ENERGY FIJI LIMITED

Tender Specification

Pre-Feasibility Study for Ground Mounted Solar Farm with Battery Energy Storage System at Seaqaqa, Vanua Levu.

TENDER NO: MR 158/2025

Quality Assurance Statement	
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Revision Schedule					
Rev. No	Date	Description	Prepared By	Reviewed By	Approved By
1	06.04.25	Initial Draft	Ram Maharaj & Shavneel Deo	Krishneel Prasad	Krishneel Prasad
2	14.04.25	Final Copy	Ram Maharaj & Shavneel Deo	Krishneel Prasad	Krishneel Prasad
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Definitions

RFP	Request for Proposals
TOR	Terms of reference for the works
Tenderer	The company or consortia that is providing a submission in response to this RFP document
EFL	Energy Fiji Limited, 2 Marlow Street, Suva, Fiji
Works	The Project, Assignment
PV	Photo Voltaic
CBA	Cost Benefit Analysis
BESS	Battery Energy Storage system

1.0 Background

1.1 Energy Fiji Limited (EFL)

Energy Fiji Limited, previously the Fiji Electricity Authority, was established, incorporated and constituted under the provisions of the Electricity Act of 1966 and began operating from 1 August of that year. The powers, functions and duties of EFL under the Electricity Act are for the basic purpose of providing and maintaining an efficient and cost-effective power supply to the Fijian people in a safe and secure manner that meets high benchmarks in quality.

Fiji Electricity Authority (FEA) was corporatised into Energy Fiji Limited (EFL) on 16 April 2018, a public company limited by shares, and was registered under the Companies Act. EFL has also been appointed as the successor entity of FEA. One of the key objectives of the corporatisation of FEA is to provide an opportunity for Fijians to share in the economic benefits of FEA and list the newly corporatised entity on the South Pacific Stock Exchange, which will promote the development of Fiji's capital market. In March 2017, a new Electricity Act 2017 was passed by Parliament; however, the new Electricity Act 2017 was gazetted on 1st October 2019 and came into effect from that day.

The primary goal of EFL's authority, responsibilities, and powers under the Electricity Act is to offer and sustain a safe, secure, high-quality power supply that is both economical and efficient for the Fijian people. The necessity for EFL to uphold its goal of obtaining 90% of its energy requirements from renewable sources has been further underscored by the steadily rising demand for power and the rising cost of fuel.

Electricity generation, transmission, and distribution in Viti Levu, Vanua Levu, Ovalau, and Tavueni, Fiji, are principally handled by EFL. Over twenty (20) power plants, forty (40) substations, and switching stations are owned by it on the islands of Viti Levu, Ovalau, Taveuni, Vanua Levu. A network of 147 km of 132 kV transmission lines, 535 km of 33 kV lines, and more than 10,500 km of 11 kV and 415 V distribution lines are owned, run, and maintained by EFL.

2.0 Project Overview

2.1 Project Drivers and Summary

EFL has embarked upon an ambitious program of development in order to fulfil its strategic objectives. This study aims to tackle into the key components of a pre-feasibility study for ground mounted solar PV project with BESS at Seaqaqa, Vanua Levu, with a focus on technical and economic analyses. Additionally, also touching on other essential considerations such as environmental, social, and commercial analyses, highlighting their significance in ensuring the success and sustainability of this project. Upon completion of the Pre-Feasibility study, a detailed EPC tender specification document together with preliminary solar power plant with BESS design shall be prepared in consultation with EFL. The successful bidder's scope maybe further extended to carry out the role as Owner's Engineer (OE). This appointment will be further discussed and negotiated after the completion of the Pre-Feasibility study and preparation of detailed EPC tender specification document together with preliminary solar power plant with BESS design.

2.2 Background

Fiji utilizes a diverse array of energy sources, including hydro, diesel, wood, and petroleum products, to fulfill its energy needs. The country's National Development Plan aims for 100% renewable electricity generation by 2036. To achieve this, Fiji plans to increase renewable energy generation capacity by 40 MW by 2026. Energy Fiji Limited (EFL) is the primary provider of grid-based power to approximately 90% of the population on the main islands of Viti Levu, Vanua Levu, and Ovalau. EFL aims to supply at least 90% of its energy requirements through renewable sources by 2035. Having a dependable and high-quality supply of electricity is crucial for driving economic growth. Lack of access to electricity not only diminishes the quality of life but also deprives people from essential services like healthcare, agriculture, education etc.

In Fiji, the percentage of the population with access to electricity was 93.79% until 2014, but it increased to 100% in 2020. In 2021, the total on-grid power generation was 937 GWh and hydro power is currently the leading source of electricity generation in Fiji, contributing 58.47% of the total generated electricity. Fiji has established five significant hydro power generating plants to meet the country's electricity requirements. Fiji has set a goal of achieving 100% renewable energy power generation, which is expected to result in a reduction of 0.5 MtCO2 by 2030. Below are the details of category wise installed capacity of power in Fiji. As per NDC target submitted to UNFCCC, Fiji expressed to reach close to 100% renewable energy power generation (grid connected) by 2030, thus reducing an expected 20% of energy sector CO2 emissions. Fiji has also enacted climate change Act, 2021 to meet its sustainable development objectives, long-term climate ambition, net-zero emissions target, and thereby protecting Fiji's environment. The solar energy accounts for approximately 9.7MW of the total RE installed capacity. Fiji has also partnered with GGGI for feasibility study of solar PV project in Taveuni Island and Ovalau Island. Fiji is actively engaged in various solar-related initiatives throughout the country with the aim of mitigating carbon emissions. A number of upcoming solar projects are specifically targeted at meeting the country's future energy requirements

3.0 Scope of Work

The selected bidder shall carry out the work as per the scope mentioned in this section. For carrying out this study, the successful bidder shall draw a detailed action plan which need to be presented during the project inception meeting to be held with Energy Fiji Limited and various key stakeholders such Ministry of Waterways and Environment, Ministry of Infrastructure and Meteorological Services, Department of Energy, etc. The Pre-feasibility shall be completed in **Four (4) months** from the date purchase order is issued.

