



**USAID**  
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**WORK PLAN**  
**OCTOBER 1, 2015 THROUGH**  
**SEPTEMBER 30, 2016**  
**POWER AFRICA TRANSACTIONS AND REFORMS**  
**PROGRAM (PATRP)**

October 1, 2015

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Pursuant to USAID Contract No. AID-623-C-14-00003, the Power Africa Transactions and Reforms Program (PATRP) is one of the contractual vehicles through which the US Government's Power Africa Initiative in sub-Saharan Africa is being implemented. PATRP is a 5 year technical assistance project designed to bring more electricity to sub-Saharan Africa by utilizing a transaction-centered approach. The Power Africa Initiative seeks to shift the typical international development paradigm to a transaction-centered approach that provides host country governments in sub-Saharan Africa, the private sector, and international donor agencies with a focal point to galvanize collaboration around priority electricity generation, transmission, and distribution transactions--with a focus on those that involve private sector participation and finance--helping to bring them to financial close and on-line in an expedited time frame.

This Work Plan describes PATRPs activities in Nigeria from October 1, 2015 through September 30, 2016.

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# WORK PLAN

## OCTOBER 1, 2015 THROUGH SEPTEMBER 30, 2016

### POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP)

#### **DISCLAIMER**

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

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**DELIVERABLES**

# 1. THE WORK PLAN

## 1.1 OVERVIEW

This Work Plan provides a detailed description of the activities that will be undertaken by PATRP from October 1, 2015 through September 2016. As will be seen, given the significant opportunities, and attendant challenges that face the country, the Fiscal Year (FY) 2016 Work Plan documents a significant increase in PATRP's level of assistance to the Nigerian energy sector.

The development of a pipeline of power generation projects from the concept phase up through late-stage transactions, in conjunction with transaction project support to bring late-stage power generation projects to financial closure, will remain a focal point of PATRP's activities. However, it is also recognized that in order to grow the country's generation sector in a sustainable manner, a holistic approach is needed. Accordingly, PATRP's activities in FY2016 will expand beyond the current legal, commercial and technical assistance to Nigerian Bulk Electricity Trading Plc (NBET), Transmission Company of Nigeria (TCN), and the Vice President's Office Advisory Power Team (APT). New activities will include turnaround management work within the distribution sector and assistance to the gas sector, which may be channeled through the Ministry of Petroleum Resources and/or private sector gas supply entities.

Ultimately, PATRP will be looking to remove sector challenges and constraints throughout the energy value chain, thereby enabling power and monies to move through the system - all of which should advance Power Africa's megawatts and connections goals.<sup>1</sup>

## 1.2 STRUCTURE OF THE WORK PLAN

PATRP's Work Plan is comprised of the following five Tasks, which are largely divided into various Sub-tasks:

- Task 1: Assistance to facilitate Large Power Generation Investments<sup>2</sup>
  - Sub-task 1.1 Transaction assistance to NBET
  - Sub-task 1.2 Transaction assistance to the private (power) sector
- Task 2: Assistance to facilitate Transmission System Investments
  - Sub-task 2.1 Assistance to TCN on Transmission Transactions
  - Sub-task 2.2 Regionalization of Transmission Service Provider
- Task 3: Support for Distribution Utilities
- Task 4: Support to Small Scale and Off-grid Energy Investments
  - Sub-task 4.1 Transaction Advisory Services
  - Sub-task 4.2 Enabling access to finance
  - Sub-task 4.3 Power Africa Instruments
- Task 5: Support for Enabling Environment & Policy
  - Sub-task 5.1 Support to the APT

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<sup>1</sup> For example, our Transaction Advisors (TA) are assisting on a proposed US\$ 1.2 billion, 540 MW combined cycle gas-fired power plant (QIPP). Evacuation of power from the plant to the grid remains an issue. A 78 km 330 kV double-circuit transmission line still needs to be built from Ikot-Abasi to Ikot Ekpense in order to evacuate the project's power to the national grid—otherwise the power will be stranded. The National Integrated Power Project (NIPP) has committed to finance and construct this transmission line, which TCN will own and operate, but this key component of the project has stalled. PATRP's technical advisor is working with TCN in an effort to unblock this issue.

<sup>2</sup> As a general rule, these are transactions that are greater than 10 MW. Transactions below this threshold are covered under Task 4.

- Sub-task 5.2 Support to the gas sector
- Sub-task 5.3 Support to TCN
- Sub-task 5.4 Support to NBET
- Sub-task 5.5 Support to the off-grid/mini grid sector

Task narratives for the abovementioned activities are set forth below. PATRP’s ability to implement these Tasks and meet their associated targets is budget-dependent.<sup>3</sup> The Work Plan also provides a detailed description of supporting project management activities, including PATRP’s Nigeria Performance Management Plan with indicators and targets (Appendix A), and a Gantt chart showing Work Plan Milestones and Deliverables (Appendix B).

### **1.3 WORK PLAN MANAGEMENT**

Given the breadth of activities that will be undertaken by PATRP in the coming months in Nigeria, it is imperative that there be close cooperation between the different work streams. PATRP recognizes the importance of coordinating these activities, and is therefore deploying a full time resident consultant to Nigeria to act as Lead Transaction Advisor (Team Leader).<sup>4</sup> His principal focus will be managing, supervising, coordinating, and prioritizing the work of all of transaction and technical advisors in-country under Tasks 1, 2 and 5, all of whom will report to the Team Leader. This role will also see him interacting on a regular basis with the Senior Transaction Advisor in Pretoria, to whom he will be reporting. The Team Leader will supervise the selection, preparation, placement, and support for all transaction and technical advisors under these Tasks 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. He will also work with the team to identify key policy development and implementation issues requiring technical assistance from, or intervention by, the U.S. Government (USG), engaging with USAID and the Government of Nigeria at critical points for all transactions and policy issues.

The Team Leader will also closely coordinate activities under Tasks 3 and 4 with PATRPs Small Scale Renewables Advisor and Chief of Party, respectively. In this direction, the Team Leader will ensure that tasks across the work plan and each sector of the power value chain are supportive of individual transactions and overall goals. For example, PATRP may engage the privatized DISCOs on embedded generation in a collaborative effort with our DISCO advisors and private sector transaction advisors, or engage with DISCOs on concessioning mini-grids for rural communities within a DISCO’s operational area. Additionally, he may highlight to our team advising TCN the need to focus on power evacuations issues for certain new generators and attracting financing.

Finally, the Team Leader will interact closely with USAID, other USG partners, Power Africa Partners, donors, and other implementing partners and provide expertise on key priority transactions, serving as a technical resource and senior advisor to the transaction and technical advisors.

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<sup>3</sup> Targets outlined herein do not represent an amendment to, or a variation of PATRP’s contract targets under USAID Contract No. AID-623-C-14-00003 until they are included in a new contract modification or approved Performance Management Plan.

<sup>4</sup> Brian Baltimore assumed the role of Lead Transaction Advisor and deployed to Nigeria on 7<sup>th</sup> March 2016.

# 2. TASK 1: LARGE POWER GENERATION INVESTMENTS

*“The federal Government of Nigeria aspires to be among the world’s 20 largest economies and has ambitious plans to increase generation capacity to support this growth.”<sup>5</sup>*

Over the coming months, PATRP will work with both public and private sector actors in Nigeria to advance large scale generation transactions towards financial close. These activities, and the manner in which PATRP will seek to progress generation transactions are outlined below. This section also sets forth the deliverables and milestones to be accomplished under Task 1, together with a description of the resources that will be deployed by PATRP.

## 2.1 OVERVIEW

At present, PATRP provides transaction advisory support to 28 generation projects in Nigeria, spread across the project cycle, *i.e.*, (i) Stage 1--Pre-Feasibility, (ii) Stage 2A--Feasibility, (iii) Stage 2B--Project Development, (iv) Stage 3A--Project Structuring, (v) Stage 3B--Financing, and (vi) Stage 4A--Conditions Precedent. The total planned installed capacity of these generation projects amounts to 6,413.4 MW (assuming all these projects reach financial close) with required financing amounting to \$7,358,800,000. These projects are drawn from five distinct generation technologies, *i.e.*, wind, solar, biomass, hydro, and natural gas (although the single biomass project and the single hydro

project constitute expressions of interest, as they are still in the early stages of development).

Technology	No. of Transactions	Financing Amount (US\$)	MWs
Wind	1	300,000,000	100
Solar	11	1,243,000,000	910
Biomass		-	
Hydro	2	456,500,000	636.4
Natural Gas	14	5,359,300,000	4767
<b>Grand Total</b>	<b>28</b>	<b>7,358,800,000</b>	<b>6413.4</b>

Table 1 provides a breakdown of the abovementioned generation projects, to include the generation technology, planned installed capacity, and total financing required. This provides a snapshot of live deals currently tracked in the Power Africa Tracking Tool (PATT) as

of January 2016. However, PATRP continually monitors other, early-stage projects that the PATRP Transaction Advisors recommend to the Mission or that are awaiting Mission approval. Based on analysis through the Qualified Transactions Assistance Tool (QTAT), PATRP will continue to recommend additional projects—usually in the Pre-Feasibility, Feasibility, and Project Development stages—for PATT tracking and assistance.

Building on the above work, PATRP will redouble its efforts over the coming 12 months to secure new MWs and connections from large-scale power generation by pursuing the following three interrelated work streams. In each instance, PATRP advisors will provide technical assistance on Power Africa Transactions,<sup>6</sup> but often on different aspects of the project cycle.

<sup>5</sup> The Power Africa Roadmap, A Guide to Reaching 30,000 Megawatts and 60 Million Connections (p.44)

<sup>6</sup> In this context, a ‘Power Africa Transaction’ is a qualified transaction where one or more USG Agencies has substantive involvement—technical assistance, grant, financing, political support, advocacy, etc.

- **Nigerian Bulk Electricity Trading PLC (NBET):** PATRP will provide legal, commercial and transaction advice to NBET, to expedite the closing of generation transactions. PATRP will also assist NBET as it starts implementing a competitive power procurement mechanism;
- **Private sector support:** PATRP will provide transaction advisory services to the developers or other private sector actors; and,
- **Unlocking gas-to-power** by making more fuel available for power generation and assisting in the reduction of associated gas flaring.

In supporting specific transactions, it will be critical for PATRP to map the transmission and gas supply bottlenecks to financial close for existing and new transactions as a critical step in moving these transactions forward.

These work streams are particularized in the Sub-Tasks below.

## 2.2 TRANSACTION ASSISTANCE TO NBET<sup>7</sup> [SUB-TASK 1.1]

PATRP will provide legal and commercial assistance to NBET in the negotiation of PPAs, Put-Call Option Agreements (PCOAs), tariffs, and other key project agreements, including financing arrangements, for the projects identified by NBET as priority IPP power projects. The current list of transactions includes gas projects Qua Iboe Power Project, QIPP (Black Rhino Group), Supertek/Symbion Ajaokuta, Century Power, Ikot Abasi Power, and Proton Energy, solar projects Nigeria Solar Capital Partners, Motir-DuSable Solar, and JBS Windpower. PATRP will also advise NBET on the transition from privately negotiated deals to new power generation procurement via competitive mechanisms. PATRP will also provide targeted institutional strengthening support for NBET focused on improving the operational efficiency and viability of the organization.

### How Will PATRP Provide Assistance?

PATRP will assist NBET in adding appropriate projects to their pipeline. Projects deemed to be credible and ready to begin PPA negotiations with NBET advance to the NBET project tracking list. Note that while this process of onboarding projects will end with the commencement of competitive procurement, delays in competitive procurement have resulted in the continuation of this process. Projects are deemed to be credible by NBET, or not, based on the experience and track record of the developer, feasibility studies (if available), and progress made in obtaining a license, a site, approval to connect to the grid, and fuel supply.

New projects on the tracking list then undergo a due diligence, screening, and prioritization process. Those transactions that have already completed the NBET screening must engage in and complete activities to obtain all required authorizations, assume a structure necessary to attract project finance (Stage 3A), and arrange financing on terms and conditions necessary to execute all project agreements (Stage 3B). PATRP advisors will support NBET at critical points in the abovementioned

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<sup>7</sup> A critical part of the Transitional Electricity Market (TEM) has been the creation of NBET, in charge of pre-existing PPAs and vesting contracts (VCs) for resale of power to DISCOs for subsequent resale to consumers. NBET is also responsible for negotiated generation procurements and competitive tenders for new generation on behalf of DISCOs, in accordance with the power procurement conditions and procedures defined by NBET, the Bureau of Public Procurement, and the Market Rules. NBET is the sole entity licensed to purchase power for resale to DISCOs, and also plays a key implementing role in regulatory reform.

negotiations with developers. Typically, international legal counsel and investment bankers support large project sponsors in the negotiation of agreements. Accordingly, PATRP’s legal and commercial advisors help level the playing field, and ultimately facilitate the delivery of a balanced and sustainable generation project.

### **The Role of PATRP’s Advisors and Building Local Capacity**

After extensive training by PATRP advisors, NBET personnel have become capable of handling many issues in gas-fired power projects and, in 2016, NBET capabilities are expected to extend to cover solar projects, and eventually, to other RE projects. There remain limitations on capacity which are likely to be permanent given the level of funding from the Federal Government of Nigeria (the Government) and the skill and training levels needed for this work, and an ongoing need for advanced training. The goal is to support NBET during the current surge of work and to prepare NBET for the next stage—competitive procurement—when lower staffing levels can be expected. PATRP will assist NBET in developing gas competitive procurement and will complement GIZ support on renewable energy competitive procurement as requested by NBET.

The major part of the capacity building for NBET occurs through everyday issues—such as meetings with NBET teams in small group settings, often one-on-one, to discuss and propose resolutions to actual situations—as opposed to through seminars. PATRP will be available to propose solutions to the most intractable issues and assist NBET in understanding complex bankability issues from the perspective of an independent advisor, allowing NBET to avoid terms that undercut the ability to obtain project financing.

The aforementioned activities are broken down into the following tasks:

#### **Transaction Advice to NBET to Assist in Closing Transactions [Sub-Task 1.1.1]**

- (i) Assist NBET with deal-specific credit enhancement mechanisms, such as PCOAs, PRGs, and conventional security instruments to enable IPPs to access project finance.
- (ii) Assist NBET with negotiating PPAs, PCOAs, and other project agreements with IPPs and finance providers.
- (iii) Advise on and provide support to NBET’s due diligence on IPP projects.
- (iv) Identify obstacles to financial close, and provide strategic advice toward removing them.
- (v) Supervise and coordinate the work of outside legal counsel to NBET as deemed necessary in the context of transactions with IPPs.

#### **Support in Managing NBET’s Power Procurement Planning [Sub-Task 1.1.2]**

- (i) Assist in scoping and assessing potential power projects, including their technical strengths and commercial viability.
- (ii) Provide support in drafting formal international tender documents, including packaging of information, tender procedures, criteria for evaluating and selecting prospective investors, etc.
- (iii) Assist in evaluating and selecting prospective investors, and analyzing project finance structures, including lenders’ requirements for appropriate credit enhancement arrangements, risk sharing, and financial covenants.
- (iv) Assist in negotiating and closing PPAs and other project agreements with project developers and finance providers.

#### **Institutional Strengthening Support for NBET [Sub-Task 1.1.3]**

- (i) Assist NBET management in developing a strategy to improve organizational liquidity.
- (ii) Identify external sources of funding and advising on recapitalization efforts.
- (iii) Provide assistance with preparing applications and documentation related to private and DFI capital raising.
- (iv) Assist with negotiating financing agreements or public offering documents.

#### **Developing a Gas-Sector Competitive Bidding Framework [Sub-Task 1.1.4]**

In parallel to the abovementioned efforts, PATRP will advise NBET and NERC on structuring a competitive bidding framework for the gas fired power plants. This will include, inter alia: (a) reviewing existing laws, regulations and policies; (b) designing a solicitation and bid review framework; and (c) supporting the drafting of standard project documents including a power purchase agreement and implementation/government services agreement. This activity will be led by the new resident Gas Sector Advisor.

### **2.3 TRANSACTION ASSISTANCE TO THE PRIVATE POWER SECTOR [SUB-TASK 1.2]**

As private entities, generation companies (captive power and those embedded in distribution or serving the transmission grid) are eligible for assistance, including credit enhancement mechanisms and direct access to finance in order to fund initial capital expenditure requirements. In addition, new independent power producers (IPPs) also require assistance in navigating the project development process, including negotiating with NBET, and creating the appropriate financing structures that will facilitate financial close.

Against this background, PATRP will actively engage the private sector in the development and implementation of generation projects. In the very short term, PATRP will support five private sector-driven transactions that the PATT database currently tracks, namely: (i) assisting the Shiroro Power hydro project in accessing finance, (ii) assisting the Abiba/Quaint solar project in reviewing and negotiating a Joint Development Agreement, and continuing this assistance with respect to other project agreements, as well as helping the project attract financing, (iii) supporting the Afam Power Generation Company to conclude its privatization transaction while attaining financial solvency, and (iv) assisting the Panyam project to structure its project and subsequently attract long-term finance. When providing support, PATRP advisors will draw on their own technical expertise in addition to utilizing the resources contained in the Power Africa Toolbox. Further, PATRP's advisory team will have the benefit of being able to call upon technical expertise, particularly renewable energy capability. Renewable energy will be an important part of Nigeria's energy mix going forward, and the scale of opportunities are now becoming apparent, particularly with solar IPPs. Therefore, it will be imperative that PATRP's transaction support to the sector be complemented by technical RE expertise.

The abovementioned portfolio will be supplemented by a further eight projects that are undergoing PATRP due diligence, a number of other private sector-driven projects that are in the process of being considered by USAID for approval as 'Power Africa Transactions', and a further pool of potentially viable projects that require further analysis and due diligence before assistance is extended.

