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DRAFT YEAR ONE WORK PLAN

SUPPORT TO THE LAUNCH OF TRANSMISSION SYSTEM ORGANIZATION (TANZANIA)

WORK ORDER NUMBER: WO-047-TZ-03

USAID POWER AFRICA TRANSACTIONS AND REFORMS PROGRAM (PATRP)

CONTRACT: AID-623-C-14-00003

JULY 3, 2015

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Prepared for: United States Agency for International
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Prepared by: Tetra Tech ES, Inc.
1320 North Courthouse Road
Suite 600
Arlington, VA 22201
WWW.Tetratech.com

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

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List of Abbreviations

AMR:	Automatic metering system
BRN:	Big Results Now
CAPEX:	Capital expenditure
COP:	Chief of Party
EU:	European Union
EWURA:	Energy and Water Utilities Regulatory Authority
HR:	Human resources
IDP:	Investment and development program
IRRP:	Integrated Resources and Resiliency Planning Program
MCA:	Millennium Challenge Account
MCC:	Millennium Challenge Corporation
MEM:	Ministry of Energy and Minerals
MOF:	Ministry of Finance
O&M:	Operation and maintenance
PATRP:	USAID Power Africa Transactions and Reforms Program
SWG:	Sub Working Group
TANESCO:	Tanzania Electric Supply Company, Limited
TSO:	Transmission System Organization
TUOS:	Transmission Use of System Charge
TZS:	Tanzanian Shilling
USAID:	United States Agency for International Development
WG:	Working Group
WO:	Work Order
WP:	Work Plan

1. INTRODUCTION

This draft Year One Work Plan (WP) outlines the activities in the first year (from June 2015 to May 2016) that Tetra Tech ES Inc. will undertake to meet its obligations under a Work Order (WO) of the USAID PATRP contract to support the launch of transmission system organization (TSO) in Tanzania. The duration of this WO is 18 months from May 2015 to October 2016.

The overarching objective of the WO is to assist the restructuring/unbundling of Tanzania Electric Supply Company (TANESCO) within the framework of implementation of the Electric Supply Industry Reform Strategy and Roadmap (the Roadmap) to establish a fully operational independent TSO that is efficient and commercially oriented. The reform principles of the Roadmap define that a TSO consists of:

1. Transmission Owner/Operator to operate, maintain and develop transmission system, and
2. System Operator to perform power dispatch and control, power system analysis and planning, including operation of any power market as developed in the future.

Initially, the TSO will reside inside TANESCO with a proper ring-fencing to ensure open access to the power grid and non-discriminatory power control and dispatch for all system users (e.g., generation plants owned by TANESCO and by private developers). The Roadmap envisions spinning off the System Operator as an Independent System Operator in the future.

The specific objectives of the WO are to:

- Help TANESCO with the unbundling and operational start-up of a TSO;
- Provide advice to the TSO on issues in development of market operation process, operating rules, and procedures; and,
- Provide training and capacity building for the operational staff of the TSO.

To assure that these objectives are met, the WO specifies:

- Seven Tasks that indicate the types of activities to be undertaken; and
- Expected deliverables/outputs of each Task and its Subtask (if applicable) for tracking WO progress over its 18 months duration.

To develop the Year One Work Plan, Advisory Team made a definitional mission to Tanzania in May 2015 to conduct an initial reconnaissance. During the mission, Advisors Team (i) met with TANESCO, USAID, the Energy and Water Utilities Regulatory Authority (EWURA), and the Millennium Challenge Account (MCA) Tanzania, (ii) collected initial data and documents, and (iii) performed an initial assessment of the issues and challenges associated with implementation of the WO.

To effectively implement the WO, Advisory Team recommended and TANESCO agreed to establish a counterpart TSO Working Group (WG) to work side-by-side with Advisory Team to implement the tasks specified by the WO. The information obtained from the WG

during the definitional mission provides useful input to the development of this draft Year One Work Plan.

The WO is closely related to other reform activities specified in the Roadmap and results of other on-going studies. Thus, we will consult with USAID and TANESCO to update or modify the WP when new information becomes available or there are changes in the other power sector reform activities. This draft Year One WP covers all the tasks and activities except Task 6 of the WO assuming the current budget will be adequate for the first year. We will consult with USAID when we develop the Year Two Work Plan in April 2016 to see if any additional funding and time are needed to complete the scope of work.

This draft Work Plan is structured as follows:

Section 2 summarizes our approach to implementation and management of the tasks required by the WO, and our expectations of TANESCO's TSO Working Group.

Section 3 describes for each of the seven main Tasks and their subtasks: (i) the activities that will be undertaken, (ii) expected outputs and deliverables, (iii) timetable or expected completion dates, and (iv) initial issues identified.

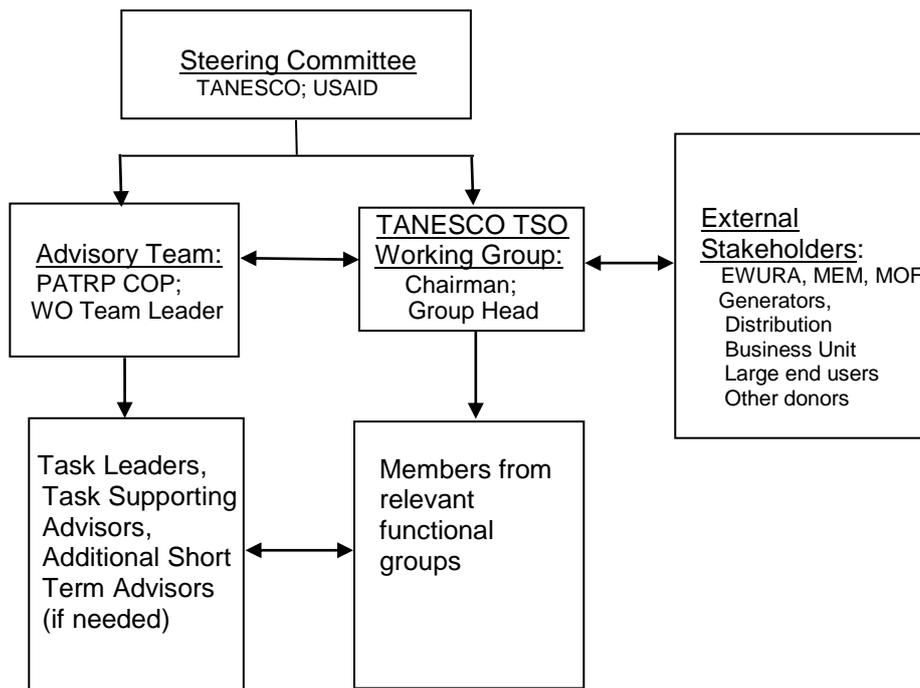
Section 4 summarizes the key personnel and overall task implementation schedule.

2. APPROACH TO PROJECT IMPLEMENTATION AND MANAGEMENT

2.1 IMPLEMENTATION APPROACH AND ORGANIZATION

Two of the key objectives of the WO are to (i) assist TANESCO in establishing a fully operational TSO, and (ii) provide necessary training and capacity building to TSO staff. Implementing the WO requires Advisory Team to work closely with all functional groups of the TSO, including operation and maintenance, transmission system expansion and planning, capital investment, financial, accounting, treasury, human resources, information technology, grid control and other operation groups. As noted previously, to effectively implement the WO, we recommended and TANESCO agreed to establish a counterpart TSO Working Group to work side-by-side with Advisory Team. This arrangement also enables Advisory Team to provide on-the-job training to the WG members. Equally important, this arrangement will enhance coordination and cooperation of the WG with Advisory Team. It will also ensure that the WG will take ownership of the recommendations developed through this collaborative effort, and will be more confident in implementing and managing the recommended TSO.

The proposed overall Implementation Team Organization is shown below:



Steering Committee

It is recommended that a Steering Committee be established. The Steering Committee is recommended to consist of TANESCO senior management and USAID. The Steering Committee can provide policy and strategic guidance to the establishment of the TSO, and resolution of policy issues emerged during the course of the WO implementation.

Counterpart TSO Working Group (WG)

As noted before, TANESCO established the TSO WG in May 2015 during our definitional mission. Advisory Team's initial meetings with the WG during the definitional mission were productive. The WG is expected to continue working closely with Advisory Team to perform all the tasks specified in the WO. The WG is chaired by Eng. Christian Msyani, Ag. Deputy Managing Director of Transmission Division, and Eng. Abubaka Issa (Manager of System Control Unit) serves as the WG head for day-to-day coordination and supervision activities. The WG members include representatives from transmission system control, grid and system operation, investment, planning, financial, accounting, human resource, legal and other functional groups within TANESCO.

