



BIDDING DOCUMENT

**Supply and Install 33kV VT with Structures
for Two (2) x Transformer Bays and Carry out
Civil Works at EFL's Vuda RCC Substation**

TENDER NO: MR 61/2024

ENERGY FIJI LIMITED

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2.0 Invitation for Tender

Energy Fiji Limited (“EFL”) is responsible for generation, transmission and distribution of electricity in Viti Levu, Vanua Levu, Ovalau and Tavueni in Fiji. It owns over forty (40) power stations, substations and switching stations on the islands of Viti Levu, Vanua Levu, Taveuni and Ovalau. EFL is carrying out various projects to replace aged assets and to meet growing customer demand.

EFL therefore invites bids from reputable and suitable Bidders to **Supply and Install 33kV VT for Two (2) x Transformer Bays and Carry out Civil Works at EFL's Vuda RCC Substation.**

All bids for the contract shall be submitted on the appropriate forms provided and shall include the completed price schedule, technical schedule and schedules of experience etc. The bid shall be on the basis of a lump sum contract based on firm prices.

During evaluation of tenders, EFL may invite a tenderer or tenderers for discussions, presentations and any necessary clarification before awarding of the contract.

The tender submissions close at **1600hrs on Wednesday, 13th March 2024**, Fiji Time.

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

3.0 INSTRUCTIONS TO BIDDERS

3.1 Scope of Bid

Energy Fiji Limited invites bids from reputable and suitable bidders to Supply and Install 33kV VT for Two (2) x Transformer Bays and Carry out Civil Works at EFL's Vuda RCC Substation.

The successful bidder will be expected to complete the civil Works within **2 months** and electrical works within **8 months** from the date of commencement.

Summarily, the bidder is required to carry out the following:

1. Supply 33kV VTs for Two Transformer Bays.
2. Supply associated galvanized structures for VT installation and Support.
3. Supply Marshalling box, Conductor, palms, terminations, lightning arrestors, dropout fuses, etc all required to complete installation
4. Carry out design and Civil works for Pad structures. Note, design to be approved by FIE Engineer.
5. Carry out Installation and commissioning.
6. Supply additional 33VT's and marshalling box as specified.

3.2 Eligible Tenderers

This invitation is open to all Tenderers who have sound Financial Background, and have previous experience in supply of such equipment.

Tenderers shall provide such evidence of their continued eligibility satisfactory to EFL as EFL shall reasonably request, using the forms provided in the Schedules.

Tenderers shall not be under a declaration of ineligibility for corrupt or fraudulent practice.

3.3 Eligible Materials, Equipment and Services

The materials, equipment, and services to be supplied under the Contract shall have their origin from reputable companies as specified by EFL and from various countries and all expenditures made under the Contract will be limited to such materials, equipment, and services. Tenderers shall be required to provide evidence of the origin of materials, equipment, and services in their bids.

For purposes of this Contract, "services" means the works and all project-related services including design services.

For purposes of this Contract, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing,

processing or substantial or major assembling of components, a commercial recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

The materials, equipment and services to be supplied under the Contract shall not infringe or violate any industrial property or intellectual property rights or claim of any third party.

3.4 One Bid per Tenderer

Each Tenderer shall submit only one bid. A Tenderer who submits or participates in more than one bid will cause all those bids to be rejected.

3.5 Cost of Bidding

The Tenderer shall bear all costs associated with the preparation and submission of its bid and EFL will in no case be responsible or liable for those costs.

3.6 Site Visits

The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for the design-build and completion of the Works. The costs of visiting the Site shall be at the bidder's own expense. The pre-bid meeting is scheduled on **Thursday 15th February, 2024, 11.00 hours at EFL's Vuda RCC Substation.**

3.7 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.

3.8 Clarification of Bidding Documents

A prospective Tenderer requiring any clarification of the bidding documents may notify EFL in writing via email addressed to tenders@efl.com.fj

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

3.9 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 addendum.

3.10 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.

3.11 Bid Prices

Unless specified otherwise, Tenderers shall quote for the entire facilities on a "single responsibility" basis such that the total bid price covers all the Supplier's obligations mentioned in or to be reasonably inferred from the bidding documents in respect of the design, manufacture, including procurement and subcontracting (if any), testing and delivery.

Tenderers shall give a breakdown of the prices in the manner and detail called for in the Schedules of this bidding document, or any issued addendum.

Bids shall be given on **VIP basis**.

3.12 Bid Currencies

Prices shall be quoted in a single currency only.

3.13 Bid Validity

Bids shall remain valid for a period of **90** days from the date of Deadline for Submission of Bids specified in Sub-Clause 3.15.

3.14 Format and Signing of Bids

The Tenderer shall submit one electronic copy of the Technical and Financial proposals on EFL's electronic tender hosting website, <https://www.tenderlink.com/efl>

The bid shall contain no alterations, omissions or additions, except those to comply with instructions issued by EFL, or as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialed by the person or persons signing the bid.

3.15 Deadline for Submission of Bids

Bids must be uploaded on the tender portal specified above no later than **1600 hours (Fiji Time) Wednesday, 13th March, 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.

3.16 Late Bids

Any bid received by EFL after the deadline for submission of bids prescribed above will not be considered.

3.17 Modification and Withdrawal of Bids

The Tenderer may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by EFL prior to the deadline for submission of bids.

A signed withdrawal notice may also be sent by email. No bid may be modified by the Tenderer after the deadline for submission of bids.

3.18 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.

3.19 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.

3.20 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 via email, 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.

3.21 Compliance with Specifications

The tender shall be based on the equipment and work specified and shall be in accordance with the Technical Specification. It should be noted that unless departures from specifications are detailed in Schedule G of the Technical Specification, 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.

3.22 Signature of Tenderer

A tender submitted by a Partnership shall be signed by one of the members of the Partnership and shall be accompanied by a certified authorization of all the partners authorizing the individual partner to sign on behalf of the Partnership. A tender submitted by a Corporation to the Contract and shall be accompanied by a certified resolution of the Board of Directors authorizing the individual to sign on behalf of the Corporation.

