



ENERGY FIJI LIMITED

Tender Specification

**Pre-Feasibility Study for Ground Mounted Solar
Farm at Vakabuli, Lautoka**

TENDER NO: MR 351/2024

Quality Assurance Statement	
Energy Fiji limited Private Mail Bag Suva, Fiji Tel: 679 331 333	Project Manager: Krishneel Prasad
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	Reviewed by: Krishneel Prasad
	Approved for issue by: Krishneel Prasad

Revision Schedule					
Rev. No	Date	Description	Prepared By	Reviewed By	Approved By
1	24.09.24	Initial Draft	Ram Maharaj	Krishneel Prasad	Krishneel Prasad
2	15.09.24	Final Document	Ram Maharaj	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

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 km transmission lines, 535 km of 33 km lines, and more than 10,500 km of 11 km and 415 km 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 at Vakabuli, Lautoka, 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.

2.2 Background

Fiji relies on a diverse range of energy sources such as hydro, diesel, wood and petroleum products to meet its energy requirements. The country has set an ambitious target in **its 20-year National Development Plan, which aims to generate all power from renewable sources by 2030**. To achieve this objective, **Fiji will need an additional 120 MW of renewable energy**. Energy Fiji Limited (EFL) serves as the primary provider of grid-based power to approximately 90 percent of the population residing on the main islands of Viti Levu, Vanua Levu, and Ovalau. **EFL has set a goal of being 90 percent powered by renewable energy by**

2025, and it aims to reach 99 percent by 2030. 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.

3.1 Assess the potential for Ground Mounted Solar PV at Vakabuli Site, Lautoka 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, and data analysis (as required for GIS-based assessment of the sites using satellite imagery available). 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, access to off-site facilities for interconnection, existing interconnection facilities, 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.	Topographical observation
ii.	Surface slope
iii.	Surface soil quality
iv.	Positional relationship of undulations
v.	Land use
vi.	Vegetation
vii.	Surrounding anomalies
viii.	Site history (Records of past landslides, land development, etc.)
ix.	Current status of land development
x.	Sunlight obstructions
xi.	Confirmation of assumed drainage locations

3.1.5 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

3.1.6 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.

3.1.7 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.

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)
 - Configuration of power receiving equipment
 - Creation of electrical drawings (single-line diagrams, system diagrams, etc.)
 - Equipment Specifications (Solar Power Equipment, Receiving Equipment, Interconnection Equipment)
2. Civil Engineering Design
- Planning of land creation works and drainage
 - Design of racking systems
 - Foundation conceptual design
- 3.1.8 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.
- 3.1.9 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.
- 3.1.10 Estimated costs per MWp of ground mounted solar PV (including break-up of cost for PV panels and all components) based on prevailing market conditions and prices.
- 3.1.11 Brief scope of work and inspection plan for the required Operation & Maintenance (O&M) of the ground mounted solar PV 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

3.1.12 Detail all regulatory clearances required for implementing the project.

3.1.13 Data regarding reduction in CO₂ emissions and fossil fuel import due to the proposed solar PV project(s). Provide the approach and calculation method for determining CO₂ emissions.

3.1.14 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.

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.

4.0 Location of the Site

The proposed site for the ground mounted solar power plant is at Vakabuli, Lautoka (-17.609093, 177.549692) 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, and clearly identifying the breakdown of costs in accordance to the scope of services mentioned above.
- 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
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	50%

4	Presentation of findings and recommendations to stakeholders, transportation authorities, funding agencies and potential project investors.	16 weeks	10%
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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 6th November 2024 at Vakabuli, Lautoka project site (-17.609093, 177.549692). 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 27th November 2024.

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.

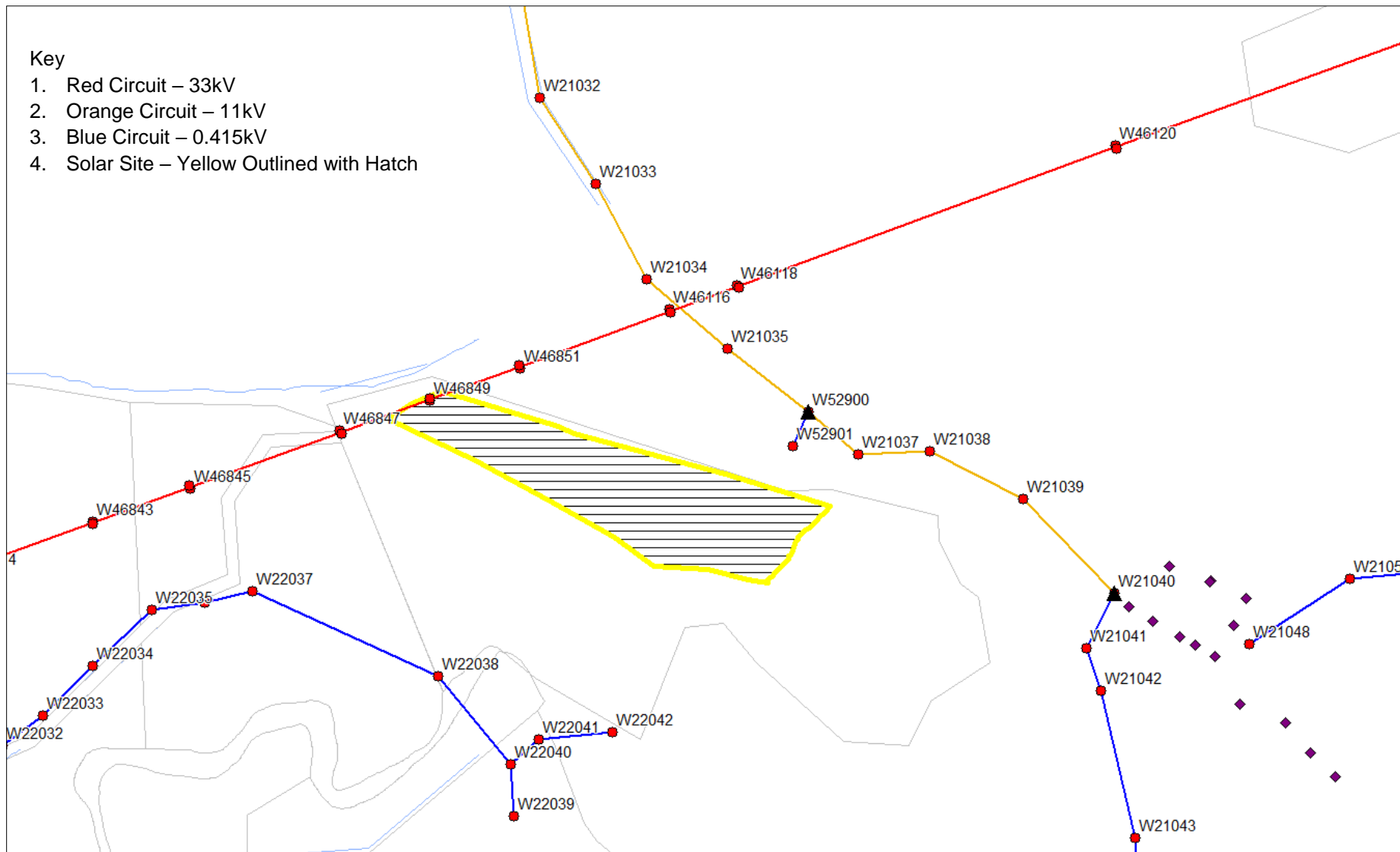
26.0 Clarification of Bids

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



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 27th November, 2024.

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360** or **(+679) 99926520** 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.