It will also be necessary to form Sub-Working Groups (SWG) to work with Advisory Team on specific tasks, for example, Financial SWG to work on financial model and financial performance tasks, Business Planning SWG to work on business plan task, Human Resources and Training SWG to work on human resources and training tasks, etc. This will help Advisory Team to cultivate a close working relationship, and maintain close communications with counterpart TSO staff as well as provide on-the-job training.

Advisory Team

Advisory Team will include a resident Team Leader to be responsible for overall management and implementation of the WO. The Team Leader will serve as the point of contact with TANESCO, USAID and external stakeholders. The Team Leader will report to the PATRP Chief of Party (COP) who has the overall contractual and management responsibility for all the WO's under the PATRP. Advisory Team will also include Task (and subtask, if applicable) leaders who will be responsible for performing their assigned tasks and subtasks with the WG to ensure the task outputs/deliverables are technically sound and suitable for Tanzania's power sector. In addition, other short term advisors will be available to provide specific expertise and support when needed.

External Stakeholders

External stakeholders may include policy maker, the MEM that has the overall responsibility of the electric supply industry reform, the EWURA, the Ministry of Finance (MOF), the owner of TANESCO, generators (TANESCO-owned and private), Distribution Business Unit, large electricity users, and other donors. External stakeholders will be briefed on a quarterly basis through Executive Conferences on the progress, including the analysis results and preliminary recommendations to seek their feedbacks and support.

2.2 MONITORING, REPORTING AND COMMUNICATIONS

The Team Leader and Task Leaders will closely monitor the progress of the WO implementation and prepare brief monthly progress reports to TANESCO and USAID. The monthly progress will summarize for each task on major activities, issues, and progress or lack thereof as well as plans to mitigate any problems encountered. The Team Leader will also raise any emerging policy or strategic issues in the course of the WO implementation that require guidance from the Steering Committee. The monthly progress reports will also highlight planned activities and events for the following month. Team Leader will also report on progress to the PATRP COP on a monthly and quarterly basis.

In addition, and as mentioned above, Executive Conferences will be held on a quarterly basis to brief External Stakeholders. The feedbacks from these Executive Conferences will be incorporated into the recommendations for the establishment of the TSO. It is proposed that the WG and Advisory Team jointly conduct the Executive Conferences.

2.3 EXPECTATIONS OF THE TSO WORKING GROUP

As noted in the WO, most tasks require an analysis of the existing policies, processes, procedures, practices, rules, existing studies, and/or reports as an initial step. It is essential that the WG provides all the available data, information, reports, studies and documents to Advisory Team in a timely manner. Appendix A is a list of the preliminary data requests for each of the seven main tasks (and subtasks if applicable) submitted to the WO in mid-June 2015. It is requested that the data and documents, if available, be provided to Advisory Team in early July so Advisory Team can work with the WG during the July 5 to 25 mission to start assessment of the existing transmission technical and business processes and procedures, and present condition of the transmission network.

It was observed at the initial meetings with the WG in May that some members were late or not available for the meetings. We understand that these WG members have their own regular jobs and in the absence of a clear directive and mandate (as discussed below) they may not be in a position to commit the necessary time and effort to the implementation of the WO. Our experience in working with counterpart working groups in other countries is that if the counterpart WG members cannot devote time and effort to the WG work, then the counterpart working group approach is not going to be productive.

Thus, it is strongly recommended that TANESCO Managing Director issue a decree or executive order formally establishing the TSO working Group and appointing the WP members with a mandate to cooperate and support Advisory Team to work on the establishment of a fully operational TSO. Thus, their work on the establishment of the TSO will be formally recognized. The arrangements should also be made so the appointed WG members can devote time and effort to the tasks. The implementation of the WO to establish an operational TSO will be hindered if there are no strong cooperation and support from the WG.

3. IMPLEMENTATION OF TASKS

3.1 BACKGROUND

This Section outlines how we plan to implement the seven Tasks (and subtasks, if applicable) specified in the WO. For each Task, the activities to be undertaken, the expected Task (and Subtasks) outputs/deliverables, and timetable for completion are summarized. The initial issues identified so far, and how we plan to address the identified issues are also summarized. The preliminary input requirements for each Task were submitted to the WG in June (please see Appendix A) and will not be discussed again in this Section. The personnel for the Tasks will be discussed in the next Section.

3.2 TASK 1 – MARKET ANALYSIS, FORECAST AND PLANNING

The objectives of Task 1 are to (i) help TSO staff to contribute to the Integrated Resources and Resiliency Planning Program (IRRP) to develop least-cost power system plan, and (ii) assist in the establishment of a schedule and methodology for preparing and approving a load forecast and data gathering, and to apply that methodology to annual power balances, the Long-term Power System Plan, and the Power Sector Master Plan and the IRRP.

3.2.1 Activities to Be Undertaken

To achieve the above mentioned objectives, we will undertake the following activities:

- a) Assist TSO staff to contribute to the IRRP processes and support review of the demand forecasts being prepared, including comments and suggestions in regard to methodology;
- b) Assist TSO staff to prepare the methodology for data gathering in conformity with applicable regional and international standards, conduct a workshop on the recommended methodology to ensure it is agreed and fully understood by TSO staff, and apply the methodology to preparation of the Annual Power Balance according to the schedule required by the MEM; and,
- c) Assist TSO staff to contribute to preparation of an update to the long-term Power System Master Plan.

3.2.2 Expected Outputs/Deliverables

- a) On-going inputs, advice and/or analysis to support TSO staff engagement in the IRRP-led process for updating and maintaining load forecasting analysis, as well as other elements related to TSO role in least-cost planning (e.g., generation assessment and inventory, transmission and distribution system assessments); and,
- b) On-going inputs, analysis and/or advice to TSO staff on the methodology for data gathering in conformity with international best practice, including a training workshop; preparing the Annual Power Balances; and updating the long-term Power Sector Master Plan.

3.2.3 Timetable for Completion

As this Task is to provide on-going inputs, analysis and/or advice, no specific timetable for completion is anticipated at this time. However, it should be noted that USAID/Tanzania is in process of engaging an international firm to assist TANESCO to implement an IRRP Program. Our schedule to implement this Task will be coordinated with the schedule of the USAID's IRRP technical assistance as well as the schedules of the annual power balance and Power System Master Plan Updates established by the MEM.

3.2.4 Initial Issues Identified

At present, TANESCO is a vertically integrated company owning and operating generation, transmission and distribution businesses. The market analysis, demand forecasting, generation/supply forecasting, and transmission and distribution system planning are all performed within the same company. Once the generation, transmission, and distribution businesses are unbundled, generation and supply planning and forecast are the responsibility of the Generation Business Unit, while the demand forecast and market analysis are the Distribution Business Unit's responsibility. The TSO will need to rely on the demand forecast, market analysis, and generation/supply forecast developed by other entities to perform its own transmission system expansion and planning. Thus the TSO can ensure power grid is adequate to meet the forecast demand, and comply with the reliability and safety requirements set forth in the Grid Code. In an unbundled power sector, new process, procedure and methodology for coordinating and conducting market analysis, supply and demand forecast, and power system planning will need to be developed. In this Task, we will review and recommend the international best practices that are suitable for Tanzania's power sector.

3.3 TASK 2 - SURVEY OF THE PRESENT STATE OF THE TRANSMISSION NETWORK AND INVESTMENT REQUIREMENTS

The objectives of Task 2 are to provide a full review of the state of the transmission network, and identify the investment requirements for the transmission network. As specified in the WO, Task 2 will be performed based on analysis of existing studies.

3.3.1 Activities to Be Undertaken

To achieve the stated objectives, we will carry out the following activities:

- a) Evaluate the current department responsible for maintenance and operations of the existing transmission system in the context of planned investment strategy in the existing system;
- b) Evaluate the departments responsible for future transmission system development and review the future transmission plan;
- c) Review the tools and software used for power system planning and modelling, and evaluate those employees who keep the system up-to-date; review the use of software and tools in the context of modelling existing transmission system, planned new transmission projects, and power plant grid connection studies;
- d) Prepare a draft policy framework for sharing and updating system modelling data that are provided and used by parties that are not part of TANESCO (e.g., EWURA, the Rural Energy Agency, and the MEM);

- e) Develop a capital expenditure (CAPEX) plan by working with the current transmission maintenance and operations manager and strategic planning manager; the CAPEX plan will be based on planned transmission upgrade and refurbishment projects and planned new transmission projects, and will include a high-level schedule for each major project planned which identifies realistic and feasible start and completion dates. As part of this task, we will assess the capacity of employees and managers to fulfil these tasks and identify promising employees and managers to fulfil this role in future;
- f) Develop a program to conduct a conditional assessment of the transmission system; and,
- g) Determine the demarcation between transmission and distribution and the metering interface and metering regime. Evaluate the current Automatic Metering System (AMR) installed on all feeders, and the system for processing data received from these meters. These data need to be available in some form for dynamic power system analysis. Evaluate the current AMR in relation to future billing needs and recommend any changes that may be required to support billing. This may require additional revenue metering at the transmission- distribution interface and a power balance metering regime.