3.23 Insurance

The Tenderer is to confirm that they have in effect the insurance policies below and provide copies of valid certificates with the bid:

1. Public and Products Liability Insurance

4.0 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract shall be based upon AS 4911 – 2002 General Conditions of Contract for Supply of Equipment without Installation.

The Conditions of Contract comprises two parts:

1. Part 1 – General Conditions; and
2. Part 2 – Conditions of Particular Application

5.0 CONDITIONS OF PARTICULAR APPLICATION

1. Interpretation and Construction of Contract

Add the following:

“Bid has the same meaning as tender.”

Replace

“qualifying cause of delay means

- a) *any act, default or omission of the Purchaser, its consultants, agents or other contractors (not being employed by the Supplier); or*
- b) *other than*
 - i) *a breach or omission by the Supplier;*
 - ii) *industrial conditions or inclement weather occurring after the due for delivery; and*
 - iii) *stated in item 22”*

With

“qualifying cause of delay means a cause of delay other than that caused by

- a) *a breach or omission by Supplier;*
- b) *industrial conditions or inclement weather occurring after the due for delivery; and*
- c) *a cause stated in item 22 “*

5. Service of notices

Replace

“ii) confirmation of correct transmission of fax”

With

“ ii) confirmation of correct electronic transmission”

6. Contract Documents

Under 6 Contract Documents, make the following change:

Replace "6.1 Discrepancies" and contents in subclause 6.1 Discrepancies with the following,

"6.1 Discrepancies and Priority of Documents

The following priority of documents applies if there is any ambiguity, discrepancy or inconsistency in the documents comprising the Contract:

- a) Letter of Acceptance from Supplier*
- b) Conditional Award Letter from Purchaser*
- c) EFL Tender Addenda (if any issued, if not, remove this item from list)*
- d) EFL Tender Specifications, including drawings*
- e) Conditions of Particular Application to AS 4911-2003*
- f) General Conditions of Contract AS 4911-2003*
- g) Supplier's Tender Clarifications (if any provided by Supplier during tender evaluation, if not, remove this item from list)*
- h) Supplier's Bid Document*

If either party discovers any inconsistency, ambiguity or discrepancy in any document prepared for the purpose of performing the Contract that party shall give the other party written notice of it. The Purchaser, thereupon, and upon otherwise becoming aware, shall direct the Supplier as to the interpretation and construction to be followed, with the priority order of documents above.

If compliance with any such direction under this subclause causes the Supplier to incur more or less cost than otherwise would have been incurred had the direction not been given, the difference shall be assessed by the Purchaser and added to deducted from the contract sum."

9. Warranties

Replace "9. Designated Items" and its contents with the following"

9. Warranties

9.1 Ownership

The Supplier represents and warrants that:

- a) It is the legal and beneficial owner of the goods; and*
- b) that upon payment of the contract sum no person other than the Purchaser will be entitled to hold any interests in, or hold any encumbrance over, the goods.*

9.2 Supplier's Warranty

The Supplier represents and warrants that the goods will upon delivery:

- a) comply in all respects with the Contract;
- b) be suitable for the purpose stated in Item 5;
- c) be of merchantable quality;
- d) conform to any sample provided by the Supplier and approved by the Purchaser.
- e) in the absence of any specific provision of the Contract, meet any relevant Australian Standard and industry best practice;
- f) be free of design defects;
- g) be, unless otherwise agreed, new.

If the Supplier is in breach of any of the warranties in this clause 9, the Purchaser may, in addition to the Purchaser's other rights and remedies, at any time give 7 days' written notice to the Supplier to rectify such breach, and if the Supplier fails to comply with such notice, the Purchaser may employ others to carry out works required to satisfy the warranty. The cost thereby incurred shall be moneys due and payable to the Purchaser.

The representation and warranties in this clause survive the completion or earlier termination of the Contract and each warranty in this clause is independent of, and is not limited by, reference to any other warranty.

The Supplier shall obtain all warranties relevant to the goods from manufacturer or suppliers or as otherwise specified in the Contract, including any warranties that are provided by any sub-contract and ensure that the Purchaser has the benefit of those warranties. "

14. Directions

Add the following to 14 Directions, at the end,

"The Purchaser may appoint the individual stated in Item 1A to exercise delegated Purchaser's functions. The Purchaser may, from time to time, by notice in writing to the Supplier, substitute or appoint more than one such Purchaser's representative, provided that no aspect of any function shall at any time be the subject of delegation to more than one Purchaser's representative.

Every reference in the Contract to the Purchaser's representative shall include the Purchaser and vice versa."

17. Time

Under 17.2 Claim, make the following change

Replace

“ a) delivery is or will be delayed by a qualifying cause of delay; and “

With

“ a) delivery is or will be delayed by a qualifying cause of delay that includes but is not limited to any act, default or omission of the Purchaser, its consultants, agents or other contractors (not being employed by the Supplier; and “

19. Delivery

Add the following to 19.1 Mode of and Date and Place for Delivery, at the end,

“The Supplier must ensure that all goods are properly, safely and securely packaged and labeled for identification and safety as follows:

- a) the goods must be individually packaged for transport so that they are protected from all reasonably foreseeable condition which might cause corrosion, deterioration or physical or bearing damage during handlings and transport. All packaging and preservation materials must be supplied by the Supplier; and*
- b) each package must be clearly and indelibly inscribed with the Purchaser's name, the address of the delivery place, the Purchaser's contract number and any safety warnings for the contents.”*

21. Acceptance or Rejection of Equipment

Add the following to 21.1 Notification, at the end,

“The Purchaser shall be under no obligation to give written notice to the Supplier that the Equipment is acceptable unless:

- a) the Purchaser is satisfied that the Equipment is satisfactory and complies with the “as manufactured” drawings approved by the Purchaser; and*
- b) all drawings and manuals required to be supplied by the Supplier, have been duly supplied by the Supplier. “*

24. Payment

Replace “24.1 Invoices and time for payment” With “24.1 Claim for Payment and time for payment”

Under 24.1 Claim for Payment and Time for Payment, make the following change.

Replace all occurrences of “an invoice” with “written claim for payment”.

