TERMS OF REFERENCE

1. POSITION INFORMATION

Organization	UNDP - United Nations Development Programme
Office/Unit/Project	Yemen Country Office / Sustainable Fisheries Sector Support Programme (SFISH) and Aden Fishery Harbor Project (AFH)
Title	National Electrical Engineer
No. of Job Vacancies	1
Level	ICS-8
Type (Regular or Short Term)	Short Term
Duty Station (City and Country)	Aden, Yemen, with frequent travel to assigned project sites in Hadramout, Al-Mahrah and other locations as required
Work Modality	Home- and field-based. Regular presence in Aden and frequent site missions according to design-review, implementation, inspection, testing and commissioning needs
Expected Starting Date	25 September 2026
Expected Duration	Five (5) Months with the possibility of extension subject to project requirements, performance, and availability of funds.

2. PROJECT BACKGROUND

The United Nations Development Programme (UNDP), through the Sustainable Fisheries Sector Support Programme (SFISH) and the Aden Fishery Harbor Project (AFH), is implementing rehabilitation, upgrading and renewable-energy interventions to improve fisheries infrastructure, cold-chain services and reliable power supply in Yemen.

Under SFISH, the current portfolio includes hybrid solar photovoltaic (PV) and Battery Energy Storage System (BESS) works for 5-TPD flake ice plants at Rokab, Al-Hami, Al-Qurn and Al-Raydah in Hadramout; Huswein in Al-Mahrah; and the electrical/solar upgrade serving the 10-TPD flake ice plant at Al-Dockyard in Aden. The works include engineering/shop drawings, procurement, installation, integration with existing power systems, associated civil/structural interfaces, testing and commissioning, training, handover, warranties, maintenance and Defects Notification Period (DNP) obligations.

In parallel, AFH is progressing engineering assessment and design activities for harbor facilities, including the restoration of the 2,000-ton Cold Store at Aden Fishery Harbor. The Cold Store design includes refrigeration and ice-production systems, electrical distribution, grid/standby power, renewable-energy solutions, lighting, controls, communications and associated MEP systems. The electrical design therefore requires independent, documented and accurate assessment of loads, PV modules installation locations, exiting power distribution, motors/compressors starting behavior, existing generator and renewable-energy capacities, available protection, controls and low-voltage systems and multidisciplinary interfaces before tendering and implementation.

Given the number of active locations and the technical complexity of the electrical, refrigeration, PV and BESS systems, UNDP requires a qualified National Electrical Engineer on a full-time basis to participate in electrical design preparation and development, provide independent design review and technical support, supervise implementation, oversee quality assurance and testing/commissioning, verify progress, and support technical coordination.

3. ROLE BACKGROUND AND DESCRIPTION

Under the overall guidance of the Fisheries Project Manager, the Electrical Engineer will operate within a matrix management structure, reporting to the Project Engineer and while maintaining a technical reporting line to the Head of the Engineering Unit on engineering matters. By participating in the preparation, development and refinement of assigned electrical designs, providing independent technical review, and carrying out full-time supervision across the assigned AFH and SFISH portfolio. The Engineer will serve as UNDP's day-to-day technical focal point for assigned electrical works, while coordinating with design consultants, supervising consultants, contractors, beneficiaries/facility operators and other technical disciplines.

The role is intended to strengthen UNDP's technical oversight and shall not replace or diminish the contractual design, supervision, quality-control or construction responsibilities of the appointed design consultant, supervising consultant or contractor. The Electrical Engineer shall not issue instructions affecting contract price, scope, time, variation or financial commitment unless specifically authorized by UNDP.

Role Objectives:

- Participate in site technical assessments and support the preparation, development, updating and optimization of electrical designs for AFH and SFISH works.
- Independently review the complete electrical design of the 2,000-ton Aden Fishery Harbor Cold Store, including calculations, drawings, BOQs, technical specifications and tender documentation.
- Provide full-time technical supervision and monitoring to ensure that electrical, PV, BESS and associated works are implemented in accordance with the approved designs, contracts, specifications, quality standards, HSE requirements and agreed work programmes.
- Support AFH and SFISH works through procurement and tender inputs, progress and quantity verification, testing and commissioning, handover, and DNP/maintenance follow-up.
- Facilitate effective coordination and the timely resolution of technical issues among UNDP, consultants, contractors, beneficiaries and other stakeholders.

