

**Government of Nepal**  
**Ministry of Energy, Water Resources and Irrigation**  
**Alternative Energy Promotion Centre**  
**South Asia Sub-regional Economic Cooperation**  
**Power System Expansion Project - Off Grid Component**

## **Terms of Reference (ToR)**

**For**

**Project Implementation National Consultants (Solar / Wind Expert, Mini Hydro Expert, Monitoring & Evaluation Expert, Procurement Expert and Financial Management Expert) for Planning, Designing, Monitoring & Evaluation, Financial Management and Implementation of Solar & Solar/Wind and Mini Hydro Subprojects**

### **1. Introduction**

Government of Nepal, Alternative Energy Promotion Centre (AEPC) has received grant and loan from Asian Development Bank (ADB) to implement the South Asia Sub-regional Economic Cooperation (SASEC) off-grid power system expansion project. The executing agency for the project is the Ministry of Energy, Water Resources and Irrigation and the implementing agency is the AEPC. AEPC will support the Government of Nepal for improving inclusive electricity access, Renewable Energy development, regional cooperation and strengthening sector governance. The Government of Nepal has enacted Rural Energy Policy 2006, Subsidy Policy for Renewable (Rural) Energy 2013, Renewable (Rural) Energy Subsidy Delivery Mechanism 2013 to contribute to the national objectives of access clean and sustainable energy. The enabling measures, such as targeted grants (subsidies), and exemption of renewable energy (RE) projects from certain licensing requirements have been set up for off-grid RE. The SASEC Project will contribute to Nepal's energy development objectives by scaling up off-grid RE supply, cross-border power exchange, increasing access to RE in rural areas, and building capacity for off-grid power sector development. The off-grid component of SASEC-Power System Expansion Project is being implemented by AEPC that is intended to provide access to electricity and facilitate productive energy use (PEU) activities to enhance income and welfare of rural communities by utilization of RE in agriculture, rural enterprise, health and education sectors. The impact and outcome of SASEC off-grid project will be to increase electricity access and enhance renewable energy development in off-grid areas of Nepal.

The SASEC off-grid power system expansion project has two outputs as indicated below:

**i. Mini Grid based renewable energy systems in off-grid are increased:**

This includes installation of up to total 4.3 MW of mini hydro-electric power plants and up to total 0.5 MW of mini-grid based solar or solar/wind hybrid systems, in selected rural communities, through the provision of (a) a credit line of \$5 million from ADB's Special Funds to user communities for mini-hydro power plants and (b) a \$11.2 million grant from the Strategic Climate Fund (SCF) administered by ADB.

**ii. Capacity development support to AEPC provided:**

The physical investments will be reinforced and supplemented by capacity building support to AEPC, including project management support, preparation support for distribution system/rural electrification master plan and feasibility study of utility level wind farm, and parallel livelihood development activities in the project area.

The off-grid component of SASEC being implemented by AEPC is intended to provide access to electricity and facilitate PEU activities in rural off-grid areas. The project will enhance income and welfare of rural communities by utilization of renewable energy technologies mainly in the sectors of agriculture, rural enterprises, health and education. The impact and outcome of SASEC off-grid project will be to increase electricity access and enhance renewable energy development in off-grid areas of Nepal. One of the outputs under the project is installation of 4.3 MW of Mini-hydro and 500 kW of mini-grid based solar or solar-wind hybrid systems in the selected rural communities.

In order to implement the subprojects, AEPC/SASEC had conducted detailed feasibility studies and detail engineering design of the identified potential mini-grid solar, solar-wind hybrid subprojects and mini hydro subprojects. Till date detailed design and construction of 4 Solar/Solar wind subprojects have been completed, 3 more subprojects are in various stages of construction, bid document for 4 additional subprojects are in preparation. Similarly 5 mini hydro subprojects are in various stages of construction, contracts for 2 subprojects will be awarded soon and bidding document for 3 additional subprojects are in preparation. It is expected that contracts for all remaining subprojects will be awarded by December 2019.

As the contracts of on board PIC will be completed in January 2019, AEPC/SASEC will recruit qualified individual consultants to implement remaining works by December 2021. The consultants are expected to provide their services effective from January 2019.

## **2. Objectives and Need of the Services**

The overall objective of the assignment is to review feasibility studies, detail engineering design (DED) of the mini-grid based solar/solar-wind hybrid and mini hydro subproject, prepare cost estimate, bid documents, complete bidding process and ensure that the subprojects implementation is completed by AEPC/SASEC project completion date of December 2021, A team of individual consultants as mentioned below will be appointed to meet the objectives:

- I. Mini Hydro Expert (Full time) - National
- II. Solar/Wind Expert (Full time) - National
- III. Procurement Expert (Full time) - National
- IV. Monitoring & Evaluation Expert (Intermittent) - National
- V. Financial Management Expert (Full time) - National

The team will be supported by AEPC Environment & Social Safeguard, GESI, Monitoring & Evaluation and technical GoN counterpart staff.