Finally, PATRP was heavily involved in structuring a \$90 million credit guarantee facility that DCA and GuarantCo provided to Standard Chartered Bank, which then provided a loan to Zenith Bank, a

Nigerian local bank, for lending to the power sector. PATRP has continued to support this transaction by assisting Zenith Bank in its pipeline development and helping the GENCOs to access the facility.

The PATRP Nigeria team will utilize a “Deal Team” approach to managing transaction advisory support execution and deal flow. Under this approach, the Lead Transaction Advisor will assign a specific Deal Team Lead from among the existing and future long-term Transaction Advisors who will be responsible for managing transactions. In cooperation with the Lead Transaction Advisor, the Deal Team Lead will undertake a summary assessment of each assigned transaction in order to determine the type of advisory support needed to unblock obstacles and facilitate finance close. Deal teams will be composed of PATRP-Nigeria Long-Term and Short-Term Technical Advisors whose expertise will vary depending on the specific requirements of each transaction. The systematic identification and tracking of interventions tailored to the needs of each project will allow for clearer attribution of project success to PATRP. Deal Team Leads will be responsible for regularly communicating with project sponsors and, on an ongoing basis, for ensuring that Deal Team support is fully aligned with the evolving needs of each transaction.

Complementing the assistance provided to NBET, assistance will also be provided to developers to address issues raised by NBET during PPA negotiations.

Natural gas constitutes the fuel for over 80% of Nigeria’s power generating capacity, and thus is an important part of the country’s energy mix. With proven reserves of 180 trillion cubic feet (Tcf)<sup>8</sup>, Nigeria produced in 2013 only 1.35 Tcf of natural gas, consuming over 490 billion cubic feet (Bcf), *i.e.*, 36% of production. While gas flaring decreased from 540 Bcf in 2010 to 428 Bcf in 2013, interested parties could do more to further decrease gas flaring, particularly in light of the installation of new associated gas gathering, processing, and transportation infrastructure by international oil companies (IOCs). However, with IOCs divesting some of their onshore and shallow-water fields due to security risks, an opportunity exists for domestic firms in this area. These domestic firms will require significant support to truly develop the domestic market.

The gas sector has also witnessed severe bottlenecks that are constraining its potential to provide fuel for power generation. For example, IOCs that manage the joint ventures with the Nigerian National Petroleum Corporation (NNPC), having received concessions for gas production, have not been developing new gas supplies. Also, the gas suppliers currently supplying gas have not received payment in full from the GENCOs due to shortfalls in the DISCOs’ revenues. There also are other issues relating to control following the transfer of joint venture concessions which may inhibit and slow the development of gas infrastructure and gas supply. Insufficient gas in the existing wells, the lack of a connection of these wells to pipelines, and poor gas processing capacity all represent severe bottlenecks in the gas industry that hamper the ability of new gas-fired power generation projects to gain traction. Moreover, the lack of gas transportation infrastructure leads to the burning or flaring of this gas, seen as a cheaper option. As a result, the Government has lost hundreds of millions of dollars in flaring associated gas that could otherwise provide fuel for power generation.

PATRP will provide added support, including a new resident advisor, to focus on the gas sector to make more fuel available for power generation, assisting in the reduction of associated gas flaring, and facilitating in unlocking existing gas-to-power capacity, including previously privatized GENCOs, Nigeria Integrated Power Projects, and Gas projects in NBET’s pipeline. PATRP believes that the challenges faced by the sector can be met through development of a structured program to address the challenges in a controlled, practical way.

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<sup>8</sup> World Energy Resources: 2013 Survey

The work plan for technical assistance provided to the private sector will be broken down into the following Sub-tasks, namely: (i) Transaction Selection and Pipeline Development, (ii) Transaction Advisory Services, and (iii) Unlocking gas-to-power transactions.

#### **Transaction Selection & Pipeline Development [Sub-Task 1.2.1]**

- (i) PATRP advisors will identify potential Power Africa transactions by following up on any leads from direct referrals or recommendations from USAID/Nigeria, Power Africa, or any other party.
- (ii) PATRP advisors will review the universe of potential private sector-driven projects and screen transactions of particular interest by gathering information on the project and gauging the project's specific needs and whether a particular USG mechanism (e.g. USDA, OPIC) could address the project's constraints. This involves multiple preliminary discussions and meetings with the project sponsors, potential partners, and representatives from relevant USG agencies or Power Africa Partners.
- (iii) PATRP advisors will 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.) using the QTAT.
- (iv) PATRP advisors will originate new Power Africa power projects and help drive those projects to financial close by matching the project with the most relevant USG mechanisms or tools.

#### **Transaction Advisory Services [Sub-Task 1.2.2]**

- (i) PATRP advisors will advise on project preparation requirements under both competitive and non-competitive procurement regimes. This will include clarifying NBET bidding or project submission requirements and assisting developers to identify project preparation support resources.
- (ii) PATRP advisors will advise on, and assist in the preparation and review of, financial forecasts and models for projects showing projected revenues and cash flows under a range of business and financial assumptions. These include assistance in building a lender's base case and sensitivity cases, which then undergo stress tests under a variety of financial assumptions (e.g., different changes in capital expenditures (CAPEX), operating expenditures (OPEX), price, volume, operating efficiency scenarios, etc.).
- (iii) PATRP advisors will assist in developing optimal target capital structures based on projects' strengths, on bankable terms most favorable to the project developers yet still acceptable to qualified lenders and the Government. Potential structures include appropriate credit enhancements such as a host government sovereign or partial-risk guarantees, securitization of the project's revenue streams, additional guarantees, optimal capital structures, appropriate cash flow waterfall mechanisms, granting of security interests, and other appropriate credit support from the project developers, and the project's contractors and equipment suppliers, as may be necessary or desirable by the lenders.
- (iv) PATRP advisors will review potential external funding markets for projects, and recommend selected sources of finance, with a comparison of their relative advantages and disadvantages, including such factors as cost, ease of execution, likely covenants and other restrictions, size, and appetite for the different types of risks, etc.
- (v) PATRP advisors will assist project developers prepare marketing materials, including an offering memorandum, describing the project and the financing opportunity, which developers then use in discussions with lenders in order to draw interest in financing the project.
- (vi) PATRP advisors will assist in arrangements for potential lenders to conduct business and due diligence investigations, including through virtual and on-site data rooms.

- (vii) PATRP advisors will assist project developers in fleshing out the specific terms and conditions of each financing proposal, and subsequently recommend the strongest lenders with the most attractive terms and conditions in order to move toward closing the deal on a syndicated or club basis.
- (viii) PATRP advisors will assist project developers negotiating and closing financings, including all material agreements, under the guidance of legal advisors. Many of these transactions are at an early stage of development (*e.g.*, Stage 1 Pre-feasibility), and must complete NBET due diligence requirements (*e.g.*, certification of land occupancy, evacuation agreement with TCN, a fuel supply agreement in the case of gas projects or an energy yield assessment for renewable energy (RE) projects, as well as an Environmental and Social Impact Assessment in accordance with World Bank standards) in order to advance project development from pre-feasibility to the feasibility stage (*i.e.*, Stage 2). PATRP advisors will inform private developers on NBET's role and the appropriate point of contact within NBET. Specific project preparation support will be provided to early stage projects. This will include clarifying and supporting the development of key project components required for NBET's initial due diligence review. PATRP advisors will review the NBET list periodically and meet with developers to determine whether to recommend support of the project under PATRP. In addition, PATRP's advisors will actively support project sponsors, when requested, by (A) explaining the details of NBET agreements and procurement processes and demonstrating how they work, (B) showing that NBET agreements usually reach bankable results or providing advice as to how to solve bankability issues, (C) advising as to special circumstances unique to Nigeria that project sponsors sometimes have not yet considered (*e.g.*, issues with the grid and Grid Code), and, (D) serving as a resource to resolve such issues as dispute resolution understandings.
- (ix) Assist in the analysis of project sponsors' tariff proposals, including advice on potential optimization and benchmarks.

### **Unlocking Gas-to-Power Transactions [Sub-Task 1.2.3]**

In order to generate a list of specific (and realistic) interventions and activities that can be implemented in the current environment, PATRP is proposing to deploy a highly qualified team to Nigeria, in the form of a Gas Strategies Group, which will perform a rapid assessment. Gas Strategies' proposed team combines deep insight into the development of global gas markets and gas-to-power businesses, combined with considerable in country experience. The team will be led by a former director of Nigeria LNG and of Bonny Gas Transport. He will work with the proposed resident Gas Sector Advisor, to produce a work plan focused on achievable results that will serve to further the domestic gas-to-power sector.

## **2.4 STAFFING**

Task 1 will be resourced using a combination of resident advisors and short-term technical consultants. Where appropriate, there will be a preference for using resident advisors (and local experts, where possible) to allow for greater continuity and maintaining critical momentum on transactions.

Under Sub-task 1.1 (NBET), PATRP will draw on the services of two local advisors embedded at NBET (one with legal experience and a second focusing on commercial aspects), two Washington, DC-based Technical Advisors (Legal) and, on an as-needed basis, one or two Financial Specialists.

Sub-task 1.2 (Private sector) will be led by a resident Private Sector Transaction Advisor. The following additional Long-Term Transaction Advisors will be hired to support project development: (a) Project Finance/Modeling Specialist; and, (b) Commercial Specialist. The team will be buttressed

by short-term advisors to provide support, on an as needed basis, in technical and financial areas, including gas advisors and sub-contractors, among others.

The resident Gas Sector Advisor will support both Sub-tasks.

As mentioned at the outset of this Work Plan, the activities under this Task 1, will be coordinated and overseen by the Nigeria Team Leader/Lead Transaction Advisor.

These resources are set forth below in Table 2.

Table 2: Staffing under Task 1.

Role	Name	Time in-Country	Level of Effort (days)
<b>SUB-TASK 1.1: TRANSACTION ASSISTANCE TO NBET</b>			
Technical Advisor--Legal	David Hunt	STTA: 80-95 days	[130]
Technical Advisor--Legal	Georgia Iordanescu	STTA: 80-95 days	[180]
Technical Advisor--Financial/Tariff	Omotayo Hassan	Resident	[230]
Technical Advisor--Legal Commercial	Chiedu Ugbo	Resident	[50]
Gas Sector Advisor	Abimbola Olufore	Resident	[150]
Lead Financial Specialist	TBD	STTA: 50 days	[75]
Financial Specialist	TBD	STTA: 115 days	[120]
<b>SUB-TASK 1.2: TRANSACTION ASSISTANCE TO THE PRIVATE POWER SECTOR</b>			
Transaction Advisor Private Sector	Jennifer Ifeanyi-Okoro	Resident	[230]
Gas Sector Advisor	Abimbola Olufore	Resident	[80]
Project Finance/Financial Modeler Technical Advisor	TBD	Resident	[150]
Commercial Technical Advisor	TBD	Resident	[150]
<b>Management/Oversight from Team Leader</b>			
Team Leader	Brian Baltimore	Resident	[150]

## 2.5 SYNERGY WITH OTHER POWER AFRICA USG AGENCIES AND PARTNER DONORS' ACTIVITIES

The most active donor agencies in Nigeria include the World Bank Group, the United Kingdom's Department for International Development (DFID) and its implementing agency, the Nigeria Infrastructure Advisory Facility (NIAF), and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). At present, PATRP's coordination with these donor entities largely occurs in the context of technical assistance provided to NBET (as outlined below); however, this will be kept under review as activities expand into the gas and renewable sectors:

- PATRP is coordinating regularly with the World Bank Group (WBG), which is offering to provide partial risk guarantees to NBET, political risk insurance to project equity owners, concessionary financing relating to renewable projects the details of which are not yet definitive, and funding for legal services. PATRP also assists the World Bank Group in prioritizing projects, reviewing project documents, and by suggesting areas in which their support would be most useful.
- The need for coordination with GIZ is also likely given its involvement in developing the new mechanism for competitive generation procurement.
- DFID, through NIAF, has provided technical assistance to NBET on the terms of renewable power procurements and the interaction between renewable PPAs and interconnection agreements. It

remains unclear what assistance DFID/NIAF will provide NBET moving forward; however, PATRP will continue to coordinate with DFID/NIAF efforts for NBET to limit duplication of efforts.

The Advisory Power Team (APT) in the Vice President's Office has been evaluating barriers to gas-fired power, with assistance from McKinsey under a USAID contract. Recent analysis has clarified that the Energy Blueprint's "7 GW plan", adopted by the Government of Nigeria, will not deliver 7 GW due to a lack of gas production (to complement the pipelines and processing capacity), and does not include all required transmission projects. PATRP will need to collaborate with McKinsey as they continue to work with the APT on strategizing how to unlock existing generation. In addition, PATRP will need to coordinate with a Department of State Contractor providing assistance on policy and regulatory issues, seconded to either the APT or the NNPC.

## **2.6 MILESTONES**

- (i) Standard form due diligence memo developed [Sub-task 1.1] (Q2 FY 2016)
- (ii) Standard form PPA and PCOA finalized for NBET [Sub-task 1.1] (Q3 FY 2016)
- (iii) Gas assessment completed (Q3 FY 16)
- (iv) Complete building and documenting a standard form financial model for projects showing projected revenues and cash flows under a range of business and financial assumptions (Q4 FY 2016)
- (v) Complete a plan for developing a gas-fired power procurement program to NBET [Sub-task 1.1] (Q4 FY 2016)
- (vi) Achieve financial close of the Qua Iboe Power Project [Sub-task 1.1] (Q4 FY2016)
- (vii) Achieve PPA and PCOA signing with NBET for five solar IPPs [Sub-task 1.1] (Q4 FY2016)
- (viii) Introduce eight projects in the Power Africa transactions pipeline [Sub-task 1.1] (Q3 FY2016)

## **2.7 DELIVERABLES**

### Sub-task 1.1:

- (i) Standard form due diligence memo to screen and prioritize transactions (Q4 FY 2016)
- (ii) Report and framework document outlining a strategy for a Competitive Bidding Process for the Gas sector (Q4, FY 2016)

### Sub-task 1.2:

- (i) Submit memos with completed QTATs, including recommendations for 15 promising private sector-driven for mission approval (Q4 FY2016)
- (ii) Report describing a standard form financial model for projects showing projected revenues and cash flows under a range of business and financial assumptions (Q4 FY 2016)
- (iii) Set of standard form offering materials (including an offering memorandum) describing projects and their financing opportunities (Q4 FY 2016)
- (iv) Report on Gas Sector Assessment and recommendations for assistance (Q4 FY 2016)
- (v) Memo on QIPP Financial Close, including PATRP's role (Q4, FY 2016)
- (vi) Memo on solar IPP closings, including PATRP's role (Q4, FY2016)

# 3. TASK 2: TRANSMISSION SYSTEM INVESTMENTS

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 the Niger Delta Power Holding Company (NDPHC) is completing, and that new IPPs and Power Holding Company of Nigeria (PHCN) Successor Generation Companies want to build. Government 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.

In this context, PATRP is currently assisting the Transmission Company of Nigeria (TCN)<sup>9</sup> by providing a full-time transaction advisor, supported by financial, legal/regulatory and technical subject matter experts who contribute on an as-needed basis. Further, PATRP has established an ongoing work stream for helping TCN implement its capital program, and this work stream will continue in 2016. In addition, in September 2015, USAID requested that PATRP prepare a paper for Nigerian Government decision makers on Options for Ownership and Management of TCN. This has led to a new area of USAID assistance in 2016 to help implement the next steps for restructuring the Transmission Services Provider (TSP) Business Unit.

In summary, the 2016 work plan consists of the following two related work streams:

- PATRP will assist TCN to complete the transmission projects' pipeline, including project prioritization and funding, financial planning and budgets, and institutional arrangements for transmission project concessions, as a means to encourage public and private investment in transmission; and support TCN's role as the transmission services provider for the Transitional Electricity Market.
- PATRP will assist with setting up one or more independent regional TSP Business Units or TCN subsidiaries as part of the overall restructuring of TSP.

These work streams are further particularized below.

## 3.1 ASSISTANCE TO TCN ON TRANSMISSION TRANSACTIONS [SUB-TASK 2.1]

The PATRP team will serve as embedded advisors to TCN and will use the following approach to carry out their activities in coordination with TCN management and staff.

Most of TCN's capital program depends on direct government funding via borrowing and federal budget allocation. PATRP will assist in facilitating funding of high priority transmission projects by

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<sup>9</sup> TCN is a parastatal company that is the nationwide 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 into two business units: the Transmission Services Provider (TSP), which constructs, owns and maintains 330kV and 132kV high voltage lines, substations and other transmission facilities, and the Independent System Operator (ISO), a combination of System Operator and Market Operator.

undertaking the following activities: PATRP assists in facilitating government funding by helping TCN develop and prioritize its capital budget, helping develop the company's financial plans and tariff submissions, identifying funding gaps as shown in the PATRP-developed financial model, and providing related inputs for TCN's further action, such as reports and letters that are submitted to the relevant MDAs and development banks. PATRP assists in developing potential private financing by supporting the implementation of a public-private partnership (PPP) pilot using competitive bidding, helping TCN with outreach to potential developers, and developing and providing inputs for TCN's further action, such as policy documents, bidding documents, reports and letters that are submitted to the relevant MDAs and donors.

PATRP will review TCN's transaction pipeline, including ongoing projects and new rehabilitation/replacement projects and expansion projects, and identify priority projects for funding and procurement purposes. Priority projects are defined as ongoing, committed projects facing funding gaps, and new projects that increase the overall transfer capacity of the network, address bottlenecks for evacuating new generation to the grid and complete rehabilitation/replacement of aging infrastructure. Some of these priority projects are directly linked to Power Africa generation projects, such as Azura and several NIPP generation projects.