26. Termination by frustration

Under 26 Termination by frustration, make the following change.

Replace all occurrences of

“an invoice”

with

“written claim for payment”.

27. Notification of claims

Under 27.1 Communication of claims, make the following change

Replace

“As soon as practicable after a party becomes aware of any claim in connection with the subject matter of the Contract, that party shall give to the other party the prescribed notice of a notice of dispute under subclause 28.1.”

With

“As soon as practicable and in any event not later than seven (7) consecutive days after a party becomes aware of any claim in connection with the subject matter of the Contract, that party shall give to the other party the prescribed notice of a notice of dispute under subclause 28.1.”

28. Dispute Resolution

Replace “28.2 Conference” and contents with the following:

“28.2 Conference

Within 14 days after receiving a notice of dispute, the parties shall confer at least once to resolve the dispute or to agree on methods of doing so, including, but not limited to, mediation, conciliation, binding expert determination and arbitration, of the whole or any part of the dispute. Where arbitration is agreed method of resolution, the arbitration shall be conducted in accordance with the rules of Item 38(b) and the arbitrator, unless otherwise agreed, shall be nominated by the President of the Fiji Institute of Engineers.

At every such conference, each party shall be represented by a person having authority to agree to such resolution or methods. All aspects of every such conference except the fact of occurrence shall be privileged.

If the dispute has not been resolved nor a method of resolution agreed within 56 days of service of the notice of dispute, that dispute shall be dealt with in accordance with subclause 28.3."

Replace "28.3 Arbitration" and contents with the following

"28.3 Elevation of Disputes

If the parties are unable to resolve the dispute or agree a method of resolution in accordance with sub clause 28.2:

- a) the dispute shall be referred to the Chief Executive Officer, or a duly authorized representative, of the Purchaser and the Chief Executive Officer/Managing Director, or a duly authorized representative, of the Supplier to resolve the dispute or agree on a method of resolution;*
- b) the individuals referred to in sub clause 28.3 (a) shall meet within 14 days after referral of the dispute in an effort to resolve the dispute or agree a method of resolution;*
- c) if the individuals referred to in sub clause 28.3 (b) are unable to resolve the dispute but agree at that meeting on a method of resolution, they shall also nominate a timeframe for the commencement and conclusion of the method of resolution; and*
- d) if the individuals so referred to in sub clause 28.3(b) are unable to resolve the dispute or agree a method of resolution, each within 14 days of the dispute being referred, either parts may give written notice to the other stating that the parties have been unable to resolve the dispute or agree a method of resolution.*

Where arbitration is the agreed method of resolution, the arbitration shall be conducted in accordance with the Rules stated in Item 38(b) and the arbitrator, unless otherwise agreed, shall be nominated by the President of the Fiji Institute of Engineers."

Replace "28.4 Summary Relief" and the contents with the following:

"28.4 Instituting Proceedings

Neither party shall proceed to resolve a dispute by instituting court proceedings until issuing to, or receiving from, the other party, a notice in accordance with sub clause 28.3(d)."

Add the following after 28.4 Institutional Proceedings

"28.5 Summary Relief

Nothing herein shall prejudice the right of a party to institute proceedings to enforce payment due under the Contract or to seek injunctive or urgent declaratory relief."

Annexure A

Replace Annexure A - Part A with the form provided in Schedule C.

6.0 Employer's Requirements - Scope of Works

This section covers the scope of work to supply and install 33kV VT's, Steel Structures, aluminum marshaling cubicle to the specifications listed below and carry out necessary civil works.

6.1 General Scope includes:

6.1.1 Supply and Install 33kV VT's – 2 Complete sets (6 units)

Bidder to supply and install 3 x single phase 33kV voltage transformers for two 33kV transformer bays. Bidder to procure, supply, install and commission the VT's with the following scope of work:

- a) Design, Test, Supply and install 33kV single phase voltage transformer from Germany or Austria. **Preferred brands are Zelisko or Ritz.** Bidders may offer alternative VT's made in Europe.
- b) Design, Supply and install VT structures – galvanized steel, tubular type or SHS.
- c) All fasteners on the structures to be of stainless steel 316 grade.
- d) Bidder to carry out earthing using flat copper bars on each structure and 120mm² copper conductors for tapping off from each bars. Bidder to carry out earthing of the structure to the main earthing grid. Earthing material to be provided by the bidder. Copper joints shall be cad-welded. This shall be connected to the existing grid.
- e) Bidder to supply and install surge arrestors – Tri-DELTA make on each phase on both bays. This should also have counters.
- f) Bidder to supply and install 33kV dropout holder with fuses for each VT on both bays.
- g) Bidder to carry out control wiring for the VT to the marshalling box, Bidder to also terminate the existing VT wires in the marshalling box. This includes pulling back of old wires and re-routing to new location.
- h) Bidder to supply and install all necessary hardware's, conductors, jumpers, terminals, palms and accessories to commission the new VT's for the 33kV bays. Bidder to ensure the connections are suitable for the existing 33kV bays. The existing 33kV conductors are Venus. The fittings and palm should match the conductor on site.

6.1.1.1 33kV VT Requirement

Tabulated below is the specification of VT requirement.

Description	Required
Rated System Voltage KV (rms)	33kV
Highest System Voltage KV (rms)	36kV
System Frequency (Hz)	50 Hz
System Neutral Earthing	Solidly Earthed

Primary neutral	Provided via an earthing terminal connected to mounting plate
Installation	Outdoor
Voltage Factor (primary)	1.9 times for 8 hrs, 1.2 continuous
1.2/50 microsecond impulse withstand outage KV (Peak)	170kV
1 Minute dry & wet power frequency withstand voltage primary (kV rms)	70kV
Power frequency over voltage withstand requirements for secondary winding.	3 KV
Creepage Distance (Heavily polluted atmosphere) Total (mm)	900
Creepage factor (Max.)	4.0
Accuracy metering, protection	0.5, 3P
Primary Side (KV) Ratio	33/ $\sqrt{3}$
Secondary Side (V) Ratio	110 / $\sqrt{3}$
No. of Core	2
Rated Burden	20VA/Ø
Max. temp rise over ambient 60° C	As per IEC Standards

6.1.2 Civil Works and Supply of Structures(2 Sets)

Bidder to carry out all necessary civil works to install the VT structures with the following scope of work:

- a) Carry out design (FIE engineer approved) and construction of concrete pads for the VT structures.
- b) Design and Supply of hot dipped galvanized VT structure complete with structural nuts and bolts. The VT structure should be capable of withstanding 100m/s winds.
- c) Completely remove the crushed metal around the pad and excavated soil and dispose.
- d) Spread new 40mm crushed metal with weed mat at both bays at a height on 200mm for the VT structure area.
- e) Remove existing VT structure and VT's and transport to EFL Navutu.