3.1 Assess the potential for Ground Mounted Solar PV with BESS at Seaqaqa, Vanua Levu and prepare a technical pre-feasibility report.

The selected bidder shall select the study area based on initial site visits to the proposed site, considering key parameters such as type of landscape and its accessibility to the site, ease of power evacuation, availability of space and other logistical considerations such as ease of execution of project etc. The consultant shall conduct initial site assessment to screen the gross area of the site based on secondary data available, information collected from stakeholders, data analysis (as required for GIS-based assessment of the sites using satellite imagery available) and carry out detailed Geo-Technical study to

propose the best optimal foundation design. Upon completion of the Pre-Feasibility study, a detailed EPC tender specification document together with preliminary solar power plant with BESS design shall be prepared in consultation with EFL. The selected bidder is required to carry out the following activities as per the requirement while developing technical pre-feasibility report:

3.1.1 Site access, existing infrastructure for grid connection, and access to off-site facilities for interconnection, probable export cable routes and interconnection works and grid connection

3.1.2 General condition of the available surface area, and surrounding topography, hydrology and ground conditions for development, construction, and logistical aspects.

3.1.3 Documents Survey such as review existing documents (topographic maps, geological maps, ground maps, land condition maps, historical disaster records, etc.)

3.1.4 Field Survey.

Refer to the table below concerning field assessment but not limited to;

i.	Site Identification & Preliminary Assessment • Location & Accessibility o GPS coordinates, land ownership, and zoning compliance (AS/NZS 5033). o Access routes for construction and maintenance. • Topographical Survey (AS/NZS 1100.101) o Terrain slope, elevation, and drainage patterns. o Identification of flood-prone areas (AS/NZS 4859.1).
ii.	Solar Resource Assessment • Solar Irradiance Data (AS/NZS 4509.2) o Historical solar radiation levels (NASA/BoM/Australian Solar Atlas). o Shading analysis (nearby obstructions, vegetation, etc.). • Meteorological Conditions o Wind speed, temperature extremes, hail risk (AS/NZS 1170.2).
iii.	Geotechnical & Soil Investigation • Soil Bearing Capacity (AS 1726) o Soil type, compaction, and corrosion potential. • Groundwater & Erosion Risks (AS/NZS 7000) o Water table depth and potential impacts on foundation design.
iv.	Environmental & Ecological Survey • Flora & Fauna Assessment (AS/NZS ISO 14001) o Protected species, biodiversity impact, and mitigation measures. • Noise & Visual Impact (AS/NZS 2107)

	○ Proximity to residential areas and aesthetic considerations.
v.	Grid Connection & Electrical Infrastructure • Proximity to Substations (AS/NZS 3000, 7000 & 4777) ○ Voltage levels, transformer requirements, and interconnection feasibility. • Grid Capacity & Stability (AS/NZS 4509.1) ○ Load flow analysis and potential grid upgrades. ○ N-1 contingency to be considered as part of study.
vi.	Land Use & Regulatory Compliance • Planning Permits & Approvals (AS/NZS 5139) ○ Compliance with local council and state regulations. • Cultural & Heritage Assessment ○ Indigenous land considerations (if applicable).
vii.	Preliminary Design & Layout • PV Array Configuration (AS/NZS 5033) ○ Tilt angle, row spacing, and module orientation. • Civil & Structural Feasibility (AS/NZS 1170) ○ Foundation type (ground-mount vs. pile-driven).
viii.	Risk Assessment & Mitigation • Hazard Identification (AS/NZS ISO 31000) ○ Bushfire risk (AS 3959), lightning protection (AS/NZS 1768). • Decommissioning Plan (AS/NZS 5377) ○ Recycling/disposal of PV panels and infrastructure.
ix.	Economic & Financial Viability • CAPEX & OPEX Estimates ○ Land lease costs, construction expenses, and maintenance forecasts. • ROI & Payback Period Analysis
x.	Reporting & Deliverables • Pre-Feasibility Report (AS/NZS 4907) ○ Executive summary, site suitability, and recommended next steps.
xi.	EPC Tender Documentation and Preliminary Tender Design
xii.	Carry out Role of Owner's Engineer under the terms and condition of FIDIC white Book (2017).

3.1.5 Geo-Technical Study.

The Feasibility study should incorporate a detailed Geo-Technical Study which will be used to design the preliminary Solar Farm design for tender purpose. The following is the minimum requirement outlined by the EFL but not limited to additional study which may be subjected as required to complete the pre-feasibility study.

Introduction & Objectives

The geotechnical study is for the proposed solar PV farm with BESS. The objective is for assessing subsurface conditions, identifying suitable foundation types, slope stability, earthworks suitability and analyzing soil corrosivity and resistivity to ensure the plant's long-term stability and performance.

