts that will be estimated using detailed production simulation model.

Analysis Steps

Following is a brief description of steps required to develop power system simulation database, wind and solar profiles and conduct grid integration analysis:

- Review generation and wind interconnection analyses
- Create SAM setup for each technology and plant locations (as needed)
- Run SAM simulations to develop hourly generation profiles for all renewable locations
- Conduct statistical analysis on wind and solar hourly profiles
- Estimate additional reserve requirements caused by wind and solar generators
- Develop hourly load profiles for all study years
- Input system and load data into the PLEXOS database
- Input thermal unit data and constrains
- Create and input monthly generation and constrains for hydro generators
- Run PLEXOS model for Base Cases and Scenarios
- Compare and analyze scenario results

1.6 Key Study Results

The difference between the results from Bases Cases to scenarios for each analysis year will help us assess the impacts to the system. Factors such as impact on the commitment and dispatch of the system and the associated cost implications; impacts to emissions, cycling of other generation; levels of ancillary services; ramping; etc. can also be determined.

Finally, we will conduct analysis to evaluate the possible renewable absorption levels for all scenarios to the network as well as to the system operations (including before and after introducing system improvements).

Task 2. Grid Code Development (GCD)

The Grid Code specifies the rules and responsibilities for all entities related to system planning and operations. The Grid Code is necessary to ensure the reliability, safety and security of an efficient and modern grid system. By providing such “rules of the road” it provides a yardstick against which the sector can measure itself. By helping to provide certainty, it encourages investment in the sector, such as financing of additional capacity from conventional or renewable sources. As confirmed with EEA, the Ethiopia power system is lacking Grid Code document. So work on this task will include developing entirely new document. Nexant staff just finalized development of the Kenya Grid Code, covering transmission, distribution and generation. In the Kenyan Grid Code, we incorporated best practices from Africa and around the world, as well as ensuring compliance with the EAPP Interconnection Code (IC). We will apply this experience, as well other Grid Code experience, in developing new Grid Code for Ethiopia. We will also take into account existing utility documents and practices. Grid Code will include Renewables to ensure compliance with the international best practices in the industry.

New comprehensive Grid Code document will need to include provisions and key sections as described in Section 2.1 and also key provisions regarding renewable generators as described in Section 2.2 below.

2.1 Grid Code Development to ensure that it adequately addresses issues in at least the following categories in accordance with international best practices in the industry and that the Grid Code is well placed to be updated by Ethiopia stakeholders:

- **General Conditions:** Ensure that the various sections of the Code are consistent with each other and include the following elements:
 - Implementation and Enforcement,
 - Unforeseen Circumstances,
 - Safety and Environment,
 - Establishment of a Code Review Panel,
 - Force Majeure,
 - Non-compliance and Derogations,
 - Dispute Resolution,
 - Independent Expert Opinion,
 - Bilateral Agreements.

- **Connection code/conditions:** Establish criteria and grid connection requirements that are fair, inclusive and recognize inherent capabilities of different generation technologies. Develop the requisite design and operational connection criteria and rules for:
 - Generating units including those based on renewables (i.e. biomass, hydro, wind, geothermal, solar etc.). Establish the appropriate operating characteristics to bring renewable power plants at par with conventional generators.

- Quality of power supply (i.e. voltage quality, flicker, harmonics, distortion of current waveforms etc.)
 - Network conditions including protection specification
 - Generating plant specification (i.e. frequency control, voltage and reactive power, special protection schemes, remedial action schemes, etc.)
 - Other relevant aspects
- **Operating Code:** Establish operational standards, best practice (protocols, procedures and processes) as well as technology/equipment specifications to ensure that generation and demand elements have the appropriate characteristics to assure the integrity of a secure and resilient grid. Areas to cover will include but not limited to:
 - Operational planning & reserve – generation adequacy and capacity (including reserve) requirements.
 - Demand forecasting & Control
 - Business continuity and contingency planning
 - System monitoring and testing
- **Planning Code:** Specify the design criteria and procedures to be applied by grid stakeholders in the planning, development and connections to the grid system.
 - Address grid access issues and establish an appropriate planning process and methodology
 - Specify relevant data or information to be supplied and/or interchanged between relevant parties (generators, distributors, network operators, direct customers etc.).
- **Scheduling & Dispatch:** Specify criteria for generation scheduling (in advance) and real economic dispatch (real time) to ensure stable operations of interconnected systems. Establish requirements and rules for coordination, maintenance and scheduling of generators and transmission facilities. Areas to cover will include but not limited to:
 - Generation scheduling on economic merit order with priority of Feed In Tariff generation
 - Control scheduling and dispatch
 - Frequency and interconnection transfer control
- **Metering Code:** Establish metering criteria and requirements (i.e. technical, locational,

and performance characteristics) and rules for use and inter connection to the electric system. Specify metering requirements relate to active/reactive power, active/reactive energy for users connected to or seeking to connect to grid.