6.1.2.1 VT Structure Typical Design

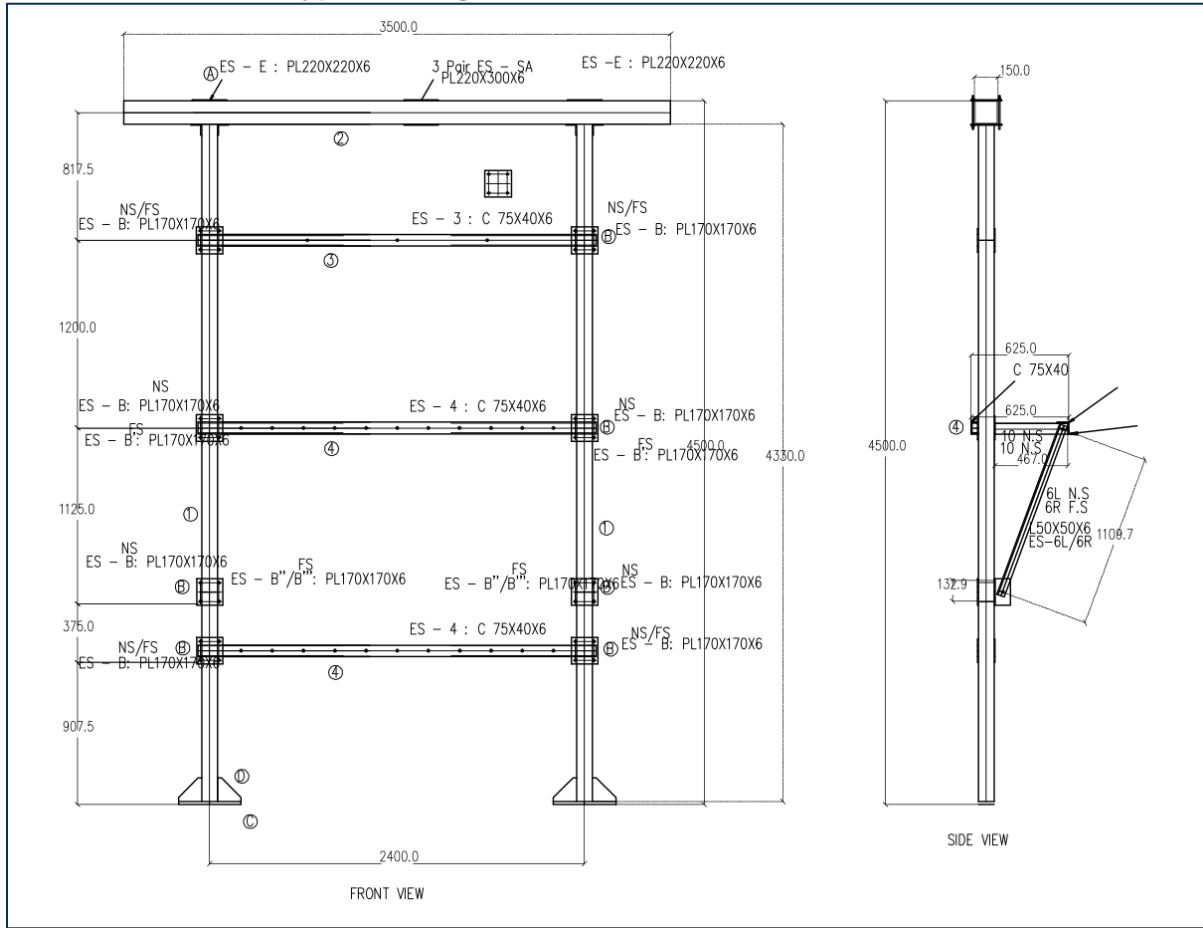


Figure 1: Typical VT Structure drawing

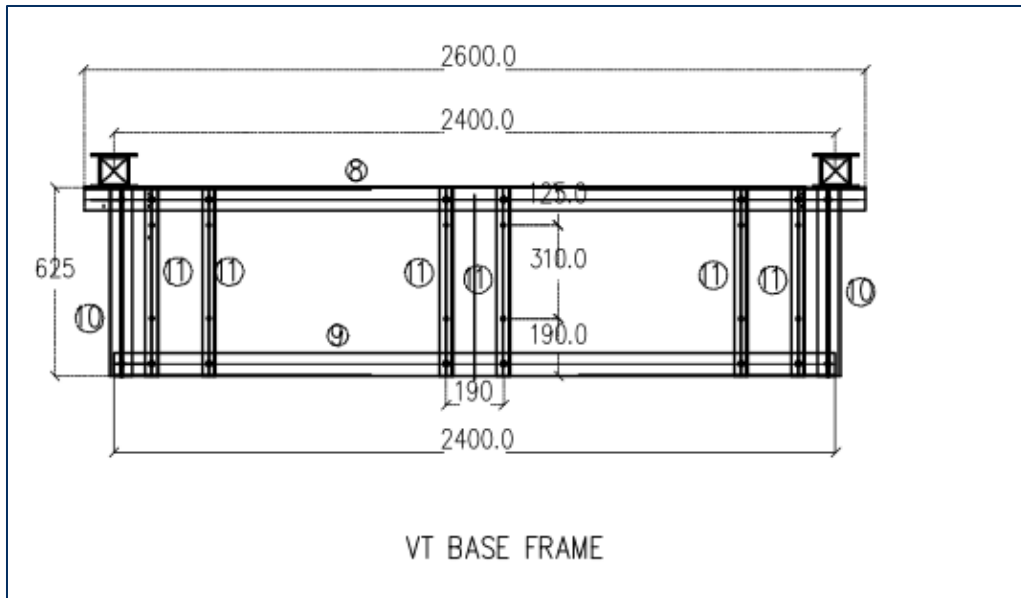


Figure 2: VT Base Frame

6.1.3 Supply of Aluminum VT Box(2 Sets)

Bidder to design, fabricate and supply Aluminum VT Box

- a) Fabricate weatherproof 3mm thickness aluminum marshalling panel.
- b) Install aluminum pan inside the box (**Figure 5**).
- c) Install 1 x 200mm Din Rail in each panel (**Figure 5**).
- d) Install 20 Phoenix UK10 Terminal (2.5mm) in each panel (**Figure 5**).
- e) Supply and install 4 pole MCB for each core. (4 x 4 pole MCB)
- f) Installation of Earthing Provision in each panel (including door and box).
- g) Installation of Aluminum Gland Plate in each panel (**Figure 5**).
- h) Locking and mounting provision as shown in **Figure 4** for each panel.
- i) Supply engraved labels as per specifications supplied by E.F.L. Black lettering on white background (Font size of 300)
- j) The materials, dimensions and design of the panel to be the exact as shown pictures and dimensions below (**Figure 3.0**).
- k) All nuts, bolts and fasteners shall be of stainless steel grade 316 type.

NOTE:

- For dimension details refer to **Figure 3.0** for VT Junction Box

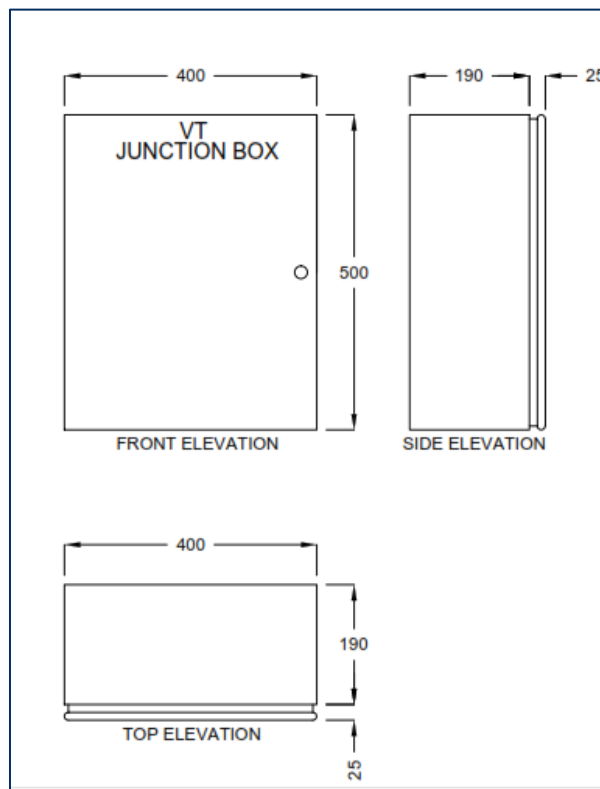


Figure 3: VT Junction Box Dimension



Weather proof Door Handle



Rain Hood/drain to prevent rain entering

Figure 4: Proposed Design for new box



Pan bolted to the box with din-rail installed on it



Gland plates mounted outside with glands

Figure 5: Pan Installed/bolted in Box and Gland Plates Installed in Box



Figure 6: Rubber Installed on doors to prevent water and insects entering

6.1.4 Supply of Additional Spares/Equipments

The bidder is required to supply additional equipment's as listed below:

1. Supply 3 x 33kV VT(same specification as clause 6.1.1.1)