Reference relevant applicable standards:

- AS 1726 (Geotechnical Site Investigations)
- AS 2870 (Residential Slabs and Footings) – for structural foundations
- AS 3798 (Guidelines on Earthworks for Commercial and Residential Developments)
- NZS 4431 (Earthworks for Commercial and Residential Developments)

Site Investigation

Desktop Study (Preliminary Assessment)

- Review existing geological, topographical, and hydrological data.
- Identify potential geohazards (e.g., landslides, liquefaction, expansive soils).

Field Investigation

- Test Pits & Boreholes:
    - Depth: Minimum 3–5m (or deeper if soft soils/rock is expected).
    - Spacing: Grid-based (e.g., 1 borehole per 0.5–1 Acre).
- In-situ Testing:
    - Standard Penetration Test (SPT) (AS 1289.6.3.1)
    - Cone Penetration Test (CPT) (if applicable)
    - Dynamic Cone Penetrometer (DCP) for subgrade strength
    - Shear Vane Test (for cohesive soils)
- Groundwater Assessment:
    - Monitor water table levels (seasonal variations if needed).

Laboratory Testing

- Soil Classification:
    - Particle size distribution (AS 1289.3.6.1)
    - Atterberg Limits (AS 1289.3.1.1, 3.2.1, 3.3.1)
- Strength & Compressibility:
    - Unconfined Compressive Strength (UCS)
    - Triaxial Shear Test (for cohesionless soils)
    - Consolidation Test (if settlement is a concern)

- Expansive Soils:
    - Shrink-Swell Index (AS 1289.7.1.1)
- Corrosivity Testing:
    - pH, resistivity, sulfate/chloride content (for steel pile/foundation durability).

Analysis & Design Recommendations

- Bearing Capacity: Assess for different foundation types (e.g., driven piles, ground screws, shallow footings).
- Settlement Analysis: Predict long-term settlement under PV panel loads.
- Slope Stability: Evaluate cut/fill slopes (if terrain requires grading).
- Earthworks Specifications:
    - Recommended compaction (e.g., 95% Standard Proctor, AS 1289.5.1.1)
    - Cut/fill material suitability.
- Seismic Considerations (if applicable per NZS 1170.5).

Reporting (Geotechnical Interpretive Report - GIR)

- Executive summary of findings.
- Site investigation methodology.
- Lab test results with interpretations.
- Design parameters (e.g., allowable bearing pressure, soil stiffness).
- Recommendations for:
    - Foundation type (e.g., shallow/deep).
    - Drainage requirements.
    - Mitigation measures for problematic soils (e.g., lime stabilization, geogrids).
- Limitations and further investigations (if required).

Compliance & Quality Assurance

- Ensure adherence to AS/NZS standards and local council requirements.
- Peer review (if necessary for large-scale projects).

Additional Considerations for Solar Farms

- Tracker System Foundations: Higher wind/uplift loads may require deeper analysis.
- Access Roads & Cable Trenches: Subgrade assessment for construction.
- Erosion & Sediment Control: Post-construction impact (if applicable).

3.1.6 The assessment shall include the available area, availability of power evacuation infrastructure and evacuation capacities, Local activities and potential utilities of the site, development works & Preliminary environmental and social assessment.

Conduct an outline evaluation of the impact on the surrounding environment of the site but not limited to;

- Impact of soil erosion
- Impact on landscape
- Noise generated by power conditioners

- Impact of reflected light on the living environment
- Presence and impact on important flora and fauna
- Dust, noise, and vibration related to construction work

3.1.7 Climatic conditions (temperatures, wind, humidity, soiling, rain, etc.).
The following research should be conducted based on publicly available information, etc.

- Solar radiation (hourly observation data for the year), Hourly rainfall, Specific climatic phenomena such as cyclones, lightning, and heavy rain, etc.

3.1.8 Optimum technological solutions considering Solar PV module technology, size, and configuration, inverters, mounting platforms, transformers etc. and other electrical, electromechanical, auxiliary and protection, control, and monitoring systems that are part of a ground mounted solar PV system.

3.1.9 The Battery Energy Storage System (BESS) is envisioned to incorporate grid-forming inverter technology to support stable and resilient operation within a distributed generation framework. The proposed BESS should be capable of regulating voltage and frequency autonomously, providing virtual inertia and supporting synchronization with or without grid presence. Its function will be critical in mitigating power fluctuations, enhancing system reliability, and enabling smooth transitions between grid-connected and islanded modes. The system should demonstrate potential to deliver fast response, black start capability, and ancillary services such as voltage support and frequency regulation. This prefeasibility stage aims to assess solutions that offer robust operational characteristics suitable for future integration into a high-reliability, distributed energy network.

Consideration of the following is mandatory but not limited to;

1. Electrical Equipment Design)

- Creation of layout drawings (solar array layout, racking system layout)
- Determination of solar power system capacity (calculation of solar array output capacity, determination of PCS output capacity)
- Determination of BESS capacity considering both grid forming and grid following capabilities and the impact on grid stability and reliability.
- Configuration of power receiving equipment
- Creation of electrical drawings (single-line diagrams, system diagrams, etc.)
- Equipment Specifications (Solar Power Equipment, Receiving Equipment, Interconnection Equipment)
- Determination of SCADA communication framework considering local and remote control provisions.

