

Federal Government of Nigeria

Federal Ministry of Power and Federal Ministry of Water Resources and  
Sanitation

# **SUSTAINABLE POWER & IRRIGATION IN NIGERIA (SPIN) PROJECT**

## **TERMS OF REFERENCE<sup>1</sup>**

**For the**

**Engagement of Energy Expert as a Member of  
Hydropower Panel Experts (HPPOE)**

**For the Preparation of Nigeria Hydropower Master  
Plan under the SPIN Project**

**Project : SPIN**

**Credit No. : 7637NG**

**Assignment: Provide Independent Review of Reports for Preparation of  
Hydropower Masterplan and Strategic Environmental & Social  
Assessment for the SPIN Project**

**FEB, 2026**

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<sup>1</sup>This Terms of Reference are to be read in conjunction with the Terms of Reference for the preparation for the Hydropower Masterplan and SESA.

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## **1 BACKGROUND**

Under the Sustainable Power and Irrigation in Nigeria (SPIN) Project, the World Bank is providing funds to the Federal Government of Nigeria (FGN) to support the development of a Hydropower Master Plan (HMP) and a Strategic Environmental and Social Assessment (SESA),<sup>2</sup> covering all river basins with hydropower and multipurpose potential within Nigeria. The vision of the SPIN Project is to make integrated management of water, energy and food more effective and resilient in Nigeria. This would be achieved through investment in the management and resilience of multipurpose water infrastructure as well as strengthening the policies, institutions, capacities, and inter-governmental cooperation required. This vision builds on promoting holistic water and storage management by the inclusion of the hydropower sector and supporting institutional strengthening, such as on dam safety regulations and guidelines.

## **2 PROJECT DESCRIPTION**

Consistent with the mandated accountabilities of the FMWRS, FMP, and its agencies coordinating large investments in hydropower projects and tasks of flood control, navigation, and water supply and providing power across Nigeria, **Sub-component 1.1.3 Institutional Strengthening and Capacity Building for Hydropower** of the SPIN Project will provide strategic support to prepare a HMP, undertake an integrated SESA and select one optimized hydropower project through cooperation between the FMWRS and FMP.

SPIN shall support the preparation of the HMP which will include better synergies with existing water resources Master Plans and: (a) serve as input to Nigeria's Integrated Energy Resource Plan and to a broader least-cost power development plan considering the role of hydropower in integrating other renewable energy sources; and (b) establish a screening criteria agreed by both the FMWRS and FMP and developed through a stakeholder process for selection of transformative and climate-resilient projects from the HMP. The selection criteria can then be applied to candidate projects as proposed by the ministries. For this, the SPIN Project will finance a qualified international transaction adviser who will be assisted by local consultants.

The HMP is expected to include characterization of the water resource and environmental, and social conditions in the water basins being considered for development, and identification of a portfolio of hydropower projects including multi-purpose projects. The HMP would analyse the hydropower capacity and energy capabilities firstly at a national level and then for a series of development scenarios, including

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<sup>2</sup> SESA – According to the World Bank's Environmental and Social Framework (ESF) (2018), Environmental and Social Standard (ESS) 1 – Annex 1. Environmental and Social Assessment, A. General, paragraph 4(J), Strategic environmental and social assessment (SESA) is a systematic examination of environmental and social risks and impacts, and issues, associated with a policy, plan or program, typically at the national level but also in smaller areas. The examination of environmental and social risks and impacts will include consideration of the full range of environmental and social risks and impacts incorporated in ESS1 through 10. SESAs are typically not location specific. They are therefore prepared in conjunction with project and site-specific studies that assess the risks and impacts of the project.

the potential for hybrid operation of solar energy resources with hydropower that can increase the total dispatchable energy yield of the combined systems.

Optimizing the development of hydropower in Niger River sub-basins, and its gradual integration with solar power and the national energy grid, will make the hydropower sector more resilient to climate change—exacerbated precipitation and river flow variability.

To ensure that the HMP is sustainable and aligned with safeguard principles of the World Bank, an integrated strategic environmental and social assessment (SESA) will be completed supporting the development of the HMP. The SESA will assess key environmental and socio-economic risks and impacts of the HMP and then the preferred portfolio options of the HMP. The output of the SESA will prescribe management and mitigation actions in an accompanying strategic environmental and social management plan (SESMP). The SESMP will provide the GON with a framework for development of a sustainable hydropower sector that minimizes environmental and socio-economic risks of power generation and transmission while maximizing its benefits to the citizens of Nigeria.