## TERMS OF REFERENCE OF INDIVIDUAL PROJECT IMPLEMENTATION CONSULTANTS

### 1. Mini Hydro Expert (Full time) – National

Expertise: Hydro Power Engineering

TOR Keywords: Mini Hydro, Upfront Equity, IPC, due diligence, Community based Mini Hydro

Expertise Group: Energy and Engineering    Source: National    **Duration: 35 months**

The Mini Hydro Expert will design, review, prepare cost estimate, complete all pre bid process, prepare bid document, complete bidding process, assist AEPC/SASEC in bid evaluation/contract award and implement the contract including site supervision.

#### **Objective and Purpose of the Assignment:**

Assist AEPC/SASEC in finalizing design, preparing cost estimate, bid document, complete bidding process, awarding contract, contract signing and implement contract for timely completion of subprojects.

#### **Scope of Work:**

The expert will support the PIU to conduct including but not limited to the following tasks:

- Review design, prepare and finalize technical specification, due diligence of the subproject implementation schedule, bill of quantity and cost estimates for implementation of Mini Hydro Power subprojects,
- Assist Users Committee in collection of upfront equity and financial closure of the subprojects for the viability gap funding through credit/loan facilities.
- Assist on institutional development of developer's organization in setting tariff, Tariff Collection and Operation & Maintenance (O&M) policy/guidelines
- Prepare bidding documents, evaluate bidding documents, preparation of bid evaluation reports (technical and financial) with support from procurement expert and support AEPC to select contractor for implementing mini hydro subprojects.
- Review of subprojects construction schedule proposed by contractors,

- Undertake site visits as and when necessary to monitor progress and construction supervision of subprojects, Bill (Interim Payment Certificate, IPC) verification submitted by contractor and recommend for payment to Project Manager.
- Support in monitoring & evaluation of the subprojects and prepare mini hydro part of the monthly, quarterly, semiannual and annual progress reports to be submitted to AEPC and ADB, (to submit ADB, the reports shall be prepared in line with ADB's requirement and include (a) an attractive description of progress made during the period, (b) changes in the implementation schedule, (c) problems or difficulties encountered, (d) work to be carried out in the next period, and (e) a summary of financial account, consisting of project expenditures for the year to date and total expenditure to date, and a contract financing plan),
- Assist in contract administration and disbursement process,
- Provide guidance and training to staff members of AEPC, private sector, project developers and individual subproject managers for the development of mini hydro subprojects as required and build capacity in AEPC,
- Ensure GESI, social and environmental issues are addressed in executing project activities,
- Work in close cooperation with other programs / projects of AEPC and other rural energy programs/projects and ensure team work and coordination,
- Any other tasks assigned by AEPC to support in project implementation.
- Coordinate with other agencies working with AEPC.

**Reporting requirements:**

- i. Support and assist on preparing reports of detailed Engineering Design and bidding documents and evaluation of bids(technical and financial) for mini hydro subprojects,
- ii. Support and assist on preparing report of presentations for training and capacity building programs,
- iii Assist the PIU in preparing reports that will be integrated in to the project monitoring and quarterly progress reports to be submitted by AEPC to ADB and
- iv. Other support as required by the PIU/AEPC.

## **Qualifications and Experience**

- The expert must have Bachelor's Degree in Civil Engineering and Master's Degree in Water Resources Engineering with minimum 10 years of experience in designing, planning and implementing hydropower projects
- The Expert should have demonstrated experience of at least 3 years in the community based off grid mini hydro projects in Nepal
- Experience in ADB and or World Bank supported projects of similar nature is desirable.

## **2. Solar Wind Expert (Full time) - National**

Expertise: Renewable Energy (Solar/ Wind) TOR Keywords: Solar, Solar/wind hybrid,

Expertise Group: Energy& Engineering

Source: National

**Duration: 24 months**

The Expert will support AEPC/SASEC PIU to implement mini-grid solar and solar-wind hybrid subprojects. The Expert will assist in site survey, preparation of detailed feasibility studies and detailed engineering designs, reviewing technical design and cost estimate, bidding documents preparation, bids evaluation, and oversight of project construction. The Expert will assist in the project administration and disbursement, providing guidance and training of staff members of AEPC and stakeholders on mini-grid solar and solar-wind hybrid technologies. The Expert will also support AEPC in the post installation monitoring activities of all AEPC/SASEC implemented solar and solar/wind hybrid mini-grid subprojects.