2. Supply 2 x Marshalling Box with accessories (same specification as clause 6.1.3)
3. 1 x CABAC Ratchet Cable Cutter (Upto 400mm²)
4. 2 x CABAC Swivel Blade Stripper (8mm - 28mm)
5. 2 x CABAC Swivel Blade Stripper (28mm - 35mm)
6. 1 x Milwaukee ½" Cordless Impact Ratchet complete with Battery, charger, carry case and impact socket (8mm-36mm).
7. 1 x CABAC Bootlace Crimper(HNKE5)
8. 1 x Pre-Insulated Terminal Crimper(KTC1)
9. 1 x Cable End Stripper (1mm- 3.2mm)
10. 1 x 5 Step Insulated Platform Ladder

7.0 SERVICE CONDITIONS

7.1 Environmental Conditions

The equipment shall be manufactured to withstand the following service conditions of:

Atmosphere	:	Sulfurous, corrosive and dusty
Ambient temperature	:	Peak : 40°C
	:	24 Hour Average: 30°C
	:	Annual Average : 22°C
	:	Minimum: 10°C
Relative Humidity (Average):	:	85%
Annual Average Rainfall	:	1900 mm
Wind Speed	:	Sustained : 55m/s
	:	Gusts : 70 – 110 m/s
Isokeraunic Level	:	60 Thunder days per year
Seismic	:	To a maximum of 7 on the open-ended Richter Scale
Low voltage Supply Ratings :	:	Control/Alarm/Emergency – 89V to 132V, 110V nominal Supply voltage of auxiliary equipment – 415V/240V ±5% Supply voltage of auxiliary equipment - 89V to 132V, 110V nominal

Note: All plant and equipment shall be rust proof, vermin proof and weather proof and designed to be suitable for a damp, tropical climate, which may be experienced simultaneously.

7.2 System Conditions

The rated frequency of EFL's power system is 50 Hz.

		System Voltages
Particulars:		240V/415V 240V (p-n),
Nominal System Voltage:		415V (p-p) 254.4V (p-n),
Highest (Equivalent) System Voltage:		439.9V (p-p)
Number of phases:		1 or 3
Impulse Withstand voltage (peak):		
Power frequency withstand voltage:		AC 10kV rms

EFL's 11kV system is 3 phase, 3 wire, 50 Hz. The transformer 415V neutral is generally solidly grounded.