3.3.2 Expected Outputs/Deliverables

- a) A Report, based on analysis of existing studies, on the present state of the transmission network based on the available data, including: evaluation of the tools and software used for power systems planning and modelling; assessment of competency of employees to use existing software and tools; Recommendations to improve the Team for power system studies and planning and to coordinate this Team with those engaged on load forecasting;
- b) A proposed new Team responsible for CAPEX planning as an outflow of load forecasting, power system analysis, and modelling of future (new and refurbishment) transmission projects;
- c) A Report, based on analysis of existing studies, on the prioritized investment requirements of the transmission system, including a high-level project plan for all major capital projects included;
- d) A conditional assessment program; and,
- e) An assessment of the current state of transmission and distribution interface metering, including recommendations for any needed upgrades or expansion to the metering infrastructure.

3.3.3 Timetable for Completion

The estimated date for completing Task 2 and submitting the above five deliverables is January, 2016.

3.3.4 Initial Issues Identified

In 2014, TANESCO experienced three total grid power failures in the country with a cumulative duration over 10 hours, 13 partial grid power failures, and close to 200 transmission line and substation equipment failures that also affected customers. These excessive power system failures are a result of lack of capital investments in repairs,

maintenance and upgrading of power grid in the past one and half decades, compounded by the fast growing power demand in the same period.

The Capital Investment Program included in TANESCO 2015 Business Plan shows over one hundred infrastructure rehabilitation and expansion projects (including generation, transmission and distribution) for the next five years, with a total investment requirement of TZS 2.4 trillion (roughly 1.08 US billion dollars). In this Task, we will work with TSO WG to identify transmission-related investment projects in the 2015 - 2019 Capital Investment Program, review the studies and analyses done to develop and support the transmission capital investment projects, and refine and prioritize transmission investments. We have already requested TANESCO to provide existing studies and analyses for those transmission investment projects included in the 2015 – 2019 Capital Investment Program (please see Appendix A).

TANESCO's transmission system improvement and investment effort is complicated by the Government of Tanzania's a Big Results Now (BRN) Initiative. The BRN initiative, launched in 2013-2014 fiscal year, aims to reduce poverty and stimulate economic growth in the country. Development of reliable and efficient power system is one important component of the BRN Initiative. There are several new transmission projects included in the BRN Initiative. In Task 2, we will also work with the WG to review and analyse these new transmission projects.

3.4 TASK 3 – FINANCIAL AND ACCOUNTING, INCLUDING TREASURY FUNCTION

The objectives of Task 3 are to assist TSO staff to develop operational mechanisms for: (i) financial performance and risk management, (ii) accurate registries of fixed assets, current assets, receivables, and liabilities, (iii) financial structure and capital, and (iv) accounting and treasury function.

3.4.1 Activities to Be Undertaken

To meet the stated objectives, we will perform the following activities:

a) Financial and Risk Management

- i. Assist TSO staff in developing a financial model of the TSO (in Microsoft Excel) that is user-friendly and consistent with International Financial Reporting Standards for preparing financial statements. Advisory Team will analyse and comment on all the data and assumptions to be used, including: (a) sales/revenues, (b) operating costs, (c) working capital, (d) capital expenditure, (e) taxes, (f) financing costs, and others. It is noted that revenues will exclude wheeling fees from cross-border power trades initially per the WO.
- ii. Train TSO staff on using the developed model and assist TSO staff to prepare a detailed forecast for 5 years of the financial performance of the TSO.
- iii. Assist TSO staff in analysing financial performance affected by potential risks, including: (a) real decline in its tariff and charge, (b) decline in electricity demand, (c) devaluation of TZS, and others.

b) Registries of Assets and Liabilities

- i. Assist TSO staff in reviewing the fixed asset register, including the interface with generation and distribution, for the TSO as prepared in the asset registration and valuation study initiated by TANESCO.
- ii. Assist TSO staff in reviewing the account receivables and other current assets according to the Republic of Tanzania accounting practice, and developing options to bring receivables to an acceptable level.
- iii. Assist TSO staff in reviewing the debts and financial liabilities of the TSO, and recommending options to bring the financial liabilities to an acceptable level.

c) Financial Structure and Capital

- i. Assist TSO staff in developing TSO's financial structure and capital based on the existing financial structure and capital of TANESCO, and recommending changes necessary for improving TSO's financial forecast and balance sheet.

d) Accounting and Treasury Function

- i. Review TANESCO's existing accounting/treasury function related documents, modules, and systems, including general ledger, information management and performance measuring system, administrative documents, financial policy and guidelines, and risk management and control.
- ii. Based on the above review, recommend updating, if necessary, or replacing existing systems by products and systems appropriate for the TSO.

3.4.2 Expected Outputs and Deliverables

- a) **Outputs of sub-Task 3(a):** The financial model and financial performance forecasts (Outputs of this sub-task will be input for preparing the Business Plan in Task 4);
- b) **Outputs of sub-Task 3(b):** i) A Report on the review of Fixed Assets Register, ii) A Report on the account receivables and the Current Assets Register by classification, and the total value of account receivables and of other current assets, with recommendations for improvement, and iii) A Report on the transferred debts and liabilities, stating amounts of each, to whom the debt or liability is owed, when contracted, the terms and conditions, including the repayment schedules of the debts and other financial liabilities;
- c) **Output of sub-Task 3(c):** A Report on the financial structure and capital with recommended changes; and,
- d) **Output of sub-Task 3(d):** A Report on detailed assessment of needs and implementation plan for setting up accounting/treasury functions for the TSO.

3.4.3 Timetable for Completion

The tentative timetable for completing Task 3 (Subtasks (a) through (d)) is in the first quarter of 2016. The schedule of this Task will need to be coordinated with TANESCO's

asset registration and valuation study. The WG informed us in May that TANESCO was in the process of selecting a consulting firm for the study. This study is required by the Roadmap. In addition, we will coordinate with technical assistance projects in regard to TANESCO's finance and accounting activities, especially MCC through its Compact development work, and the World Bank Energy Sector Capacity Building Project.

3.4.4 Initial Issues Identified

At present, TANESCO's financial statements are prepared for the entire corporation. Most of the existing revenues and operating expenses are aggregated, and do not have specific figures for Transmission Division. To develop a financial model for the TSO and prepare financial performance forecasts for the TSO, all the sales, revenues, operating costs, financing costs, etc. need to be specific to the TSO. Some of the data are relatively easy to transfer to the TSO such as fixed assets, and asset-based loans and financing costs. However, most of other cost and expense data will require detailed analyses before appropriate allocation to the TSO can be made.

Furthermore, there is currently no transmission tariff in the power sector, thus Transmission Division does not have any reported revenues. Initially, transmission charges and revenues can be assumed in order to prepare the pro-forma financial statements and financial performance forecasts for the TSO. This also applies to transfer of TANESCO's account receivables to the TSO. However, financial performance analyses to be used for developing TSO business plan should be based on more realistic input data. As noted previously, we have already submitted a request to the WG for all input data that will be required by the financial model (please see Appendix A). As an initial step, this Task will review TANESCO's existing revenue and cost data, and recommend appropriate methods/assumptions for allocation to the TSO.

USAID may want to consider a new study to estimate preliminary transmission use of system (TUOS) charges and grid system operation/management charges for the purpose of financial performance analysis of the TSO. Typically, the regulation and methodology on development of TUOS and grid management charges are established by the regulator.

3.5 TASK 4 - BUSINESS PLAN, INCLUDING INVESTMENT AND DEVELOPMENT PROGRAM

The objectives of Task 4 are to assist TSO staff to prepare (i) a comprehensive Business Plan, and (ii) a detailed Investment and Development Program for the period 2016 to 2020.