4. SCOPE OF WORK

The responsibilities below apply across all assigned AFH and SFISH sites and contracts. They are intentionally consolidated by function so that common responsibilities are not repeated site by site. Site-specific requirements shall be applied through the relevant approved design, BOQ, technical specifications, contract documents and UNDP instructions.

Summary of Key Responsibilities:

1. Electrical Design Preparation, Design Review, Technical Assessment and Tender Support.

- Participate in and support site assessments, electrical data collection, needs definition, design criteria development, preparation, updating and optimization of electrical designs for AFH and SFISH facilities as assigned by UNDP.
- Support preparation and refinement of electrical design packages, including load schedules, calculations, SLDs, layouts, equipment schedules, cable sizing and voltage drop calculations, panel schedules, BOQs, technical specifications, compliance sheets, SOWs and tender drawings, and develop practical design alternatives where required.
- Review electrical assessments, Statements of Requirements, design briefs, concept designs, detailed designs, calculations, drawings, BOQs, technical specifications, compliance sheets, schedules and tender documents prepared by consultants or contractors for AFH and SFISH facilities.
- For the 2,000-ton Aden Fishery Harbor Cold Store, participate with the UNDP engineering team and appointed design consultant in developing and technically refining the complete electrical design, and independently review connected load and maximum demand, diversity/simultaneity, refrigeration and process loads, compressor/motor running and starting requirements, essential/non-essential loads, power factor and future capacity expansion.
- Participate in evaluating and developing incoming/grid supply, transformers where applicable, MDBs/SMDBs/SDBs, switchgears and busbars, standby generators, UPS/emergency power, MTS/ATS/STS/changeover arrangements, solar PV, BESS, on/off-grid and hybris inverters/PCS, SPMS/EMS, monitoring, metering and operating philosophy for reliable cold-store/ice-plant operation.
- Prepare, verify and/or independently check electrical calculations as assigned, including cable sizing/ampacity, voltage drop, short-circuit/fault levels, breaker/fuse selection, protection coordination/discrimination, phase balance, earthing, lightning/surge protection, generator sizing, PV/BESS sizing and motor/compressor starting performance.
- Participate in and review lighting, small power, electrical/IT rooms, external electrical works and ELV/control systems as applicable, including fire alarm, CCTV, data/telephone, access control, PAVA and PLC/SCADA; verify compatibility with refrigeration, HVAC, process, firefighting, plumbing, architectural and structural designs.
- Cross-check drawings, calculations, equipment schedules, BOQs and specifications for consistency, completeness, constructability and cost implications; identify missing/duplicated items, design gaps and multidisciplinary clashes, maintain review comments and follow up their closure.
- Participate in design coordination meetings and support preparation/refinement of tender-ready electrical documentation, technical clarifications and technical evaluation of bids were assigned by UNDP.
- The Engineer's participation in design preparation and technical development shall support UNDP's engineering functions and shall not relieve appointed design consultants or contractors of their contractual responsibility and professional liability for designs prepared under their respective contracts.

2. Contractor Submittal Review, Material Control and Installation Supervision.

- Review contractor shop drawings, PV layouts, equipment locations, string/MPPT schedules, SLDs, cable routes, panel schedules, earthing/lightning layouts, integration details and proposed technical changes against the approved design and contract.
- Review material/equipment submittals for PV modules, BESS/BMS, inverter/PCS, generators/transfer equipment, EMS/monitoring, DC/AC cables, combiner/protection boxes, switchgear, panels, earthing and related accessories; verify ratings, certifications, warranties, manufacturer records and technical equivalency where substitutions are proposed.
- Review method statements, inspection and test plans (ITPs), risk assessments, outage/energization plans, testing/commissioning procedures and relevant close-out/training documentation.
- Supervise installation of electrical, PV and BESS systems, including modules, strings, DC/AC cabling, inverters/PCS, BESS/SPMS/BMS, distribution panels, MDB interfaces, transfer/changeover systems, earthing, lightning protection, SPDs, controls and monitoring.
- Verify cable types/sizes, routing details, segregation, supports, containment, trenches, glands/lugs, terminations, tighten torques, identification/labeling, fire-stopping, environmental/mechanical protection, equipment clearances, ventilation/cooling and fire-safety provisions.
- Coordinate electrical works with civil/structural and other disciplines for foundations, supports, penetrations, trenches, waterproofing, reinstatement and equipment/service interfaces; identify unauthorized deviations and require technical resolution through the authorized UNDP channel.