### **3 WORLD BANK POLICY REQUIREMENTS FOR INDEPENDENT PANELS OF EXPERTS**

Given the size and complexity of the Project and its potential impacts, in compliance with the World's Bank ESF, the project has been classified as high risk. In accordance with the World Bank's Environmental and Social Framework (ESF), for projects that may pose high environmental risks, one or more independent advisory panels will be established. The SPIN FPMU will be required to establish the Hydropower Panel of Experts to review both the HMP and SESA. (referred to throughout this document as HPPOE). Members of the panels will be hired by SPIN FPMU to advise it and to provide guidance in their respective discipline areas.

The HPPOE will provide advice and guidance on: (a) the final terms of reference for the HMP ("the HMP studies"); (b) key issues and methods for preparing the HMP studies; (c) recommendations and findings of the HMP studies; (d) implementation of the HMP studies' recommendations, (e) development of dam engineering and water resources management capacity (f) energy economics and planning, (g) the final terms of reference for the SESA; (h) key issues and methods for preparing the SESA studies; (i) recommendations and findings of the SESA studies; (j) implementation of the SESA studies' recommendations; and (k) development of environmental and social management capacity.

### **4 OBJECTIVES OF THE PANELS OF EXPERTS**

The purpose of the HPPOE will be to provide independent review of the Hydropower Masterplan and SESA. In particular, the HPPOE will provide review of key consultancy reports of the Consulting Services for Preparation of a Hydropower Development Master Plan, and the Strategic Environmental and Social Assessment. The assignment will be conducted at a specified timeline and report as per the requirement of the SPIN FPMU. The HPPOE will also review the HMP study at the Inception Phase of the Consultancy and advise on any critical aspects that should be further studied for design optimization under this Consultancy. The HPPOE also has to review and advise SPIN FPMU on matters related to dam safety and

other critical aspects of the dam, its appurtenant structures including spillways, all major structures. It may also comment on any other matter which it perceives to be important to the successful design, construction and operation of the hydropower projects and to the long-term safety of the dams and appurtenances. In addition, the HPPOE will also advise the SPIN PMU on integrating environmental and social considerations in the study program.

The HPPOE shall consist of a Hydropower Expert, who will be a core member and the **Chair** of this technical panel; Hydrologist/Water Resources Expert; Geotechnical/Geology Expert; Energy Expert; SESA Expert; Environmental Expert; and Social Expert as core members, complemented by non-core members of Sedimentologist, Electrical and Mechanical expert. Additional experts maybe needed as required, with the need established by the core group. The HPPOE Chair will coordinate with other panellists to ensure the membership's objectivity and provide balance to its reviews and recommendations and will be responsible for the HPPOE reports.

## **5 SCOPE OF WORKS FOR THE PANELS OF EXPERTS**

The SPIN FPMU requires the HPPOE to provide independent design review of the HMP, and independent review of the SESA, respectively. The services carried out by the HMP / SESA Consultant shall be reviewed periodically by both the Panels. The reports submitted by the Consultant shall be accepted by SPIN FPMU after first being approved by the Panels. The tenure of the Panels will span until the end of the Study.

Together, both panels will be involved in advising on and reviewing inputs and outcomes of the following tasks:

Task 1: Preparation of Stakeholder Engagement Plan (SEP); and

Task 2: Conducting stakeholder workshops and training

### **5.1 HPPOE Scope**

The HPPOE will be expected, in addition to any other activities which they deem to be pertinent, to advise and review inputs and outcomes of the following HMP related tasks:

*Phase 1:*

Task 0: Review of Terms of Reference for Consulting Services HMP

Task 1: Inception phase activities

*Phase 2:*

Task 2: Policy, Legal, and Institutional Framework

Task 3: Power demand and electric grid development

Task 4: Hydropower resource assessment

Task 5: Risk assessment of hydropower and water related projects

Task 6: Preparation of Hydropower Master Plan

*Phase 3:*

Task 7: Selection of sub-basins by Steering Committee

Task 8: Sub-basin level assessment of portfolio of hydropower projects

Task 9: Strategic roadmap and investment program

The HPPOE Panel will also be expected, in addition to any other activities which they deem to be pertinent, to advise and review inputs and outcomes of the following SESA related tasks:

*Phase 1: Inception*

*Task 0: Review of Terms of Reference for Consulting Services HMP*

Task 1: Preparation – definition of work scope; institutional and logistical arrangements; and initial training and orientation

*Phase 2: Categorization*

Task 2: Scoping of Key SESA Issues

Task 3: Categorization and selection of sub-basins

Task 4: Understand preferred subbasins and develop three or four category ranking based on value/sensitivity/risk

*Phase 3: Optimization*

Task 5: Assess alternative HPP portfolios in selected subbasins; Identification, ranking and optimization

Task 6: Synthesis – assessment of key environmental and social risks and impacts and ranking of portfolio of selected HPPs

*Phase 4: Assessment*

Task 7: Preparation of SESMP

## **6 ORGANIZATION AND MEMBERSHIP OF THE PANEL**

### **6.1 General Organization**

Collectively, the members of the panel will have extensive experience with design of hydropower facilities, and have the following background with varying degrees of experience for each position:

- (a) General overall engineering experience in design and construction of large hydropower projects including optimization and feasibility studies in respective fields;
- (b) Engineering experience in design and construction of similar types of dams and hydropower projects;
- (c) General understanding of design consideration of minimizing the environmental, social, including resettlement, impacts and have a good working knowledge with the World Bank and IFC safeguard policies

The panel members should have practical and technical expertise in reviewing project reports produced by consulting firms, and have strong analytical and reporting skills as well as an ability to work in teams. The panel shall also identify any new expertise on an ad hoc basis that is needed according to the findings of the panels and ongoing studies, and recommend to the SPIN FPMU to hire experts with relevant experience and knowledge for a given time period to assist with relevant issues. The constitution of the panel may thus change over the project period, but it is highly desirable that a strong continuity of knowledge of the Project problems and progress be maintained.

The tasks and reports to be reviewed by the HPPOE are attached in **Annex B**.

## **6.2 Technical qualifications of the members**

All panel members should be renowned experts with international experience and familiar with the WB and IFC Safeguard Policies and related guidance documents, as well as modern design practices; have practical and technical expertise in carrying out and/or reviewing Engineering Design reports; have strong analytical and reporting skills; as well as an ability to work in teams; and have fluency in both written and spoken English. The potential panel members should be able to demonstrate experience of working as a member of panels of experts in hydropower or related projects.

### **6.2.1 Qualification of Energy Expert**

The Energy Expert will have a minimum of a Master's degree in electrical engineering or another relevant field and at least 15 years of related experience to include power system planning, including generation, transmission and distribution, Experience in power system operation, long-term electricity demand forecasts, economic and financial analysis of electrification projects, preparation of electrification master plans, least cost generation expansion plans will be required.

The expert will review the energy demand study reports carried out the Consultant including but not limited to the following:

- Review Demand Forecast for Nigeria in general and the selected subbasins;
- Review Generation and Supply Assessment for Nigeria in general and the selected sub-basins;
- Review Network Assessments of Nigeria in general and selected subbasins to identify high-level constraints);
- Review of National Power Market Analysis focusing on identification of market opportunities
- Review of identification of potential off-takers of power from the Projects including indicative offtake profiles and what such off-takers may be prepared to pay;

Other experts to be involved are Sedimentologist, Mechanical and Electrical Engineers to support the HPPOE in their review services.

### **6.2.3 Coordination of HPPOE Chair**

The panel Chair of HPPOE will coordinate with its respective panel members to ensure their respective panel memberships' objectivity and to provide balance to their reviews and recommendations. The Panel Chair will coordinate the activities and communications of the panel, call and chair its meetings, and liaise as appropriate inviting as deemed necessary experts relevant for each meeting.

## **3 APPROACH AND METHODOLOGY**

The panel will commence their work through in-house reviews of relevant documents, meetings with technical staff and other stakeholders, as well as through field visits to the project areas – with security and safety considered. The schedule of meetings will be coordinated jointly with the SPIN FPMU, the Study Consultants, and the HPPOE Panel as relevant. The panel shall meet as frequently as necessary during the preparation of the Study Consultants' work and deliverables of each project phase to assess the quality, due diligence, timeliness and status of the works and to present recommendations. The meetings will normally take place at the SPIN FPMU's Abuja office or by MS TEAMS, and shall be attended by relevant members of the panel, the World Bank, the SPIN FPMU, and any other parties as authorized by the SPIN FPMU.