### **Objective and Purpose of the Assignment:**

The Expert will support AEPC/SASEC PIU to implement mini-grid solar and solar-wind hybrid subprojects. Assist AEPC/SASEC PIU in finalizing design and cost estimate, bid document, complete bidding process, awarding contract, contract signing and implement contract for timely completion of solar and solar/wind hybrid subprojects.

The Expert will also support AEPC in the post installation monitoring activities of all AEPC/SASEC implemented solar and solar/wind hybrid mini-grid subprojects.

### **Scope of Work:**

The proposed assignment of Renewable Energy (Solar/Wind) Expert is to support AEPC/SASEC PIU in implementing Solar and Solar/Wind Hybrid Mini Grid subprojects. The Expert will also assist PIU in conducting post installation technical supports, site supervision and subproject monitoring activities of the implemented subprojects.

The specific tasks of the Expert, but not limited to, will be as follows:

- (i) Verify resource data for planned solar and solar-wind hybrid mini-grid systems and assess energy demand including demand for productive end uses of the subprojects.
- (ii) Support in finalizing detailed feasibility studies including technical specification, implementation schedule, bill of quantities and cost estimates by adopting the detailed feasibility study template developed in the previous solar and solar/wind subprojects.
- (iii) Prepare bidding documents in accordance with ADB's guidelines for solar and solar/wind hybrid subprojects for both power generation and power distribution components with support from Procurement Expert. The design for mini grid shall be national grid compatible.
- (iv) Support PIU in evaluation of bids by turnkey contractors, and preparation of bid evaluation reports (technical and financial) and oversight of project construction.
- (v) Review of project design and project construction schedule proposed by the Suppliers or Contractors for solar and solar/wind hybrid systems and distribution networks.
- (vi) Verify Interim Payment Certificate (IPC) or Running Bills submitted by the Supplier or Contractor, and recommend for payment to AEPC
- (vii) Support PIU in monitoring implementation of the component and prepare mini-grid solar and solar-wind hybrid part of the quarterly progress reports to be submitted to AEPC and ADB,
- (viii) Assist AEPC to procure and install remaining wind met masts for the feasibility study of one utility scale wind farm to be supported by the associated Capacity Development Technical Assistance.
- (ix) Assist in the project administration and disbursement, providing guidance and training of staff members of AEPC and stakeholders on mini grid solar and solar-wind hybrid technologies.
- (x) Support to formulation of the policy, and plan in wind and solar hybrid systems, and Support PIU staff in other activities related to the development of mini-grid solar and solar/wind hybrid systems as required, and build capacity in AEPC.
- (xi) Conduct site visits to solar and solar/wind hybrid mini grid subprojects in order to do the post installation monitoring and evaluation support. The major activities will be, but not limited to, evaluation of mini-grid system operational status, orientation to the users committee on mini-grid system operations, conduct refreshment technical trainings to the users committee and end users as required, follow up orientation for the tariff management of installed systems etc.
- (xii) Prepare site visit reports on the monitoring and evaluation activities of all the solar and solar/wind hybrid mini-grid systems.
- (xiii) Support AEPC to conduct detailed feasibility studies and detailed engineering designs of mini-grid based renewable energy projects and review the report for quality control.
- (xiv) Coordinate with other agencies working with AEPC.
- (xv) Assess baseline data and develop a carbon monitoring plan in line with the requirement of project design and monitoring framework
- (xvi) Design and implementation of carbon data collection and monitoring technologies/systems at subproject level
- (xvii) Provide necessary training for carbon data collection and monitoring system

### **Reporting Requirements:**

- (i) Detailed feasibility and detailed engineering design review, technical due diligence, technical review, bidding documents, and evaluations of bids (technical and financial), contract agreements for mini-grid solar and solar-wind hybrid subprojects
- (ii) Site visits during construction, material inspection and installation quality check, system testing, commissioning and progress reporting of solar and solar/wind mini-grid subprojects.
- (iii) Post construction site visits to ensure smooth operations of the subprojects, tariff collection and energy uses in the productive sectors
- (iv) Assist PIU in preparing reports that will be integrated and or incorporated into the project monitoring and quarterly progress reports to be submitted by AEPC to ADB
- (v) Presentations from training and capacity building programs
- (vi) Other support as required by the AEPC

### **Qualifications and Experience:**

- The Expert will have minimum Bachelors Degree in Electrical or Electronics Engineering with Masters Degree in Renewable Energy Engineering or Energy Management, Electrical or Electronics Engineering and minimum 10 years professional work experience in Energy Sector.
- The Expert will have minimum of 10 years of proven experience in survey, design, implementation and evaluation of solar and solar/wind hybrid energy systems in off-grid areas of Nepal.
- Experience in ADB and or World Bank supported projects of similar nature is desirable.