3. Quality Assurance, HSE, Testing and Commissioning.

- Monitor contractor QA/QC implementation and verify compliance with approved drawings, specifications, manufacturer instructions, applicable standards and approved ITP hold/witness points.
- Inspect delivered materials/equipment and workmanship; maintain inspection records, photographs, material approvals, test and serial numbers records and non-conformance records, and verify corrective actions before closure.
- Coordinate with UNDP and contractor HSE personnel to verify risk assessments, permit-to-work, safe isolation, lock-out/tag-out, prove-dead/test-before-touch, controlled energization, appropriate PPE and safe arrangements for work at height, lifting, excavation, hot work and battery/BESS activities.
- Review and witness pre-commissioning electrical tests including continuity, insulation resistance, polarity, phase sequence, cable identification, termination/torque checks, earthing/lightning resistance and protection-device testing.
- Witness and document comprehensive PV, inverter/PCS, and BESS commissioning per IEC 62446-1, IEEE 1547, and NFPA 855. This includes string-level electrical tests, thermal imaging, power quality verification, SOC/SOH baseline recording, BMS fault simulation, fire suppression interface checks, anti-islanding/anti-back feed protection, and hybrid source transfer/interlock verification. Validate SPMS/EMS data-logging and protocol integrity (Modbus/CAN). Maintain complete commissioning records, including measured test values, calibration certificates, configuration backups, photographic evidence, and consolidated punch lists.
- Verify stable starting and continuous operation of ice-plant and Cold Store motors/compressors under representative loading conditions, strictly assessing inrush current, voltage dips, power factor, and thermal stability. Compare measured performance against approved design assumptions and manufacturer datasheets. Ensure all alarms, protection relay settings, and punch-list defects are formally resolved, retested, and closed out prior to recommending final system handover and the official issuance of the Taking-Over Certificate.

4. Progress Monitoring, Contract Support, Reporting and Documentation.

- Monitor contractor manpower, equipment, materials, work fronts and actual progress against approved programmes/look-ahead schedules; identify schedule, procurement, interface, quality and safety risks early.
- Review routine contractor/consultant progress information and provide concise technical updates to UNDP, including progress, constraints, risks, non-conformities, corrective actions and decisions required.
- Verify completed electrical/PV/BESS quantities, installed equipment and measurement records for payment review and project reporting, while ensuring that contractual/financial approvals remain with the authorized UNDP official.
- Provide technical input on RFIs, substitutions, deviations, proposed changes, variations, claims, delay justifications and corrective/recovery plans as requested by UNDP.
- Maintain organized and traceable records of design-review comments, submittals, inspections, NCRs, test results, site observations, issue/action trackers, technical correspondence, photographs and meeting outcomes, and immediately escalate critical safety, quality, technical, schedule or cost risks.

5. Coordination, Handover, Capacity Building and DNP/Maintenance Follow-Up.

- Maintain effective day-to-day coordination with UNDP project teams, design/supervising consultants, contractors, beneficiaries/facility operators, HSE personnel, relevant authorities and other stakeholders as required by the assigned works.
- Participate in design, technical, site and progress meetings; support resolution of site constraints and technical interfaces; and follow up agreed actions and deadlines.
- Witness and verify contractor/operator training covering safe operation, alarms, emergency response, troubleshooting, preventive maintenance, system isolation and routine inspection/cleaning requirements.
- Review final as-built drawings, SLDs, panel/cable schedules, protection settings, equipment configurations, commissioning records, calibration certificates, O&M manuals, warranties, serial-number lists, software/configuration backups, spare-parts lists and maintenance/service contacts, ensuring they reflect the actual commissioned installation and approved design changes.
- Support preparation and closure of snag/punch lists and provide technical recommendations on readiness for Taking-Over; during the assignment period, follow up preventive/corrective maintenance and DNP issues for systems already handed over, including verification of repairs, replacement, retesting and recommissioning.
- Carry out other directly related electrical engineering, design-review, supervision, procurement-support and project-support tasks assigned by the Project Manager, Project Engineer, Chief Technical Advisor or UNDP Engineering Unit.