Meetings should be held when important decisions regarding key aspects of the Project must be made and when draft reports become available for each deliverable of the Consultants' work.

The schedule of the meetings should be arranged well in advance, taking into account the work program of the Project. The panel may carry out its necessary field visits to the site – security and safety considered. After each meeting, the panel will prepare a report and the panel chair will be responsible for obtaining sign-off of its panel members.

The services of the individual members of the panel may be used as necessary or desirable during intervals between meetings, as agreed with the SPIN FPMU, with copies of their comments being sent to the other members of the Panel and to the SPIN FPMU.

## **4 SELECTION PROCESS**

The selection of the members of the panel will be in accordance with the Individual Consultant Selection method set out in the Procurement Regulations (September 2025). The SPIN FPMU shall directly contract the members of the panel on an individual basis. The selection will be based on the requirements, qualification and capability of the individual experts to carry out the assignment. The World Bank will provide its "No Objection" to the final selection of the members.

## **5 SUPPORT SERVICES**

The SPIN FPMU shall make available its authorized personnel and that of the HMP/SESA Consultants for discussions at the request of the panels and they shall be present during all meetings with the panels. The SPIN FPMU, and the Study Consultants shall provide the necessary documentation. The SPIN FPMU will facilitate the interaction of the panels with all Study Consultants as well as any other key stakeholders



which the panel members identify as necessary to consult with directly to fulfil the objectives of the assignment.

The SPIN Project shall take necessary actions to allow prompt travel clearances (if necessary) of the members of the Panel or specialists requested by the Panel, and shall provide full safe physical access to the Project area and sites.

## **6 REPORTING REQUIREMENTS**

The members of HPPOE will share technical expertise and knowledge through meetings, consultations and field visits. The HPPOE shall document the results of each of its visits and of the overall conclusions and recommendations. The panel will also provide a consolidated report at the conclusion of its meeting schedule. The drafts shall be shared by SPIN FPMU with the World Bank for their comments. The minutes and reports of the meetings shall be prepared by the panel. The minutes shall be signed by participating members of the panels and presented to the SPIN PMU, the Study Consultants, and reviewed with them prior to the departure of the panel members. The two panel chairs will be responsible for reaching consensus and getting the signatures. The panels shall be expected to maintain the confidentiality of any commercial or proprietary information of the Project that the members may have received from SPIN PMU or any government entity.

## **7 PROJECT DOCUMENTS**

The following project documents are to be made available to the HPPOE panels:

- Terms of Reference for The Hydropower Masterplan and SESA (Annex A)
- All reports mentioned in Annex C
- Other relevant documents that the Panel may request, as available.

Reports and Time Schedule of reports of the Design Consultant to be made available to the Panels are attached in [Annex B](#).

## **ANNEXES**

**ANNEX A – Terms of Reference for The Hydropower Masterplan and SESA (To be attached separately).**

<https://1drv.ms/w/c/beat66a6a0847ee73/IQC-bLJzQPmSrB6Q7bWGnONASG0M3pv2d9DBHFcUGbQBdc?e=S8rTSF> HMP & SESA

**ANNEX B: Expected Involvement of the Energy Expert**

Phase 1	
Task 0: Review of ToR for HPM Consultant	1
Task 1: Inception phase	3
Phase 2	
Task 2: Policy, Legal, and Institutional Framework	3
Task 3: Power demand and electric grid development	3
Task 4: Hydropower resource assessment	
Task 5: Risk assessment of hydropower and water related projects	2
Task 6: Preparation of Hydropower Master Plan	5
Phase 3:	
Task 7: Selection of sub-basins by Steering Committee	3
Task 8: Sub-basin level assessment of portfolio of hydropower projects	5
Task 9: Strategic roadmap and investment program	2
<b>Total</b>	<b>27</b>

- Notes:
- i. The Panels are expected to review and approve the deliverables and reports or provide comments on them within five days of the submission the documents to SPIN PMU.
  - ii. The Consultant for the Hydropower Masterplan and SESA will begin carrying out the services from September, 2025