PATRP will review TCN's processes and performance in project planning, implementation, procurement, financing and cost recovery and make recommendations to improve performance efficiency. This work will be coordinated with DFID/NIAF to ensure no duplication of effort.

PATRP will establish a strong day-to-day working relationship with the Managing Director and management staff of the Transmission Services Provider Business Unit, particularly those who are involved in the Planning, Projects, Design and Finance and Accounts Divisions. PATRP will also work within TCN to expedite the project pipeline, and assist when needed on related requests to the Ministry of Power, Housing, and Works (MoPWH), Ministry of Finance, Bureau of Public Enterprises (BPE), Nigerian Electricity Regulatory Commission (NERC), Infrastructure Concessions Regulatory Commission (ICRC) and development banks.

Finally, PATRP will assist TCN with implementation of new practices and functions needed to assure successful initiation of the Transitional Electricity Market.

The abovementioned activities have been broken down into tasks below.

#### **Facilitate Financial Close of All Ongoing Projects (all of 2016) [Sub-Task 2.1.1]**

- (i) Expedite ongoing projects that are stalled due to funding and other constraints.
- (ii) Facilitate closing of 4 priority transactions (5% of the total), working in coordination with TSP executive management and staff of the Finance, Legal, Projects and Design Departments, and advisors provided by NIAF.
- (iii) Support negotiations with contractors on contract amendments.
- (iv) Work with TCN Finance to identify and unlock funding such as the recent AfDB \$14 million facility provided for priority projects and identify additional sources of funding adequate to cover the costs of all ongoing projects.
- (v) Develop and implement related action plans together with TCN engineering staff and special inter-departmental committees set up by the Managing Director of the TSP.
- (vi) Support outreach to government and DFIs to address an immediate term funding gap for projects not yet completed that are required to increase wheeling capacity to 7,000 MW of power. An update on project funding will be prepared quarterly, to include planned and expected dates of financial commitments by funder, strategy to finalize this commitment, and time required to complete the projects once funding is made available

### **Develop Transmission Project Pipeline (all of 2016) [Sub-Task 2.1.2]**

- (i) Monitor the ongoing Transmission Master Plan and Integrated Resource Plan studies being carried out by Fichner (funded by a World Bank loan to the Federal Republic of Nigeria in cooperation with TCN) and Yachiyo Engineering (funded by the Japanese International Cooperation Agency (JICA) in cooperation with the Ministry of Power, Works and Housing), respectively, and work with TCN Management and the Planning and Finance Departments to provide input and clarify how the Master Plan meets Government and Power Africa goals to expand the system to 8,000 and 10,000 MW and improve reliability. Develop the implementation strategy for the projects called for in the plans.
- (ii) Provide technical assistance to prepare a pipeline of immediate term new projects in line with the Master Plan and IRP to include in TCN's Transmission Plan and to provide support. This support will assist TCN in phasing their projects to achieve a 10,000 MW transmission system and will include prioritizing projects in light of limited funding, conducting technical and economic assessments of major projects, matching projects to funding sources (e.g. World Bank loan, EXIM loans, private concessions), and helping TCN prepare for procurements. The pipeline of projects will include planned and expected dates of financial commitments by funder and strategy to finalize this commitment.
- (iii) Assist TCN in obtaining buy-in on TCN's capital program, including procurement plans, from NERC, MoPWH, MoF, ICRC, DISCOs and others.
- (iv) Prepare the annual TCN financial plan and budgets, and continue to assist TCN with the NERC regulatory process to ensure cost reflective tariffs and full payment and cost recovery from Market Participants. These activities are vital to ensure that TCN will be able to cover the debt service for new transmission projects. In 2015, a PATRP-developed transmission revenue requirements study and tariff submission were instrumental in achieving a significant increase in the transmission use-of-system charge that NERC adopted for 2016.
- (v) Provide support for renewable energy integration and grid management support as needed, in cooperation with GIZ.
- (vi) Monitor progress on achieving milestones for the TSP capital program.

### **Assist with New Transmission Procurements (2<sup>nd</sup> half 2016) [Sub-Task 2.1.3]**

In 2015, PATRP assisted TCN with two Requests for Quotations for new transmission projects, including developing the bidding documents, responding to contractors' inquiries and participating in technical and financial scoring of the submissions. The timing for additional PATRP assistance on procurements will depend on the availability of funding for new projects, approval to proceed by NERC, MoPWH, Bureau of Public Procurement and other relevant entities, and the need for PATRP support vis-à-vis TCN's internal capabilities, among other factors.

- (i) Help structure and conduct procurements for transmission rehabilitation and expansion projects, including developing procurement documents and draft form contracts.
- (ii) Provide support for bid evaluation, preparation of answers to bidders' questions, evaluation of bids, negotiation of EPC contracts, etc.

#### **Develop Framework for Transmission Project Concessions and Gain Buy-in of Policymakers (1<sup>st</sup> Half 2016) [Sub-Task 2.1.4]**

See Task 5 under policy support for further information.

#### **Provide Transaction Assistance for Transmission Project Concessions [Sub-Task 2.1.5]**

Activities to commence in the second half of 2016, contingent on Government approval to proceed with concessions. See Task 5 policy section on assistance to the concession framework.

- (i) Assist in the implementation of the transmission PPP framework adopted by the Government decision makers.
- (ii) Provide economic and financial analyses of developers' financial models, including inputs and sensitivity analysis.

#### **Assistance to Facilitate Transmission System Investments [Sub-Task 2.1.6]**

- (i) Facilitating opportunities for private sector involvement in the transmission sector; and extending such assistance also to NIPP's ongoing backbone transmission projects that may be stalled. PATRP is preparing a plan for their engagement with the NDPHC.
- (ii) Supporting the financial planning, budgeting and tariff-setting functions of TCN, so as to ensure that TCN is able to mobilize internally generated revenue for its capital program.
- (iii) Promoting policy making and dialogue between TCN management and the relevant Ministries regarding opening the transmission sector to private investment on a project by project basis, and facilitating the eventual concessioning of the Transmission Services Provider Business Unit, as a first step by helping TSP implement the ongoing initiative to set up autonomous regional operating divisions.

#### **Support TCN's Role in the Transitional Electricity Market (all of 2016) [Sub-Task 2.1.7]**

Before declaration of the TEM in February 2015, USAID's contractor provided assistance to TCN, MDAs and the Government to develop robust plans to implement TEM. Since TEM is delayed due to the lack of contract enforcement, PATRP continues to build on that work to prepare TCN for the planned full functioning of TEM including ensuring the ISO is fully performing its role as envisioned.

- (i) Assist the Independent System Operator (ISO) Business Unit with implementation of systems, processes and human resources for managing the Transitional Electricity Market (TEM) by providing recommendations on technical matters and capacity building for ISO staff and Market Participants.
- (ii) Serve as a technical resource on transmission interconnection issues for Power Africa qualified generation projects and others.
- (iii) Assist the ISO Planning Department with power system planning studies and resource adequacy plans.
- (iv) Analyze existing grid-connected renewable energy integration strategy/programs and planning methodology, and make recommendations for improvements.
- (v) Perform grid management studies to anticipate and correct surge and intermittent energy supply issues that are inherent with renewable energy power projects so that the power entering the resource mix can properly integrate without undue stress on the system.

### **3.2 REGIONALIZATION OF TRANSMISSION SERVICES PROVIDER [SUB-TASK 2.2]**

Most of TSP's operations are carried out through its eight regions. However, at present the management and responsibility for making major decisions is overly concentrated at TCN headquarters. The regions lack essential support functions—such as control over budgets, contracting, procurement, planning, design, etc.—that would be required to function independently

A PATRP comparison of Nigeria with other developing countries revealed that TCN is a large transmission company by international standards (in terms of number of substations and km of lines), and exceptionally large by land area coverage. The TSP is very similar in size to South Africa's Eskom Transmission Division; the two are the largest transmission owners in sub-Saharan Africa. Both Eskom and TCN are 100% government-owned. However, whereas Eskom's transmission division, and most of the other transmission companies in the sample, have been successfully decentralized and commercialized, TCN's TSP stands out for its lack of commercial orientation and over-dependence on the HQ for decision making and control. Many of the countries in the sample have already adopted market-based reforms far beyond the status quo that prevails in Nigeria, such as incorporation of regional divisions as subsidiary companies and investor participation in government majority-owned companies.

At this stage in the evolution of the TSP, it is important to restructure the organization in line with best industry practices in order to empower the regions, increase efficiency, instill a commercial orientation and set the groundwork for increased private and public sector investment in regional TSPs. The anticipated outcome is to establish a for-profit parastatal company or multiple companies that eventually could be concessioned or privatized, in whole or in part, if the Government chooses. However, the initial focus will be on building the capacity of regional offices once they have the appropriate authority.

TCN management is now ready to undertake the process of devolving decision-making authority to their regional offices. TSP has convened an internal Regional Empowerment Committee to define roles and responsibilities of the regional, sub-regional and work center managers with the devolution of power and control in mind. The Committee's scope includes review of, and recommendations for: financial approval limits and authorities of the regional, sub-regional and work center managers; functions of General Managers at the TSP Headquarters vis-à-vis the regions; relationship between the TSP and ISO at the regional, sub-regional and work center levels; and any other measures that may be needed to encourage reduced dependence on the corporate headquarters for day-to-day operations. This committee's recommendations must next be approved by an Empowerment Council; the approval by the council is fairly assured, though not expected until at least June of this year. Subsequently the plan must be approved by the Ministry of Power, Works and Housing (MPWH) as their de facto Board.

After approval of the empowerment plan is approved, PATRP will support the capacity building of TSP by mobilizing advisors to help set up one or more semi-autonomous regional business units, expanding upon the recommendations developed by the TCN Regional Empowerment Committee. As a first step, PATRP will carry out a scoping mission in coordination with TCN management to assess needs of one or more regions. Project scoping and preparation will be coordinated by PATRP's TCN Advisor and supported by a team of STTAs with expertise in utility restructuring, utility management and operations and HR/reorganization. The team will consist of: (i) task leader (reorganization/restructuring expert); (ii) O&M field operations engineer/management consultant;

(iii) HR/reorganization expert; and (iv) legal and financial experts (as needed). This advance team will complete their work in Q2/Q3 2016.

Secondly, subject to agreement with TCN and USAID, and depending on the timeframe for approval of the regional empowerment plan by the MPWH, PATRP will mobilize two full-time advisors to be embedded within one or two TSP regions who will be responsible for instituting essential support functions that are now missing and developing new processes for independent management of operations at the regional level. Candidates for these positions will be evaluated based on their experience and capabilities in managing, organizing and staffing T&D operations. Ideally, the advisors should act as seconded managers working within the organization. Each resident advisor should have a specific management role in the region, including line management authority, such as a position as Assistant General Manager of Business Planning with functional authority over budgets and financial reporting. The regional advisors will be supported by the PATRP Transaction Advisors in Abuja and limited STTA to bring in technical experts on an as-needed basis.

This support will likely be targeted at the southern regions of Nigeria, because these regions have the best outlook for concessions or privatization in the foreseeable future, considering that a majority of the transmission infrastructure is concentrated in the south, the DISCO customer base is stronger than in the north, and the security issues in the north that could discourage private sector participation. In terms of timing, the resident advisors should be in place for at least one year in order to complete their work assisting with reorganizing, staffing and instituting new practices. This time period also allows for sufficient building of local capacity, so that PATRP can reduce and eventually replace its involvement with qualified, well-trained, local talent. In this context, the staffing budget is likely to be front-ended, with a gradual reduction as competencies move to local staff.

The abovementioned activities have been broken down into the tasks below. The tasks indicated with an \* will only be implemented once the empowerment report has been approved by the Empowerment Council and the MPWH.

#### **Project Scoping and Preparation (Q1 2016) [Sub-Task 2.2.1]**

- (i) Mobilize a team to conduct an initial diagnostic and needs assessment, visiting some of the regions together with management from the HQ.
- (ii) Prepare a report on the scoping mission(s), including recommendations on the optimal role for PATRP in support of the TSP regional empowerment initiative.
- (iii) Identify the recommended TSP region(s) for assistance, taking into account the receptiveness of TCN management and incumbent TSP General Managers in the regions, as well as security considerations and the likelihood that the region will attract investor interest if concessioned or privatized.\*
- (iv) Develop terms of reference and job descriptions for field-based advisors to carry out organizational transformation and regional empowerment.\*
- (v) Engage with TCN management to craft and execute an agreement that covers the roles and responsibilities of the PATRP advisors, as well as limits liability.\*

#### **Mobilize Field-based Advisors (Q2 2016) [Sub-Task 2.2.2]**

- (i) Recruit and staff the field-based advisor positions.\*
- (ii) Define reporting requirements for the field-based advisors based on specific stakeholder engagement strategies.\*
- (iii) Complete a detailed diagnostic assessment of the selected region and its organization, including: review the organizational design and governance and identify weaknesses and

- recommend improvements; examine the staffing capabilities and key HR processes such as recruitment, training and performance evaluation; review work processes and systems adequacy and identify critical requirements. \*
- (iv) Based on the results of the diagnostic assessment, and understanding gained from day-to-day efforts at the region, further develop the advisors' optimal roles within the Region, a reorganization plan for the region, performance improvement plans by functional area, plans for new systems and processes needed within the Region, and a change management plan; obtain buy-in at the region and HQ levels; and oversee/support implementation.\*
  - (v) Oversee financial restructuring of the region, including budgets, annual financial plan, financial reporting and Business Plan.\*
  - (vi) Work with TSP staff to complete the HR-related activities for restructuring and reorganizing the region.\*

### 3.3 STAFFING PLAN

Task 3 will be managed by the full-time Transaction Advisor embedded with TCN when in Nigeria; working with the Nigeria Team Lead to coordinate with USAID, DFID/NIAF and other external stakeholders; and completing deliverables. He will have primary responsibility for the transmission transactions work stream, and will also coordinate the project scoping and preparation phase for TSP regional empowerment. Upon approval by USAID, two full-time experts will be mobilized to implement the regional empowerment, to be embedded in the selected regional TSP offices. Short-term transaction advisors (STTA) will be brought in to help with both subtasks. The following Table 3 shows the LOE and time in-country for the team of advisors for calendar year 2016:

Table 3: Staffing under Task 2.

Role	Name	Time in-country	Total level of effort for 2016 in days
<b>SUB-TASK 2.1: ASSISTANCE TO TCN ON TRANSMISSION TRANSACTIONS</b>			
Transaction Advisor/Task lead	Tom Simpson	STTA: 150 days	230
Finance Expert	Gulam Dhalla	STTA: 60 days	100
Project Finance/Financial Modeler Technical Advisor	TBD	Resident	[50]
Commercial Technical Advisor	TBD	Resident	[50]
Technical Advisor (transmission system planning)	Sudipto Bhowmik	STTA: 50 days	80
<b>SUB-TASK 2.2: REGIONAL EMPOWERMENT OF TRANSMISSION SERVICES PROVIDER</b>			
Restructuring Advisor/Team Leader	Wayne Mikutowicz	STTA: 50 days	80
TSP Regional Empowerment Advisors (2)	TBD	Resident TBD	340
As needed short term advisors (technical, reorg/restructuring)	TBD	STTA: 30 days	40
<b>Management/Oversight from Team Leader</b>			
Team Leader	Brian Baltimore	Resident	30

### 3.4 SYNERGY WITH OTHER POWER AFRICA USG AGENCIES AND PARTNER DONORS' ACTIVITIES

Under Sub-task 2.1, DFID has provided NIAF technical experts in project management, system operations and HR-related initiatives, among others, and is currently assisting the Government with planning for the future ownership and management of TCN. DFID is the only aid agency other than USAID that actively provides advisory support to TCN related to the company's capital program. PATRP has worked with NIAF advisors on several activities related to transmission transactions, including unlocking funding for ongoing projects and planning/prioritizing/financing TCN's investment plan. The PATRP team of advisors has developed strong working relationships particularly with the implementing partner of DFID, the Nigeria Infrastructure Advisory Facility (NIAF), in coordinating technical assistance, and also with the Japanese International Cooperation Agency (JICA), African Development Bank (AfDB) and World Bank on financing and risk mitigation tools for transmission, and will continue to work in coordination with these entities in carrying out the proposed work plan. In addition, PATRP anticipates there may be opportunities to work with EXIM on financing transmission lines.

Aside from the international aid agencies, there are multiple development banks that provide loans to the Government in support of TCN's capital program, including the World Bank, AfDB, Agence Française de Développement, and JICA. Of these, the World Bank and JICA also work with TCN mainly in support of project development associated with their loan facilities. PATRP advisors have no direct involvement with the banks regarding their transmission loan facilities, which are arranged by the Ministry of Finance on behalf of TCN. However, PATRP actively coordinates with the development banks to identify and gain commitments for funding and risk mitigation tools for TCN projects (at TCN's request).

Under Task 2.1.6 PATRP will collaborate with GIZ, which is providing assistance to the Ministry of Power and TCN on Renewable Energy policy and grid integration.

Under Sub-task 2.2, PATRP has been working with NIAF to develop options for the future ownership and management of TCN, including options for restructuring the TSP. NIAF's role so far in TSP regional empowerment has been limited to a high level review of the recommendations by the Regional Empowerment Committee. NIAF has not been active in helping TCN implement the recommendations. However, NIAF did assist with a related project to develop the organization charts for unbundling TCN into a TSP and ISO and might be able to assist in organizational aspects of setting up independent TSP regions, and possibly other essential aspects of implementing restructuring. PATRP will continue to liaise with NIAF to see if there is a complementary role for NIAF in helping TCN with regionalization of the TSP, such as advising on HR aspects of the reorganization. If so, PATRP's role vis-à-vis NIAF will be carefully coordinated to avoid any potential duplication of effort.

