



MR 206/2020

**CONSULTANCY SERVICES FOR LIGHTNING
PROTECTION AND EARTHING DESIGN FOR SUVA
SUBSTATION**

TABLE OF CONTENTS

REVISION HISTORY & DOCUMENT CONTROL.....	ERROR! BOOKMARK NOT DEFINED.
1 BACKGROUND	3
2 INSTRUCTIONS FOR BIDDERS.....	4
2.1 Eligible Tenderers.....	4
2.2 Eligible Materials, Equipment and Services	4
2.3 One Bid Per Tenderer	4
2.4 Cost of Bidding	4
2.5 Site Visits.....	4
2.6 Contents of Bidding Documents	5
2.7 Clarification of Bidding Documents.....	5
2.8 Amendment of Bidding Document.....	5
2.9 Language of Bid	5
2.10 Bid Prices	5
2.11 Bid Currencies	5
2.12 Bid Validity.....	6
2.13 Format and Signing of Bids	6
2.14 Sealing and Marking of Bids.....	6
2.15 Deadline for Submission of Bids.....	7
2.16 Late Bids.....	7
2.17 Modification and Withdrawal of Bids.....	7
2.18 Rejection of One or All Bids.....	7
2.19 Process to be Confidential.....	7
2.20 Clarification of Bids	8
2.21 Compliance with Specifications	8
2.22 Signature of Tenderer.....	8
2.23 Insurance.....	8
3 GENERAL CONDITIONS OF CONTRACT.....	9
4 ADDITIONAL CLAUSES TO GENERAL CONDITIONS OF CONTRACT	9
5 REFERENCE STANDARDS.....	9
6 SERVICE CONDITIONS	9
6.1 Environmental Conditions.....	9
6.2 System Conditions.....	10
7 SCOPE OF WORK.....	11
7.1 Suva Substation	Error! Bookmark not defined.
7.2 General Requirements	11
8 DELIVERABLES.....	12
9 PROGRAM.....	12
10 SUPERVISION AND REPORTING.....	12
11 EXPERTISE AND QUALIFICATION	12
12 PAYMENT SCHEDULES AND TERMS.....	13
13 INPUTS AND FACILITIES PROVIDED BY EFL	13

1 BACKGROUND

Energy Fiji Limited (“EFL”) is a limited liability company that was established under the Companies Act (2015), Laws of Fiji. It is supervised by a Board of Directors comprising a Chairman, Deputy Chairman, the Chief Executive Officer of EFL and representatives from its shareholders.

The Executive Management team of EFL consists of the Chief Executive Officer, Chief Finance Officer, General Manager Human Resources, General Manager Generation, General Manager Network, General Manager Customer Services, General Manager System Planning and Control, General Manager Special Projects and Chief Information Officer.

EFL is primarily responsible for generation, transmission and distribution of electricity in Viti Levu, Vanua Levu, Ovalau and Tavueni in Fiji. It owns over twenty (20) power stations and twenty (20) substations and switching stations on the islands of Viti Levu, Vanua Levu, Taveuni and Ovalau. EFL owns, operates and maintains a network of 147km of 132kV transmission lines, 534.86km of 33kV lines and over 9,810km of 11kV and 415V distribution lines.

EFL is undertaking a project to install two of new 33kV/11kV/6.6kV Power transformer at its existing 33kV substation in Suva. As part of this project, EFL requires an assessment to be carried out for design of earthing and lightning protection systems for it 33kV Suva Substation.

EFL is seeking bids from reputable companies to provide engineering services in the area of lightning protection design and earthing system design for the Suva substation area for the new power transformers.

During evaluation of tender bids, EFL may invite a tenderer or tenderers for discussions, presentations and any necessary clarification before proceeding further.

The deadline to submit tender bids is 1600hrs on 16th September 2020, Fiji Time.

Further information relating to this tender may be acquired from:

Jitendra Reddy
Acting Unit Leader Strategic Procurement and Inventories
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 320
Facsimile: 679 331 6773
Email: JReddy@efl.com.fj

2 INSTRUCTIONS FOR BIDDERS

2.1 Eligible Tenderers

This invitation is open to Tenderers who have sound Financial Background, and have previous experience in carrying out such work.

Tenderers shall provide such evidence of their continued eligibility satisfactory to EFL as EFL shall reasonably request, using the forms provided in the Schedules. **No part of the work shall be sub-contracted unless the bidder is from overseas and is unable to carry out the necessary testing (due to COVID 19 travel restrictions), therefore can engage the local contractor to carry out the necessary testing and send the results to the original bidder.**

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

2.2 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.

2.3 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.**

2.4 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.

2.5 Site Visits

Tenderers wishing to visit existing substation location and the new substation location shall be required to first meet at **Suva Substation on Wednesday 9th September 2020, at 11.30am.**

2.6 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.

2.7 Clarification of Bidding Documents

A prospective Tenderer requiring any clarification of the bidding documents may notify EFL in writing by fax (hereinafter the term "fax" is deemed to include electronic transmission such as facsimile, cable and telex), or email addressed to:

Jitendra Reddy
Acting Unit Leader Strategic Procurement, Inventories and Properties
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 320
Facsimile: 679 331 6773
Email: JReddy@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.**

2.8 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.

2.9 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.

2.10 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 addenda.

2.11 Bid Currencies

Prices shall be quoted in a single currency only.

2.12 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 2.15.

