Terms of Reference and Scope of Services
Individual Consultant
(English)

OPERATIONS PLANNING ENGINEER

Department of Information and Coordination Centre (ICC)
System Operations Coordination Division (SOCD)

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Updated: 26th June 2023
A. BACKGROUND:

The West African Power Pool (WAPP) or Système d’Echanges d’Energie Electrique Ouest Africain (EEEOA) was created by the highest decision-making authority of the Economic Community of West African States (ECOWAS) at the Conference of Heads of State and Government of the Member States held in Lomé, in December 1999. The Headquarters of the WAPP Secretariat is in Cotonou, Republic of Benin.

The ECOWAS strategic objective being implemented by the West African Power Pool (WAPP) is based on a dynamic vision of integrating national power grids into a unified regional electricity market, so that such a mechanism would, over the medium and long term, ensure to the ECOWAS citizens access to adequate power quality at an affordable price, and enhance the economic development of the Member States including industrialization growth, Health and Education improvement, Poverty Reduction, various Employment Opportunities Creation, etc…

To achieve its vision of operationalizing a unified regional electricity market, the WAPP Information and Coordination Centre (WAPP ICC), a Department within the WAPP Secretariat has been designated to perform the functions of a System Market Operator (SMO) responsible for coordinating the reliability of the WAPP Interconnected Transmission System (WAPPITS) made up of the power systems of fourteen (14) ECOWAS Member Countries and administration of the regional electricity market.

To this end, the WAPP Secretariat with the support of World bank within the Project “WAPP Côte d’Ivoire Interconnection and operationalization of the ECOWAS Regional Electricity Market” intends to reinforce staffing of the ICC Department by filling key various vacant positions including that of an OPERATIONS PLANNING ENGINEER. The successful candidate will be joining the current team in the Information and Coordination Centre (ICC) as it prepares to operationalize the ECOWAS regional electricity market.

B. PROFILE AND SCOPE OF SERVICES OF THE EXPERT

The minimum qualifications and the functions of the position are defined hereafter:

Department: INFORMATION AND COORDINATION CENTRE (ICC)
Position Title: OPERATIONS PLANNING ENGINEER
Location: WAPP Head-office, Calavi, Benin
Reports to: HEAD OF SYSTEM OPERATION COORDINATION DIVISION
Member of the ICC Department Team
Subordinates: N/A

Job Summary: The Operations Planning Engineer is responsible for:

- Analyzing the behavior of the system taking into account the latest grid and generation information.
- Performing operation planning (short-term, long-term planning) and network development.
- Fulfilling the specific engineering planning activities for Real-Time and Day Ahead Network supervision, major events supervision.
- Providing engineering analysis, performing engineering studies and data analysis in support to the WAPP ICC system studies and reliability coordination.
- Perform Post-Event analysis.
- Performing periodic updates of the WAPP Interconnected Network Models using power flow tools such as PSS/E, DigSilent etc.
- Being subject matter experts in Power System Modeling and Analysis.
- Other missions as assigned.
Essential Duties:

- Perform real-time and operations planning (next day, week-ahead, year ahead etc.) engineering support to real-time grid operations, reliability coordination and market operations involving power system network modeling and conducting transmission studies including power flow, transient stability, voltage stability and post-incident analyses.
- Coordinate Operational Planning of the WAPP Interconnected System with the Planning Teams of TSOs.
- Perform Outage Planning analysis.
- Alert and advise the TSOs on quality and security risk of the system (i.e., flow on tie-lines exceeding, frequency and voltage limits, etc.).
- Identify and evaluate TTC and NTC and provide guidance to the TSOs according to the related guidelines.
- Analyze the system conditions and appropriate responses to emergency requests from TSOs to stabilize the interconnected system.
- Perform studies to analyze restoration plans and make appropriate recommendations.
- Conduct post-event analysis in collaboration with staff from cross functional activities and learn from incidents to improve the operation of the WAPP Interconnected Network System.
- Develop and maintain the Static and Dynamic models as well as production cost models of the WAPP Interconnected Network for different study timeframes.
- Model the power system network, assist in monitoring and updating the commercial model for the market.
- Perform engineering studies such as generation adequacy, transmission adequacy, transmission security assessment etc.
- As the subject matters, prepare and deliver associated training for the Operations Planning Engineers and Real-Time System Coordinators.
- Collaborate with ITD to maintain and improve the Network Model and EMS Transmission Network Application tools like State Estimator (SE) and Real-Time Contingency Analysis (RTCA).
- Responsible for the follow-up of the ICC implementation “best-practices” policies, procedures, processes, priorities with elaborated action plan in coordination with the Team Leader.
- Collaborate with ICC Divisions to identify and resolve issues to help create a flexible and efficient organization.
- Other duties as assigned.