### **3.5 MILESTONES**

Sub-task 2.1:

- (i) Form bidding documents and contracts completed (Q3 FY 2016)
- (ii) Agree with EPC contractors (i.e. contract amendments) on arrangements for completion of the highest priority set of eight (or more) stalled ongoing projects to be funded by the existing AfDB loan facility and/or additional Government investment (Q1 FY 2016)
- (iii) Complete the TCN Annual Financial Plan and budgets (Q1 FY 2016)
- (iv) Complete draft form transmission project concession agreement, and approval by relevant Nigerian agencies and authorities (Q2 FY 2016)
- (v) Deliver to TCN an Outline Business Case for pilot transmission PPP, in form suitable for review and approval by Federal Executive Council and ICRC (Q3 FY 2016)

- (vi) Deliver to TCN PATRP recommendations on enabling legal/regulatory framework for transmission project concessions (Q3 FY 2016)
- (vii) Launch procurement of new conventional EPC projects (Government funded) (Q3 FY 2016)
- (viii) Complete financial and economic feasibility assessments for pilot concessions including concession tariff model, concession agreement and bidding documents (Q2 FY 2016)
- (ix) Launch procurement of pilot PPP project (Q3 FY 2016)
- (x) Update TCN tariff filing for transmission use-of-system charges (Q4 FY 2016)
- (xi) Prepare a plan for engagement with the NIPPs (Q4 FY 2016)

Sub-task 2.2:

- (i) Complete scoping mission (Q2 FY 2016)
- (ii) If required and approved by relevant stakeholders, mobilize field-based advisors (Q4 FY 2016)

### **3.6 DELIVERABLES**

Sub-task 2.1:

- (i) Memo summarizing TCN 2016-17 Financial Plan (Q2 FY 2016)
- (ii) Memo summarizing 2016 Tariff Amendment Filing (Q4 FY 2016)
- (iii) Memo summarizing Contract Amendments for priority ongoing projects to enable stalled projects to proceed to completion (Q4 FY 2016)
- (iv) Strategy Paper on Financing Government Transmission Projects (Q2 FY 2016)
- (v) Memo summarizing draft form bidding documents and contracts (Q3 FY 2016)
- (vi) Report on recommended framework for transmission project concessions (Q3 FY 2016)
- (vii) Report on business case for pilot transmission concession project (Q3 FY 2016)
- (viii) Report summarizing financial and economic feasibility assessments for concession projects proposed by developers (Q3 FY 2016)
- (ix) Memo summarizing concession tariff model (Q3 FY 2016)
- (x) Report on PPP pilot procurement including concession agreement and bidding documents (Q4 FY 2016)
- (xi) Monthly report summarizing communications regarding TCN's capital program needs, project pipeline and financing

Sub-task 2.2:

- (i) Report on the regional empowerment scoping mission (Q3 FY 2016)
- (ii) Memo summarizing selection criteria and recommended selected region(s) for support (Q3 FY 2016)
- (iii) Terms of reference and job descriptions for field-based advisors (Q4 FY 2016)

# 4. TASK 3: DISTRIBUTION UTILITIES

## 4.1 OVERVIEW

As part of the privatization process, the DISCOs were required to bid a loss trajectory over a five-year period, but at the same time, there was recognition that the losses baseline was inaccurate, and to some extent quite distorted (due to, for instance, the widespread use of estimated billings which led to inaccuracies). A case in point is the Kaduna DISCO reporting only 2% losses—a clear indication that the estimated bill process is overbilling customers, a relatively common practice throughout the industry and a major concern of the NERC.

Although some limited performance on losses has been seen (and there is now more transparency at least around actual loss levels), the Nigerian power sector will not be sustainable and show improvements until such time as the distribution sector is able to monetize and collect on the power that it delivers. At present, we face the difficult situation in which as power supply improves, utilities like the Abuja DISCO see worsening financial performance due to their inability to collect fully from consumers. Thus, DISCOs are now rejecting power deliveries from TCN (or engaging in what the DISCOs call load management) so as not to incur additional losses.

This current condition also discourages lending to the DISCOs, due in part to concerns about their financial performance and ability to service their financial obligations, heightened further by regulatory risk and uncertainty (e.g., tariffs and the treatment of commercial losses in the tariffs). The DISCO capital expenditure programs have yet to launch in a significant fashion (that is, not at the level anticipated in their business plans) and lack of capital remains a significant constraint. The limited capital expenditures that are being made are coming primarily from their operational budgets. The lack of investment capital contributes to an inability to undertake critically needed initiatives, such as lack of sufficient metering to allow the utility to move away from estimated billings, or the inability to replace equipment on the network, or even to secure assets from human intrusion, a potential health and safety hazard. This cycle has to be reversed if the Nigerian power sector is to be sustainable and this turnaround must start with the DISCOs given that the financial performance of the entire power system depends on their performance.

As part of the privatization process, each of the distribution companies entered into a Technical Services Agreement (TSA) with various foreign utilities and consultancies (e.g., CESC at Port Harcourt DISCO before termination due to security concerns, Tata at Benin and Eko DISCOs, KEPCO at Ikeja DISCO, Aurecon at Abuja DISCO). Thus, the question that arises is with TSAs in place, do the utilities need additional assistance? Can their Technical Services teams provide the turnaround services required? What has been observed is that the Technical Services providers are generally focused on helping perform technical analyses (e.g., network mapping, specialized studies) but are not engaged in day-to-day operations to a significant extent and are certainly not empowered to introduce needed reforms. The technical services providers tend to be more HQ-based and less active in field locales. This is where there remains a gap; the DISCOs are in need of assistance in management and operations, especially focused on field operations.

Given the issues facing the power sector due to poor distribution performance, it is proposed that commercialization assistance be offered as part of this year's work plan focusing on management

support to address losses, strengthen management controls and help with the required performance turnaround. This work plan proposes assistance for at least three distribution companies, supported by a team of field management professionals to help demonstrate loss reduction strategies, as well as other improvements (e.g., customer enumeration, improved revenue management and revenue protection practices, staff training, health and safety), to allow for improved ways of managing the business to be rolled out throughout the target utilities (and to provide a demonstrative effect for other utilities in the country).

### **Supporting other DISCOs**

At the same time, there is a need to determine how best to support the overall Nigerian distribution sector, recognizing that even if three utilities are fully commercialized, the sector will be unable to be sustained financially. In this regard, support at the Federal Government level is proposed, including two advisors – one focused on distribution reform and commercialization support and a second providing assistance for the DISCOs for financial support and restructuring. This central support unit would allow for PATRP to respond to the Government of Nigeria’s request for assistance to the Yola DISCO.<sup>10</sup> The advisors would be located either at BPE or within the Ministry and would readily engage in supporting the various distribution companies in areas such as helping to identify investment priorities and possible financing mechanisms, supporting business plans, advising on regulatory issues or other power sector reform issues and their implications for distribution.

These two major prongs—at least three field teams focused on at least three utilities, combined with two central advisors focused on the distribution sector—will work in tandem to help the distribution sector to advance to a performance improvement path that will demonstrate lower losses, improved customer service levels, and improved payment for power supply and services to upstream providers.

### **What Will be the Approach?**

The first field-focused effort involves the appointment of specialized managers with unique skills in utility management and commercialization (technical network/supply, financial, revenue protection and revenue management, customer centric) with supporting STTAs to provide dedicated assistance to achieve significant performance improvement within one or more DISCOs. Performance improvement will be measured based on: (i) reductions in ATC&C losses with the objective being at least a 50% reduction from current ATC&C losses; (ii) improved customer service levels for customers paying for their electricity supply; (iii) improved financial performance allowing for better payment for power supply delivered to the DISCO; (iv) enhanced financial performance that enhances the DISCO’s ability to borrow commercially and invest in critically needed investments (e.g., meters, securing substations from public access, business systems); and (v) revamped business processes with supportive staff training and capability development to achieve, for instance, improved health and safety for employees and the public at large.

The second effort for the centralized team includes the appointment of two advisors, one focused on distribution management and operations, with the second focused on finance.

### **Commodity Support Option**

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<sup>10</sup> Given security considerations, fielding a team to be based at Yola DISCO is not deemed feasible.

Given the current financial situation found within the utilities, it will also be ideal if the management team has access to limited commodities, to allow for implementation of the commercial field-based reforms to be 'kick started.' This support could include, as examples, meters, meter seals, enclosures, specialized field inspection equipment, IT software/hardware, as well as safety-related equipment. This commodity support would ideally be at least \$500,000 for each targeted utility.

Under AIDAR 752.245-71 TITLE TO AND CARE OF PROPERTY (APRIL 1984), title to non-expendable property purchased with PATRP funds may be to either public or private entities in the cooperating country. This AIDAR is incorporated into the PATRP contract and thus Tetra Tech does not foresee any restrictions on providing commodity support to the privately owned distribution companies.

### **How Will the DISCOs be Selected?**

At least three DISCOs will be addressed through a major component of this effort. This would mean at least three distinct teams being fielded, for up to \$7.5 million annually for the three utilities (excluding commodity support). There may be some efficiencies such as with the STTA efforts, but this is probably not a substantial savings. The benefit of at least three utilities is that it would expand PATRP results and could also address utilities with a different customer mix, which combined provide a good demonstrative effect for the commercialization program.

To determine which of the DISCOs should be targeted for assistance, one of the first activities recommended is the preparation of a framework and diagnostic screening to determine the recommended utilities for assistance. To this end, eleven distribution companies will be assessed through the following four steps (and related criteria):

#### Step 1. Evaluate each utility for any 'Deal Breakers.'

- Safety and Security: It is critical that the teams will be able to operate safely, with adequate life support throughout.
- Receptiveness of Management and Shareholders: Management and especially Board members must be receptive.

#### Step 2. Assess differentiating factors that will impact success.

- Geographic Size: Smaller is preferable to avoid long travel distances, especially when a smaller utility service territory is paired with a greater density of customers.
- Customer Base: Total number of estimated customers both regularized and estimated to be connected to the network (as identified during enumeration).
- ATC&C Loss: Levels Loss levels should be jeopardizing company performance for a utility to receive support.
- Donor Involvement: More USG or other donor involvement is preferable.
- Commercial Financing Feasibility: Utility should have commercial financing possibilities when improvement is demonstrated.
- Commitment of Management and Shareholders: Evidence of commitment to reform is desirable, measured as willingness to: (1) commit own resources; and (2) empower the USAID team.
- Payments to NBET and MO: As with loss levels, growing debt to NBET and/or MO is an indicator of greater need for assistance.
- Customer Mix: Mix of urban, peri-urban and rural to allow for solutions to be developed and implemented for all types of customers

#### Step 3. Examine other relevant factors.

- Gender: More gender diversity is preferable.
- Visibility: Greater visibility for USAID and Power Africa is preferable. At the same time, there are other aspects around visibility that need to be considered (e.g., possible negative media attention during the commercial reforms, at least initially).

#### Step 4. Rating and weighting as necessary.

The abovementioned activities have been broken down into the following tasks, which will be replicated for each utility.

#### **Undertake a Screening to Identify the Recommended DISCO(s) for Assistance [Sub-Task 3.1]**

This effort would be ‘fast-tracked’ over a period of 2-3 weeks, to identify the objectives for the support effort and attributes of the DISCOs, to target and prioritize the DISCOs for assistance. The screening will follow the above four steps, with the results being shared with, and agreement being sought from USAID on the three DISCOs that will receive direct support.

Once the three targeted utilities are agreed, there will be engagement with the Board of Directors and management of the DISCO to craft and execute a memorandum of understanding (MoU) that covers the rights and responsibilities of the specialized team. We will aim to conclude the MoUs prior to, or in parallel with the deployment of the DISCO teams to Nigeria with the objective being to begin providing hands-on support in the field as soon as feasible and while the diagnostic efforts and plan preparation are ongoing.

#### **Complete a Stakeholder Mapping and Establish Formal Relationships with External Stakeholders (e.g., NERC, BPE, unions) [Sub-Task 3.2]**

Define reporting requirements for the management team based on specific stakeholder engagement strategies.

#### **Complete a Diagnostic assessment of each DISCO and its Plans, as well as Establish a Performance Baseline [Sub-task 3.3]**

- (i) Review the organizational design and governance and identify weaknesses and recommend improvements.
- (ii) Examine present power supply to the DISCO and the pattern of such supply, including the extent to which the utility is able to work effectively with TCN to schedule supply via bulk supply points.
- (iii) Examine the entire revenue management cycle to determine key parameters such as number of estimated billings, in order to establish a reasonably sufficient ATC&C baseline.
- (iv) Assess revenue protection practices and the extent to which there is an adequate internal control environment at each DISCO.
- (v) Review current customer service practices and processes, to identify recommended improvements.
- (vi) Examine present health and safety performance (employee and public) and identify necessary improvements.
- (vii) Examine the staffing capabilities and key HR processes such as recruitment, training, performance evaluation and disciplinary measures.
- (viii) Review IT system adequacy and identify critical requirements.
- (ix) Review the current business plan for the DISCO and complete an assessment of its adequacy based on the diagnostic results.

### **Design Detailed Performance Improvement Plans by Functional Area and Support their Implementation<sup>11</sup> [Sub-Task 3.4]**

- (i) Develop a performance improvement plan that includes the recommended targets to be achieved, as well as reporting requirements; as part of this, ‘quick wins’ will be identified such as cleaning up the customer inventory/database (enumeration), metering improvements and initial organizational restructuring.
- (ii) Examine how best to use the limited commodity support budget, as well as other resources, to most effectively generate near-term returns within the utility’s operations.
- (iii) Determine/prioritize investment requirements to support the program across functional areas, and assist the utility with identifying internal and external sources of financing. (This will also take into account the commodity support being provided through USAID, if any.)

To support implementation, substantial change management will be supported. Key functional areas expected to be addressed include: network operations and supply; customer services/customer care; HR; revenue management, including metering, billing and collection; finance and treasury; revenue protection and internal controls. The change management process is expected to involve substantial business process redesign and training of staff on new processes, as well as consumer education through a communications and outreach effort.

### **Field-based Advisory Work (e.g., working in the field, not at the DISCO’s HQ) [Sub-Task 3.5]**

PATRP’s field-based team will oversee an effort to ensure improved processes and controls are introduced in the field, as well, in an effort to strengthen management control throughout the utility. These efforts are likely to include oversight of revenue management practices as well as field inspection (revenue protection) to review/audit the extent to which new practices and procedures are being successfully embedded, as well as to train staff and provide field-based support to the utility personnel.

### **Mobilize Two Advisors to Staff a Centralized Team focused on Distribution with the Objective being to Provide Support to each DISCO as Needed to help Advance the Performance of the Distribution Sector [Sub-Task 3.6]**

This support will include:

- (i) Support for Yola DISCO, including reviewing all information available on Yola’s current performance and organization, including primary information collection from management as feasible as input to the assessment. This will yield an initial diagnostic of the Yola DISCO, providing a baseline assessment of its performance, critical weaknesses, relative priorities for management, investment requirements and possible financing mechanisms, as well as recommendations for improvement. Given the condition of the Yola DISCO, it is likely that some secondary information and proxies will be used where information is missing. The team anticipates providing recommendations for what should be done with Yola DISCO given that its privatization was not successful and it remains in government ownership after a brief stint as a private company. It is anticipated that this effort will be ongoing; that is, the team will also monitor progress at Yola and work in tandem with the management (and government) on ways to ensure improvement at the troubled DISCO.
- (ii) Serve as a resource to other DISCOs to provide technical assistance on distribution commercialization. This is expected to include processes around revenue management and

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<sup>11</sup> Based in part on the Diagnostic Assessment and Understanding gained from day-to-day efforts at the DISCO

- revenue protection, internal controls, metering, billing and collection approaches, customer service. The team will also assist with loss reduction recommendations, both technical and commercial, and help support the business case for investment priorities within each DISCO.
- (iii) Assist with sound performance monitoring associated with each DISCO, such as reviewing and critiquing performance reports, identifying common areas of weakness, and help focus counterparts on areas in which government and/or regulatory action is warranted. Help to define and advocate policy, legal and regulatory changes that could best benefit the distribution sector.
  - (iv) Ad hoc support to specific utilities: (a) review/assess investment priorities; (b) update business plans; (c) business case support around specific investments (e.g., smart metering or smart grid, system improvements); (d) health and safety issues; (e) sound approaches towards, for instance, customer enumeration, revenue management and revenue protection; (f) promoting and integrating embedded generation; (g) customer service improvements; (h) customer connection, disconnection, and reconnection.

**As part of the Centralized Unit Approach, Focus on Financial Restructuring and Work with each Targeted Utility to Achieve Sufficient Financing to Support each Utility’s Loss Reduction and Performance Improvement Program [Sub-Task 3.7]**

The approach used will be one that takes into account the current challenges being experienced relating to finance and capital by the distribution utilities. In addition to utilizing existing funding mechanisms, custom solutions will be developed tailored to the unique circumstances of the business and the market. This will include looking at both debt and equity structures as well as involving domestic and international institutions and partnering with an array of government backed organizations to ensure the best fit for specific utilities.

Possible funding mechanisms to be reviewed include on-lending, Export Credit facilities, Guaranteed Instruments, Vendor Financing, Capex Facilities, Receivables Factoring, and Commercial Paper strategic partnerships. Each mechanism will have a defined implementation period, a funding target (including a specific volume and size) as well as a primary benefit proposition. An example would be the restructuring of existing acquisition debt with the current domestic lending institutions to enable better terms and tenors. The immediate benefit proposition would be an increase in available cash flow to service operations.

Some of the key activities and scope will be as follows:

- (i) Identifying opportunities to improve the finance and capital structure of the distribution business to increase bankability.
- (ii) Analysis of all existing and projected cash flows available to potential lenders in the servicing of loans and debt obligations.
- (iii) Analysis of each utility’s existing and projected debt servicing obligations as it relates to securing additional borrowing capacity and providing relevant support structures.
- (iv) Financial Modeling to ascertain the optimal borrowing capacity of the utility.
- (v) Negotiation support with potential lenders and financial organizations in line with the targeted objectives.
- (vi) Design of the funding solution and mechanism for each utility.
- (vii) Identifying potential strategic and funding partners as well as managing the transaction process.
- (viii) Implementation and delivery of proposed solutions in line with commercially viable terms.

