

Terms of Reference (ToR)

For

Site Supervision Engineer (Electro-Mechanical)

(Full Time Individual Consultant)

1. Introduction:

Alternative Energy Promotion Centre (AEPC) is the apex government body under the Ministry of Energy, Water Resources and Irrigation (MoEWRI), established to promote the use of alternative/renewable energy technology to meet the energy needs in Nepal. The Private Sector Led Mini Grid Energy Access Project (MGEAP) was initially launched in April 2019 to promote sustainable and decentralized energy solutions in Nepal. Following a series of restructurings, the project's closing date has now been extended to September 30, 2026. The objective of the project is to increase electricity access and delivery from renewable energy mini-grids (solar, hydro, wind, and hybrid) and large biogas plants by mobilizing private Energy Service Companies (ESCOs) and developers. The project is designed to support RE mini-grids market by introducing conditions to gradually shift from heavily subsidized to commercial model. The project will support mobilization of credit from participating Banks (PBs) to ESCOs for the development of mini-grid subprojects.

Nepal is one of six countries identified for assistance under the Scaling-up Renewable Energy Program in Low Income Countries (SREP). As one of three programs under the Strategic Climate Fund, SREP aims to demonstrate the social, economic and environmental viability of low carbon development pathways in the energy sector. In particular, the objectives of SREP in Nepal are to: (i) leverage complementary credit and grant co-financing, (ii) bring about transformational impacts through scaling up energy access using renewable energy technologies (RETs), poverty reduction, gender and social inclusiveness and climate change mitigation, and (iii) ensure sustainable operations through technical assistance and capacity building. MoEWRI has designated the Alternative Energy Promotion Centre (AEPC) as the lead agency for SREP-related mini grids renewable energy initiatives and activities. SREP will support MGEAP to fulfill its objectives and target.

2. Background

Currently MGEAP is initiated Amadablam Mini Hydro Subproject 911 kW capacity to provide electricity to 451 households of Khumbhu Pasanglhamu Rural Municipality Ward No 4 of Solukhumbu district, Koshi Province through Energy Service Companies (ESCOs) as a business model through technical and financial support of Government of Nepal, the World Bank and Sustainable Energy Challenge Fund (SECF) of Nepal Renewable Energy Programme (NREP) from British Embassy Kathmandu through MGEAP.

3. Objectives

The main objective of obtaining consultancy services of Electro-Mechanical Consultant is to assist project for managing the contract functions for the implementation of the Amadablam Mini Hydro

subproject. The input from the Consultant is to ensure the managing the contracts with contractors and ESCO for completion of task maintaining quality and implement the activities in a timely manner.

The Consultant is to provide technical backstopping, quality control/assurance, monitoring of subproject and coordination between site staffs, ESCO and Contractors during construction and completion of subprojects on time.

4. Scope of the task of Site Engineer

The major scopes of the Task of the site engineers (but not limited to) are as below-

- Review Detailed Feasibility Study including Detailed Engineering Design (DFS-DED) Reports of Subprojects
- Review Environmental Initial Assessment (EIA) and Environmental & Social Impact Assessment (ESIA) reports of Subproject.
- Familiarize with AEPC and MGEAP Norms, Guidelines and procedures.
- Work as instruction provided by AEPC/MGEAP.
- Provide technical backstopping, quality control/assurance and monitoring of Subproject during construction / implementation.
- Assurance quality of procured/used goods, works and services provided by ESCO, suppliers and contractors.
- Immediately inform to immediate supervisor, RE (Mini/Micro Hydro) Specialist, if any change or rectification required.
- Ask ESCO/Contractors/Suppliers to receive prior approval from AEPC/MGEAP for any change on DFS-DED.
- Advice for rectification of any deficits during construction and inform AEPC/MGEAP.
- Support for Preparation of Equipment Delivery Form (EDF) and Measurement Book (MB).
- Check Bill of Quantity (BOQ) and documents submitted by the ESCO for payments.
- Recommend to AEPC/MGEAP to release subsidy and loan payments.
- Keep record of all actual construction works and used equipment.
- Prepare periodic Progress reports (Weekly, Monthly, Quarterly, Annually).
- Maintain record of any type of incident at the site and immediately inform to the AEPC/MGEAP.
- Support ESCO to maintain log books (Staff records/attendance, construction materials, equipment store in the site etc.).
- Support ESCOs for timely completion of Subprojects.
- Coordinate with Stakeholders ESCO, Rural Municipality/Wards, Sagarmatha National Park (SNP), Buffer Zone, local institutions etc.
- Any other tasks assigned by the Project Manager.

Specific scope of work / task Electro-Mechanical Engineer

The specific scope of work of the Electro-Mechanical Engineer is to implement subproject as per approved DFS-DED Report of Subproject and provide technical backstopping, quality

control/assurance and monitoring of electro-mechanical works of Subproject during construction/implementation.