Delegation:

Exercise the following delegated mandate or responsibilities:

- Work closely with external parties (TSOs, members utilities, Regulators, customers, stakeholders, partners, etc.) in developing grid and market systems enhancements.

Minimum Qualifications / Skills and Knowledge Required:

Education: Bachelor of Science in Electrical Engineering or Power Engineering (Master of Science in Electrical Engineering or Power Engineering is an added advantage).

Years’ Experience:

- At least 5 years of experience in the related field;
- At least 3 years’ experience with power system model management using any of the power flow tools or real-time Energy Management System;
- Experience with power flow applications such as PSS/E, DigSilent, PSS-MUST, EMS or equivalent.
Experience & main skills:
- Strong analytical, troubleshooting skills, solves complex problems;
- Direct experience in power system planning studies (network modeling, power system contingency analysis, optimal power flow, economic dispatch, generation planning, transient stability, voltage stability analysis etc.);
- Experience with power system risk analysis and mitigation;
- Knowledgeable and experience with power flow applications such as PSS/E, DigSilent, PSS-MUST, EMS or equivalent;
- High level knowledge of electricity system operation and tools (SCADA, EMS, WAMS, network analysis software, switching and load restoration principles, power systems planning, etc.);
- Experience related to ECOWAS electricity market and rules, protocols and procedures and applicable regulations (WAPP, ERRERA);
- Strong understanding and ability to, analyze results and provide market enhancements based on market outcomes and evolution;
- Excellent communication skills.

Preferred:
- Direct experience in the use of PSS/E is preferred and an added advantage)

Language:
- Sound oral and written communication skills in English or French with a good working knowledge of the other language.

C_REPORTING OBLIGATIONS

The OPERATIONS PLANNING ENGINEER’s services includes the preparation and timely submission of quality reports and documents, written in English and/or French as required by the supervisor. He/she will also contribute to the preparation of quarterly and annual reports of the System Operations Division and the ICC Department activities.

D_COMMITMENT PERIOD

The duration of the initial Contract extends from the date of signature for a period of two years. On an annual basis, the WAPP Secretariat shall conduct a review of the Consultant’s performance to monitor the continuation of the good and efficient execution of the Contract. At the end of the initial Contract, an extension will be awarded to cover the outstanding execution period of the funding project subjected to the validity timeframe/extension of the funding project with West African Power Pool (WAPP), the availability of funds and the satisfactory appraisal of the Officer’s performance.

The Consultant's services will be carried out at the WAPP Secretariat in Cotonou.

D_LINE MANAGEMENT

The OPERATIONS PLANNING ENGINEER will be placed under the functional authority of the Department of Information and Coordination Centre (ICC) of the WAPP Secretariat, during the execution of the assigned mission as presented in the following Structure:
ICC | Future organogram

Executive Management

1 Director of ICC

Monitoring & Evaluation

1 Monitoring & Evaluation Officer

1 Bilingual Assistant Secretary

Customers & Market Division

1 Head of CMD

Market Services & Operations

1 Team Leader

3 Senior Market Operators

3 Market Operators

Market Design & Regulatory Affairs

1 Market Regulator Officer

System Operation Coordination Division

1 Head of SOCD

System Operation Coordination

1 Team Leader

12 RT System Coordination Engineer/Operator

7/24

7/7

System Planning

1 Team Leader

2 Long Term Planning Engineer

2 Short Term Planning Engineer

4 D-1 Planning Engineer

7/7

Back Office

1 DTS Engineer

1 Data Management Engineer

12 System Coordination Engineer/Operator

Information Telecommunication Division

1 Head of ITD

2 SCADA/EMS/MMS & telecommunications Engineer

2 Enterprise System Engineer

2 System Support Engineer

ITD total: 7

CMD total: 9

SOCD total: 25

ICC total: 44

Prepared on March 2021

ToR_ OPERATIONS PLANNING ENGINEER