7.3 Seismic Disturbances

The equipment shall be designed to withstand the most onerous seismic events over its operating life. The design shall meet the requirements as shown in table below and shall be in accordance with AS 1170.4 and the Building Code of Fiji.

Seismic requirements	Particular Detail
Earthquake structural design criteria (AS 1170.4, 2007)	Structure Importance Level 4 Probability factor $k_p = 1.5$ Hazard Factor $Z = 0.12$ Structural Ductility Factor

7.4 Operational Life

The operational life of power system plant and equipment is the recommended age limit to predict the end of life for specific components for asset management.

The Voltage transformer shall **have an operational life of >40 years.**

The Tenderer shall submit details of all necessary maintenance that is required to be performed by the EFL on the equipment to ensure validity of the warranty. The Tenderer shall also disclose to EFL any special obligations or requirements to ensure continuity of the warranty.

The Tenderer shall submit details of all necessary maintenance that is required to ensure continued safe and effective operation during its remaining design life. All batteries shall be recycled at the end of their useful life.

8.0 Technical Performance Requirements

8.1 Voltage Transformers

This part of the specification covers detailed technical requirement for Voltage Transformers.

8.1.1 Design

The design features and construction details shall be complete in all respects and shall conform to the modern practice of design and manufacture. The insulation of the instrument transformers shall be so that the internal insulation shall have higher electrical withstand capability than the external insulation. The designed dielectrics withstand values of external and internal insulations shall be clearly brought out in the guaranteed technical particulars. The dielectric withstand values specified in this specification are meant for fully assembled instrument transformer. The outdoor post-type Single and Three Phase Voltage Transformers shall be designed for the system highest voltage (Rated Voltage) as stipulated. It shall be suitable for operation under the service conditions without protection from sun, rain and dust. The withstand ability of the primary, the saturation of the magnetic core and the secondary characteristic shall not be less than that requested in the Minimum Technical Requirements.

The primary winding of voltage transformers will be connected phase to ground. All the fuses and the links shall be provided at the V.T terminal boxes with IP65 rated weather proof terminal box for easy access.

The design of PT shall be based on following requirements: -

- They must transmit sudden drops of primary voltages.
- They must have sufficiently low short circuit impedance as seen from secondary.

The temperature rise at 1.1 times rated primary voltages, rated frequency and rated burden, shall not exceed the following values over the above stated maximum ambient temperature.

a)	For winding with class A Insulation immersed in oil (Measured by Resistance Method)	50 degC
b)	Oil at the top of the Tank (Measured by Thermometer)	40 degC
c)	With 1.5 times rated voltage for 30 seconds	100C more than above value after continuous application of 1.1 times rated voltage.
d)	Maximum ambient temp. To be considered.	50 degC

It shall be suitable for mounting on steel structures and necessary fixing bolts and nuts shall be supplied with the equipment. Its windings shall be housed either in a high impact resistance porcelain insulator where normal mineral transformer oil will be the insulating medium. Glazing of porcelain shall be of uniform brown or dark brown color with a smooth surface arranged to shed away rain water particles (fog). Details of attachment of metallic flanges to the porcelain shall be brought out in the offer.

8.1.2 Tank

The metal tanks shall have bare minimum number of welded joints so as to minimize possible locations of oil leakage. The metal tanks shall be made out of mild steel / stainless steel /aluminum alloy, depending on the requirement. Welding in horizontal plane is to be avoided as welding at this location may give way due to vibrations during transport resulting in oil leakage. Supplier has to obtain specific approval from Purchaser for any horizontal welding used in the bottom tank. Oil level gauge and convenient means of oil and nitrogen filling, sampling and draining of oil is to be provided in Tank.

8.1.3 Surface Finish

The ferrous parts exposed to atmosphere shall be hot dip galvanized or shall be coated with at least two coats of zinc rich epoxy painting. All nuts, bolts and washer shall be made out of stainless steel.

8.1.4 Insulating Oil

Insulation oil required for first filling of the instrument transformer shall be covered in supplier's scope of supply. The oil shall meet the requirement of latest edition IEC standard.

8.1.5 Prevention of Oil Leakages and Entry of Moisture

The Supplier shall ensure that the sealing of instrument transformer is properly achieved. In this connection the arrangement provided by the Supplier at various locations including the following ones shall be described, supported by sectional drawings.

8.1.6 Locations of emergence of primary and secondary terminals

Interface between porcelain housing and metal tanks. Cover of the secondary terminal box.

8.1.7 Gasketed joints.

Wherever used nitrilic butyl rubber gaskets shall be used. The gasket shall be fitted in properly machined groove with adequate space for accommodating the gasket under compression.

8.1.8 Oil Level Indicators: (if Applicable)

Instrument transformer shall be provided with oil sight window at suitable location so that the oil level is clearly visible with naked eye to an observer standing at ground level.

8.1.9 Earthing

Metal tank of the instrument transformer shall be provided with two separate earthing terminals for bolted connection to 50x8mm MS Flat to be provided by the Purchaser for connection to station earth-grid.

8.1.10 Lift

Instrument transformer shall be provided with suitable lifting arrangement to lift the entire unit. The lifting arrangement shall be clearly shown in the general arrangement drawings. Lifting arrangement (Lifting eye) shall be positioned in such a way so as to avoid any damage to the porcelain housing or the tanks during lifting for installation transport. String guides shall be offered which shall be of removable type.

8.1.11 Core

The core shall be high grade non-aging, silicon laminated steel of low hysteresis loss and high permeability to ensure high accuracy at both normal and over voltages conforming to IEC. The characteristics shall be such as to provide satisfactory performance for burdens ranging from at least 25% to 100% of rated burden over a range of at least 5% to 110% rated voltage in case of protective cores and a voltage range of 80% to 120% (0.8 pf lagging).

8.1.12 Bushing

Shaded dark chocolate porcelain substation class 3 bushing conforming to latest edition of IEC shall be used. Cast metal end caps for the bushings shall be of high strength, & made of brass. They shall have smooth surface to prevent discharge taking place between the metal parts and porcelain as a result of ionization. The insulation of bushing shall be coordinated with that of the potential transformer such that the flashover, if any will occur only external. Each of the bushing cap / head shall be complete with the following feature, Primary terminals suitable for connection through rigid Connectors for ACSR Conductors. All connectors shall be provided as part of the tender.