3.5.1 Activities to Be Undertaken

We will carry out the following activities to achieve the above-mentioned objectives:

- a) Assist TSO staff in preparing a detailed Investment and Development Program for the period 2016 to 2020. This subtask will be based on the results of Task 1 on Market and Demand Forecast Analysis, and Task 2 on Survey of the Present State of the Transmission Network and Investment Requirements. It should cover as a minimum: (i) repairs and modernization of the existing transmission network, (ii) new transmission projects, (iii) hardware and software equipment for a proper automatic metering at transmission and distribution interfaces and data acquisition system, and (iv) energy management system and associated communication and control equipment necessary for efficient grid control and power scheduling, and providing ancillary services (e.g., load following, grid voltage and frequency regulation, spinning reserve, black start reserve, etc.). All funds required,

regardless their funding sources and terms and conditions, will be treated as investments and recorded as such on TSO's balance sheet; and,

- b) Assist TSO staff in developing a Business Plan reflecting TSO needs, demand and market forecasts, investment requirements (results of the above Subtask a)), financial performance forecasts, sound balance sheet, and human resources development and capacity building requirements. The Business Plan will comprise the following:
 - i. Vision and Mission statements.
 - ii. Assessment of key external factors including legal, regulatory and policy environment and social impact assessment, including attention to gender impact.
 - iii. Analysis of external economic and market opportunities and threats, selecting appropriate corporate strategies and plans for tariff structure and implementation, management of account receivables and improvement of system of collecting receivables in due time, and corporate restructuring.
 - iv. Assessment of key internal factors: Analysis of the structure evolution up to 2020; Functional reorganization required in each stage of the structure evolution, including functional unbundling of different energy related activities; and financial ratios.
 - v. Detailed financial projections covering the period up to year 2020, including proposed Investment and Development Program.
 - vi. Review of technical and financial performance indicators.
 - vii. Objectives to be met in order to progress from phase to phase.
 - viii. Sensitivity analysis of the Business Plan critical items of regulatory, economic and market variables.

3.5.2 Expected Outputs and Deliverables

- a) The Business Plan covering the above-listed requirements at a minimum. Supporting financial model(s) in Excel should be developed along with instructions for use of such model(s). Advisory Team will organize a workshop to present the Business Plan and developed financial model(s). These deliverables will be finalized incorporating the relevant comments from key stakeholders; and,
- b) The Business Plan will contain the proposed Investment and Development Program, including forecasted costs. We will make a presentation of the proposed Investment and Development Program for key stakeholders and update the Program based on comments received.

3.5.3 Timetable for Completion

The timetable of Task 4 is driven by the schedule of Task 1, Task 2, and Task 3. The tentative estimated completion date is May 2016.

3.5.4 Initial Issues Identified

We have briefly reviewed TANESCO 2015 Corporate Business Plan including financial performance projections and Capital Investment Program for the period 2015 to 2019.

Although it is not a TSO business plan, review and analysis of TANESCO 2015 Corporate Business Plan will help Advisory Team identify the areas that need to be focused when assisting TSO staff in preparing a business plan for the TSO.

As noted before, TANESCO's 2015 to 2019 Capital Investment Program has a total investment requirement of TZS 2.4 trillion for the period 2015 to 2019. However, no financial or economic analysis results, such as the financial internal rate of return or the economic internal rate of return, were presented in the Capital Investment Program. The Capital Investment Program does not show a tariff impact analysis either. A tariff impact analysis should be carried out for proposed transmission capital investments. We will work with the WG to review the investment project financial, economic and tariff impact analyses, if available.

TANESCO had reported large losses in the past three consecutive years (TZS 177 billion in 2012, TZS 468 billion in 2013, and TZS 25 billion in 2014). If TANESCO has been losing money, it would be difficult to expect the spun-off TSO to be financially viable and sustainable.

TANESCO main financial problems stem from (i) below-cost tariffs, (ii) poor revenue collection (revenue metering problems, bills understated, collection lagging, large bad debts, etc.), (iii) excessive account receivables and bad debts, (iv) deteriorating power system infrastructure and generation plants due to the lack of capital investments in the 10 to 15 year period following the Government's privatization attempt started in 1997, and (v) serious human resource gaps caused by a long period of hiring freeze in the past one and half decades. The deteriorating power system has caused excessive power outages and load shedding, and worsened TANESCO's financial problems from using expensive emergency power generation. USAID may want to consider a new study to address these deep-rooted causes for TANESCO's financial problems and develop practical mitigating measures.

3.6 TASK 5 – HUMAN RESOURCES DEVELOPMENT AND TRAINING

The objectives of Task 5 are to assist in developing human resources management function and organization, identifying the training needs, and developing and implementing a training program for the TSO.

3.6.1 Activities to Be Undertaken

The activities to be undertaken include:

- a) Development of Human Resources (HR) Management Function and Organization
 - i. Assist in developing the HR function in the TSO – to establish an overall policy structure and HR strategy and to advise on roles and responsibilities in the function.
 - ii. Assist in developing appropriate organization for training and HR development, including assistance on how to establish administrative systems, procedures and the supporting administration for organizing training, together with suitable facilities to ensure sustainable training. The use of existing training facilities of TANESCO on a contract basis will be examined.

- iii. Assist in supporting the initiation of development and establishment of a management appraisal system for the new HR function.
- b) Training Needs Analysis and Training Program Implementation
- i. Assess the training needs of the TSO staff, with consideration to gender and minority inclusion, and based on this assessment propose a training program. The training program will include: design and implementation of an organizational strategy, financial and accounting issues, business plan development, tariff calculations and pricing, market operation process and system operation, and system planning, power system modelling and load forecasting.
 - ii. Initiate implementation of the proposed training program for: executive level, managerial level, and operational level.

3.6.2 Expected Outputs and Deliverables

- a) **Outputs of sub-Task 5(a):** A Report setting out the proposed organization and steps required to establish an HR function in the TSO. The Report will address the proposed organization of training and support needed to initiate and develop a management appraisal system for the HR function. The Report will include policy on cross-cutting issues: gender equality and minority inclusion, while indicators for measuring cross-cutting policy implementation will also be defined and accompanied by an action plan. The Report will include a proposed employee compensation policy.
- b) **Outputs of sub-Task 5(b):** (i) A Report summarizing the training needs assessment and laying out a proposed training program, including defining means of program implementation (e.g., seminars, workshops, etc.). (ii) The training program will be implemented through workshops, on-the-job training, and training study tours. At least two training study tours of two weeks duration will be provided for the staff of executive and managerial levels and operational staff. The training tours should be organized to a country with established TSOs. Training at all levels will include, as appropriate, awareness raising on the socially related aspects of the restructured power sector.

3.6.3 Timetable for Completion

It is proposed that Task 5 be initiated around November 2015, or about two months after Task 4 on Business Plan development starts. Thus, development of HR function and training strategy can be coordinated with the development of TSO Business Plan. The expected completion date for the Task reports is April 2016. Implementation of training, including study tours, is expected to take place from May 2016 to the completion date of the WO in October 2016 (i.e., in the year two of the WO).

3.6.4 Initial Issues Identified

During the definitional mission to Tanzania in May, we observed that there is human resources gap within TANESCO. The TSO WG members are mostly young professionals in their 20's or 30's. Above them are senior executives and managers in their 50's who will be retiring soon. This human resource gap is a result of a long hiring freeze imposed in the past one and half decades. These young professional are good at keeping the lights on, but they may lack the skills and experience to transform the existing Transmission Division into a fully operational and commercially focused TSO. This Task will take into

consideration this HR issue in developing HR development strategy and training program for the TSO.

3.7 TASK 6 – DEVELOPMENT OF A QUALITY MANAGEMENT SYSTEM

This Task will be deferred to the Year Two Work Plan

3.8 TASK 7 – POLICY FOR SAFEGUARD MEASURES

The objective of Task 7 is to develop a policy for safeguard measures in case of the physical safety or security of persons and electrical installations. Safety is an important part of electric utility business. However, TANESCO currently does not have a corporate safety policy, or a senior safety officer, or a safety department responsible for the safety of its workforce and facilities, and elimination and/or control of potential public safety hazards from its activities.

3.8.1 Activity to Be Undertaken

We will work with TSO staff to develop a safety policy for the TSO to ensure the safety of TSO workforce (including its contractors) and facilities, and prevention and/or control of potential public safety hazards from TSO's activities. We will submit the recommended policy to the Board of the TSO for approval per the WO. If the Board of the TSO is not established during the course of the WO implementation, we will submit the recommended policy to the Deputy Managing Director for Transmission at TANESCO.

3.8.2 Expected Output and Deliverable

Recommended policy for safeguard measures for the TSO.

3.8.3 Timetable for Completion

The expected completion date for the recommended policy is May 2016, subject to the conditions explained in Subsection 3.8.1.

3.8.4 Initial Issues Identified

MCC through its Compact development work had provided a technical assistance to TANESCO in developing a draft occupational health and safety policy and creating a safety department. We will inquire MCA Tanzania regarding the status of this technical assistance, and review that draft safety policy (if available) to determine what changes or modifications need to be made for consideration by the TSO.

The other aspects of the TSO safety (including power failure) issues may relate to the deteriorating transmission system (transmission lines, substations, transformers, control and communication equipment, etc.). We propose to address this safety issue through Task 2 on Survey of the Present State of the Existing Transmission Network and Investment Requirements.