### **3. Procurement Expert (Full time) - National**

Expertise: Procurement in ADB, or other Multilateral Development Bank and donor funded project

TOR Keywords: bid document, bid evaluation, contract management, procurement

Expertise Group: Engineering, Procurement, Contract Management

Source: National

**Duration: 35 months**

The Expert will support AEPC/SASEC PIU to implement mini grid solar, solar/wind hybrid subprojects. The Procurement Specialist will support AEPC/SASEC PIU in ensuring that all project related procurement is in compliance with ADB and GoN guidelines. In addition he/she will ensure that the contracts are executed timely as per the contract agreement.



## **Scope of Work**

The proposed assignment is to assist AEPC to select contractors for implementation of mini hydro and solar/solar wind subprojects under SASEC. In addition, the assignment includes selection of other consultants as and when required. The assignment also includes:

- I. Assist AEPC/SASEC to prepare bidding documents for procurement of goods, works and Request for Proposals (RFP) for consulting services ensuring compliance with ADB Guidelines.
- II. Ensure that RFP and bids received are in compliance with ADB guidelines.
- III. Assist PIU to evaluate bids and RFP and prepare related evaluation reports as per ADB guidelines.
- IV. Assist PIU in preparing procurement, contract award and disbursement plan.
- V. Support AEPC/SASEC in other activities related to procurement of mini grid projects as required and building capacity in AEPC, capacity building of mini hydro and solar/solar wind contractors.
- VI. Assist AEPC/SASEC in contract negotiation/signing and in contract management/administration thereafter.
- VII. Assist other experts in processing contractor/supplier's invoice and ensure timely payment.
- VIII. Assist other experts in tracking contract execution as per the contract agreement and take remedial measures to ensure contract completion as per the contract agreement.

## **Reporting requirements**

- I. Bid documents and RFP
- II. Bids and RFP evaluation reports
- III. Procurement Plan
- IV. Procurement document templates compliant with ADB requirement
- V. Variation order of Supplier/Contractor and Consultants
- VI. Presentations from training programs and related materials
- VII. Other support as required by AEPC/PIU.

#### **Qualifications and Experience:**

- The expert must have Bachelor's in Engineering and a Master's Degree in a relevant field
- Minimum experience of 10 years in project management, procurement and contract management
- Minimum experience of 10 years in ADB, multilateral development bank or any donor funded project
- Knowledge of ADB and GoN procurement guideline is essential

#### **4. Monitoring & Evaluation Expert (Intermittent) - National**

Expertise: Monitoring and Evaluation of ADB, any multilateral development bank or donor funded project

TOR Keywords: PPMS, monitoring, evaluation

Expertise Group: Engineering, Management, Monitoring and Evaluation

Source: National      **Duration: 18 months**

The monitoring & evaluation (M&E) Expert will support PIU at AEPC in ensuring that a robust data and information monitoring and reporting system is in place to monitor the progress and performance of the Project.

#### **Scope of Work**

The expert will conduct various tasks in support of the Project as necessary, including the following tasks:

- i. Support the PIU in designing a robust M&E system that captures all relevant quantitative and qualitative data and information to report the progress and performance of the Project in compliance with ADB guidelines
- ii. Ensure that the M&E system captures the indicators required for Project Performance Management System (PPMS) reporting as required by the ADB
- iii. Develop templates for data and information gathering from project sites ensuring that templates can be easily used by village-level project participants and other project partners
- iv. Develop methodologies for data verification and data validation to ensure reliability of data and performance indicators
- v. Provide other related support to the PIU as required and build its capacity
- vi. Design the project performance monitoring and evaluation system (PPMS) periodic progress reporting and monitoring of the project, as well dissemination of information

periodically on the web-site related to the project. Prepare performance monitoring, evaluation report as required by Project Administration Manual (PAM) and Project Design and Monitoring Framework

- vii. Systematic identification of the effects of an intervention on households, institutions and the environment, to gauge the effectiveness of project activities in reaching the poor
- viii. Assess baseline data and develop a carbon monitoring plan in line with the requirement of project design and monitoring framework
- ix. Design and implementation of carbon data collection and monitoring technologies/systems at subproject level
- x. Provide necessary training for carbon data collection and monitoring system