8.1.13 Terminal connectors

All castings of connectors shall be free from holes, surface blisters, cracks and cavities. All sharp edges or corners shall be rounded off. No part of the connectors shall be less than 10 mm. thick.

All ferrous parts shall be hot dip galvanised conforming to IEC and BS Bimetallic strips and sleeves, if required, shall be provided of about 2 mm. thickness as a part of connector.

Rigid connectors shall be made from Aluminium Alloy. All current carrying parts of the connectors shall have minimum contact resistance.

Connectors shall conform to type test as well as to routine test as per IEC. Connectors shall be suitable for connection with ACSR "Chafer" and "Lime" to CT terminal along with suitable nuts bolts & washers.

8.1.14 Bolts and nuts

All steel bolts and nuts shall conform to BS 4190: 1957 the standard specified and the nuts and heads of all bolts to be hexagonal type. Nuts and bolts or screws used for fixation of the interfacing porcelain bushings for taking out terminal shall be provided on flanges cemented to the bushings and not on the porcelain. The Voltage Transformers shall be suitable for up right mounting on steel structures. Necessary flanges, bolts, clamps fittings etc. for base are within the scope of the supplier.

8.1.15 Galvanizing

Except where specified to the contrary all iron and steel parts shall be galvanized after sawing, shearing, drilling punching, filing, bending, and machining etc., are completed. Galvanizing shall be by the hot-dip process to comply with the BS 729.

8.1.16 Creepage Distance

The Voltage Transformer insulator creepage distance shall not be less than 900 mm and the protected creepage distance shall not be less than 315mm.

8.1.17 Painting (wherever applicable)

The tank and top metallic parts shall be hot-dip galvanized/painted. All steel surfaces shall be cleaned by sand blasting or chemical process as required to produce a smooth surface, free of scale, grease and dirt.

Steel surface in contact with insulating oil shall be painted with heat resistant oil insoluble insulating varnish.

8.1.18 Nameplates and Markings

Labels written in English shall be provided for all instruments. In the case of instruments, switches and control switches where the function is indicated on the dial plate or on the switch escutcheon plate, no label is required.

Instruction plates in English language showing the sequence diagrams or cautions for maintenance shall be fitted inside of the front door of the electrical switchboards.

Samples of label wording shall be submitted for EFL approval. The labels shall be traffolyte type with beveled edges and black lettering on white background.

8.2 Bill of Materials and Drawings

The bill of materials is provided in the drawings as attached in Schedules of this specifications.

8.3 Quality of Materials and Workmanship

All materials supplied and used by the contractor under this contract shall be **new and of the high quality** and class most suitable for working under the conditions specified and shall withstand the variations of temperature, atmospheric conditions arising under working conditions without distortion or deterioration or the setting up of undue stresses in any part and also without affecting the strength and suitability of the various parts of the work which they have to perform. All work shall be carried out and completed in a neat and professional manner to the approval of the Purchaser's Representative.

8.4 Risk of Fire

All apparatus, connections and cabling shall be designed and arranged to minimize the risk of fire and any damage, which might be caused in the event of fire. All cabling entry openings shall be covered with fire pillows or foam to prevent fire entry.

8.5 Programme and Progress of Work

The Tenderer shall provide a work program with its bid in the format as given in the Schedules of this specification. Within seven days of the receipt of the official EFL purchase order, the Tenderer shall submit a confirmed programme of work for the entire project upto the delivery and installation. The programme is to conform to the timelines as stipulated in this tender.

9.0 Technical Parameters

The bidder shall submit a duly filled technical specification of the VT requirement as stipulated below:

No.	Description	Manufacturer Data
1	Manufacturer	
	Address, Telephone and fax	
	Place of tendered item	
2	Type	
3	Type of Mounting	
4	Rated Primary voltage	
5	Rated Secondary Voltage	
6	Rated frequency	
7	Volt factor and duration	
8	Transformation ratio	
9	Rated burden	
10	Creepage distance of the insulator	
11	Temperature Rise	
11.1	<i>With 1.2 times rated primary continuously</i>	
11.2	<i>By resistance method</i>	
11.3	<i>By thermocouple / thermometer</i>	
12	Rated Insulation Level	
12.1	<i>1.2/50 micro sec. Impulse withstand voltage on primary side</i>	
12.2	<i>1 min power frequency withstand voltage(dry)on primary side</i>	
12.3	<i>1 min power frequency withstand voltage (wet) on primary side.</i>	
12.4	<i>1 min power frequency withstand test voltage on secondary side.</i>	
13	Ratio & Phase angle error.	
14	Accuracy class	
15	Voltage Ratio	
16	Voltage factor and rated time	
17	Service conditions for outdoor temperature conditions, altitude, humidity, suitability for exposure to steam, vapour, fumes, explosive gases, excessive dust, salt air etc. should be stated.	
18	Type of secondary	
19	Total Weight	
20	no. of phases	

In addition with the bid, the following shall be submitted by the bidder

1. Structural Design of the structure with compliance certificate
2. VT Compliance Certificate
3. Test reports of VT
4. Lightning Surge Arrestor Drawings, specification and certificates

Note: the bidder/manufacturer is required to produce test reports from a **NATA certified (or equivalent) test lab** for all equipment supplied.

10.0 Packing and Marking

Equipment shall be carefully packed for transport and shipment in such a manner that it is protected from all dust and climatic conditions during loading, transport, unloading and subsequent storage in the open.

Equipment shall be suitably packed and protected against vibration, movement and shock which may occur during loading and transport. Particular care in packing shall be taken when the apparatus is transported by road.

11.0 Quality Requirements

Tenderers shall have a Quality Management System that complies with ISO/AS/NZS 9001, and shall submit evidence of certification.

Documentary evidence shall also be provided on the level of Quality System Certification associated with the supplier and or manufacturer. This documentation shall include the Capability Statement associated with the Quality System Certification.

Tenderers shall be required to submit copies of ISO certification and test results from NATA or equivalent test lab.

