




Presentation to WAPP Distribution and Commercial Committee

Terms of Reference for Consultancy Services for WAPP Distribution Utilities Development Programme

By: OSAKA CONSULT

Venue: AZALAI Hotel, Cotonou

23 June, 2014

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PRESENTATION OUTLINE

- Background
- Typical Challenges for Distribution Companies in the Region
- Objectives of Assignment
- Scope of Assignment
- Deliverables
- Qualification and Experience
- Inputs and Services by Client

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INTRODUCTION / BACKGROUND¹

The West African Power Pool...




- Is a specialized institution within ECOWAS with diplomatic immunities to operate in all ECOWAS member states
- WAPP was created in 1999 but became fully functional in 2006
- WAPP is committed among other objectives, to the creation of a robust and efficient regional electricity markets.

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Background cont.

Vision

Integrate the operations of national power systems into a unified regional electricity market, which will, over the medium to long term, assure the citizens of ECOWAS Member States a stable and reliable electricity supply at competitive cost

Mission

Ensure the promotion and development of power generation and transmission facilities, as well as the coordination of power trade between ECOWAS Member States.

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ORGANIZATION OF WAPP COUNTRIES



WAPP Zone A

- Benin
- Burkina Faso
- Cote d'Ivoire
- Ghana
- Niger
- Nigeria
- Togo

WAPP Zone B

- Gambia
- Guinée
- Guinée-Bissau
- Liberia
- Mali
- Senegal
- Seirra-Leone

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Member Utilities



These Utilities are predominantly State Owned and lack independent Regulators in Most cases

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BACKGROUND – CONTD.

- WAPP has developed a Generation and Transmission Master Plan.
- Currently implementing major 330 kV Transmission Backbone Projects in the WAPP region.
- The Information & Coordination Center (ICC) has been appointed as the Regional System Market Operator
- However, there are **Operational Challenges** within the Distribution Network of member countries

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TYPICAL CHALLENGES FOR DISTRIBUTION COMPANIES IN THE REGION.

- Financial Challenges
- High Technical Challenges
- High Commercial Challenges
- Manpower Challenges

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CHALLENGES – 1

Financial Challenges:

- Inability to self-finance capital investment projects; and,
- Absence of cost-reflective electricity tariffs.
 - Macro-economic variables (e.g. exchange & inflation rate);
 - Increase in world market prices of distribution materials.

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CHALLENGES – 2

Technical Challenges

Rapid electricity demand growth and need for network expansion with following characteristics :

- High suppressed demand;
- Few but long radial rural networks;
- High technical losses;
- Increasing demand of existing customers (organic growth);
- Weak network assets leading to frequent power outages; and,
- Low electricity penetration to rural dwellers.

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CHALLENGES – 3

Commercial Challenges

- High commercial losses
- Poor metering
- High customer population growth; and,
- Poor revenue collection.

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CHALLENGES – 3 Cont.

Impact of Technical and commercial Losses

Technical Losses:

- Due to the inefficient and undersized lines and transformers, wasted power is unavailable to serve customers

Commercial Losses:

- Lost Revenues are unavailable to pay operating cost and investment for grid extension

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CHALLENGES – 4

Manpower Challenges

- ❖ Insufficient Specialists in Key areas for the Utilities such as Commercial Experts, Technical Operations and Maintenance, System Planning, needed to cope with modern technology application in the industry.
- ❖ Low Experience in Electricity Market Operations

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OBJECTIVES OF THE ASSIGNMENT

To attain a sustainable Regional Electricity Market by ensuring viable WAPP Distribution Utilities:

- in improving Energy Efficiency (improve energy conservation methods/demand side management)
- In reducing Energy losses in electricity distribution below 10% leading to sound financial viability

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OBJECTIVES – Cont.

- In improving Revenue Collection through efficient metering systems
- in increasing Quality of Supply, Market Size and electricity Access for all, in service area

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Scope of Assignment

- Conduct a Viability Study of each Utility
- Determine causes of losses and total losses for each Utility
- Ascertain the percentage of electricity access
- Catalog best practices in energy efficiency improvement programs and expansion projects in the Region

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Scope-Cont.