#### **Reporting requirements:**

- i. Report on the methodology to be used for data and information gathering and progress reporting at sub-project and project levels
- ii. Templates for data and information gathering from the project sites Periodic report as required on the analysis of data providing performance indicators and other information relevant to tracking project progress
  - i. Other outputs and reports as required by ADB and GoN
  - ii. Prepare PPMS report as per ADB requirement
  - iii. Presentations from training programs and related materials
  - iv. Other support as required by AEPC/PIU.
  - v. Assist AEPC in preparing Project Completion Report (PCR)

#### **Qualifications and Experience:**

- The Expert must have Bachelor's degree in Engineering
- The expert must have a Master's Degree in statistics, science or a related field
- With a minimum of 10 years of experience in the design and implementation of M&E systems.
- Preference will be given to candidates with prior experience with monitoring and evaluation of energy projects funded by multilateral banks.
- Knowledge of ADB and GoN reporting requirements is essential.

## **5. FINANCIAL MANAGEMENT EXPERT (Full Time) - National**

Expertise: Financial Management

TOR Key words: Finance, Accounting, Auditing, Disburse, Reimburse

Expertise Group: Finance

Source: National

**Duration: 36 months**

## **Background**

The financial management expert will assist the admin and finance division of AEPC mainly on South Asia Sub regional Economic Cooperation Power System (SASEC) related activities, but should also support the admin and finance division in other AEPC related activities as well.

The Financial Management Expert will be responsible for operational elements of managing budgeting and flow of funds, accounting and auditing to ensure corruption free availability of financial services. S/he will follow the rules and regulations of the GoN, ADB and report to the head of accounts/finance division of AEPC and SASEC Project Manager.

## **Objective and Purpose of the Assignment**

- Assist AEPC/SASEC in carrying out the financial management functions for the implementation of the project, ensure adoption of proper GoN, ADB financial management, accounting, auditing procedures

## **Scope of Works**

The financial management expert shall work directly under the supervision and instruction of AEPC Finance head and works together with other AEPC component but dedicated especially to activities related with ADB/SASEC for ensuring smooth financial operation. The expert will support the AEPC Finance department with the annual work plan and budget formulation, preparing withdrawal application for Donors fund release, maintaining donors wise book of accounts and records, preparing monthly and annual financial statements according to Donors and GoN requirement, conducting internal and external audit, maintaining bank accounts and reconciliation with cash book and other book of accounts, keeping records of irregularities and settlement.

## **Detailed Tasks and/or Expected Output**

### **Related to Budgeting and Flow of funds:**

- Ensure implementation of general principles of budgeting, accounting, auditing and procurement that is fully integrated into AEPC.
- Ensure that the financial management practices endorsed by AEPC are duly followed.
- Ensure availability of financial information for examination, assessment and review by donor partners.
- Ensure that ear-marked funds are used for explicitly stated purpose.
- Ensure vetting of payments by relevant managers and advisor.

- Establish consistency in financial planning and budgeting for all programs and components.
- Plan day to day work and activity level day to day implementation of financial resources.
- Ensure that all programs, components produce and manage semi-annual progress and financial reporting.

### **Related to accounting/auditing:**

- Comply with AEPC financial guideline and ADB disbursement procedure.
- Prepare Withdrawal Application and submit it to ADB for disbursement and keep track of ADB Disbursement status.
- Prepare Grant Monitoring Register to track the expenditure made from ADB source.
- Organize annual audits in accordance with Audit Act and as advised by compliance unit.
- Institutionalize and implement internal auditing practice.
- Support AEPC financial report preparation and analysis in duly manner as per the standard practice
- Ensure timely payment to Contractor/Supplier within the dead line as per their contract agreement
- Keep separate account for equity, loan, grant portion of each sub project
- Assist and advise AEPC in setting up and updating project accounting procedures, information management systems, cost records, etc;
- Assist AEPC in establishing a proper financial accounting and control system for subprojects and for the entire Project,
- Ensure accurate and timely report submissions, and to ensure smooth funds flow from ADB/Government to Contractors/Suppliers;

### **Deliverables**

- Quarterly financial progress report
- Half Yearly financial progress report
- Annual progress report
- Disbursement reports
- Timely submission of SOE/withdrawal application to ADB
- Timely submission of Audit report to ADB
- Project Completion Report (Finance/Account Section only)

### **Minimum Qualification Requirement**

- Master's degree in Management (Finance)/Chartered Accountancy with at least five years of work experience in related field.
- Experience in finance and accounting in ADB/other Donor funded agency/project, working with GoN organization is an added advantage
- Computerized financial management system experience such as Navision etc.
- Knowledge of specific GoN rules and regulations regarding finance and accounting.