All work undertaken shall be undertaken within the QMS framework.

12.0 Occupational Health and Safety Systems

All work shall be undertaken in workshops which have an Occupational Health and Safety certification issued by the local regulatory authority or Ministry of Labour. Bidders shall be required to provide a copy of this certificate.

In addition to this, tenderers are required to submit copies of certification to occupational health and safety management system, such as AS 4801 or to equivalent international standard (ISO 14001, ISO 45001). Such information is deemed mandatory bid submission and lack of it will result in disqualification of bid.

Bidders also need to submit health and safety plans implemented.

13.0 Product Warranty Period

The Tenderer shall provide warranty for equipment supplied and workmanship for the Works for a Period of **twelve [12] months after commissioning of the equipment**. For all equipment supplied by third-parties, the contractor is to ensure that the warranties of these equipment are transferred to EFL as the beneficiary, particularly the Voltage Transformer.

The Tenderer warrants to the Purchaser that all Works performed and completed in respect of the Warranted Works are in accordance with the standards and quality specified in the Contract or if not otherwise specified, the work is according to good trade practice expected in the energy industry.

Schedule A: List of Experience, Personnel & Financial Statements

A.1 Previous Experience

The Tenderer is to submit a list of Projects worked under with a similar scope, involving the design and manufacture/supply, in chronological order of year completed.

Client	Project Scope and Description	Approx. Project Value	Year Completed

Authorized Signatory of Tenderer

Signature: _____

Name: _____

Date: _____

A.2 Project Personnel

The Tenderer is to submit list of personnel who will work on this project and also provide their resumes in its bid.

Name	Designation	Duration of Employment with Company	Years of Experience

Authorized Signatory of Tenderer

Signature: _____

Name: _____

Date: _____

A.3 Financial Statements

The Tenderer shall also submit past three years audited financial statements and records showing its financial ability to undertake this project.

Schedule B: Price and Payment Schedule

Currency of Tendered Price: _____

Component	Unit Price	Quantity	Total Price
Supply of 2 sets of 33kV VT's (6 units) and Tri-Delta Surge arrestors complete with 33kV drop out fuse.		1	
Supply of 2 sets of galvanized steel structures, marshalling box and all necessary accessories.		1	
Installation and Civil works - Installation and wiring of 33kV VT's. Installation of surge arrestors and drop outs and marshalling cubicle. Design and construction of VT pad. Earthing of VT structure and connection to grid.		1	
Supply of Additional Spares/Equipments (Clause 6.1.4)		1	
Spares (Bidder to specify if any)		1	
(Tenderer to add other items as required)			
Total			
Incoterm	VIP		
Bid Validity	90 Days		
Timeline for Delivery			

Authorized Signatory of Tenderer

Signature: _____

Name: _____

Date: _____

Schedule C: Compliance Checklist

All Tenderers are required to submit following as a compliance to the tender:

No.	Mandatory Compliance	Percentage
1	Valid FRCS tax compliance certificate for Local Companies	100%
2	Valid FNPF certificate of Compliance for Local Companies	100%
3	Business registration details	100%
Technical Compliance		
No.	Technical Compliance	Percentage
1	Filled Product Specification Criteria from Bidder	1%
2	Product Warranty Period Details and Insurance Details	2%
3	Product Specification from Manufacturer	2%
4	Product Manuals	1%
5	Bidder to account for all the cost of the items with delivery	2%
6	Filled technical Specification Table with copies of applicable standard	1%
7	Bidders experience to carry out the work scope as per this tender	20%
8	Quality of the offered product and its durability	2%
9	Product to match the specification required by EFL	37%
10	Product to have all necessary accessories as required by EFL	2%
11	Complies of Test reports from NATA certified (or equivalent) test lab	30%

Authorized Signatory of Tenderer

Signature: _____

Name: _____

Date: _____

Schedule D: Evaluation Criteria

Tender Evaluation Criteria

Category	Criteria
Bid Responsiveness	General responsiveness of bid, compliance to submission requirements and documentation
Health, Safety & Environment	Assessment of Tenderer's compliance to health, safety and environmental requirements detailed within the technical specification. Past performance of Tenderers. Manufacturer holds third party accreditation to ISO 14001, ISO 45001
Quality Assurance	Tenderer holds third party Quality Assurance accreditation to ISO/AS/NZS 9001:2015. Tenderer has Quality Management systems in place that are acceptable to Energy Fiji Limited.
Technical Compliance	Does the Tender meet Energy Fiji Limited's minimum technical requirements as outlined in the Technical Specification? <ul style="list-style-type: none"> • Equipment and all components • Performance of equipment and all components • Sustainability and ease of operation • Reliability data • Past experience • Ability to deliver on time / delivery timeframe
Commercial Compliance	Tenderer holds the required current insurance provisions and has provided evidence through valid insurance certificates of currencies. Has the Tenderer submitted Departures to the Terms and Conditions? If so is it likely that Energy Fiji Limited will be able to negotiate agreement without undue delay? Assessment of the Tenderers operational risks including conflicts of interest. Tenderer must comply with statutory requirements, such as that enforced by FRCS, FNPF, FNU, etc. and provide evidence of compliance as required in the specifications.
Energy Fiji Limited Procedures	Tenderer must comply with all relevant Energy Fiji Limited safety and environmental procedures. This is indicated by the Tenderer signing the Form of Tender Schedule, acknowledging all applicable procedures. Tenderer must also comply with the requirements of Electricity Act (2017), Electricity Regulations (2019).
Financial Stability	Assessment of Tenderer's current financial stability and ability to remain Financially stable.
Price Evaluation	Base tendered prices; Other value adding options.

Schedule G: Departure from Specifications

The Tenderer shall nominate the Clause or relevant section of the tender specification and describe the departure.

Tender Specification Reference	Departure

ⁱ The Tenderer shall refer to the specific clause of the tender specification.

14.0 TENDER SUBMISSION CHECK LIST

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: _____

15.0 Tender Submission - Instruction to bidders

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

This tender closes at 4.00pm (1600hrs) on Wednesday 13th March, 2024

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.

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.