2. Civil Engineering & Works Design

This pre-feasibility study will outline the civil design considerations for a proposed Solar PV Farm with BESS in accordance with Australian and New Zealand Standards (AS/NZS). The study should covers but not limited to:

- Site selection
- Detailed Geo-Technical Study
- Planning of land creation works and drainage
- Design of racking systems
- Foundation conceptual design
- Drainage
- Access road

2.1. Access Road & Internal Pathways

Design Standards: Follow AS/NZS 2890.1:2004 – Parking Facilities for road widths and turning radii.
Width: Minimum 4.5m for maintenance vehicles.
Surface Material: Gravel or compacted crushed rock (min. 150mm thickness).
Drainage: Crown profile (2% cross-fall) with side drains (refer to AS/NZS 3500.3:2021 – Storm water Drainage).

2.2. Drainage & Storm water Management

Design Rainfall: Use AR&R (Australian Rainfall & Runoff) Guidelines.
Drainage Channels: V-shaped or trapezoidal, slope ≥1%.
Erosion Control: Silt fences, sediment basins (per AS 3740:2021 – Erosion & Sediment Control).

2.3. Foundations & Mounting Structures

Foundation Types:
Ground Screw Piles (for stable soils) – AS 2159:2019 – Piling Design & Installation.
Concrete Ballasted Foundations (for low-wind areas).
Driven Piles (for soft soils).
Wind & Seismic Loads: Comply with AS/NZS 1170.2:2021 (Wind Actions) and AS 1170.4:2007 (Earthquake Actions).

2.4. Fencing & Security

Perimeter Fence: 2.4m high chain-link (AS 1725:2017 – Chain Wire Fencing).
Gates: Minimum 5m width for emergency access.

2.5. Environmental & Safety Compliance

Bushfire Protection: Follow AS 3959:2018 – Construction in Bushfire-Prone Areas.
Noise & Glint Assessment: Per AS 4959:2018 – Acoustics – Construction Noise.
Hazardous Materials: Avoid asbestos & contaminated soils (AS 4964:2004 – Soil Contamination Assessment).

2.6. Conclusion & Recommendations

Conduct detailed geotechnical & hydrological surveys before final design.
Optimize drainage & erosion control to meet AS/NZS standards.
Ensure foundation design accounts for site-specific soil & wind loads.

2.7. References:

The Following references maybe applicable but not limited to:

1.1.1. AS/NZS 1170 (Structural Design Actions)
1.1.2. AS 1726 (Geotechnical Investigations)
1.1.3. AS/NZS 3500.3 (Storm water Drainage)
1.1.4. AS 2159 (Piling Design)
1.1.5. AS 3959 (Bushfire Protection

3.1.10 Power evacuation arrangements for the project considering cable routes, accessibility to substations, etc. and other electrical, electromechanical infrastructure required for grid integration. Specification and layout drawing of major equipment necessary for the grid interconnection shall be part of scope.

3.1.11 Solar Energy Resource Assessment and Energy Yield Assessment in per MWp basis considering the optimum technological solutions identified. The assessment must be undertaken for the entire life of the project. Optimal Tilt Angle and Azimuth of the Solar Array shall be part of scope.

3.1.12 Estimated costs per MWp of ground mounted solar PV (including break-up of cost for BESS, PV panels and all components) based on prevailing market conditions and prices.

3.1.13 Brief scope of work and inspection plan for the required Operation & Maintenance (O&M) of the ground mounted solar PV with BESS and costs involved in per MWp basis. The O&M costs (including routine and periodic) must be assessed for the entire life of the project.

Create an outline schedule based on the following items but not limited to;

- Acquisition of permits and approvals
- Information collection and organization
- Grid Inter-connection
- Various surveys (e.g., surveying, geotechnical survey)
- Detailed design period
- Construction planning
- Commissioning period

Conduct Project feasibility evaluation (P-IRR calculation) for the assumed project duration to be (20 years, 25 years and 30 years)

- Calculation of total project costs: Estimates are acceptable for unknown values
- Land acquisition costs
- Design costs
- CAPEX, including major repairs
- O&M costs
- Operating costs (personnel costs)
- Grid Inter-connection costs

- Decommissioning costs

3.1.14 Detail all regulatory clearances required for implementing the project.

3.1.15 Data regarding reduction in CO_2 emissions and fossil fuel import due to the proposed solar PV project(s). Provide the approach and calculation method for determining CO_2 emissions.

3.1.16 Compliance of all type of statutory approvals required for the implementation of identified ground mounted solar PV project in the country.

If there are any additional investigations or considerations deemed necessary beyond the items organized in this specification, or if other methods are considered, please propose them in your proposal.

3.1.17 After completion of the Pre-feasibility study for Ground Mounted Solar Farm with BESS at Seaqaqa, Vanua Levu and the final report presentation to EFL, the consultant will be required to prepare a complete detailed EPC tender specification document with all mandatory preliminary design for tendering. The EPC tender will be conducted under the framework set out in the document **"Conditions of Contract for EPC/Turnkey Project", 2nd Edition 2017 (the 2017 Silver Book)"**, published by the International Federation of Consulting Engineers (FIDIC).