5. INSTITUTIONAL ARRANGEMENT

The Electrical Engineer will work within UNDP's project management structure, under the direct supervision of the Project Engineer and in close coordination with the respective Project Managers, project teams and the UNDP Engineering Unit. Work priorities and assignments will be coordinated across AFH and SFISH to ensure timely delivery, technical quality, consistency with Country Office engineering practices and alignment with the respective project requirements.

The Engineer will maintain close technical coordination with appointed design and supervising consultants, contractors, beneficiaries/facility operators and other stakeholders. The Engineer may issue technical comments, inspection observations, non-conformance recommendations and technical acceptance recommendations; however, any instruction affecting contract price, scope, time, variation, waiver or financial commitment shall be referred to the authorized UNDP official.

6. DURATION, ATTENDANCE, REPORTING AND PAYMENT BASIS

The National Electrical Engineer will work on a full-time basis for an expected duration of five (5) months, starting on 20 September 2026, with the possibility of extension subject to project completion. The Engineer is expected to be available during normal UNDP working days/hours and, when required by implementation needs, for critical inspections, shutdowns, energization, testing and commissioning activities outside normal hours with prior coordination.

The assignment is a full-time, short-term, time-based engagement. Routine technical updates, design and design-review records, site monitoring reports, inspection/test records and monthly progress/performance information form part of the Engineer's ongoing responsibilities and are not separate payment deliverables.

Payment will be made on a monthly basis, subject to certification by the designated UNDP supervisor that the Engineer has satisfactorily performed the duties and responsibilities during the relevant month. Approved official travel outside the duty station will be arranged or reimbursed in accordance with applicable UNDP rules and the terms of the selected contractual modality.

7. COMPETENCIES

- Strong electrical engineering design preparation, design-review, technical supervision, construction monitoring and engineering analysis skills.
- Strong knowledge of industrial/commercial power distribution, refrigeration and motor/compressor loads, generators, solar PV, BESS, inverter/PCS, protection, earthing, lightning protection and control/ SPMS/BMS monitoring systems.
- Ability to review integrated design packages, calculations, drawings, BOQs, specifications and contractor submittals and identify technical gaps, conflicts and constructability issues.
- Good understanding of contract implementation, measurement verification, quality control, HSE requirements, progress monitoring and testing/commissioning procedures.
- Ability to coordinate effectively with UNDP teams, consultants, contractors, beneficiaries, authorities and multidisciplinary stakeholders.
- Strong reporting, communication, facilitation, negotiation, problem-solving and issue-escalation skills.
- Ability to manage multiple active sites and parallel design/construction priorities under pressure.

UNDP Core Competencies:

Core	Level
Achieve Results	LEVEL 2: Scale up solutions and simplify processes; balance speed and accuracy.
Think Innovatively	LEVEL 2: Offer new ideas/open to new approaches; demonstrate systemic/integrated thinking.
Learn Continuously	LEVEL 2: Learn from others and support their learning.
Adapt with Agility	LEVEL 2: Adapt approaches to new situations and involve others in change.
Act with Determination	LEVEL 2: Persevere and deal with multiple sources of pressure simultaneously.
Engage and Partner	LEVEL 2: Facilitate/integrate, bring people together and build/maintain partnerships.
Enable Diversity and Inclusion	LEVEL 2: Facilitate conversations to bridge differences and consider inclusion in decision-making.