2.2 Code for Renewables to ensure compliance with the international best practices in the industry.

- **Connection code/conditions:** Establish criteria and grid connection requirements that are fair, inclusive and recognize inherent capabilities of renewable energy generation technologies. Develop the requisite design and operational connection criteria and rules for:
 - Generating units including those based on renewables (i.e. biomass, hydro, wind, geothermal, solar etc.). Establish the appropriate operating characteristics to bring renewable power plants at par with conventional generators.
 - Quality of power supply (i.e. voltage quality, flicker, harmonics, distortion of current waveforms etc.)
 - Network conditions including protection specification
 - Generating plant specification (i.e. frequency control, voltage and reactive power, special protection schemes, remedial action schemes, etc.)
 - Other relevant aspects

Specifically:

- **Active power control** – Grid codes require the capability to vary active power output in response to system frequency to maintain the supply/demand balance and to control network flow and congestion.
- **Frequency Control** – Grid codes require capability for frequency to be within acceptable limits and ensuring security of supply, overload prevention etc.
- **Voltage Control** - Grid codes require the capability to mitigate voltage fluctuations on the network due to intermittency especially from wind.
- **Reactive Power** –
 - ✓ Establish the reactive power compensation requirement for wind turbines and related equipment.
 - ✓ Establish reactive power control capability range with which the generating plant will operate. Establish the minimum power factor at the grid connection point; requiring lagging power factor for voltages higher than nominal and leading power factor for voltages lower than nominal.

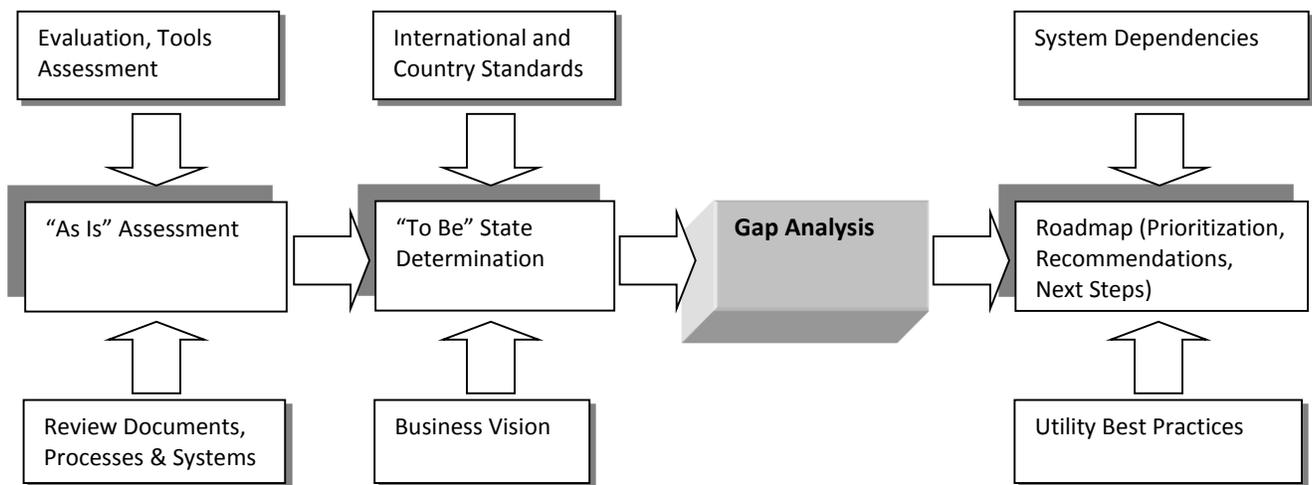
- ✓ Establish reactive power requirements for decreasing or increasing power output subject to changes in frequency and maintenance of the connection for a time period regardless of the severity of changes in frequency.
- **Fault Ride Through** – requirements to force generating plants to support network during and after fault and to protect against damage from faults.
- **Protection** - Establish minimum requires for a protection scheme for generating plants.
- **Signals, Communications & Control** - Establish the communications framework and requirements for communications between RE plant service operators to balance the system in real time and maintain the integrity and security of supply.
- **Modeling data and validation** - Review existing requirements for dynamic modeling and establish criteria and requirements for modeling RE generating units in the grid to assess impact of the generators actual or proposed installation on dynamic performance and security and stability of the power system.
 - **Forecasting** - Review any existing requirements for short term forecasting of renewable generation. Potentially modify or establish the requirements for forecasting and providing the forecasts for renewable generation.

Task 3. System Operation Gap Analysis (SOGA)

The purpose of SOGA task is to assess existing systems and procedures for operating the system today in order to identify the operational requirements that would help support and strengthen Ethiopia’s power grid for integration of new generation (conventional and renewables) sources with a view to sustainable and efficient operation of the National Grid for delivery of quality and reliable electrical services to the end users. The SOGA primarily involves three steps:

- Determination of the “As Is” environment – i.e., how the system is operated today;
- Determination of the “To Be” environment – how the system needs to operate in future. Input from tasks 1 and 2 as defined above will play significant role in this step; and
- Assessment of the gap between “As Is” and “To Be” – this involves determination of the gaps in the way the system is operated now that should be fixed in the future, esp. as new renewable resources are brought on-line.