Updating and enforcing Grid Code for the grid safety is the responsibility of the EWURA. EWURA has engaged a consulting team sponsored by EU to update the Grid Code to be suitable for the restructured power sector. If the TSO is requested by the EWURA, we will assist the TSO staff to review the updates of the Grid Code in regard to grid safety prepared by the EWURA's consultants.

4. KEY PERSONNEL AND OVERALL TASK IMPLEMENTATION SCHEDULE

4.1 KEY PERSONNEL

Exhibit 1 shows our personnel plan. The duties and responsibilities of the key positions are summarized below:

The Resident Team Leader - will be responsible for managing the WO implementation, and ensuring that results, quality standards and schedules are met within the WO budget. The Team Leader will manage implementation of tasks according to the approved Work Plan, and perform quality control of all tasks outputs and deliverables to ensure the WO's objectives are achieved. The Team Leader will establish a residence in Dar es Salaam throughout the WO duration to maintain close working relationship and communications with TANESCO and USAID/Tanzania. The Team Leader will also manage the deployment of Task Leaders and the schedules of other additional short term advisors as needed. The Team Leader will be the single point of contact for the WO.

Task Leaders – will be responsible for implementing their assigned tasks, producing high quality task outputs and deliverables, preparing task monthly progress reports, and conducting the required workshops, conferences and training. They report to the Resident Team Leader. They are also required to provide support to implementation of other tasks as many of the tasks of the WO are interrelated. This will ensure that all the task (and subtask) outputs and deliverables are consistent and coherent.

Additional Short Term Advisors – will be deployed to provide specific expertise and support, if needed. Tetra Tech ES, Inc. and its subcontractors, Nexant, and BDO together have a large pool of highly qualified advisors available for the WO if needed.

The proposed key personnel are summarized below:

Armen Arzumanyan - The Resident Team Leader

Mr. Arzumanyan has more than 30 years of experience in energy sector. He has served as Chief of Party or Deputy Chief of Party on multiple USAID funded projects, which have involved leading teams of international and local professionals tasked with developing and implementing power sector reform programs. He has provided expert advice on power sector reforms covering restructuring of power utilities, utility management and performance, power system planning and operations, power market design and others. Mr. Arzumanyan is also experienced in utility commercialization and management performance improvement, regional power system integration, power market development, and power sector regulatory reform. Mr. Arzumanyan's curriculum vitae is shown in Appendix B.

Ajit Kulkarni - Leader for Task1: Market Analysis, Forecast and Planning

For over 25 years, Dr. Kulkarni has focused on solving many of the energy industry's unique issues involving power system planning, screening and feasibility studies, market restructuring, integrated resource planning, generation and transmission studies, interconnection, congestion/curtailment, unit commitment and dispatch, production costing, optimal power flow, power flow, reliability compliance, financial transmission rights and congestion revenue rights analysis, and system impacts. His extensive experience includes power systems analysis, generation and transmission studies, modelling,

simulations, algorithms, and software development. He has worked in the power sector in a number of countries in Africa.

Tony Rodrigues - Leader for Task 2: Survey of the Present State of the Existing Transmission Network and Investment Requirements

Mr. Rodrigues has more than 35 years of electrical utility experience in power system planning and expansion, and operations. When working for PacifiCorp, a large electric utility in the USA, he was responsible for managing transmission and distribution expansion, operation and maintenance. During his 28 years career at the US Government Power Agency-Bonneville Power Administration, he was the transmission system planning manager responsible for review of plans, studies, and schedules for expanding transmission network and determination of ownership and network operation and maintenance. He has conducted workshops and trainings on grid system operation and improvement in a number of African countries, including Tanzania, Ghana, Botswana, and Namibia

Tom Smith – Co-Leader for Task 3: Financial Model and Performance, Registries of Assets and Liabilities, and Financial Structure

Mr. Smith has extensive financial experience in the electric utility industry in the U.S. and internationally, holding a variety of responsible management positions over a period of 23 years. In the US, he served as Chief Financial Officer of a subsidiary of Detroit Edison (a large electric utility), as well as Director of Budget and Management for Detroit Edison. Since 1998, Mr. Smith has worked on international energy engagements in over 10 countries. He has been retained as a technical and policy expert on electricity company management, financial forecasting and planning, energy supply/demand forecasting, electricity tariff policy, and energy sector regulation. Mr. Smith is a Chartered Financial Analyst and also a Certified Management Accountant.

Carl Bosma – Co-Leader for Task 3: Accounting and Treasury Function, and Risk Management.

Mr. Bosma is a Chartered Accountant in South Africa, working for BDO South Africa. He has a wide range of accounting, auditing, due diligence, risk assessment and management, and Corporate Governance experience.

Michael Cheng - Leader for Task 4: Business Plan, Including Investment and Development Program

Mr. Cheng has 40 years of experience in energy sector, including 15 years working for a large electric utility in the USA, and 25 years as a consultant to advise power sector restructuring and reform, power utility management and performance, power system planning and investments, utility financial performance, tariff setting methodology and others. He has provided advice in developing and implementing power sector reform or utility restructuring in Vietnam, the Philippines, China, Samoa, Indonesia, Kyrgyzstan, and Tajikistan.

Tatyana Marshall - Leader for Task 5: Human Resources Development and Training

Ms. Marshall has 19 years of experience in providing advice to power sector reform, electric utility restructuring, utility human resources functions and development, human resources training, power market development and others. She has performed analysis and streamlining of human resources functions, assessment of training needs, and

development of training program and its implementation for national electric utilities in Georgia, Kosovo and Kyrgyzstan.

Jairo Gutierrez - Leader for Task 7: Policy for Safeguard Measures

Mr. Gutierrez has more than 24 years of experience in energy sector focusing on technical assistance in technical, institutional and regulatory assignments in the energy sector in the US, Latin America, Middle East, South East Asia and Africa. He has been providing technical assistance to MCC Africa Energy initiative in the development of new Compacts in the energy sectors focusing on power system expansion and rehabilitation projects in Tanzania, Benin, and Ghana. He also participated in the development and improvement of the Grid Code in Indonesia and the Philippines in regard to enhancement to power grid safety.

Krassimir Kanev – Short Term Advisor (for multiple tasks as shown in Exhibit 1)

Krassimir Kanev has more than 20 years of experience in electricity, gas, and water sector reform, including unbundling, privatization, and commercialization of utilities. He has been advising utilities on both technical and financial issues in the process of introducing industry best practices, including strategic and operational planning, budgeting and financial management, implementation of smart grids, design and implementation of management information systems (asset and inventory management, human resources management, treasury management, customer service and call centers, etc.), business process re-engineering and risk management. Mr. Kanev is an ex-Chief Financial Officer of a 12,000 MW utility and is an expert in utility accounting and financial management and financial modelling for the purposes of in-depth economic and sensitivity analysis and business planning, and investment project appraisal. He has served as member of international panels of experts appointed by governments and International Financial Institutions to provide recommendations and resolve disputes over complex financial, regulatory, tax and privatization issues.

Masoud Keyan – Short Term Advisor (for multiple tasks as shown in Exhibit 1)

Mr. Keyan has more than 36 years of experience in energy sector. His expertise covers: power sector restructuring and institutional reform, executive training and development, regulation, power market assessment and development, privatization, commercialization, planning, business plan development, asset management, long-term independent power project contract negotiation, fuel and power supply assessment and fuel and power (purchase and sale) contract negotiation, asset evaluation and divestiture, project development and management, least-cost resource planning, system dispatching, project financing, and re-engineering of utility operations and management of change.

4.2 TASK IMPLEMENTATION SCHEDULE

Exhibit 2 is the Year One Work Plan condensed into a table showing the timeframe for each of the seven Tasks and their Subtasks.

As mentioned earlier, a list of preliminary data requests for each of the seven Tasks and their Subtasks was submitted to the TSO WG in mid-June (Appendix A) to ensure an early start of the WO implementation. The Draft Year One Work Plan will be submitted to USAID/Tanzania and TANESCO before July 6, 2015.

Advisory Team, consisting of Ajit Kulkarni, Tony Rodrigues, and Michael Cheng, will be traveling to Tanzania July 5 to 25, to start working with TSO WG to review and analyze the available data, studies, reports and other documents, and identify data and information gaps for all tasks. We requested the TSO WG to provide the requested data to the extent possible prior to our upcoming mission.

We also propose to work with TANESCO and USAID/Tanzania to move the draft Year One Work Plan to final in the first part of the mission. Once the Year One Work Plan is approved by USAID/Tanzania and TANESCO, we will firm up the schedule to field the Resident Team Leader, and Task Leaders to Tanzania to start implementing their assigned tasks.