The following items but not limited to must be incorporated in the EPC tender specification document:

a. Introduction
This document outlines the Engineering, Procurement, and Construction (EPC) tender for a Solar PV Farm integrated with a Battery Energy Storage System (BESS). The project shall comply with Australian and New Zealand Standards (AS/NZS) and relevant industry best practices.

b. Project Overview
- Project Name: [TBA]
- Location: [TBA]
- Installed Capacity: [XX MW Solar PV + XX MWh BESS]
- Scope: Design, supply, install, test, and commission a grid-connected solar PV plant with BESS.

c. Objective
To invite qualified EPC contractors to submit competitive bids for the turnkey delivery of the solar PV and BESS project, ensuring compliance with AS/NZS 5033, AS/NZS 4509, AS/NZS 4777, AS/NZS 3000, and other relevant standards.

d. Scope of Work

Engineering & Design
- Site assessment

- Detailed design specification complying with AS/NZS 5033 (PV Systems), AS/NZS 4777 (Grid Connection), and AS/NZS 3000 (Wiring Rules)
- Structural & electrical design approvals
- BESS design specification complying with AS/NZS 5139 (BESS Safety Standards) or other relevant AS/NZS standards.
- Detailed design of SCADA communication framework with local and remote control.

Procurement

- Supply of PV modules (Tier-1 manufacturers preferred)
- Supply of inverters, mounting structures, and balance of system (BoS)
- Supply of BESS (Li-ion or alternative technologies meeting AS/NZS 62619 for safety)
- Compliance with AS/NZS 1170 (Structural Design) for mounting systems

Construction & Installation

- Civil works (foundations, cabling, fencing)
- Mechanical installation of PV modules & trackers (if applicable)
- Electrical installation (string & array wiring, inverters, transformers)
- BESS installation with fire suppression systems (per AS/NZS 5139)

Testing & Commissioning

- Performance testing as per AS/NZS 4509 (Stand-alone Power Systems)
- Grid compliance testing (AS/NZS 4777.2)
- BESS performance & safety validation

Operation & Maintenance (O&M) Support

- Warranty provisions (minimum 25 years for PV modules, 10 years for inverters/BESS)
- Annual maintenance & performance monitoring

Technical Requirements

i. Solar PV System
   - Modules: Minimum efficiency of 20%, IEC 61215/61730 certified
   - Inverters: Grid-compliant (AS/NZS 4777.1), with anti-islanding protection
   - Mounting Structures: Wind-load certified (AS/NZS 1170.2)

ii. Battery Energy Storage System (BESS)
   - Battery Type: Lithium-ion (or alternative with AS/NZS 62619 compliance)
   - Cycling & Lifespan: Minimum 6,000 cycles at 80% DoD
   - Safety: Fire suppression, thermal management, and fault protection

iii. Grid Connection
   - Compliance with AS/NZS 4777.2 (Grid Connection of Energy Systems)
   - Protection systems (over-voltage, under-frequency, islanding detection)

e. Compliance & Standards

The EPC contractor must ensure adherence to but not limited to:

- AS/NZS 5033 – Installation and safety requirements for PV arrays
- AS/NZS 4777 – Grid connection of energy systems
- AS/NZS 3000 – Electrical installations (Wiring Rules)

- AS/NZS 5139 – Safety for BESS installations
- AS/NZS 4509 – Stand-alone power systems
- AS/NZS 1170 – Structural design actions
- AS/NZS 3008 – Electrical Installations – Selection of Cables:

f. Submission Requirements
Bidders must submit:
- Company Profile & Experience (similar projects executed)
- Technical Proposal (design approach, compliance strategy)
- Commercial Proposal (breakdown of costs, payment terms)
- Project Timeline (Gantt chart with key milestones)
- O&M Plan (warranty, maintenance schedule)
- Training (O&M)

g. Evaluation Criteria

Criteria	Weightage (%)
Technical Compliance (AS/NZS)	30%
Project Experience	25%
Cost Competitiveness	25%
O&M & Warranty Offerings	10%
Project Schedule	10%

Note:

A. For the execution of the above-mentioned tasks, the selected bidder shall closely interact and liaison with EFL and the key stakeholders like policy makers, regulators, power generation, transmission, distribution Utilities, concerned ministries and government departments/agencies etc. of the country.

B. The selected bidder shall submit the soft copy and appropriate number of translated hard copies of report and other relevant documents as per the requirement of the country.

3.1.18 Owner's Engineer Role (Stage 2):

The Owner's Engineer role will be further discussed and finalized by EFL with the successful bidder after the completion of Pre-Feasibility study and EPC tender documents. EFL will have the right to either proceed with the successful bidder to provide (OE) services or re-negotiate the price. The bidder will be required to price for this scope as outlined below. The scope maybe further reduced or increased and will be mutually discussed and negotiated along with the Owner's Engineer services price with the successful bidder.

The Owner's Engineer (OE) shall provide advisory, design review, construction supervision, and contract administration services for the development of a Solar PV Farm with Battery Energy Storage System (BESS) under the FIDIC Client/Consultant Model Services Agreement (White Book, 2017 Edition).
The OE shall act as the Owner's representative, ensuring compliance with technical, contractual, and regulatory requirements while safeguarding the Owner's interests.

The OE shall ensure the Solar PV + BESS project is delivered on time, within budget, and to the required technical standards while mitigating risks for the Owner.

The scopes are as follows but not limited to;

A. General Responsibilities

The OE shall:

- Ensure compliance with FIDIC White Book 2017 terms.
- Provide independent technical and contractual expertise.
- Monitor project schedule, budget, and quality.
- Liaise between the Owner, EPC Contractor, and other stakeholders.
- Review and approve design, construction, and commissioning deliverables.
- Ensure compliance with grid codes, environmental regulations, and safety standards.