There will be unique work products depending on the proposed funding solution and the resulting mechanism of delivery although there are documents that are common in all cases. These will include the following:

- (i) Proposal document (outlining findings and proposed solution).
- (ii) Financial model.
- (iii) Funding/project 'teaser'.
- (iv) Project execution plan.
- (v) Term sheet evaluation (financial).
- (vi) Offering memorandum (if applicable).
- (vii) Lender/subscriber presentations.

## 4.2 STAFFING

This effort would be undertaken using a team of three resident advisors placed within each utility that will receive field-based assistance, focusing heavily on field operations and revenue management, supported by limited STTA. In addition, there will be one overall team leader that will move between each DISCO team in order to coordinate activities and interface with DISCO management. Each resident advisor will have a specific management role in the targeted utility, including line management authority. It is important to not have the team viewed as advisors, but as actual seconded managers working within the organization. In terms of timing, dependent on funding these teams should be in place for two years to design, advocate and implement the changes required in order to increase the likelihood of sustainability. This time period would allow for building of local capacity, to allow the USAID-sponsored team to reduce and eventually replace their involvement with qualified, well-trained, local talent at the end of the engagement. In this context, the staffing budget is likely to be front-ended, with a gradual reduction as competencies move to local hires.

The types of advisory skills that are recommended include field operations/revenue protection (two specialists that would work predominately in field locations), a commercial/supply manager based at the HQ but with substantial field presence (one specialist), and an HQ-based revenue protection specialist. STTA would likely focus on engineering, audit, IT, procurement/supply chain and communications/outreach. The assumption is that the current TSA providers could provide much of the network engineering support required and also contribute to other short-term needs. The second centralized activity would have two dedicated specialists, with some limited STTA support.

Every quarter, it is proposed that PATRP Chief of Party (Llyr Rowlands) and PATRP Home office Manager (Dean White) will meet with the senior management of each DISCO to be briefed about and to review overall progress and discuss any additional steps needed to ensure successful realization of the terms of this activity.

These resources are presented in Table 4 below.

Table 4: Staffing under Task 3.

Role	Name	Time in-country	Total annual level of effort (days)
DISCO Team Leader	TBD	Resident	230
DISCO Field Operations (one per DISCO)	TBD	Resident	230
DISCO Revenue Control (one per DISCO)	TBD	Resident	230
DISCO Network Operations	TBD	Resident	230

(one per DISCO)			
Centralized Distribution Advisory Unit (Distribution)	TBD	Resident	230
Centralized Distribution Advisory Unit (Financial)	TBD	Resident	230

### 4.3 SYNERGY WITH OTHER POWER AFRICA USG AGENCIES AND PARTNER DONORS' ACTIVITIES

This effort is supportive of work being sponsored by the US Trade and Development Agency (USTDA), such as the distribution modernization planning (smart grid) undertaken at Eko and Ikeja utilities and the modernization diagnostic underway at Benin City. USTDA may also help to sponsor a small metering pilot project at Port Harcourt DISCO. The experience gained from these efforts, combined with the USAID commercialization program, should allow for improved leverage of results and quicker dissemination of successful approaches. In fact, the USAID program can benefit from using the results of these earlier or on-going efforts and can help each of the target utilities implement some of the recommendations.

### 4.4 MILESTONES

For the commercialization and loss reduction efforts, the key milestones include the following:

- (i) Agreement to support the at least three targeted utilities (March-April 2016)
- (ii) Completion of diagnostic assessment of each utility (current state assessment) focusing on key functional areas, systems and personnel capabilities to support the performance turnaround effort (May-June 2016)
- (iii) Completion of field diagnostic assessment, focusing on the adequacy and weaknesses in current field operations (June 2016)
- (iv) Performance improvement plan for each utility completed, including recommended changes, timing, resources required, and responsibilities (June 2016)
- (v) Agreed investment program for the utility with priority investments identified as well as financing source (resulting from the financing work stream), including USAID commodity support (July 2016)
- (vi) Proposed communication and outreach program drafted to build support among customers and key stakeholders to support the utility performance turnaround activities (July 2016)

### 4.5 DELIVERABLES

**Support to at least three DISCOs:**

- (i) Memo summarizing selection criteria and recommended selected DISCOs for support (Q2 FY 2016)
- (ii) Report summarizing diagnostic and field assessments, and performance improvement plans for select utilities, with periodic updates (every six months are proposed as this will be a core document for driving the performance improvement process) (Q4 FY 2016)
- (iii) Report outlining agreed investment program for the utilities' priority investments identified as well as financing source (Q4 FY 2016)
- (iv) Report summarizing proposed communication and outreach program and funding required for implementation (Q4 FY 2016)
- (v) Monthly reporting of results and quarterly reviews

#### **Centralized Distribution Unit Support for Yola DISCO:**

- (i) Report outlining Yola DISCO current status and diagnostic (Q3 FY 2016)
- (ii) Report providing proposed plan for Yola DISCO performance improvement (Q4 FY 2016)
- (iii) Monthly reporting of results and quarterly reviews on Yola, with recommendations based on results being seen

#### **Centralized Distribution Unit Support for Other DISCOs:**

Report summarizing the performance of the distribution sector and each DISCO, noting common challenges and providing recommendations focused around revenue management and revenue protection to address commercial losses, as well as technical loss reduction, to be updated at least annually (Q4 FY 2016)

#### **Financial Restructuring for the DISCOs:**

Annual Report on Financing plans and assistance provided in attracting financing for DISCOs (Q4 FY 2016)

# 5. TASK 4: OFF-GRID SOLAR INVESTMENTS

## 5.1 OVERVIEW

Recognizing that Power Africa cannot achieve energy access goals through the use of large grid extension projects alone, the U.S. Government launched a framework focused exclusively on unlocking investment and growth for off-grid and small-scale energy solutions on the African continent. Known as “Beyond the Grid” (BTG), this sub-initiative leverages Power Africa’s innovative transaction-focused model to galvanize collaboration, engage in critical actions to accelerate transactions, and drive systemic reforms to facilitate future investment specifically relating to off-grid and small-scale energy solutions. BTG has been developed in close collaboration with investors, practitioners, and donors, and strives to create an effective enabling environment, as well as increase access to finance and technical assistance, in order to address some of the recurring constraints in the small scale-energy space. The BTG initiative overlays PATRP’s small-scale renewable energy (SSRE) activities under Objective 3 of its contract.

In this direction, PATRP is looking to support small-scale renewable energy activities in Nigeria’s off-grid solar sector through a combination of enabling environment activities, direct support to project developers, energy technology and service provider companies including Financial Service Providers (FSPs), and collaboration with other major stakeholders and programs operating in-country. This will complement the work that is already being implemented under USAID’s Renewable Energy and Energy Efficiency project (REEEP) whose goal is to facilitate the development and financing of renewable energy and energy efficiency markets in Nigeria.

### **PATRP Approach to this Sub-task**

PATRP will work with other USAID and donor implementing partners, relevant government entities and other stakeholders and provide technical assistance through transaction advisory support, enabling environment and on-the-job capacity strengthening efforts.

In March and May 2016 the PATRP team conducted assessments of the off-grid landscape and ongoing and planned programs with a focus on developing a Power Africa/PATRP off-grid work plan for the period 1 April to 30 September 2016. PATRP has determined potential overlaps and synergies between all these programs’ activities, and identified specific areas and provided recommendations where PATRP can play a role and add value to the programs and enhance their results. These proposed interventions and recommendations – as further detailed below – have been presented and discussed with the key stakeholders operating in the off-grid solar sub-sector in Nigeria.

The proposed work plan consists of the following three sub-tasks that all overlap and/or complement the activities undertaken and planned under the DFID-supported Solar Nigeria Program (SNP), the Nigerian Energy Support Program (EU/GIZ) and the Renewable Energy and Energy Efficiency Program (USAID/Winrock).

### **Transaction Advisory Services [Sub-task 4.1.1]**

#### **a. Pico Solar and Home System (SHS) Demand Focused Market Assessment**

To fill the gap of a lack of relevant market intelligence on the current potential demand for pico solar PV and Home Systems in Nigeria, systems typically ranging from less than 0.1 kW to 0.5 kW, PATRP will design and carry out a detailed assessment. This will focus on assessing the current grid and planned grid extensions to define the areas that are truly off-grid that can be targeted by off-grid companies in the short to medium term, as well as detailed information about the potential customers including their willingness and ability to pay, what they are currently paying for lighting and phone charging services, and what systems there is the greatest demand for and how to most effectively overcome the upfront cost barrier. It will also assess the full range of market barriers that pico solar and home system companies currently operating in Nigeria are currently facing, including supply chain issues negatively impacting them, from importation to distribution and retail, as well as effective marketing and retail strategies, learning from International experiences, particularly East Africa. It will build on work already carried out by GIZ, IFC Lighting Africa and BOI, and carried out in partnership with the Global Innovation Lab and the Vice President's Office (VPO).

#### **b. Off-Grid Company Matching Making Event**

Once the market assessment has been carried out, and to ensure that Nigerian off-grid energy companies can effectively learn from other international off-grid companies, particularly those operating in East Africa, the demand for a matchmaking event to be organized in Nigeria will be assessed. Such an event will allow local companies to meet international off-grid companies such as Inensus, PowerGen, PowerHive, M-KOPA, OffGrid: Electric, Solar Sisters and Azuri to learn from their business models and potentially develop new partnerships to further scale up their businesses in Nigeria, and for International companies to learn more about the off-grid sector in Nigeria and what they require to be in place to consider establishing new businesses in the country, such as through leasing and franchising partnerships with local companies.

If sufficient demand for such an event exists from local and International companies it will ideally be held towards the end of Calendar Year of 2016 in partnership with REEEP and GIZ, who will focus more on mini-grid companies, and PATRP, ideally supported by the Global Innovation Lab, focusing more on pico solar and Home System companies.

#### **c. Business-Focused Technical Assistance (TA) to Pico Solar and Solar Home System (SHS) Companies**

Following the market assessment, to help scale up new connections to off-grid solar PV systems, PATRP will start to provide business focused Technical Assistance (TA) to a number of solar PV companies, in particular solar lantern and solar home system (SHS) companies. This will include helping support them on the development and implementation of their business models to ensure they are able to obtain suitable finance to scale up their businesses. TA will include financial planning, cost analysis, and developing long-term business strategies to ensure that they can convince financial institutions and investors of their bankability and low risk. In addition, TA will also be provided to help the companies more effectively distribute and retail their products, including developing new partnerships with other distribution and retail companies, and further developing their distribution and marketing strategies. Rapid assessments of the capacity and business models of a number of off-grid companies, including EMEL, Anergy, Roncho, Nova Lumos, Blue Camel, Creeds Energy, Villageboom, GVE, Rubitec and SME Funds, will be carried out to determine which companies to support based on their needs and scale up potential.

This work will build on, and compliment work REEEP has carried out to date on providing project finance, and further support companies who have received pilot grants by SNP BOI, and quality control and awareness support from IFC Lighting Africa.

### **Enabling Access to Finance [Sub-task 4.1.2]**

Access to finance has been singled out by all stakeholders as the largest obstacle in developing, implementing and scaling the various segments of the off-grid market in Nigeria. All off-grid investments identified in Nigeria are in need of access to local finance, but currently terms and conditions of local finance are not conducive for small-scale renewable energy investments. There is a strong need to make local finance *more accessible* (e.g. through making the existing DCA risk guarantees more functional and operational for these investments and working with and discussing with investment officers so that perceived risks are reduced) and *more affordable* (e.g. through supporting the Commercial Bank of Nigeria to restructure their Micro, Small and Medium Enterprises (MSME) Fund to make it more flexible. REEEP have been working with CBN to access these funds but have not been supporting this restructuring to date. PATRP will assist in increasing access to finance for off-grid companies through the following activities:

**a. Assessment of Finance Institutions**

Although several support programs, including IFC, through SNP, and REEEP have been trying to increase access to finance for off-grid companies it still remains as the single biggest barrier for most of them to allow them to scale their businesses. PATRP will carry out a detailed assessment of the current types and levels of finance available to off-grid energy companies and developers, and the barriers that need to be overcome to make finance more accessible and affordable in the future, to determine exactly why the Financial Institutions that have been supported are still unwilling to provide finance with suitable terms through the CBN's MSME fund and others (interest below 10% p.a., over more than 2 years, and less than 40% collateral requirement).

**b. Technical Assistance (TA) to Finance Institutions**

After this assessment, and if needed and believed to be effective, PATRP will provide TA to CBN, and some banks and microfinance institutions, such as Fortis Microfinance, Lapo, HSBC and Stanbic, to help them develop stronger relationships and increase trust of off-grid companies so they are more willing to lend to them with more acceptable lending terms. This will be carried out in partnership with REEEP and SNP.

**c. Sourcing Innovative Financial Assistance from USG Organizations**

Obtaining working capital, in particular for stock availability, is the main obstacle for companies that operate in the household segment of the off-grid market, to scale their businesses, in particular SHS products with solar panels and integrated chargers that operates multiple lamps, chargers, TV, radio, computer and a fan.

Once PATRP, under Sub-Task 4.1.1c, has assessed the exact working capital requirements of a number of off-grid companies in Nigeria, including the structure of the financial instruments they would consider, PATRP will start working with a range of USG organizations, including OPIC, DIV, DCA and USADF, to find innovative ways of providing concessional finance to financial institutions in Nigeria to lend on to off-grid companies to meet their working capital requirements. Such finance may include risk guarantees to free up banks to lend, to reduce collateral requirements and extend lending periods, and interest rate buy-downs to allow off-grid companies to take loans at affordable rates.

This will be done in close collaboration with IFC under SNP and REEEP.

**Power Africa Instruments [Sub-task 4.1.4]**

For all of the above Sub-tasks, opportunities made available through Power Africa instruments such as the Power Africa Toolbox and the recently launched Power Africa Project Preparation Facility Toolbox will be actively pursued. A database of private sector stakeholders and transactions will be developed and merged as appropriate with the Power Africa Transactions Tool (PATT).

The Nigeria off-grid solar activities as proposed in this work plan form a substantial part of Power Africa’s Beyond the Grid program. As such the progress, lessons learned and success stories resulting from the Nigeria work could assist other BTG activities elsewhere and could function as a showcase for a wider audience. Henceforth activities will be documented through the PATT and every three months a success story will be prepared to be included in the monthly Power Africa newsletter.

## 5.2 STAFFING

PATRP will provide a Senior Consultant on a 70% part-time basis for the period 1 April to 30 September 2016, with up to half that time in Nigeria, to lead the implementation efforts of the tasks described above.

It is estimated that a substantial level of STTA will also be needed to implement the above listed immediate activities therefore PATRP will also phase-in a local advisor resident in Nigeria, who will be responsible for day-to-day implementation of activities, as well as other local advisors backstopped by the BTG team in Pretoria. In addition, PATRP will provide the services of a local research assistant on a full-time basis for the same period to support the Senior Consultant’s efforts and the work of other short-term consultants.

Role	Name	Time in-country	Total annual level of effort (days)
Off-grid Advisor	Ewan Bloomfield	50%	TBD
Local Advisor	TBD	100%	TBD
Research Assistant	TBD	100%	TBD

## 5.3 SYNERGY WITH PARTNER DONORS' ACTIVITIES

USAID/Nigeria and PATRP have discussed potential collaboration with the Solar Nigeria Program (SNP), funded by DFID from the International Climate Fund (ICF), with coordination and targeted technical assistance provided by Adam Smith International (ASI). The SNP is designed to directly improve access to clean, reliable, sustainable and affordable electricity in Nigeria by developing public and private markets for off-grid solar power. The SNP negotiated further expansion of its operations following the UK Government’s commitment to provide additional financial resources. The focus of the expansion activities will be on household solar applications and exploring ways to ‘commercialize’ (social) investments in schools, clinics and possibly other public sector investments.

Another donor funded initiative in the small scale renewable energy space is the EU-GIZ Nigerian Energy Support Program (NESP) that among other activities is focused on solar and hybrid mini-grids. These activities are of interest to Power Africa’s wider BTG agenda and experience and knowledge gained from other countries including those in East Africa will be transferred to assist ongoing and planned activities in Nigeria.

Other areas of collaboration will include: (i) IFC Lighting Africa and IFC Advisory Services that are already involved in the Solar Nigeria Program through DFID; (ii) work on solar-based mini-grids being led by GIZ with whom we will cooperate; (iii) USAID’s REEEP-Winrock and (iv) lastly, there are other relevant programs/projects operating or forthcoming in the off-grid solar development landscape in Nigeria that PATRP intends to collaborate with, or at minimum avoid overlaps; e.g. UNDP/GEF, the World Bank Energy Access Program-Nigeria, Power for All and the Shell Foundation’s Nigeria Off-Grid Support program.

## 5.4 MILESTONES

- (i) Carry out a detailed assessment of the current market for off-grid pico solar and SHS developers in Nigeria (July 2016).
- (ii) Provide technical assistance to at least two off-grid companies on developing and implementing their business models (August-September 2016)
- (iii) Carry out a detailed assessment of the financial assistance currently available to off-grid energy companies in Nigeria, including the barriers the financial institutions are facing in increasing lending and potential interventions for overcoming them (July-August 2016).
- (iv) Provide technical assistance to at least two solar companies to assist them in formulating their working capital requirements and provide TA to at least two financial institutions to try and provide such working capital (August-September 2016).
- (v) Carry out an assessment of the PAYG and mobile banking sector in Nigeria and identify barriers impacting its uptake (June-September 2016).