Based on the initial reconnaissance conducted during the definitional mission in May, it is proposed that we start working on Task 1: Market Analysis Forecast and Planning, Task 2: Survey of the State of the Existing Transmission Network and Investment Requirements, Task 3: Financial and Accounting, and Task 4: Business Plan first in July and August 2015. Other Tasks that rely on outputs of Tasks 1 through 4 are proposed to be started a couple of months later when Tasks 1 through 4 have completed preliminary analyses. The expected task duration and completion time are also shown in Exhibit 2. It should be noted Tasks 3, 4 and 5 need to be coordinated with certain on-going studies (as noted in Section 3) so their completion dates will need to be adjusted to accommodate the actual schedules of those on-going studies.

EXHIBIT 1: PERSONNEL PLAN

WORK ORDER RESIDENT TEAM LEADER: Armen Arzumanyan		
TASK	TASK LEADER	SUPPORTING ADVISORS */
1: Market Analysis, Forecast and Planning	Ajit Kulkarni	Michael Cheng; Tony Rodrigues; Masoud Keyan; Krassimir Kanev
2: Survey of the Present State of the Transmission Network & Investment Requirements	Tony Rodrigues	Armen Arzumanyan; Ajit Kulkarni; Michael Cheng; Masoud Keyan
3: Financial, Accounting & Treasury Function		
3-A: Financial model, Financial Performance, Registries of Assets & Liabilities, Financial Structure	Tom Smith	Krassimir Kanev; Masoud Keyan; Michael Cheng
3-B: Accounting, Treasury Function, & Risk Management	Carl Bosma	Tom Smith; Krassimir Kanev
4: Business Plan, including Investment and Development Program	Michael Cheng	Armen Arzumanyan; Tony Rodrigues; Masoud Keyan; Jairo Gutierrez
5: Human Resources Development and Training	Tatyana Marshall	Armen Arzumanyan; Masoud Keyan; Michael Cheng
6: Development of a Quality Management	TBD	
7: Policy for Safeguard Measures	Jairo Gutierrez	Michael Cheng; Tony Rodrigues
*/: Additional short term advisors are available if needed.		

EXHIBIT 2: Task Implementation Schedule- Draft Year One Work Plan for Support to the Launch of Transmission System Organization (Tanzania)

TASKS	2015						2016					
	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May
A. PLANNING, REPORTING, COMMUNICATIONS & CONSULTATIONS												
1. Preparation of Year One Work Plan												
2. Monthly Progress Reports												
3. Executive Conferences (USAID, TANESCO, EWURA, MEM, MOF, MCC, EU, etc.)												
4. Task reports/outputs												
B. SCOPE OF WORK												
<i>TASK 1: Market Analysis Forecast and Planning - Provide on-going advice and support to TSO to:</i>												
i. Assist TSO staff to contribute to the IRRP-led least cost resource planning, including review of the methodology												
ii. Assist in preparing the methodology for data gathering for Annual Power Balances, Long Term Transmission Plan & updates												
iii. Workshop on the methodology for data gathering, & preparing Annual Power Balances & LT Transmission Plan												
<i>TASK 2: Survey of Present State of the Transmission Network & Investment Requirements</i>												
i. Evaluate the department responsible for O & M of the transmission system												
ii. Evaluate the department responsible for future transmission system development												
iii. Evaluate tools/software used for transmission system planning and generator connection studies & staff's competency												
iv. Prepare a draft policy framework for sharing and updating transmission system modeling data												
v. Propose a new team and assist the team to develop a transmission capital expenditure plan based on existing studies												
vi. Develop a program to conduct a conditional assessment of transmission system												
vii. Determine the demarcation between transmission and distribution, & assess metering interface and metering regime												
<i>TASK 3: Financial and Accounting Including Treasury Function</i>												
<i>Sub-Task 3 a): Financial Performance and Risk Management</i>												
i. Develop a financial model (in MS Excel) of the transmission company												
ii. Assist TSO staff in preparing a 5-year financial performance forecast including risk assessment using the created model												
<i>Sub-Task 3 b): Accurate Registries of Assets (Assets, Current and Receivables) & Liabilities (debt and other liabilities)</i>												
i. Review the Fixed Asset Register for TSO prepared in the project for Incorporation of TANESCO												
ii. Review & classify receivables and other current assets assumed by TSO & recommend measures to reduce receivables												
iii. Review debts and financial responsibilities of TSO and recommend measures to reduce them												
<i>Sub-Task 3c): Financial Structure/Capital</i>												
i. Review TSO's financial structure and capital and recommend improvements in the Balance Sheet & financial performance												
<i>Sub-Task 3 d): Accounting/treasury function</i>												
i. Review existing documents and modules/systems of accounting/treasury functions in the TSO												
ii. Determine the needs and develop implementation plan for setting up accounting/treasury functions for the TSO												
<i>TASK 4: Business Plan, including Investment and Development Program (IDP)</i>												
i. Assist in preparing a Business Plan (BP) for the TSO for the period 2016 to 2020												
ii. Workshop to present the BP and developed financial models and incorporate comments received into final BP												
iii. Assist in preparing an IDP for the period 2016 to 2020 based on results of Tasks 1 & 2												
iv. Workshop to present IDP and incorporate comments received into final IDP												
<i>TASK 5: Human Resource (HR) Development and Training</i>												
<i>Sub-Task 5 a): Develop HR Management Function and Organization</i>												
i. Assist in developing the HR organization and HR function in the TSO												
ii. Assist in developing appropriate organization for training and HR development												
iii. Assist in developing a management appraisal system for the new HR functions												
<i>Sub-Task 5 b): Training needs analysis and training program implementation</i>												
i. Assess training needs and propose a training program												
ii. Implement training program through workshops, on-the-job training, and two training study tours												
<i>TASK 6: Development of a Quality Management System (QMS)</i>												
i. Survey the operations of the TSO & identify the needs and propose a program to introduce QMS in the TSO												
ii. Develop a QMS training program for the TSO												
<i>TASK 7: Policy for safeguard measures</i>												
i. Assisting in developing a policy for safeguard measures												

APPENDIX A: PRELIMINARY DATA REQUEST SUBMITTED TO TANESCO TSO WORKING GROUP

USAID Power Africa Transaction and Reform Partnership Program
Work Order Number: WO-047-TZ-03
Support to the Launch of Transmission System Organization (Tanzania)
Preliminary Data Requests - I

We will appreciate it if TANESCO can provide the data and documents listed below that are necessary for carrying out the tasks specified in the Work Order (WO):

Task 1: Market Analysis, Forecast and Planning

1.1 – Please provide a description of the current process of developing annual power balances and mid- to long-term demand and supply (generation) forecasting for the purpose of transmission system planning; please summarize (i) the TANESCO departments and other stakeholders such as independent power producers (IPP), existing and prospective large electricity users, Rural Electrification Agency (REA), the Ministry of Energy and Minerals (MEM), Energy and Water Utilities Regulatory Authority (EWURA), etc., involved in the process, (ii) the roles of the involved TANESCO departments and other stakeholders, (iii) the methodologies, and tools/models used in the generation and demand forecasting, (iv) procedures for input data collection and sharing of demand and supply forecast results, and (v) review and approval of the annual energy balances and demand and supply forecasts.

1.2 – Please provide a description of the current least cost resources planning process, if applicable, and elaborate the methodologies/tools and criteria used to evaluate generation, transmission, and demand side options to achieve the least cost resource plan, i.e., the Integrated Resources Planning (IRP) approach.

1.3 – Please provide a description of the schedule for preparing and updating the Power System Master Plan (PSMP); the roles of the MEM, EWURA, REA, TANESCO, and other industry stakeholders; the review, public consultation and approval of the PSMP; and the use of the PSMP in the regulatory proceedings for approving TANESCO's capital investments and electricity tariffs.

1.4 – What is the status of the Integrated Resources and Resiliency Planning Program (IRRP) sponsored by USAID Tanzania to assist TANESCO to implement IRRP?

1.5 – Please describe any efforts to coordinate efforts, procedures, methods, tools and the like for the IRRP, least cost resources plan, PSMP, power balances, etc.

1.6 – Please describe the current coordination or transition, if any, of the medium term plan, to the short term plan used by the Grid Control Center.

Task 2: Survey of the Present State of the Transmission Network and Investment Requirements

2.1 – What department and units within TANESCO are responsible for maintenance and operating of the existing transmission systems, and preparing and approving plans for upgrading and refurbishment of the existing transmission system?

2.2 - Please describe TANESCO's policies, principles, criteria, methodologies, tools, models, and procedures used to evaluate the existing transmission system, and to prepare and approve investment plans for upgrading and refurbishment of the existing transmission system.

2.3 – What departments and units within TANESCO are responsible for transmission system planning and expansion, and preparing and approving investment plans for new and/or expansion of transmission system? If multiple departments are involved, please describe the roles of each and how they coordinate with each other.

2.4 – Please describe TANESCO's policies, principles, criteria, methodologies, and procedures used to perform transmission system planning and expansion, and prepare and approve transmission system expansion investments.