B. Detailed Scope of Works

I. Pre-Construction Phase

- Feasibility & Site Assessment:
    - Review solar resource assessments, geotechnical reports, and environmental impact studies.
    - Assess BESS integration feasibility (technology selection, capacity optimization).
- Design Review & Approval:
    - Review PV plant layout, electrical single-line diagrams, BESS configuration, and grid connection design.
    - Ensure compliance with IEC, IEEE, and local grid codes.
- Tender & Contract Support:
    - Assist in drafting EPC and BESS supply contracts under FIDIC Silver Book (2017).
    - Evaluate technical bids and recommend contractor selection.

II. Construction Phase

- Construction Supervision:
    - Monitor PV module installation, inverter/BESS deployment, and electrical works.
    - Oversee civil works (foundations, mounting structures, substations).
- Quality Assurance (QA/QC):
    - Witness testing (PV module EL tests, BESS performance validation).
    - Review as-built drawings and commissioning protocols.
- Schedule & Cost Control:
    - Track progress against milestones, manage delays, and assess EPC claims.
    - Verify interim payment certificates.

III. Commissioning & Handover

- Performance Testing:
    - Witness PV plant performance tests (capacity, availability, PR).
    - Validate BESS round-trip efficiency, cycle life, and safety tests.
- Grid Compliance & Energization:
    - Coordinate grid synchronization tests with the utility.
    - Ensure compliance with grid stability requirements.
- Final Documentation & Training:
    - Review O&M manuals, warranties, and spare parts lists.
    - Conduct operator training for PV & BESS systems.

IV. Post-Construction (Defects Liability Period)

- Monitor rectification of defects.
- Verify final completion certificate issuance under FIDIC.

C. Deliverables

- Design Review Reports
- Construction Monitoring Reports
- Test & Commissioning Reports
- Final Handover Documentation

D. Contractual & FIDIC Compliance

- Administer EPC contract under **FIDIC Silver Book 2017** (as applicable).
- Manage variations, claims, and dispute resolution in line with FIDIC procedures.
- Ensure compliance with **EFL Grid Code or equivalent AS/NZS, IEC**.

4.0 Location of the Site

The proposed site for the ground mounted solar power plant is at Seaqaqa, Vanua Levu (-16.503113, 179.158355) and the electricity infrastructure GIS map, which shows the existing 11kV & 33kV circuits at the proposed solar site is enclosed as Annexure A.

5.0 Request for Price (RFP) Submission

The Request for Proposal for the Consultancy Service shall include the following:

5.1 A covering letter including the complete name and address of the firm(s) performing the project, the principal firm including the name and title of person principally responsible for the project.

5.2 A detailed technical proposal with standards, specifications, methodology and indicative drawings or sketches including a programme for the works/services. Comments on the Scope of Services can be included to add value to the submission.

5.3 State a lump sum fee for the entire works/services (Stage 1 & Stage 2 to be priced separately), and clearly identifying the breakdown of costs in accordance to the scope of services mentioned above.

Table below must be filled and submitted along with the bid proposal.

NO.	Scope	Price Currency	Amount
1	Stage 1		
1.1	Provide price breakdown (Add rows as required)		
1.2			
2	Stage 2		
2.1	Provide price breakdown (Add rows as required)		
2.2			

5.4 State hourly rates of personnel resources, if EFL requests to undertake additional work related to this assignment.

5.5 Company background and evidence of similar works undertaken by the firm(s) over the last five years including project name, summary of work carried out, contact name and address of clients.

5.6 Provide summary of at least five (5) similar assignments undertaken by the firm(s)/consortium in the Asia/Pacific region.

5.7 Background of proposed sub-consultants, if any.

5.8 CV's of personnel that will be engaged in the work/services including subconsultants/contractors.

5.9 Completed Responsibility matrix as shown below.

6.0 Responsibility Matrix

The responsibility matrix shall define key personnel who will be involved directly and indirectly with the proposed hydro project.

Responsibility Matrix – Please use similar template

Name	Firm	Overall Project Management	Specialty/ Skills Required						
			Designer						
John X	XYZ	X							
Mary Y	ABC		X						

NOTE:

a) Complete the first row with the Specialties required

b) Complete the first column with the names of Project Key Staff.

c) One Project Key Staff person may be responsible for more than one Specialty.

d) Place a mark in the appropriate column relative to the appropriate Project Key Staff and Specialty.

7.0 Deliverables and Terms of payment:

The timeline and terms of payment for submission of the deliverable/s will be as outlined below:

S. NO.	Deliverable	Duration(after signing of contract)	Percentage of total value
STAGE 1			
1	Inception Report	1 Week	10%
2	Submission of the draft assessment report with all the deliverables listed in the scope of work.	10 weeks	30%
3	Submission of final assessment report incorporating inputs from EFL and other stakeholders	14 weeks	20%
4	Presentation of findings and recommendations to stakeholders, transportation authorities, funding agencies and potential project investors.	16 weeks	10%
5	Preparation of complete detailed EPC tender specification document with all mandatory preliminary design for tendering	24 weeks	30%
STAGE 2			
1	Owner's Engineer Role (Stage 2) – (Lump Sum price to be provided. Payment terms will be discussed upon finalization on OE scope)	TBC	

8.0 Contract Condition

FIDIC General Conditions of Client Consultant Agreement or Conditions of Contract for Construction shall be used. The bidder can propose an alternate if deemed necessary.