## 5.5 DELIVERABLES

- (i) Completed market assessment report on the geographical location and type of demand for off-grid systems in Nigeria and supply chain issues impacting off-grid companies in Nigeria (July 2016).
- (ii) Fully developed business plans for at least two off-grid solar power companies (September 2016).
- (iii) Completed assessment report on current working capital requirements for solar companies operating in the household segment as well as finance currently available to meet these requirements and barriers for increasing finance (September 2016).
- (iv) Completed assessment report on the barriers impacting the uptake of mobile finance in Nigeria (August 2016).

# 6. TASK 5: ENABLING ENVIRONMENT & POLICY

## 6.1 OVERVIEW

Each of the areas of transaction support and technical assistance, both existing and planned (e.g. NBET, TCN and the private sector), will identify key policy interventions, which are needed to remove barriers to advancing actual or prospective transactions. In some cases, specific assistance with policy implementation is already being provided (e.g. reorganization of TCN). Some issues have been identified by the PATRP policy desk study, and many of those are being addressed by other donors. There are several government actors involved in coordinating the sector, though their roles are still being clarified. These include the President's Chief of Staff, the Vice President, and the Ministry of Power, Works and Housing. The tasks of these entities are still under discussion and evolving. The framework for coordination among Ministries and Agencies (e.g. the Inter-Ministerial Power Committee (IMPC)), and the modes of supporting their work (the APT and a proposed Delivery Unit (DU) in the President's Office) is not yet clear. While these roles are clarified, PATRP will provide support to the VP's APT in addressing critical transaction and policy issues, respectively.

One immediate challenge facing the power sector is the Central Bank of Nigeria's (CBN) regulations that prohibit Nigerian entities from engaging in foreign currency transactions and prohibit Nigerian banks from disbursing foreign currency loans. For example, Zenith Bank's pipeline of potential borrowers eligible for loans under the Development Credit Authority (DCA) credit guarantee facility is limited due to the bank's inability to disburse dollarized loans; and CBN, through its prohibitions, halted the lending process involving two PATRP transactions (Abuja Electricity Distribution Company and Shiroro). PATRP is already working with USAID/Nigeria on a study of the impact of these regulations on the energy sector.

Other challenges include:

- Existing regulatory hurdles that create barriers to foreign investment in Nigeria's power sector, as well as innumerable regulatory inconsistencies.
- Power sector cash flow difficulties leading to a lack of credit-worthy off-takers in Nigeria, with the exception of a few retail industrial and commercial consumers.
- Significant challenges relating to grid interconnection and transmission, which severely limits options for power generation site location and access to electricity for customers.
- The transition to the new administration requires that NBET seek confirmation of or new direction regarding policies established under the old government, such as those reflected in the terms of the PPAs and PCOAs.

PATRP transaction advisory support to the renewable energy sector also faces several specific challenges, including:

- NBET Board of Directors has yet to approve the Form PPA for solar projects.
- Possible cap placed on IPP renewable energy generation capacity (MW), namely solar, at current prices in favor of expected lower prices in the future.
- Limits on approvals of negotiated solar PPAs and on PRG nominations.

## **PATRP Approach**

PATRP will engage the APT and various Government entities to ensure that policies necessary to continue the reform process are well developed with an agreed implementation plan through its engagement as embedded advisors at APT, NBET, TCN, and two DISCOs. As a transaction-driven program, policies and the enabling environment activities that are necessary to facilitate private sector power sector investments throughout the value chain will take priority in our engagement with the Government. Our primary goal will be to review and formulate power sector policies needed to resolve sector challenges including capacity shortfalls and mounting debt (See Table 7 below at the end of this section). To assist in improved policy analysis and macro-level decision-making, the Nigeria Team Lead will liaise with our transaction and technical advisors, as well as other USG agencies and programs, to provide this analysis and advisory support to NBET and others, in line with their operational objectives.

The abovementioned activities are broken down into the following tasks.

### **6.2 POLICY SUPPORT TO THE APT [SUB-TASK 5.1]**

The APT is responsible for monitoring completion of priority projects to achieve the Government's so-called "7 GW" plan included in the Energy Blueprint, and recently officially adopted by the Federal Government through the MPWH.

PATRP will provide institutional and transaction support to the APT through an embedded advisor with a mandate to restart the privatization process for the NIPP power plants in phases. The privatization process will be under the supervision of the National Council on Privatization (NCP), headed by the Vice President. PATRP will provide technical legal advisors and transaction support for review of the sale structure. PATRP advisors will assist in review of the negotiation of the terms of fuel supply agreements, transmission interconnection agreements, completion of EPC contracts, and others. To ensure distribution sector considerations are also reflected in APT oversight, PATRP will help to define and advocate policy, legal, and regulatory changes that will be beneficial to improving the sector.

PATRP will also conduct a review of the Electric Power Sector Reform legislation to advise the APT and the Ministry of Power on required changes to encourage and enable private sector investment in the electricity sector.

### **6.3 POLICY SUPPORT TO THE GAS SECTOR [SUB-TASK 5.2]**

The US Department of State will provide policy and regulatory support related to the gas sector and gas-to-power. The Nigeria Team Lead, in coordination with this support, will work with the transaction and technical advisors to ensure policy and regulatory barriers to gas supply and Gas Supply Agreements are made a high priority for the APT and other relevant policymakers.

## 6.4 POLICY SUPPORT TO TCN [SUB-TASK 5.3]

This sub-task develops the framework for transmission project concessions and gains the buy-in of policymakers.

- (i) Review the legal/regulatory framework in Nigeria as it relates to transmission concessions, as well as international examples, and identify relevant options for Nigeria taking into account country specific factors, and advise TCN and Government officials on the path forward.
- (ii) Assist TCN with outreach to the MOPWH, APT, BPE and/or ICRC (and/or other government entity) on required approvals to proceed with transmission project concessions.
- (iii) Assist TCN with outreach to the Ministry of Finance on PPP structure and government/DFI credit security requirements. Conduct outreach with the Government and donors to promote credit security enhancement for selected projects.
- (iv) Advise on a transaction framework for public-private partnerships for transmission projects and, if advisable, lead the preparation of the Outline Business Case to ICRC for approval by the Federal Executive Council.
- (v) Provide guidance, expertise and direction to TCN, Ministry of Power, NERC and other relevant agencies on adoption of policies and regulations necessary to facilitate private sector investment in transmission.
- (vi) Draft related policy/regulatory documents for TCN, the MOP, and NERC.
- (vii) Develop a strategy or roadmap to socialize/lobby the federal budget with relevant Government bodies like the Vice President's Office Advisory Power Team (APT) and the National Assembly to obtain Government buy in, and work with TCN and potentially other Government agencies to implement the Power Africa Roadmap.

## 6.5 POLICY SUPPORT FOR BULK POWER PROCUREMENT [SUB-TASK 5.4]

This sub-task provides policy support, including the policy aspects of power procurement and NBET's financial structure, including engaging other relevant Ministries.

- (i) Provide support to NBET in establishing power procurement policies and procedures.
- (ii) Assist MoF upon request with the development of the PCOA form and with understanding PPAs.
- (iii) Cooperate with GIZ on competitive procurement by providing the key contractual agreements, identifying policy concerns from the Government's perspective and advising NBET on avoiding overlap of support to the extent feasible.

## 6.6 POLICY SUPPORT TO THE OFF-GRID/MINI GRID SECTOR [SUB-TASK 5.5]

To try and provide targeted support to improve the enabling environment for off-grid energy companies in Nigeria PATRP will carry out the following activities in partnership with the Vice Presidents' Office (VPO), BOI and the REA:

### 1) Assessment of Mobile Finance Sector

To increase the use of mobile finance for potential customers to spread the upfront cost of off-grid energy systems, PATRP will carry out a detailed assessment of the current regulations surrounding mobile finance in Nigeria and the identification of the current barriers that are restricting its use. It will also include the identification of potential interventions and a detailed work plan for overcoming these barriers. Depending on its findings, following the completion of the assessment, technical assistance will be provided to try and overcome the specific barriers to increase its availability for

overcoming the consumer finance barrier for off-grid energy systems in Nigeria so that off-grid companies are able to use mobile finance to overcome the significant consumer finance barrier they face, to allow their customers to purchase ever larger systems of Tier 2/3 and above.

This will be carried out in partnership with the Vice President's Office, SNP and ideally supported by the Global Innovation Lab.

## **2) Assessment of Solar Home System (SHS) Regulations**

PATRP will carry out an assessment of the current regulations impacting Solar Home Systems (SHS) to understand their current status and determine if they are currently restricting the uptake of such systems in Nigeria. If specific barriers are identified, technical assistance (TA) will be provided to develop more supportive regulations, such as to increase quality control and testing, user perception, awareness and education, and to try and reduce any financial barriers for off-grid companies such as import tariffs and currency exchange issues.

This will be carried out in partnership with IFC Lighting Africa who is currently supporting systems less than 100w in size, and SNP.

Table 7: Proposed enabling environment assistance<sup>12</sup>

Area of Focus	Barriers	Associated Principle	Recommended Intervention(s) *Prioritized by Impact*	Effect of Intervention	Technical Assistance Required
<b>Energy policies</b>	Policy gaps that limit private sector participation in, and the expansion of, off-grid renewable energy resources.	Increased clean energy share.	Development and refinement of the National Solar Plan through inclusion of commercial solar IPPs, and solar mini-grids.	Diversification of the country's energy mix.  Facilitate new connections in remote areas typically excluded from the grid due to insufficient infrastructure.	Assist APT with the refinement of the NSP through inclusion of commercial solar IPPs, and solar mini-grids.
<b>Energy policies</b>	The poorly functioning and managed TCN, with insufficient investment, frustrates initiatives to increase the delivery of more electricity to the economy and households.	Sound, strategic and integrated power sector planning.	Development of a coherent implementation plan for reform of the transmission sector that also addresses all current ownership, management, funding, transactional and institutional challenges at TCN.	Support in improving the transmission network will allow more power to be transmitted to more end users facilitating improved quality of electricity and new connections.	Assistance with development of a coherent implementation plan for reform of the transmission sector including a succession plan for TCN post the MHI contract and the possibility of a further private management contract or concession.
<b>Energy regulatory framework and tariffs</b>	Lack of cost reflective tariffs.	Cost reflective retail tariff structures.	Development of capacity in NERC to achieve transparent, credible and predictable determinations of cost reflective tariffs for the distribution and transmission sectors.	Cost reflective tariffs are necessary to improve credit-worthiness of DISCOs and foster financial sustainability that enhances prospects of private sector participation within the energy sector.  Address funding constraints to	Assist NERC (and new Commissioners) to develop capacity to implement transparent, credible and predictable tariffs that are cost reflective and support the financial sustainability of the sector.  *PATRP does not currently have any plans to undertake this intervention*

<sup>12</sup> The source of the proposed enabling environment assistance is the "Inventory of Policy Interventions – Nigeria", 15<sup>th</sup> October 2015.

Table 7: Proposed enabling environment assistance<sup>12</sup>

Area of Focus	Barriers	Associated Principle	Recommended Intervention(s) *Prioritized by Impact*	Effect of Intervention	Technical Assistance Required
				maintenance and development of infrastructure.	
<b>Power sector development plans/integrated resource plans/generation master plans**</b> (the IRP is currently under development by JICA with an expected due date of August 2016)	Lack of long-term certainty of the electricity supply industry.	Sound, strategic and integrated power sector planning.	Development of an Integrated Resource Plan (IRP), and ongoing planning capacity that will facilitate the procurement of new generation capacity.	Utilization of the country's diversified energy resources to meet demand, on a cost effective basis.	Assist in the formulation of an IRP, integrated demand modelling, least-cost supply options, and the development of a price path.  Development of capacity to undertake frequent updates of the IRP.
<b>Power generation procurement framework and processes</b>	Lack of a competitive procurement framework to unlock full clean energy potential.	Clear and transparent procurement processes Increased clean energy share.	Development and implementation of a competitive procurement framework for clean energy.	Generate more clean energy projects to meet growing demand for energy.  Has the potential to decrease the costs of energy supply at a rapid rate.	Support current efforts at NBET to design a competitive power procurement framework and supporting RFP package including standardized PPA and other commercial contracts for implementation.  Support efforts by other donors to evaluate the grid for opportunities to integrate renewables into the grid.

## 6.7 STAFFING

PATRP will continue to provide embedded advisors at NBET, and APT to facilitate transactions and utility reform through institutional capacity development and high-level advisory support – as further detailed in Table 8 below:

**Table 8: Staffing under Task 5**

Role	Name	Time in-country	Level of effort (days)
Senior Technical Advisor- APT	Chiedu Ugbo	Resident	180
Senior Technical Advisor-legal	David Hunt	STTA	80
Gas Sector Advisor	TBD	Resident	80
Other Technical Advisors	TBD	STTA	130
Team Leader	Brian Baltimore	Resident	50

## 6.8 SYNERGY WITH OTHER POWER AFRICA USG AGENCIES AND PARTNER DONORS' ACTIVITIES

There are a number of donors with which PATRP collaborates on policy and market reform in the Nigerian power sector. For example, DFID, through NIAF, is working with TCN and collaborating with PATRP to develop options for the future ownership and management of TCN, including options for restructuring the TSP. DFID and PATRP are finalizing collaborative efforts on an off-grid solar program, and, in addition, PATRP and GIZ are finalizing collaborative efforts on competitive procurement for renewable energy through NBET.

## 6.9 MILESTONES

- (i) Final sale agreements structured for NIPP sales (Q3 FY 2016)
- (ii) Legal review of Electric Power Sector Reform Act and recommendations for changes to encourage private sector investment completed (Q4 FY 2016)
- (iii) Draft gas procurement policy (Q4 FY2016)
- (iv) Finalize REF Strategy (Q4 FY 2016)
- (v) Complete Transmission Framework on PPPs (Q3 FY 2016)
- (vi) Complete strategy and framework for funding TCN and NIPP transmission projects (Q4 FY2016)

## 6.10 DELIVERABLES

- (I) Memo on plan to engage NIPPs (Q4 FY 2016)
- (II) Nigeria's Power Sector Assessment Report updated (Q4 FY 2016)
- (iii) Prepare and complete quarterly (4) white papers on international best practices with respect to legal, policy, and regulatory regimes to improve the enabling environment to attract private sector investment and incorporate into final report on EPSRA (Q4 FY 2016)
- (iv) Report on EPSRA review and recommendations for revision (Q4 FY 2016)
- (v) Report on transmission PPP framework, including business case (Q3 FY 2016)
- (vi) Report on REF and mini-grid sustainability strategy (Q4 FY 2016)

# APPENDIX A: PERFORMANCE MANAGEMENT PLAN

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## A.1 INTRODUCTION

This Performance Management Plan (PMP) for Nigeria was prepared under the Power Africa Transactions and Reforms Program (PATRP) implemented by Tetra Tech ES, Inc. and funded by the US Agency for International Development (USAID) under Contract Number AID-623-C-14-0000.

The purpose of PATRP is to provide technical assistance, capacity building, and project transaction support services under the U.S. Government's Power Africa initiative. PATRP activities are being implemented under four main tasks that correspond to the Objectives of PATRP:

- Objective 1: Institutional Support to Power Africa Coordinator's Office.
- Objective 2: Late Stage Transaction Support.
- Objective 3: Small Scale Projects and Rural Electrification/Mini-Grids Support.
- Objective 4: Regulatory and Institutional Strengthening and Policy Reform.

The PMP has been prepared to meet the requirements of Section C.6 Monitoring and Evaluation of the subject contract. The PMP presents the Power Africa results framework and applicable performance indicators, maps the results framework against the project's tasks and targets, presents the methodology for data collection, and discusses data considerations, reporting and management. Included are contextual performance indicators for which PATRP may not report targets but which are captured to assess overall Power Africa program performance. The PMP also presents USAID Nigeria Mission-specific performance indicators that correspond with performance metrics based on approved scopes of work.

### A.1.1 THE CONTEXT AND PURPOSE OF THE PMP

The PMP outlines a continuous process of collecting and analyzing information to compare how well PATRP Nigeria is performing against expected results and outcomes. PATRP uses performance monitoring systems such as the Power Africa Tracking Tool (PATT) and the PATRP Program Tracker (PPT) to plan and manage the process of assessing and reporting progress towards achieving program outcomes and results.

The purpose of this PMP is to guide personnel at all levels of the project on the data management systems, monitoring and evaluation tools and processes that the Monitoring and Evaluation (M&E) Team uses to track the program's performance and results, outline the process to verify and monitor that information, and explain how management and other decision makers benefit from the PMP.

The PMP was developed through discussions with the Power Africa Coordinator's Office, the USAID Nigeria Mission, the Nigeria Lead Transaction Advisor, and discussions with senior management of the project. PATRP's M&E Team compiles and tracks project performance monitoring results and performance indicators through the successful implementation of the M&E system.

### A.1.2 STRATEGIC APPROACH: M&E SYSTEM IMPLEMENTATION

Just as this program requires financial and human resources (HR) and accountability systems it also needs good performance feedback systems. The PATRP M&E system is designed to improve the way the program achieves results by collecting, analyzing, and providing performance data to the program

implementation team. This results-oriented M&E system takes decision makers one step further in assessing whether and how goals are achieved over time. This system provides a continuous flow of information that in turn guides the program's stakeholders toward achieving the desired results. Results monitoring and evaluation is a powerful tool that is used to assist relevant program stakeholders track progress and demonstrate the impact of a given activity, task, or project at program level. This system moves beyond an emphasis on inputs and outputs to a greater focus on outcomes and impacts.