2.5 – What are the regulatory methodology and criteria used to evaluate and approve TANESCO's application for transmission system capital investments covering both (i) upgrading and refurbishment of the existing transmission system, and (ii) new and expanded transmission system?

2.6 – What are TANESCO's policies, practices, and/or requirements for sharing and/or reporting TANESCO's transmission system planning and expansion results and data with other parties, including MEM, EWURA, REA, IPP, etc.?

2.7 – Please provide a recent “conditional assessment report of the transmission system”, if available.

2.8 – Please provide information on the current Automatic Metering Systems installed at the transmission and distribution interfaces regarding the location (substation name), meter brand name, what are metered, metering voltage, how the metered data are transmitted and processed, how the processed metered data are used (e.g., in power balances and energy loss analysis, billing, etc.), and the locations (distribution feeders at substations) of the Automatic Metering Systems. Which departments are responsible for the meters (maintenance, collection of data)?

2.9 – Please provide (i) a base-case power flow analysis that reflects the 2015 transmission system, load and generation supply, and (ii) actual transformer tap setting at substations (needed for updating the power flow analysis).

2.10 - Please provide information on the current demarcation of generation, transmission and distribution assets between TANESCO's Generation, Transmission and Distribution Business Units.

2.11 – What is the status of TANESCO's implementation of Automatic Generation Control?

Task 3: Financial and Accounting, including Treasury Function

a) Financial Performance and Risk Management

3.1 – Please provide the flowing input data for the financial model to be developed for the Transmission Business Unit:

(i) Historical (2010 to 2014) and projected volumes of power (2015 to 2020), separated by domestic power and cross-border wheeling power, to be transmitted through TANESCO's transmission network.

(ii) Historical and projected energy losses on the transmission network.

(iii) Status of accounts receivable and any write-offs or other adjustments that have or might impact transmission revenues.

(iv) Transmission revenues, if any. (TANESCO Working Group indicated this information is currently not available).

(v) Historical and projected "other operating incomes" – government contributions to transmission system, revenue grants from donors, amortization of deferred capital grants, etc.

(vi) Historical and projected "cost of sales" and "operating expenses" – staff costs; employee benefit expenses (salaries, wages, social security costs, long service awards, skills and development levy, etc.), depreciation; repairs and maintenance costs; legal expenses, audit fees; consultancy expenses; transport and travel expenses; telephone, cable and communications costs; security expenses; insurance costs; consumable office and stores; property and other taxes; other administrative costs; foreign exchange differences; financing costs; income tax rates; etc.

(vii) Any previous financial models developed by the Transmission Business Unit (TBU/TSO), or by TANESCO that attempts to identify or treat any aspects of the TBU/TSO separately.

b) Accurate Registries of Assets (Assets, Current and Receivables) and Liabilities (Debt and Other Financial Liabilities)

3.2 – Please provide the status of TANESCO's studies on (i) accurate registration of generation, transmission and distribution assets, and (ii) revaluation of generation, transmission and distribution assets as required by the Electricity Supply Industry Reform Strategy and 2014 to 2015 Roadmap (the Roadmap) (expected completion date in the Roadmap: Dec. 2014).

3.3 – Please provide detailed information on each of TANESCO's transmission assets – book values (or reassessed values), economic lives, depreciation methods, accumulative depreciations, and remaining values. TANESCO's 2013 Annual Report indicated that TANESCO owned 2,732.36 Km of 220 KV; 1,538.5 Km of 132 KV and 546 Km of 66 KV transmission lines, and 43 high voltages grid substations. Since then, more high-voltage transmission lines and substations have been constructed.

3.4 – Please provide a copy of 2009 asset revaluation study report (TANESCO's 2013 Annual Report indicated an asset revaluation study was conducted in 2009).

3.5 – Please provide information on TANESCO's current asset registration systems.

3.6 – Please provide information on TANESCO's current assets (inventories, receivables, bank and cash balances, etc.) to be assumed by the TSO, and TANESCO's current practice and strategy of managing account receivables.

3.7 – Please provide information on TANESCO’s current and non-current liabilities, including borrowings and payables, to be transferred to the TSO, and TANESCO’s current practice and strategy of managing current and non-current liabilities.

3.8 - Please provide information on TANESCO’s current strategy and control systems of identifying, managing, and monitoring risks including financial risk (e.g., below cost tariffs, foreign exchange risk, credit risk, liquidity risk), market risk (e.g., demand less than expected, large consumer on-site generation), and operation risk (e.g., major power outages).

c) Financial/Capital Structure

3.9 – TANESCO is 100% owned by the Government of Tanzania. Please provide any information on the % of the Company’s shares issued and fully paid by the Government attributable to the Transmission Business Unit.

d) Accounting/Treasury Function

3.10 – Please provide existing policies, guidelines, procedures, documents, modules/systems used to create the accounting and treasury functions, and prepare the accounting and financial reports. These may include: (i) General Ledger, (ii) information and management and performance measuring system, (iii) administrative document, (iv) internal audits, and (v) risk management and control.

3.11 – Please provide the status of the audit of TANESCO’s Management Information System as required by the Roadmap (expected completion date: June 2015).

Task 4: Business Plan, including Investment and Development Program

4.1 - What are the roles and responsibilities of the “Transmission Business Unit (TBU)” and the “Investment Business Unit (IBU)” in determination of investment needed for the transmission system. Some of TANESCO 2015 Corporate Business Plan’s (CBP) 2015 to 2019 Transmission Capital Investment Program (Appendix D) are the responsibility of TBU while others are the responsibility of IBU. How are the transmission investment projects divided between the TBU and IBU?

4.2 - What analyses were performed to support the large number of projects included in the 2015 to 2019 Capital Investment Program. The total generation, transmission and distribution capital requirements of the 2015 to 2019 Capital Investment Program amount to 2.41 trillion TZS. The CBP 2015 assumes 1.49 trillion TZS of the 2.41 trillion TZS will be funded through TANESCO funds (through tariffs) and the remainder to be funded by donors and the Government of Tanzania. However, TANESCO’s total cumulative income in the 2015 to 2019 period is estimated to be 0.36 trillion TZS, or 15% of the estimated capital requirement of 2.41 trillion TZS. What are TANESCO’s policy and strategy to ensure TANESCO will be able to finance all the capital investment projects in the Corporate Business Plan?

4.3 - Please provide information on how the transmission assets that are funded by grants from the Government of Tanzania and donors, and loans from donors are treated and reported in TANESCO’s balance sheet.

4.4 – Please provide a copy of the Government’s Big Results Now (BRN) Programme, and all the Power System Expansion and Investments projects included in the BRN and their funding strategy.

4.5 - What are TANESCO’s policies and/or guidelines regarding periodic asset revaluation, and treatment and recording of revaluated assets and accumulative depreciations in the balance sheet?

Task 5: Human Resources Development and Training

a) Development of Human Resources Management Function and Organization

5.1 – Please provide information on TANESCO’s current organization charts, functions, and staffing level of each unit within the department for (i) Human Resources Department, and (ii) Transmission Business Unit.

5.2 - Please also provide information on the positions in TANESCO’s other Business Units including Investment and Planning; Finance; Information, Communication and Technology; Procurement Unit; Company Secretary; Communication and Public Relation whose responsibilities are primarily for the transmission business, if applicable. Please provide information on how much effort is spent by each for the shared business units in providing service to the Transmission Business Unit.

5.3 – Please provide existing policies, strategy, objectives, guidelines and/or procedures for human resources management, development, compensation, employee benefit, job-leveling, recruiting, succession planning, performance appraisal, performance incentive, promotion, and employment termination.

b) Training Needs Analysis and Training Program Implementation

5.4 - Please provide existing policies, programs, procedures and budgets for employee training, and manpower development. It was reported that TANESCO spent 3.5 billion TZS on employee training in 2013.

5.5 – Please provide status of the assessment of capacity building needs for TANESCO as required by the Roadmap (expected completion date: March 2015).

5.6 – Please provide us a copy of (or access to) the Training Needs Analysis report carried out last year by REDMA.

Task 6: Development of a Quality Management System (data request will be provided later)

Task 7: Policy for Safeguard Measures

7.1 – Please provide existing policy and/or guidelines for safeguard measures in case of crisis of the physical safety or security of personnel and electrical installations.

7.2 – Please provide a list of system operating procedures and system dispatch orders, and describe any efforts to ensure internal policies and procedures are compliant with the Grid Code.

7.3 – Please provide information on the number of existing Under Frequency relays, and the amount of peak load that can be dropped.