9.0 Insurance

The consultant shall be required to provide Certificates of insurance including any Professional Indemnity Insurance cover.

10.0 Evaluation Methodology

The RFP submissions shall be checked for completeness, firms that fail to submit all information required above may not be considered for award. A 65% weighting shall be given for the firm and personnel background and performance and 35% for the lump sum price.

11.0 Costs

All costs of preparing the submission shall be borne by the tenderer.

12.0 Notification and Award

Following FEA board approval, tenderers will be advised, by letter, whether they have been successful or not. Tenderers will be able to debrief with the evaluation team should they so request, however the scoring information will not be released to any of the tenderers at any time. Notwithstanding any other provision of this document, EFL reserves the right to:

- Accept or reject any proposal.
- Seek clarification of any aspect or information provided in the RFP document and to seek further information from any party.
- Amend the closing date for submission of the RFP or any other date referred to or implied in this Request for Proposals
- In whole or in part, suspend or cancel this RFP process and/or the overall process
- Re-advertise this RFP

13.0 Site Visits

Site visit is schedule for 30th April, 2025 at Natua, Macuata, Vanua Levu project site **(-16.501716, 179.155944)**. Bidders who may not be able to attend the scheduled site visit shall coordinate with the Supply Chain office, at their own cost. A site visit can be arranged by EFL, upon request giving 1 weeks advance notice, which shall be organized depending on bidder's requirements.

14.0 Contents of Bidding Documents

The Tenderer is expected to examine carefully the contents of this Bidding document. Failure to comply with the requirements of bid submission will be at the Tenderer's own risk. Bids which are not substantially responsive to the requirements of the bidding documents will be rejected.

15.0 Clarification of Bidding Documents

A prospective Tenderer requiring any clarification of the bidding documents may notify EFL in writing by email addressed to:

Jitendra Reddy
Manager Procurement, Inventory & Supply Chain 2 Marlow Street, Suva, FIJI.
Phone: +679 3224360
Email: Tenders@efl.com.fj

EFL will respond to any request for clarification which it receives earlier than five (5) days prior to the deadline for submission of bids.

16.0 Amendment of Bidding Document

At any time prior to the deadline for submission of bids, EFL may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, modify the bidding documents by issuing addenda.

17.0 Language of Bid

The bid, and all correspondence and documents related to the bid, exchanged between the Tenderer and the EFL shall be written in the English language.

18.0 Bid Currencies

Prices shall be quoted in their **respective country currency** and shall be inclusive of all taxes applicable for such works.

19.0 Bid Validity

Bids shall remain valid for a period of **120 days** from the date of Deadline for Submission of Bids.

20.0 Tender Submission

Bidders are requested to upload electronic copies via Tender Link by registering their interest at: https://www.tenderlink.com/efl

EFL will not accept any hard copy submission.

For further information or clarification please contact our Supply Chain Office on phone (+679) 3224360 or (+679) 9926520 or email us on Tenders@efl.com.fj.

The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act. The lowest bid will not necessarily be accepted as the successful bid.

The Tender Bids particularly the "Price" must be typed and not hand written. Any request for the extension of the closing date must be addressed to EFL in writing three (3) working days prior to the tender closing date.

Tender Submission via email or fax will not be accepted.

21.0 Deadline for Submission of Bids

Bids must be received by EFL at the address specified above no later than 14th May, 2025.

EFL may, at its discretion, extend the deadline for submission of bids by issuing an addendum, in which case all rights and obligations of EFL and the Tenderers previously subject to the original deadline will thereafter be subject to the deadlines extended.

22.0 Late Bids

Any bid received by EFL after the deadline for submission of bids prescribed above will be rejected.

23.0 Modification and Withdrawal of Bids

At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by issuing addenda.

Any addendum thus issued shall be part of the bidding documents, and shall be communicated in writing or by Email to all bidders of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by email to the Employer.

To afford prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may extend the deadline for submission of bids.

No bid may be modified by the Tenderer after the deadline for submission of bids.

24.0 Rejection of One or All Bids

EFL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the rejection.

25.0 Process to be Confidential

Information relating to the examination, clarification, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process.

Any effort by a Tenderer to influence EFL's processing of bids or award decisions may result in the rejection of the Tenderer's bid.

Lowest bid will not necessarily be accepted as successful bid.