For monitoring and evaluation to be evident throughout the life cycle of an activity, task, project and program, the PMP was developed through extensive discussions with relevant Nigeria Transaction Advisors and Technical Advisors. It focuses on monitoring at both the Intermediate Results (IR) level and its subordinate IR (sub-IR) levels where applicable. The proposed approach to performance monitoring in PATRP is based on a causal chain that links project outputs and outcomes to the Development Objective (DO) of the program.

This PMP is an important tool for managing and documenting USAID Nigeria's Power Africa Country Implementation Plan (CIP) and PATRP's performance, enabling the timely and consistent collection of comparable performance data to make informed project management decisions.

### **A.1.3 KEY ASSUMPTIONS UNDERLYING THE PATRP RESULTS FRAMEWORK**

Achievement of the Development Objective and Intermediate Results is subject to the following key assumptions that underpin the activities implemented by PATRP:

- With reference to the Power Africa goal, if the energy sectors of focus countries are more fully developed and regional populations have assured access to reliable and affordable electricity, then their national economies will grow and the proportion of their citizens living in poverty will be reduced (Development Hypothesis).
- With reference to IR 1, sub-IR 1.1, 1.2, 1.3, and IR 2, it is assumed that the perceived character and durability of Nigeria's policy, regulatory, and legal reforms will attract substantive private sector investment in the energy sector and convince international donors and private investors to honor their fiscal and assistance commitments supporting Power Africa.
- With reference to sub-IR 2.1 and 2.3, it is assumed that the structural changes proposed including procedures optimized and approved for implementation are accepted and physically implemented by Nigeria's energy sector entities and institutions.
- With reference to sub-IR 2.2, it is assumed that proposed technical efficiency improvements and reduction in collection and commercial losses (non-technical losses) approved for implementation are accepted and physically implemented by the three privatized Nigeria utilities and other institutions.

If the above-mentioned assumptions hold, then it is likely that PATRP's activities will contribute towards the achievement of USAID Nigeria and the overall program's Development Objective.

### **A.1.4 RESULTS FRAMEWORK**

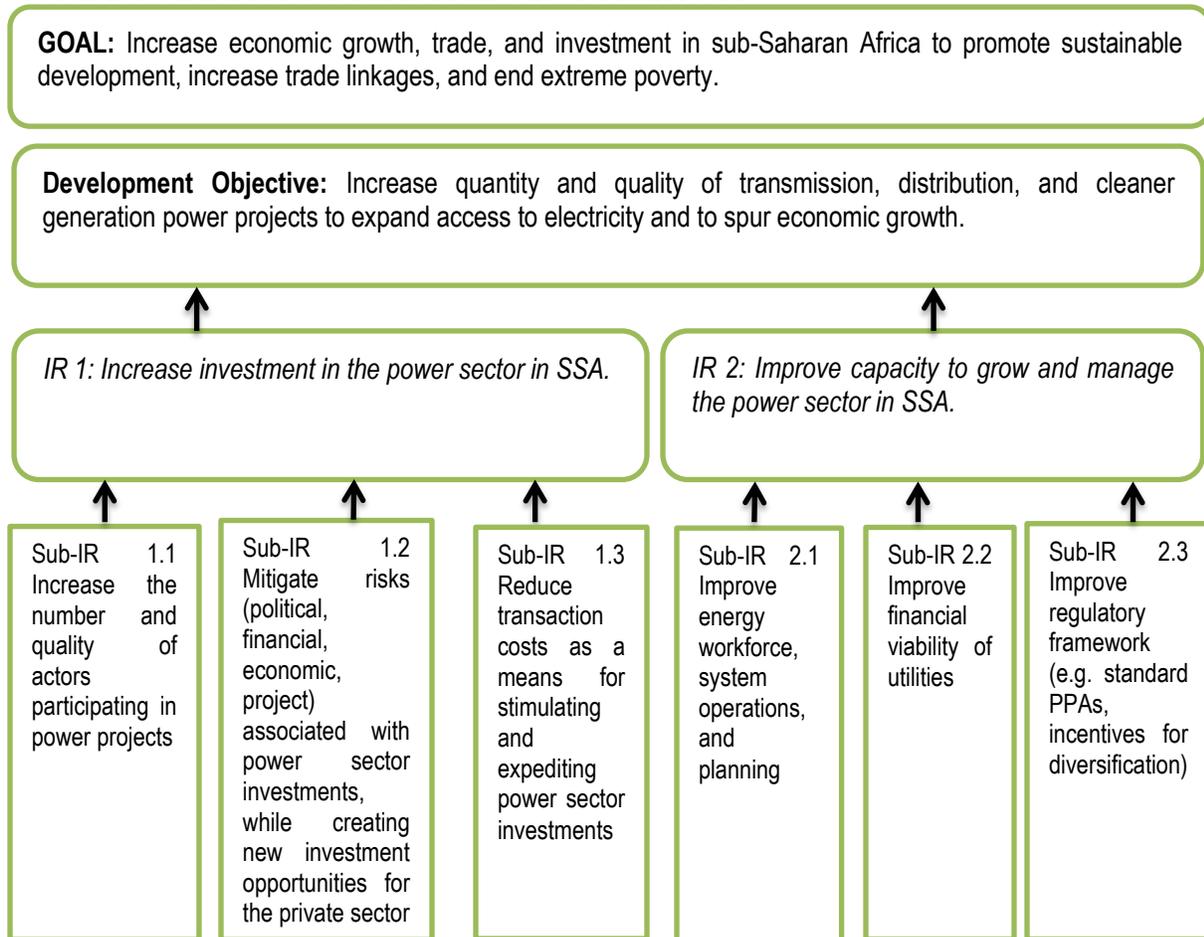
PATRP forms a part of USAID's activities in the whole-of-government Power Africa initiative. Therefore, PATRP's monitoring and evaluation activities will be largely based on the larger Power Africa initiative results framework, which is graphically represented below in Figure 1 and described in detail in the Power Africa Monitoring and Evaluation Plan.

The Results Framework (RF) is a planning, communications and strategic management tool that conveys the development hypothesis implicit in the DO, illustrating the cause-and-effect linkages between outputs, IRs, and the DO to be achieved with the assistance provided. In the results framework for the DO, there is a set of related IRs and sub-IRs. In addition, sets of performance indicators are derived from the RF. The logic is that if the IRs are achieved, these results will contribute to accomplishing the higher level DO and goal.

The Power Africa initiative goal represents the highest level of impact to which USAID, the partner country, civil society and other development partners contribute. The Development Objective is the most ambitious result that a unit can materially affect and is willing to be held accountable for, along with USAID partners. Intermediate results are measurable lower-level changes that individually contribute to jointly achieve the DO, and sub-IR is changes that contribute to the IR, if the critical/key assumptions hold.

Performance will be tracked based on the DO and its related IRs, which in turn will be realized through sub-IRs achieved through the results-oriented activities of PATRP.

**FIGURE 1: POWER AFRICA INITIATIVE RESULTS FRAMEWORK**



As demonstrated in the tables below, PATRP is tracking a total of 25 performance indicators. Illustrated in Table 1, the DO and each of the eight intermediate and sub-intermediate results has a total of 15 associated Power Africa performance indicators against which data for PATRP activities are collected to measure progress and determine whether implementation is on track. The USAID mission-specific performance indicators illustrated in Table 2 includes seven metrics for PATRP USAID Nigeria mission approved scopes of work that are not part of the overall Power Africa performance indicators. For Table 3, PATRP will track three Contextual Indicators which are part of the Power Africa performance indicators but which PATRP does not report on targets. These indicators will assist the Nigeria mission in understanding the overall effect of the Power Africa program and CIP on these indicators.

The performance indicators each have a completed performance indicator reference sheet (PIRS) that includes descriptions, plan for data collection, targets and baselines.

**Table 1: PATRP Intermediate Results, Sub-Intermediate Results, and Indicators 2016-2018**

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
1	4	Development Objective: Increase quantity and quality of transmission, distribution and cleaner generation power projects to expand access to electricity and to spur economic growth	DO	Electricity Access	Number of new grid and off-grid <b>projected</b> direct connections	(by country)	# of new on-grid connections
						<i>Type of Enterprise:</i>	# of new off-grid connections: # of new <b>micro-grid connections</b>
						<b># Residential connections</b>	# of new off-grid connections: # of new <b>solar home systems connections</b>
						<b># Business (commercial and/or industrial) connections</b>	# of new off-grid connections: # of <b>solar lantern connections</b>
						<b># of Unknown</b>	
2	5	Development Objective: Increase quantity and quality of transmission, distribution and cleaner generation power projects to expand access to electricity and to spur economic growth	DO	Electricity Access	Number of new grid and off-grid <b>actual</b> direct connections	(by country)	# of new on-grid connections
						<i>Type of Enterprise:</i>	# of new off-grid connections: # of new <b>micro-grid connections</b>
						<b># Residential connections</b>	# of new off-grid connections: # of new <b>solar home systems connections</b>
						<b># Business (commercial and/or industrial) connections</b>	# of new off-grid connections: # of <b>solar lantern connections</b>

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
						# of Unknown	
3	7	Development Objective: Increase quantity and quality of transmission, distribution and cleaner generation power projects to expand access to electricity and to spur economic growth	DO	Electricity Access	Number of inferred connections from new generation	(by country)	Geothermal #
							Wind #
							Renewable Biomass #
							Gas #
							Hydroelectric #
							Solar #
							Other #
4	8	IR 1: Increase investment in the power sector in SSA.	1-1	Generation Capacity Pending Financial Closure	Number of MW of transactions that have not yet achieved financial closure	(by country)	Geothermal (MW)
							Wind (MW)
							Renewable Biomass (MW)
							Gas (MW)
							Hydroelectric (MW)
							Solar (MW)
							Other (MW)
5	9	IR 1: Increase investment in the power sector in SSA.	1-2	Transactions Pending Financial Closure	Number of transactions that have not yet achieved financial closure	(by country)	Geothermal #
							Wind #
							Renewable Biomass #
							Gas #
							Hydroelectric #
							Solar #
							Other #
6	10	IR 1: Increase investment in the power sector in SSA.	1-3	Generation Capacity reached Financial Closure	Number of MW from transactions that achieved financial closure	(by country)	Geothermal (MW)
							Wind (MW)
							Renewable Biomass (MW)
							Gas (MW)

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
							Hydroelectric (MW) Solar (MW) Other (MW)
7	11	IR 1: Increase investment in the power sector in SSA.	1-4	Transactions Reached Financial Closure	Number of transactions that have achieved financial closure	(by country)	Geothermal # Wind # Renewable Biomass # Gas # Hydroelectric # Solar # Other #
8	12	IR 1: Increase investment in the power sector in SSA.	1-5	Generation Capacity Commissioned	Number of MW of generation that have been commissioned	(by country)	Geothermal (MW) Wind (MW) Renewable Biomass (MW) Gas (MW) Hydroelectric (MW) Solar (MW) Other (MW)
9	13	IR 1: Increase investment in the power sector in SSA.	1-6	Transactions Commissioned	Number of transactions that have been commissioned	(by country)	Geothermal # Wind # Renewable Biomass # Gas # Solar # Other #
10	19	Sub-IR 1.2: Mitigate risks (political, financial, economic, project) associated with power sector investments, while	1.2-1	Utilization of Risk Mitigation Measures	Utilization of risk mitigation tools by developers of Qualified	(by country)	Development Credit Authority (DCA) Political Risk Insurance

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
		creating new investment opportunities for the private sector			Transactions supported by Power Africa		Partial Risk Guarantee Sovereign Guarantee; Comfort Letter; GCSA Put/Call Option
11	20	IR 2: Improve institutional capacity to grow and manage the power sector in SSA	2-1	Training and Capacity Building Activities	Person hours of training completed in technical energy fields supported by USG assistance	(by country)	# Male and (# of hours) # Female and (# of hours)
12	22	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-1	Kilometers of Power Lines reached financial close	Kilometers of Power Lines Reached Financial Close	(by country)	Distribution Transmission
13	24	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-2	Greenhouse Gas Emissions Reduced	Greenhouse gas (GHG) emissions, estimated in metric tons of CO2e, reduced, sequestered, and/or avoided as a result of USG assistance	(by country)	Clean energy-funded activities in metric tons of CO2e Infrastructure-funded activities in metric tons of CO2e
14	29	Sub-IR 2.3 Improve regulatory framework	2.3-1	Policy	Number of policy reforms/laws/regulations /administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance.	1a 1b 2a 2b 3a 3b 3c	Regional National Private sector participation Clean and cleaner energy investments Small scale and off grid energy investments Gender equity in energy sector Drafted Presented for public consumption

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
15	30	Sub-IR 2.3 Improve regulatory framework	2.3-2	Policy	Number of energy sector laws, policies, strategies, plans or regulations officially revised, adopted or implemented as a result of USG assistance that enhance energy sector governance and/or facilitate private sector participation and competitive markets, and/or encourage investment in clean and cleaner, small scale and off-grid options, and/or support gender integration in the energy sector.	1a	Regional
						1b	National
						1c	Private sector participation
						2a	Clean and cleaner energy investments
						2b	Small scale and off grid energy investments
						3a	Gender equity in energy sector
						3b	Revised
						3c	Adopted
						3d	Implemented

**Table 2: PATRP USAID Mission-Specific Performance Indicators 2016-2018**

#	PATRP PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
16	1	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-3	Kilometers of Power Lines pending financial close	Kilometers of Power Lines Pending Financial Close	(by country)	Distribution
							Transmission
17	2	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-4	Transmission Projects that are pending Financial Close	Number of Transmission projects pending Financial Close	(by country)	# Projects
18	3	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-5	Transmission Projects that have reached Financial Close	Number of Transmission projects to reach Financial Close	(by country)	# Projects
19	5	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-7	Substation capacity added	The total added substation capacity measured in mega volt amperes reached financial close	(By country)	Distribution MVA
							Transmission MVA
20	6	Sub-IR 2.2: Improve financial viability of utilities (non-technical losses)	2.2-2	Aggregate Losses	Total technical and non-technical electricity losses / total electricity generated	(by country)	Total electricity generated (MWh)
							Total non-technical electricity losses (%)
							Total technical electricity losses (%)
21	7	Sub-IR 2.2: Improve financial viability of	2.2-3	Improved	Improved financial	(by country)	# of regularized consumers

#	PATRP PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
		utilities (non-technical losses)		revenue at distribution companies	performance allowing for better payment for power supply delivered to the DISCO		Additional revenue generated at DISCOs due to regularization of existing consumers
22	8	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-8	Increased gas supply and availability to power plants	Gas pipeline rehabilitated or new construction with increased availability of gas reached financial close	By country	One Thousand Standard Cubic Feet (mscf)

**Table 3: PATRP and USAID Nigeria Power Africa Contextual Performance Indicators 2016-2018**

#	PA PIRS #	Strategic Linkage (IR Number)	Indicator Number	Indicator Name	Indicator Definition	Disaggregate 1	Disaggregate 2
23	26	Sub-IR 2.1: Improve energy workforce, system operations and planning	2.1-9	Energy Efficiency	Expected lifetime energy savings from energy efficiency or energy conservation	(by country)	Industrial Processes
24	27	Sub-IR 2.2: Improve financial viability of utilities (non-technical losses)	2.2-1	Aggregate Losses	Total technical and non-technical electricity losses / total electricity generated	(by country)	Total electricity generated (MWh) Total non-technical electricity losses (%) Total technical electricity losses (%)
25	28	Sub-IR 2.3 Improve regulatory framework	2.3-4	National Energy Mix	% of MW from clean energy technology	(by country)	Geothermal % Wind % Renewable Biomass % Hydroelectric # Solar # Other #

## A.2 COLLECTING PERFORMANCE DATA

This PMP measures performance data at two levels:

- Results-level indicators refer to indicators of program results that can be reasonably attributable to PATRP's efforts and for which PATRP can be held accountable. Generally, attribution exists when the causal linkages between program activities and the measured results are clear and significant. For PATRP, a result is attributable when it can be plausibly claimed that without PATRP intervention the result would not have occurred as it did. Under this construct, verifiable causality, while desirable, is not required to claim attribution. These indicators measure performance against the DO and IRs in the Results Framework and also serve as the basis for performance reporting to USAID.
- Activity-level indicators refer to indicators that provide useful data for the ongoing, continuous management of activities by the project teams. These indicators generally provide more operational data than the results-oriented data. Activity-level data can therefore be used to monitor project performance.
- Contextual results-level indicators refer to indicators that provide useful data for the management of the overall program initiative by USAID Nigeria. These indicators generally provide programmatic performance data that may influence a change in overall program scope and direction.

### A.2.1 PROJECTED INDICATOR RESULTS AND TARGETING

A complete table of performance data for IR and Sub-IR level performance indicators is detailed in Tables 1-3 above. These indicators will be tracked and reported to USAID Nigeria Mission quarterly and annually.

### A.2.2 PERFORMANCE INDICATOR REFERENCE SHEETS

Performance Indicator Reference Sheets (PIRS) are maintained for each performance indicator as agreed by the Coordinator's Office and USAID Nigeria. If current performance indicators are refined and/or additional indicators developed, PATRP will create new indicator sheets based on this template. Each reference sheet is fully consistent with the guidance contained in ADS 200/203 and provides information, among other things, on the following:

- Indicator definition, unit of measurement, and any data disaggregation requirements.
- Relevance and usefulness of the performance indicator to the technical assistance, capacity building, and project transaction support of PATRP.
- Plan for data acquisition including USAID data acquisition method, data sources, timeline for data acquisition, person(s) responsible for data provision under PATRP.
- Any data quality issues, including any actions taken or planned to address data limitations.

### A.2.3 DATA COLLECTION

Data will be collected by the appropriate PATRP objective, activity, and Work Plan Team Leads. The DCOP, supported by the M&E Team, will review each Work Plan and associated activities during the development stage and identify which performance indicator and metric applies to the proposed activities. Once the Team Lead is identified, the M&E Team will provide the data collection methodology and process for each identified indicator and metric including required supporting

documentation to substantiate the data collected. Information will be submitted using a standard data collection spreadsheet to include:

- Indicator number and indicator name.
- Component/Activity/Output number per the work plan and country.
- Date of activity/output and quarter of activity/output.
- Description and metrics achieved in the quarter.
- Associated output – to be uploaded or attached or described.