- Determine number of prepayment meters required in region within 5 years period
- Collate and examine existing Master Plan of Distribution utilities and advise any updates required
- Determine Bankable Network expansion Projects for each utility
- Review/Compile IT requirement for computerized Network mapping for each utility
- Review/Prepare Key Performance Indicators for the Utilities
- Prepare Training Needs assessment

Financial Viability

Conduct a viability study for each distribution utility by examining the causes, impact and propose remedy. Examine the following:

- ❖ The inadequacy of tariffs for some Utilities.
- ❖ The unpaid bills arising out of customers unwillingness to pay and Utility's poor Revenue collection and practices.
- ❖ The Utilities ability to financially pay producers of power including IPPs wheeling power through the WAPP transmission interconnections.

Commercial Viability

- ❖ Examine the use of metering methodologies that promote customer's demand side management and energy conservation practices that reduce peak demand and wastages and advise
- ❖ Advise the use of automatic meter reading systems for industrial customers and prepayment metering for residential and small scale customer to reduce revenue Loss.

System Loss Study

System Loss Study: Determine the level of total losses for each Utility.

- ❖ Estimate the proportion of Technical and Commercial Losses
- ❖ Prepare mitigating measures to address these Losses
- ❖ Review/ Propose energy audit with network metering throughout the supply chain
- ❖ Prepare indicative plans and targets for capital expenditure to reduce the overall Losses to below 10% by the end of first 5year implementation period. Further reduction plans should improve progressively.

DELIVERABLES

The under listed are the expected deliverables from the consultant

1. Submit Diagnostic Viability Report highlighting requirements for each utility
2. Determine candidate expansion projects
3. Determine candidate projects for energy efficiency improvement
4. Develop guidelines for producing bankable project for energy efficiency improvement
5. Develop guidelines for producing bankable project for network expansion
6. Prepare Training Needs Assessment Report
7. Review/prepare Key Performance Indicators Report
8. Review Utility Distribution Master Plans for performance in the projected Regional Electricity Market Report

QUALIFICATION AND EXPERIENCE OF CONSULTANTS

- **Team Leader** – First University Degree or higher in Electrical Engineering+ 15 years experience covering similar assignments in a developing country
- **Power Distribution Expert /Commercial Expert**– First Degree or higher in Electrical Engineering + 10 years of power distribution experience in System Construction, Protection, Operation & Maintenance, and Metering and Billing Systems, etc;
- **Power System Planning Expert** – First Degree or higher in Electrical Engineering plus ten (10) years of power system design and planning , including demand forecast, sub-transmission and distribution development planning. Experience in power system planning including demand forecast, distribution development planning, economic and financial analysis and customer service standards

QUALIFICATION AND EXPERIENCE OF CONSULTANTS-cont.

- **Economic/ Financial Expert**– First Degree or Higher plus 8 years experience in Power System Financial management & Planning, Investment Analysis
- **Environmental Expert** – First Degree or Higher in Environmental studies plus 5 years Experience in similar assignments with at least one similar assignment undertaken in African Country.

INPUTS AND SERVICES BY CLIENT

- The WAPP Secretariat shall provide office and secretarial assistance at Cotonou, Benin, and distribution utilities shall provide office and secretarial assistance.
- WAPP and Distribution Utilities members shall provide one (1) Project Coordinator from its secretariat to liaise with the consultant and the distribution company staff who are allocated to the study
- The participating distribution member company will provide at least two (2) electrical engineers and one economist/accountant who will assist the consultant to conduct Field Survey

NEXT STEPS

- Commence a procurement procedure to appoint a Consultant using international procurement standards.
 - Expression of Interest
 - Request For Proposal
 - Evaluation of Bids
- WAPP Secretariat has secured funds (GIZ) to appoint a Consultant
- Each assignment to be monitored by both the WAPP Secretariat, member utilities and the DCC task force

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CONCLUSION

We have presented.....

- The role of WAPP in the West African power sector;
- Challenges of electricity distribution utilities in the sub-region;
- Major challenges which are prevalent in all member countries;
- WAPP proposed interventions to overcome some of the immediate major challenges of the distribution utilities; and
- The way forward.

It is expected that the interventions will yield the desired results

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**THANK YOU FOR
YOUR ATTENTION
MERCI**

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- ▶ June 2014

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