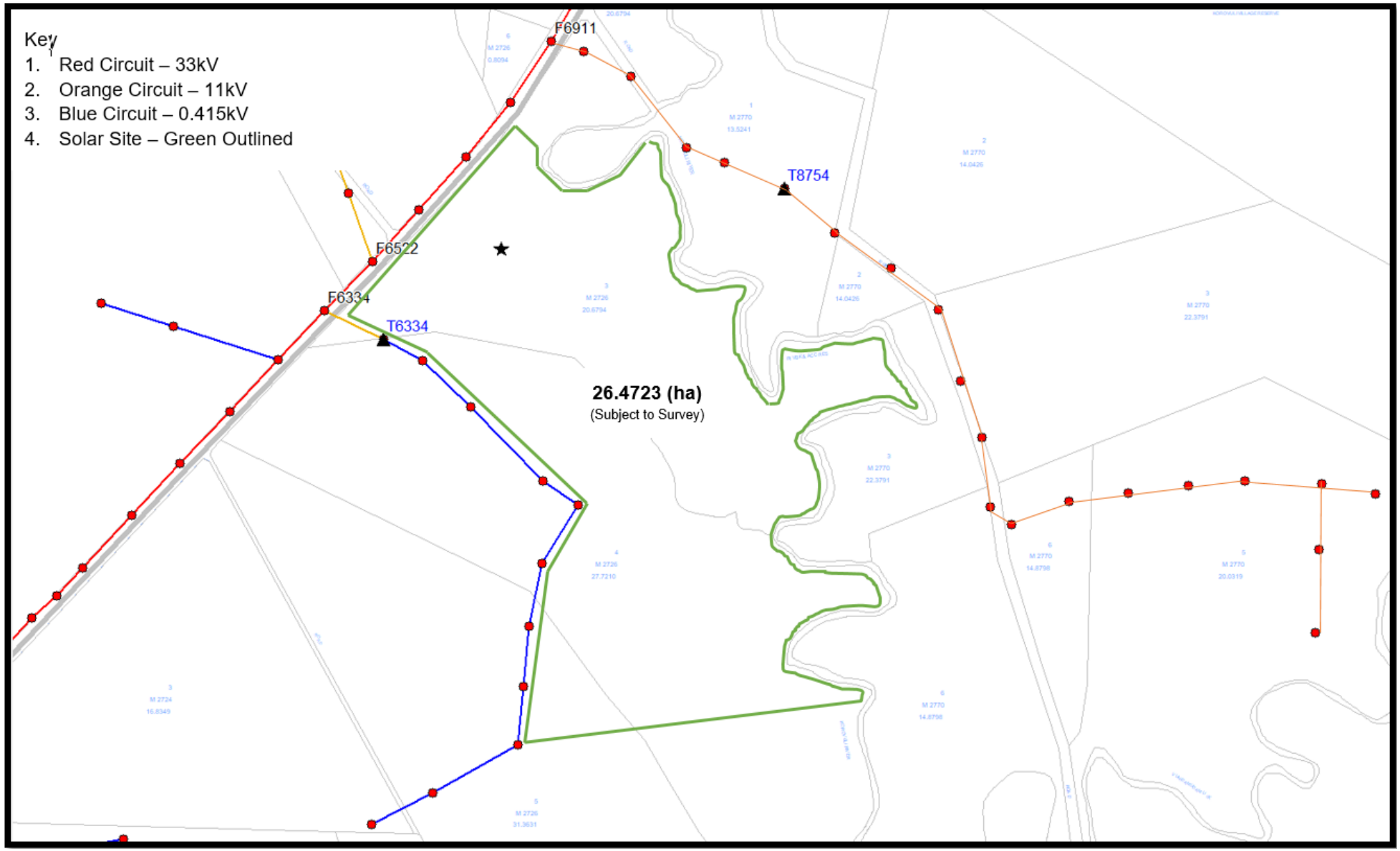
26.0 Clarification of Bids

To assist in the examination, evaluation and comparison of bids, EFL may, at its discretion, ask any Tenderer for clarification of its bid. The request for clarification and the response shall be in writing, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by EFL in the evaluation of the bids.

27.0 Compliance with Specifications

The tender shall be based on the scope of works specified and shall be in accordance with the Technical Specification. It should be noted that unless departures from specifications are detailed, the tender would be taken as conforming to the Specification in its entirety. The Tenderer shall tender for the whole of the Works included in the Specification.

Annexure A


Key
1. Red Circuit – 33kV
2. Orange Circuit – 11kV
3. Blue Circuit – 0.415kV
4. Solar Site – Green Outlined
F6911
T8754
F6522
F6334
T6334
26.4723 (ha)
(Subject to Survey)

TENDER CHECKLIST

The Bidders must ensure that the details and documentation mention below must be submitted as part of their tender Bid

Tender Number _____

Tender Name _____

1. Full Company / Business Name: _____

   (Attach copy of Registration Certificate)

2. Director/Owner(s): _____
3. Postal Address: _____
4. Phone Contact: _____
5. Fax Number: _____
6. Email address: _____
7. Office Location: _____
8. TIN Number: _____

   (Attach copy of the VAT/TIN Registration Certificate - Local Bidders Only (Mandatory)

9. FNPF Employer Registration Number: _____ **(For Local Bidders only) (Mandatory)**
10. **Provide a copy of Valid FNPF Compliance Certificate (Mandatory- Local Bidders only)**
11. **Provide a copy of Valid FRCS (Tax) Compliance Certificate (Mandatory Local Bidders only)**
12. **Provide a copy of Valid FNU Compliance Certificate (Mandatory Local Bidders only)**
13. Contact Person: _____

I declare that all the above information is correct.
Name: _____
Position: _____
Sign: _____
Date: _____

Tender submission

Bidders are requested to upload electronic copies via Tender Link by registering their interest at: https://www.tenderlink.com/efl

EFL will not accept any hard copy submission to be dropped in the tender box at EFL Head Office in Suva.

This tender closes at 4.00pm (1600hrs) on Wednesday 14th May, 2025.

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9992400** or email us on tenders@efl.com.fj

The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act. Bidders are to clearly state the percentage of VAT that is applicable to the bid prices.

The lowest bid will not necessarily be accepted as the successful bid.

The Tender Bids particularly the "Price" must be typed and not hand written.

Any request for the extension of the closing date must be addressed to EFL in writing three (3) working days prior to the tender closing date.

Tender Submission via email or fax will not be accepted.