Curriculum Vitae of Armen Arzumanyan, the proposed Resident Team Leader

Education	The George Washington University, School of Business and Public Management, 2004 Post Graduate Study, Moscow Energy Institute, 1988 Diploma, Electrical Engineering, Yerevan Polytechnic Institute, 1982
Countries of Experience	Armenia, Kyrgyzstan, Kazakhstan, Tajikistan, Mongolia, Afghanistan, Russia, Georgia...
Languages	English, Russian, Armenian

Mr. Arzumanyan is a Director at Tetra Tech ES, Inc. He has served as Chief of Party or Deputy Chief of Party on multiple USAID funded projects, where he has led large teams of local and foreign professionals, successfully negotiating large reform programs with national governments and implementing regional integration projects. Mr. Arzumanyan advised governments in energy sector reforms, focusing on energy policy, power market design, utility operations and regulations, large power systems stability and synchronous operations. Mr. Arzumanyan has developed and negotiated with national governments large restructuring programs and multi-nation regional power integration and cooperation programs. Mr. Arzumanyan has specific experience in developing legal and regulatory frameworks, market structures and rules, and technical standards, managing utility commercialization programs, etc.

Activity Manager – LEADS in E&E, US Agency for International Development/Washington, LEADS Armenia Activity, August 2013 – February 2015.

Mr. Arzumanyan has led the Armenia activity, which included four tasks: development of Armenia Least Cost Generation Plan; assistance to the Government of Armenia in developing new nuclear unit and in life extension of the existing nuclear unit; assistance to the Armenia regulatory commission in developing rules and regulations; and integration into the regional grid through Georgia power system. Mr. Arzumanyan played a key role in development of a consensus between Armenia and Georgia power sector officials on system integration, development and approval of legal and regulatory documents for regional integration and Armenia power market design, development of Armenia energy sector least cost development plan and Armenia energy strategy, etc.

Short Term Advisor – US Agency for International Development/Central Asia, Regional Energy Security, Efficiency and Trade (RESET) project, 2013-to date.

Mr. Arzumanyan has managed the cross-border power line construction project, which was designed to provide power from Gorno-Badakhshan Region of Tajikistan to the neighboring Afghanistan. The task includes examination of technical specifications, compliance to safety requirements and quality of works during construction of transmission lines and distribution networks in Tajikistan and Afghanistan. Mr. Arzumanyan managed the Central Asia Grid Stability Analysis with consideration of development of CASA-1000.

Chief of Party, US Agency for International Development/Armenia, TO 08, Assistance to Energy Sector to Strengthen Energy Security and Regional Integration, 2009–2012. Mr. Arzumanyan managed the USAID funded project in Armenia, which consists of three major tasks: Assistance in Development of Armenia New Nuclear Unit (ANNU); Development of Renewable Resources and Regional Integration. Among other tasks it includes improvements in legal and regulatory frameworks; assistance to integrate Armenia and Georgia power systems through technical analysis of stability issues of integrated system, assessment of economic potential for power exchange and advise on legal and regulatory frameworks and development and negotiations of agreements governing the parallel operations.

Short-Term Consultant, US Agency for International Development/Kyrgyz Republic, TO 5, Kyrgyzstan Energy Advisory Services, 2008–2010. Mr. Arzumanyan provided strategic advice to the Government of Kyrgyzstan on planning of scarce generation resources during the winter energy crisis, including generation planning, load limitation and disconnection strategies, efficiencies provided by regional integration, tariff-related issues and loss reductions.

Chief of Party, US Agency for International Development/Armenia, TO 800, Program to Strengthen Reform and Enhance Energy Security in Armenia, 2004–2008. Mr. Arzumanyan provided strategic assistance to the Government's reform program, focusing on least-cost generation planning including nuclear plant decommissioning and replacement, nuclear power plant initial environmental impact assessment and feasibility studies, renewable energy promotion, and regulatory and legal framework development.

Project Manager, PamirEnergy Private Energy Company/AKFED/Tajikistan. Management Support to PamirEnergy, 2007. Mr. Arzumanyan provided business restructuring support for PamirEnergy, assessed current business practices and engineering systems in order to determine the major pitfalls, developed recommendations, and assisted in the implementation of a new structure, practices, procedures and systems.

Team Leader, Asian Development Bank/CAREC – Mongolia, Kyrgyzstan, Kazakhstan, TA 6267-REG, Establishment of the CAREC Members' Electricity Regulatory Forum. Study B: Opportunities and Pitfalls in Privatizing Distribution Company Management, 2006–2007. Mr. Arzumanyan led a team of international and local consultants who analyzed international experience in transferring the management of distribution companies to private operators.

Subtask Leader, US Agency for International Development/Kyrgyzstan, TO 809, TWEP, Metering, Billing and Collection Improvement of the Power Sector of the Kyrgyz Republic, 2002–2005. The aim of this task was to assess the weaknesses in the commercial operations of Kyrgyz distribution companies and regulatory framework, and to develop a strategy and implementation plan to reduce losses and improve the financial standing of the sector.

Deputy Chief of Party, US Agency for International Development/Armenia, TO 824, Armenia Electricity and Gas Sector Reform Program, 2001–2004. Mr. Arzumanyan provided consulting services to the Government of Armenia and International Financial Institutions on privatization strategy and plans and their implementation, including the development of a proper legal and regulatory framework, tariff restructuring, power market

structure and rules, and pre-privatization preparatory activities for the distribution sector, 2002 LCGP.

Deputy Chief of Party/Project Manager, US Agency for International Development/Armenia, TO 2, Armenia Power System Metering Improvement Project, 1998–2002. Mr. Arzumanyan was DCOP on the design and implementation of this comprehensive, nationwide metering and data acquisition system for Armenia’s Wholesale Power Market and distribution company metering system critical to the operations of the Armenian power sector and the success of distribution privatization.

Deputy Chief of Party, US Agency for International Development/Armenia, TO 13, Armenia Electricity and Natural Gas Sector Reform Project, 1999–2001. PA provided strategic assistance on a variety of issues including energy policy, wholesale power market design and implementation, development of legal and regulatory framework, and the implementation of several engineering projects addressing electricity losses and revenue collection.

Subtask Leader, US Agency for International Development/Georgia, TO 15, Distribution Collections Improvement Project, 2000. Mr. Arzumanyan led a subtask that developed a commercialization strategy and consolidation plan for power distribution sector of Georgia.

Project Manager, US Agency for International Development/Armenia, TO 3, Restructuring of Power Sector of Armenia Program, 1995–1999. Mr. Arzumanyan managed a PA team that developed and implemented the restructuring strategy for the Armenian state-owned, vertically-integrated monopoly – Armenergo.

Subtask Leader, US Agency for International Development/Russia, Commercialization of RAO UES of Russia, 1997–1998. Mr. Arzumanyan led a PA team that developed a strategy and implementation plan to increase cash collections, drafted and negotiated new rules and regulations with the Regional Energy Commissions, prepared recommendations for Regional and Federal Governments, etc.

Energy Policy Specialist, World Bank/Georgia, Power Sector Restructuring Project, 1995. Mr. Arzumanyan developed and negotiated with the Government of Georgia on the World Bank’s Power Rehabilitation Loan conditionalities and the action plan for power sector reform.

Energy Specialist, US Agency for International Development/Armenia, TO 3, Restructuring of Power Sector of Armenia Program, Management Information System for the Ministry of Energy, 1994–1995. Mr. Arzumanyan was responsible for the design and implementation of a comprehensive database and data gathering process for the Management Information System of the Ministry of Energy, as well as the system’s testing and commissioning.

Energy Policy Specialist, European Bank for Reconstruction and Development/Armenia. Least-Cost Generation Plan of the Power System of Armenia, 1994. This effort included the design of various economic scenarios and development of energy demand forecasts (MEDEE-S) for the first LCGP of the Power Sector of Armenia, including energy efficiency strategies.

Energy Specialist, TACIS/Armenia, National Energy Efficiency Strategy of the Republic of Armenia, 1993. Mr. Arzumanyan established an economic and energy database, developed various economic growth scenarios, and applied the Energy Demand Evaluation Model (MEDEE-S) to Armenia.

Head of Energy Efficiency Department, Energy Supervision Main Department/Armenia, 1992–1999. Mr. Arzumanyan developed a national energy efficiency strategy, and designed and implemented energy efficiency and demand-side management projects and participated in international projects.

Senior Consultant, Yerevan Power Distribution Company/Armenia, 1992. Mr. Arzumanyan was responsible for the design and implementation of the first computerized comprehensive Customer Information System for the Yerevan Distribution Company.

Senior Scientific Researcher, Armenian Energy Research Institute, 1982–1992. Mr. Arzumanyan developed computer simulation programs for the steady-state and long-term transient regimes of large power systems and interconnected systems, conducted system steady-state and dynamic stability studies, developed power network protection and automation systems, and conducted analyses of power system expansion analysis and HVDC lines.