8. MINIMUM QUALIFICATIONS AND EDUCATION REQUIREMENTS

Requirement	Details
Education	Bachelor's degree in electrical engineering, Electrical Power Engineering, Renewable Energy Engineering, or a closely related field is required. A Master's degree in Electrical Engineering, Power Engineering, Renewable Energy,or a related field is desirable.
Minimum Relevant Experience	Minimum of six (6) years of relevant professional experience in electrical engineering, including electrical designand design review, construction supervision, site monitoring and implementation of electrical and/or renewable-energy systems. Experience with solar PV, hybrid power systems, BESS, industrial andcommercial facilities, cold storage, refrigeration plants or similar facilities is strongly preferred.

Requirement	Details
Required Skills and Experience	Proven experience in the preparation, review, and optimization of electrical designs, drawings, Single Line Diagrams (SLDs), load schedules, calculations, Bills of Quantities (BOQs), technical specifications, compliance matrices, and scopes of work. Experience in conducting electrical site assessments, load profiling, and maximum demand calculations, including the detailed analysis of major motor and compressor loads. Experience in the design and review of LV power distribution systems, MDBs/SMDBs/DBs, cable sizing, voltage drop, short-circuit calculations, protection coordination, earthing, lightning, and surge protection systems. Practical experience with solar PV systems, hybrid inverters/Power Conversion Systems (PCS), Battery Energy Storage Systems (BESS)/Battery Management Systems (BMS), standby generators, MTS/ATS/STS/changeover systems, and Power/Energy Management Systems (PMS/EMS) and monitoring platforms. Experience supervising electrical, solar PV, and BESS installation works, including the rigorous review of contractor shop drawings, material submittals, method statements, and Inspection and Test Plans (ITPs). Experience in the inspection, testing, and commissioning of electrical systems, including solar PV strings, on-grid, off-grid, and hybrid inverters/PCS, BESS, generators, protection relays, earthing systems, and integrated multi-source power operations. Experience coordinating electrical designs and multidisciplinary interfaces with refrigeration, HVAC, mechanical, plumbing, fire protection, architectural, and structural disciplines. Demonstrated ability to review and support the design of electrical, control, solar PV, BESS, and Extra-Low Voltage (ELV) systems, including PLC/SCADA, fire alarm, CCTV, data/telecommunications, access control, and Public Address/Voice Alarm (PAVA) systems, where applicable. Experience in progress monitoring, quantity verification, technical reporting, snag/punch-list preparation, and the compilation of comprehensive handover documentation. Comprehensive knowledge of applicable IEC, NFPA, NEC, and other relevant international electrical, renewable energy, and safety standards. Proficiency in MS Office and AutoCAD; familiarity with electrical/PV design and energy-analysis software (e.g., ETAP, PVsyst, PV*SOL, HOMER, SAM) and manufacturer configuration/monitoring platforms is a strong asset.
Relevant Project Experience	Experience: Working with designing and supervising consultancy firms, contractors, public institutions and infrastructure/development projects is desirable. Previous experience with UNDP, other UN agencies, INGOs or internationally funded projects is an asset.
Language	Proficiency in Arabic and English, oral and written, is required, including the ability to prepare clear technical reviews, site reports and professional correspondence.
Consultant Category	National consultants only.
Professional Certificates	Relevant professional certifications in electrical engineering, solar PV, renewable energy, electrical safety or project/construction management are desirable but not mandatory.

9. REQUIRED DOCUMENTS

THE FOLLOWING DOCUMENTS SHALL BE REQUIRED FROM THE APPLICANTS:

A. **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) of the most recent professional references of previous supervisors. References may also include peers.

B. A cover letter (maximum length: 1 page) indicating why the candidate considers him/herself to be suitable for the position.

Only shortlisted candidates whose qualifications closely match the requirements of the position will be contacted and invited to an interview. The evaluation will be based on a review of the applicant's technical expertise, competencies, and relevant professional experience as outlined in this Terms of Reference (ToR).

11. APPROVAL

Cleared by:

Karina Schejbalova

Signed by:
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Osama Kattan

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Osama Kattan
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Initial
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This TOR is approved by:

Petrus Vandepol

Team Leader, Governance and Economic Recovery.

Signature:

DocuSigned by:
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