This data will be reviewed initially by the M&E Team to ensure that the data is: i) verifiable (supporting documents are present), ii) sufficiently accurate (data collected are aligned with the result achieved), and iii) timely (data are within a reasonable timeframe of the result).

The data and the associated supporting document will be stored in a systematic and structured way so that data can be sorted and aggregated as needed for reporting with electronic copies stored on PATRP's secure SharePoint drive, with appropriate access levels.

#### **A.2.4 DATA CONSIDERATIONS**

**Baseline** The baseline figures for the performance indicators are determined by USAID Power Africa Coordinator's Office.

**Attribution** Given that there are many overlapping actors on the Power Africa initiative results may be attributed to PATRP when for an activity or intervention it has either a direct or supporting role. PATRP will document results to substantiate the attribution.

**Data Quality** Each data point reported to USAID by PATRP will be validated with supporting documentation. The program will verify data that is provided to it from stakeholders such as Ministries, utilities, etc. The M&E Specialist will be responsible for annual data quality assessments and providing feedback to the project team leadership on data gaps and other adjustments that need to be made to the PMP.

**Data Limitations** PATRP may face the following limitations when collecting data which may affect the attainment of performance indicator targets:

- Lack of willingness by counterparts (Ministries, agencies, utilities) to share data.
- Lack of a robust data collection system at the counterparts to collect data.
- Performance data provided by counterparts that may be deliberately misrepresented.
- A long germination period for the impacts of PATRP activities to be seen.

Another issue which may impact data is the involvement of multiple Power Africa initiative actors in a "PATRP activity" which may result in double-counting of results. This duplication would have to be resolved at the higher Power Africa M&E reporting level.

**Data Accuracy** The accuracy of data collected will vary and may be one of the following.

- Absolute—the highest level of accuracy and precision that represents exact quantities, especially at the output level.
- Estimation based on reference data and factors.
- Self-reporting by beneficiaries.
- Data collection sampling.

It is also possible that during the period of performance, that expected data quality improvements/enhancements might necessitate revising prior analyses and updating earlier results.

### **A.3 MANAGEMENT OF PMP**

The M&E Team is responsible for performing the following tasks:

- Arranging the PMP Team meetings.
- Implementing the mechanism for data collection, analysis and reporting.
- Implementing the mechanism for ensuring data quality.
- Preparation of the PMP related reports.
- Reporting of indicators to USAID Power Africa Coordinator's Office and USAID/Nigeria Mission.

As the project evolves and USAID's information requirements change, further adaptation of the PMP and related mechanisms can be made with USAID approval.

#### **A.3.1 ROLES AND RESPONSIBILITIES**

The Chief of Party (COP) has ultimate responsibility for the PMP. The Deputy Chief of Party (DCOP) will manage the M&E process with support from the M&E Team and the Project Management Unit (PMU) based in the PATRP project headquarters in Pretoria.

The DCOP will be responsible for data validation, incorporating the data into the progress reports and sharing with the Communications Specialist to create success stories as appropriate. The DCOP will also liaise with Power Africa Coordinator's Office, USAID Nigeria, the Contracting Officer's Representative, and the Power Africa M&E point of contact as necessary.

The PATRP objective, activity, and Work Plan Team Leads will be responsible for data collection and initial data reporting. The M&E Team will receive the data and supporting documentation from PATRP Team Leads and will be responsible for housing that information, verification of data, identifying gaps, aggregating the data and creating custom reports.

#### **A.3.2 REPORTING**

Indicator data will be included in the quarterly and annual reports produced by PATRP. In addition to the presentation of the raw data, there will be an analysis of the progress and commentary on any gaps, as well as how such gaps may be addressed or mitigated.

**TABLE 1-3: INDIVIDUAL PATRP INDICATORS FOR USAID NIGERIA PERFORMANCE MANAGEMENT PLAN 2016**

	<b>Name of Implementing Mechanism: PATRP</b>	PATRP								
	<b>Country</b>	Nigeria								
	<b>Date of Submission</b>									
				<b>Actuals</b>	<b>2016 Target</b>	<b>Actual</b>				<b>Cumulative Total(s) 2014-2016</b>
	<b>Indicator Name</b>	<b>Indicator</b>	<b>Disaggregate By</b>	<b>May 2014-Sept 2015</b>	<b>2016</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	
1	<i>Electricity Access (PA PIRS # 4)</i>	<i>Number of new grid and off-grid <b>projected</b> direct connections</i>								
		<i>Types of Enterprise: # Residential Connections</i>	# of new on-grid connections							
			# of new off grid connections: # of new micro-grid connections							
			# of new off grid connections: # of new solar home systems connections							
			# of new off grid connections: # of new solar lanterns connections							
		<i>Types of Enterprise: # Business (commercial and/or industrial) connections</i>	# of new on-grid connections							
			# of new off grid connections: # of new micro-grid connections							

			# of new off grid connections: # of new solar home systems connections							
			# of new off grid connections: # of new solar lanterns connections							
		<i>Types of Enterprise: # Unknown</i>	# of new on-grid connections							
			# of new off grid connections: # of new micro-grid connections							
			# of new off grid connections: # of new solar home systems connections							
			# of new off grid connections: # of new solar lanterns connections							
2	<i>Electricity Access (PA PIRS # 5)</i>	<i>Number of new grid and off-grid actual direct connections</i>								
		<i>Types of Enterprise: # Residential Connections</i>	# of new on-grid connections							
			# of new off grid connections: # of new micro-grid connections							
			# of new off grid connections: # of new solar home systems connections							
			# of new off grid connections: # of new solar lanterns connections							

		<i>Types of Enterprise: # Business (commercial and/or industrial) connections</i>	# of new on-grid connections						
			# of new off grid connections: # of new micro-grid connections						
			# of new off grid connections: # of new solar home systems connections						
			# of new off grid connections: # of new solar lanterns connections						
		<i>Types of Enterprise: # Unknown</i>	# of new on-grid connections						
			# of new off grid connections: # of new micro-grid connections						
			# of new off grid connections: # of new solar home systems connections						
			# of new off grid connections: # of new solar lanterns connections						
3	<i>Electricity Access (PA PIRS # 7)</i>	<i>Number of inferred connections from new generation</i>	Solar (#)		<b>1,121,647</b>				0
			Wind (#)						0
			Biomass (#)						0
			Hydroelectric (#)						0
			Gas (#)			509,230			509,230
			Geothermal (#)						0
			Other (#)						
4	<i>Generation Capacity Pending Financial Closure</i>	<i>Number of MW from transactions that have not yet achieved financial closure</i>	Solar (in MW)	880	<b>5,000</b>	70			950
			Wind (in MW)	100					100

	(PA PIRS # 8)		Biomass (in MW)						0
			Hydroelectric (MW)						0
			Gas (in MW)	3175					3175
			Geothermal (MW)						0
			Other (MW)						
5	Transactions Pending Financial Closure (PA PIRS # 9)	Number of transactions that have not yet achieved financial closure	Solar (#)	9	<b>22</b>	1			10
			Wind (#)	1					1
			Biomass (#)						0
			Hydroelectric (#)						0
			Gas (#)	8					8
			Geothermal (#)						0
			Other (#)						
6	Generation Capacity Reached Financial Closure (PA PIRS # 10)	Number of MW from transactions that achieved financial closure due to USG assistance	Solar (in MW)		<b>1400</b>				0
			Wind (in MW)						0
			Biomass (in MW)						0
			Hydroelectric (MW)						0
			Gas (in MW)				450		450
			Geothermal (MW)						0
			Other (MW)						
7	Transactions Reached Financial Closure (PA PIRS # 11)	Number of transactions that have achieved financial closure	Solar (#)		<b>7</b>				0
			Wind (#)						0
			Biomass (#)						0
			Hydroelectric (#)						0
			Gas (#)				1		1
			Geothermal (#)						0
			Other (#)						
8	Generation Capacity Commissioned (PA PIRS # 12)	Number of MW that have been commissioned due to USG assistance	Solar (in MW)		<b>0</b>				0
			Wind (in MW)						0
			Biomass (in MW)						0

			Hydroelectric (MW)							0
			Gas (in MW)							0
			Geothermal (MW)							0
			Other (MW)							
9	Transactions Commissioned (PA PIRS # 13)	Number of transactions that have been commissioned	Solar (#)		0					0
			Wind (#)							0
			Biomass (#)							0
			Hydroelectric (#)							0
			Gas (#)							0
			Geothermal (#)							0
			Other (#)							
10	Utilization of Risk Mitigation Tools (PA PIRS # 19)	Utilization of risk mitigation tools by developers of qualified transactions supported by Power Africa	Partial Risk Guarantee		5	1				1
			Political Risk Insurance/MIGA			2				2
			Sovereign Guarantee							0
			DCA Guarantee							0
			Put-Call Option			1				1
11	Training and Capacity Building Activities (PA PIRS # 20)	Person hours of training completed in technical energy fields supported by USG assistance	Male (# of hours) trained	136	2000					136
			Female (# of hours) trained	24						24
12	Kilometers of Power Lines that have reached Financial Close (PA PIRS # 22)	The sum of linear kilometers of new, reconstructed, rehabilitated or upgraded transmission and distribution lines that have reached financial close	Transmission		263					0
			Distribution							0
13	Greenhouse Gas Emissions Reduced (PA PIRS # 24)	Greenhouse Gas Emissions (GHG) estimated in metric tons of CO2e, reduced, sequestered and/or avoided as a result of USG assistance	Clean Energy - Funded Activities		0					0
			Infrastructure Funded Activities	-						0

14	Policy (PA PIRS # 29)	Number of policy reforms/laws/regulations/administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance.	Regional	5	3					5
			National							
			Private Sector Participation							
			Clean and cleaner energy investments							
			Small scale and off grid energy investments							
			Gender equity in energy sector							
			Drafted							
			Presented for public consumption							
15	Policy (PA PIRS # 30)	Number of energy sector laws, policies, strategies, plans or regulations officially revised, adopted or implemented as a result of USG assistance that enhance energy sector governance and/or facilitate private sector participation and competitive markets, and/or encourage investment in clean and cleaner, small scale and off-grid options, and/or support gender integration in the energy sector	Regional		0					
			National							
			Private Sector Participation							
			Clean and cleaner energy investments							
			Small scale and off grid energy investments							
			Gender equity in energy sector							
			Revised							
			Adopted							
Implemented										
<b>USAID NIGERIA Country Specific Indicators</b>										
16	Kilometers of power lines pending financial close (PATRP PIRS # 1)	Kilometers of power lines pending financial close	km		977					
17	Transmission Projects pending Financial Close (PATRP PIRS # 2)	Number of Transmission projects pending financial close	#		7					

18	Transmission Projects that have reached Financial Close PATRP PIRS # 3)	Number of Transmission projects to reach Financial Close	#		2					
19	Transmission Substation Capacity added (PATRP PIRS # 5)	The total added transmission or distribution substation capacity, measured in mega volt-amperes	MVA		150					
20	Aggregate Losses (PATRP PIRS # 6)	Total technical and non-technical electricity losses / total electricity generated								
		Relative reduction in aggregate losses (i.e. if a 50% baseline losses, a 10% reduction would achieve a 45% ATC&C)								
	20 (a)	<b>Abuja – 7.5% reduction in absolute terms (from 53% to 45.5%)</b>	Total MWh generated							
			% of calculated commercial losses							
			% of calculated estimate technical losses							
	20 (b)	<b>Eko Lagos - 4.5% reduction in absolute terms (from 40% to 35.5%)</b>	Total MWh generated							
			% of calculated commercial losses							
			% of calculated estimate technical losses							
	20 (c)	<b>Benin - 7.5% reduction in absolute terms (from 60% to 52.5%)</b>	Total MWh generated							
			% of calculated commercial losses							
			% of calculated estimate technical losses							
21	Improved revenue at distribution companies	Improved financial performance allowing for better payment for power supply delivered to the DISCO	# of regularized consumers							
			Additional revenue generated at DISCOs							

			due to regularization of existing consumers							
22	Increased gas supply and availability to power plants (PATRP PIRS # 7)	Gas pipeline rehabilitated or new construction with increased availability of gas reached financial close	mscf		0					
<b>USAID NIGERIA Contextual Indicators</b>										
23	Energy Efficiency	Expected lifetime energy savings from energy efficiency or energy conservation	MW							0
25	National Energy Mix	% of MW from clean energy technology	Geothermal %							
			Wind %							
			Biomass %							
			Hydro %							
			Solar %							
Other %										
24	Aggregate Losses	Total technical and non-technical electricity losses / total electricity generated								
	24 (a)	Enugu DISCO	Total MWh generated							
			Commercial Losses in MWh							
			Technical Losses in MWh							
	24 (b)	Ibadan DISCO	Total MWh generated							
			Commercial Losses in MWh							
			Technical Losses in MWh							
	24 (c)	Ikeja DISCO	Total MWh generated							
			Commercial Losses in MWh							
			Technical Losses in MWh							

24 (d)	Jos DISCO	Total MWh generated							
		Commercial Losses in MWh							
		Technical Losses in MWh							
24 (e)	Kaduna DISCO	Total MWh generated							
		Commercial Losses in MWh							
		Technical Losses in MWh							
24 (f)	Kano DISCO	Total MWh generated							
		Commercial Losses in MWh							
		Technical Losses in MWh							
24 (g)	Port Harcourt DISCO	Total MWh generated							
		Commercial Losses in MWh							
		Technical Losses in MWh							
24 (h)	Yola DISCO	Total MWh generated							
		Commercial Losses in MWh							
		Technical Losses in MWh							

# APPENDIX B: MILESTONES AND DELIVERABLES

PATRP-NIGERIA WORKPLAN MILESTONES & DELIVERABLES				
MILESTONES	Q1	Q2	Q3	Q4
<b>LARGE POWER GENERATION INVESTMENTS</b>				
Complete research on Standard form due diligence memo		■		
Standard form PPA and PCOA finalized for NBET			■	
Gas assessment completed			■	
Complete building and documenting a standard form financial model for projects showing projected revenues and cash flows under a range of business and financial assumptions				■
Complete a plan for developing a gas-fired power procurement program to NBET. Set of international gas-fired power project tender documents developed				■
Achieve financial close of the Qua Iboe Power Project				■
Achieve PPA and PCOA signing with NBET for five solar IPPs				■
Introduce eight projects in the Power Africa Transactions Pipeline			■	
<b>TRANSMISSION SYSTEM INVESTMENTS</b>				
Form bidding documents and contracts completed			■	
Agree with EPC contractors (i.e. contract amendments) on arrangements for completion of the highest priority set of eight (or more) stalled ongoing projects to be funded by the existing AfDB loan facility and/or additional Government investment	■			
Complete the TCN Annual Financial Plan and budgets	■			
Complete draft form transmission project concession agreement, and approval by relevant Nigerian agencies and authorities		■		
Deliver to TCN an Outline Business Case for pilot transmission PPP, in form suitable for review and approval by Federal Executive Council and ICRC			■	
Deliver to TCN PATRP recommendations on enabling legal/regulatory framework for transmission project concessions			■	
Launch procurement of new conventional EPC projects (Government funded)			■	
Complete financial and economic feasibility assessments for pilot concessions including concession tariff model, concession agreement and bidding documents		■		

Launch procurement of pilot PPP project				
Update TCN tariff filing for transmission use-of-system charges				
Prepare a plan for engagement with the NIPPs				
Complete regional empowerment scoping mission				
If required and approved by relevant stakeholders, mobilize field-based advisors				
<b>DISTRIBUTION UTILITIES</b>				
Agreement to support the at least three targeted utilities				
Completion of diagnostic assessment of each utility (current state assessment) focusing on key functional areas, systems and personnel capabilities to support the performance turnaround effort				
Completion of field diagnostic assessment, focusing on the adequacy and weaknesses in current field operations				
Performance improvement plan for each utility completed, including recommended changes, timing, resources required, and responsibilities				
Agreed investment program for the utility with priority investments identified as well as financing source (resulting from the financing work stream), including USAID commodity support				
Proposed communication and outreach program drafted to build support among customers and key stakeholders to support the utility performance turnaround activities				
Assess performance of entire Distribution Sector				
<b>OFF-GRID SOLAR INVESTMENTS</b>				
Off-Grid Market Assessment for Pico and Solar Home System (SHS) companies including determining locations of grid and off-grid customers, level of demand of off-grid customers, and the regulatory barriers facing off-grid companies along their supply chains				
Assisting the organizing and running of a matchmaking event for local and international off-grid energy companies in Nigeria to share experience and develop new partnerships for future scale up in the country.				
Assessment of a long-list of Off-Grid Companies in Nigeria and Provision of business-focused technical assistance to a minimum of two companies to assist them in developing and implementing their business models, including formulating their working capital requirements that will subsequently be shared with (ideally local) financial institutions that have indicated interest in providing such work capital				
An assessment of the current financial services available to off-grid energy companies in Nigeria and financial support programs, including the barriers restricting their current lending and ways to overcome them.				





<b>ENABLING ENVIRONMENT &amp; POLICY</b>				
Nigeria's Power Sector Assessment Report updated				
Prepare and complete quarterly (4) white papers on international best practices with respect to legal, policy, and regulatory regimes to improve the enabling environment to attract private sector investment and incorporate into final report on EPSRA. Report on EPSRA review and recommendations				
Report on Electric Power Sector Reform Act				
Report on Transmission PPP framework, including business case				
Report on REF and mini-grid sustainability strategy				
Memo on plan to engage NIPPs				