The major scopes of the Task (but not limited to) are as below-

- Electro-Mechanical Engineer is a site based position and main responsibilities for electrical and mechanical component works i:e
 - Installation of mechanical component/equipment and works i:e Turbine, governor, gate, trace rack, gate, penstock pipe, pipe joint, valves in different component i:e head works, intake, headrace canal, desalting basin, penstock, saddle support, support pier, anchor block, all mechanical equipment in power house etc.
 - Installation of electrical component/equipment i:e generator, governor, control panel, switchyard, transformer, electric equipment in power house, transmission & distribution line (component), house connection, synchronization etc. .
- Closely work with the Program Manager, Renewable Energy (Mini/Micro Hydro) Specialist and Project Management Team (PMT) of AEPC/MGEAP.
- Implement activities and instruction provided by AEPC/MGEAP.
- Closely work with ESCO during construction of civil works, hydro-mechanical component, electro-mechanical component and transmission & distribution line (component) of the Subprojects.
- Review Detailed Feasibility Study including Detailed Engineering Design (DFS-DED) Reports of Subprojects
- Familiarize with AEPC and MGEAP Norms, Guidelines and procedures.
- Provide consulting service, technical backstopping, quality control/assurance and monitoring of Subproject during construction / implementation of Subprojects.
- Assurance of quality of procured/used electric equipment and services provided by ESCO, suppliers and contractors.
- Advice for rectification of any deficits during installation and erection of electro-mechanical equipment and inform to the AEPC/MGEAP.
- Assist ESCOs for preparation of Measurement Book (MB) and Bill of Quantity (BOQ) of electric equipment.
- Check Bill of Quantity (BOQ) submitted by the ESCOs for payments.
- Recommend to AEPC/MGEAP for payment.
- Recommend to AEPC/PB for loan disbursement.
- Prepare periodic Progress reports.
- Maintain record of any type of incident at the site and immediately inform to the AEPC/MGEAP.
- Coordinate with Stakeholders ESCOs, Rural Municipality/Wards, Sagarmatha National Park (SNP), Buffer Zone, local institutions etc.
- Support ESCOs for timely completion of Subprojects.
- Any others tasks instructed by AEPC/MGEAP.

5. Performance, Reporting Requirement (Deliverable), Certification and Recommendation

- Based on work progress at site, the Consultants will prepare weekly monthly, quarterly, annually and final Subproject completion report.
- Support ESCO to prepare Equipment Delivery Form (EDF), Measurement Book (MB), Bill of Quantity (BOQ) as actual work done.
- Check and verify Bill of Quantity (BOQ) and all documents prepared and submitted by the ESCO as per actual equipment/materials supplied and work done at the site.
- Keep record of all actual construction works and used equipment.
- Keep photographs of all activities and work carried out at the site.
- Certify submitted documents and recommend AEPC/MGEAP for the payment as per actual work done at the site.
- Support ESCOs to prepare Progress reports

6. Duration of Contract

The duration of the Consultant's service shall be for **one year** from the date of signing of contract, subject to annual renewal upon Consultant's satisfactory performance and need for the project. The Consultant is expected to work on full time at the Amadablam Mini Hydro construction site with required travels to AEPC head Office, Kathmandu on tasks related matters. It is expected about 90% of time is required for field based.

7. Types of Contract and Terms of Payment

The contract with the Consultant will be Time Based. The payment to the consultant will be made on monthly basis upon submission of payment request including invoice, required report(s) and time-sheets. The consultant should submit a monthly report including the task activities of daily works, and get it approved from Project Manager. If no of days are not justified with the progress, Project Manager will verify the actual progress and payment shall be made accordingly. The fee, other than remuneration of consultant, will be reimbursed based on actual expenses incurred for the task, within the ceiling specified in the Contract.

8. Consultant's required Qualification and Experience

The consultant should have a minimum Bachelor's Degree in electrical/Mechanical engineering with at least 5 years of site-based experience in the Mini/Small Hydro sector. S/he should have knowledge of technical parameters of electrical and mechanical works, guidelines and standards of Mini/Small Hydro as well as quality assurance of the sector having very good field-based experience in the electrical and mechanical component of Mini/Small Hydro Projects.

9. Facilities and logistics to the Consultant by the Client:

The consultant will be paid a monthly remuneration (Consultancy Service Fee) for the services rendered, upon submission and approval of monthly time-sheet and invoice. Necessary stationery, printing and copying facilities will also be provided by the Client. Authorized travel expenses will

be reimbursed. The Consultant will manage accommodation and other logistic facilities by themselves. Additional benefits such as festival allowances, leave, gratuities etc. will not be provided. If consultant is absent, the respective remuneration for particular period will be deducted from the payments.