Typical “Gap Analysis” steps are presented below.



In order to achieve this task successfully, we will gather critical information on the existing systems (at the national control center, distribution control centers, and at the generators) regarding communications and control (SCADA, EMS), forecasting (demand, wind), analysis tools in addition to other system design, operation, and planning-related information such as:

- Current electricity generation portfolio including production, consumption and electricity purchase history reserve capacities;
- Fuel and generation mix;
- Annual load growth projection and hourly load profile;
- Any existing wind power forecasts;
- Demand-side management and storage;
- System failure rates and protection schemes
- Optimal system dispatch; and
- Current and planned transmission infrastructure.

Operational challenges in a power grid associated with the intermittent wind and solar generation in the following five key areas are well known: (i) modeling (variability of intermittent power is problematic for power system reliability and planning studies), (ii) forecasting (over/under forecasting of intermittent generation causes problem in day-ahead plan and current day reserve plan), (iii) dispatching (intermittent generation units are limited in fast response), (iv) ancillary services (wind forecast uncertainty increases operating reserve requirements), and (v) interconnection standards (for voltage support, voltage ride through during fault, and frequency response among others).

Variations in intermittent power generation also causes transmission bottlenecks if the transmission infrastructure capacity is not adequate for the associated increased power injection. Our team will review available prior studies with particular emphasis on: optimal use of current grid infrastructure; future expansion and reinforcement plans; EAPP interconnection; grid code and grid interconnection requirements for wind farms. Cost and time effective Operational solutions, such as the use of dynamic line ratings, will be looked at wherever applicable.

We will identify the operational and technical impact to Ethiopia power grid on integration of intermittent

electricity generation. We will look at the impact on operating reserve, unit commitment, economic dispatch, resource forecasting, load following, power quality, reactive power requirements, voltage control, system stability, and transmission bottlenecks, etc. with consideration to the total planned capacity of non-dispatchable power in the generation mix. We will take in to account any market redesign issues, up-coming developmental activities, and policy decisions at the government level that will have impact on the power sector forward looking analysis.

Nexant has been conducting extensive smart grid technology reviews in multiple countries, including smart meter/AMI assessments, load management, power quality, micro grid, and distributed generation worldwide. Our technical assistance to USAID project “Partnership to Advance Clean Energy Deployment (PACE-D)” in India covers many aspects of application of smart grid technology for maximizing power system reliability and security while optimizing economics over long term. Our involvement in PACE-D and other international projects puts us in a better position to review and recommend adaptations of policies, procedures, rules, protocols, codes, and standards necessary for introducing smart grid elements such as smart metering and related IT and communication technologies for grid modernization. With our background and knowledge in this area, we will examine potential implementation of the “smart grid” for maximizing transmission network efficiency and reliability.

Detail analysis will be conducted with attention to nine focus areas: Regulatory Framework, Wind Integration, Demand Response, AMI, Cyber Security, Interoperability and Communication, Grid Planning, Grid Operation and Situational Awareness. The desirable attributes in each focus area will be selected as per lessons learned from international best practices. Our review will also include documents and proceedings of African Electrotechnical Standardization Commission (AFSEC), Power Institute of East and Southern Africa (PIESA), and Africa Smart Grid Forum in the process of developing recommendations. We also propose to develop a standard questionnaire for the targeted local utility, agencies, and subject matter experts in order to identify the perceived gaps between “As Is” and “To Be” states that will help us make better recommendations for bridging the gap. For areas such as smart grid, that is relatively new to Ethiopia power system, our “To Be” state and gap analysis will be based upon international best practices, and “lessons learned” from other global projects as applicable to the Ethiopian situation.

The deliverable from this task will be a report on gap analysis that will include:

- Documented “As Is” environment with organizational structure, staffing, business processes, state of the power system with its weaknesses and shortcomings;

- Documented “To Be” system broken up into different subject areas (e.g., staffing/resources, technical areas, business process, information technology, management oversight, risk policy, etc.). The “To Be” analysis will have consideration for organizational limitations, regulatory constraints and other constraints.

- A comprehensive summary of gaps between the “As Is” and “To Be” states will be described with practical and effective recommendations keeping in mind the key constraints, if any.

PROPOSED TIMETABLE

The proposed timetable is high-level, indicative only. All three tasks: System Integration Study, Grid Code Revision and System Operation Gap Analysis are targeted to be completed within 12 - 15 months. The specific timing will depend on a variety of factors, including when appropriate information is made available by the Ethiopians and the availability of the Ethiopians to provide timely feedback on intermediate results.