2.13 Format and Signing of Bids

The Tenderer shall prepare one original and one (1) copy of the technical and financial proposals, clearly marking each one as: "ORIGINAL-TECHNICAL & PRICE PROPOSAL", "COPY NO. 1 - TECHNICAL & PRICE PROPOSAL", etc. as appropriate. In the event of discrepancy between the original and any copy, the original shall prevail.

The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, Photostats are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.

The Tenderer shall also provide one electronic copy of the Technical and Financial proposals on EFL's electronic tender hosting website, <https://www.tenderlink.com/efl> or on a portable storage device with the printed submissions.

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.

2.14 Sealing and Marking of Bids

The Tenderer shall seal the original copy of the technical proposal and the original copy of the price proposal and each copy of the technical proposal and each copy of the price proposal in separate envelopes clearly marking each one as: "ORIGINAL-TECHNICAL & PRICE PROPOSAL", "COPY NO. 1 - TECHNICAL & PRICE PROPOSAL", etc. as appropriate.

The Tenderer shall seal the original bids and each copy of the bids in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL", "COPY No. 1", etc.

The inner and outer envelopes shall

- a) be addressed to EFL at the following address:

Jitendra Reddy
Unit Leader Strategic Procurement, Inventories and Properties
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 320
Facsimile: 679 331 6773
Email: JReddy@efl.com.fj

And

- b) bear the following identification:

- Bid for: CONSULTANCY SERVICES FOR LIGHTNING PROTECTION AND EARTHING DESIGN FOR SUVA SUBSTATION
- Bid Tender Number: MR 206/2020
- DO NOT OPEN BEFORE: 1600hrs on 16th September 2020

In addition to the identification required, the inner envelope shall indicate the name and address of the Tenderer to enable the bid to be returned unopened in case it is declared "late" pursuant to Deadline for Submission of Bids.

If the outer envelope is not sealed and marked as above, EFL will assume no responsibility for the misplacement or premature opening of the bid.

2.15 Deadline for Submission of Bids

Bids must be received by EFL at the address specified above no later than 1600 hours (Fiji Time) **16th September 2020**.

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.

2.16 Late Bids

Any bid received by EFL after the deadline for submission of bids prescribed above will be rejected and returned unopened to the Tenderer.

2.17 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.

The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with Sealing and Marking of Bids, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

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

2.18 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.

2.19 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.

2.20 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 or by fax, 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.

2.21 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 Schedules 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.

2.22 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.

2.23 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
2. Professional Indemnity Insurance

3 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract shall be FIDIC Client/Consultant Model Services Agreement – Fifth Edition 2017 (White Book).

4 ADDITIONAL CLAUSES TO GENERAL CONDITIONS OF CONTRACT

EFL will provide during the contract stage.

5 REFERENCE STANDARDS

AS 1824.1	Insulation co-ordination – part 1: Definitions, principles and rules
AS 1824.2	Insulation co-ordination (phase-to-earth and phase-to-phase, above 1 kV) – Application guide
AS 2650	Common specifications for high-voltage switchgear and control gear standards (IEC 60694)
AS 2067	Power installations exceeding 1 kV a.c.
AS 2239	Galvanic (sacrificial) anodes for cathodic protection
AS3008.1.1	Electrical installations – Selection of cables – Cables for alternating voltages up to and including 0.6/1 kV – Typical Australian installation conditions
AS 4398	Insulators – Ceramic or glass – Station post for indoor and outdoor use – voltages greater than 1000 V a.c. – Characteristics
AS 60038	Standard voltages
AS 60060	High-voltage test techniques – Definitions and requirements for on-site testing (IEC 60060-1)
AS 62271.301	High voltage switchgear and control gear - Dimensional standardization of terminals (IEC/TR 62271-301)
AS/NZS 1768	Lightning protection
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3835	Earth potential rise-Protection of telecommunication network users, personnel and plant
AS/NZS 3931	Risk analysis of technological systems – Application guide AS/NZS 3931
AS/NZS 60479.1	Effects of current on human beings and livestock – Part 1: General aspects
Electricity Act (2017)	
Electricity Regulations (2019)	

6 SERVICE CONDITIONS

6.1 Environmental Conditions

The following environmental conditions are applicable:

Height above sea level	:	not exceeding 1000 m	
Atmosphere	:	Saliferous, corrosive and dusty	
Ambient temperature	:	Peak :	40°C
	:	24 Hour Average:	30°C
	:	Annual Average:	22°C
	:	Minimum:	10°C

Relative Humidity (Average)	:	90%
Annual Average Rainfall	:	1900 mm
Wind Speed	:	Sustained : 55 m/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

Note: Fiji is situated in a region where cyclones are experienced frequently. All plant and equipment shall be designed and constructed to withstand these extreme conditions and be suitable for a damp, tropical climate, which may be experienced simultaneously.

6.2 System Conditions

The following service conditions shall be applicable for the earthing and lightning protection systems:

Parameter	Value	
Nominal system voltage (Vn):	11kV	33kV
Highest (Equivalent) System Voltage:	12kV	36kV
Power frequency withstand voltage:	28kV(rms)	70kV(rms)
Impulse Withstand voltage (peak):	95kV (peak)	170kV(peak)
Normal voltage variation	± 10%	
Number of phases:	3	
Rated frequency	50Hz	
Normal operating frequency excursion band	48.5Hz – 52Hz	
System earthing:	Solidly earthed at supply transformer	Resistance earthed at supply transformer
Maximum single phase to earth fault current and duration	25kA/3seconds	
Normal combined voltage and frequency variation	± 10%	

7 SCOPE OF WORK

7.1 Suva Substation

The scope of work at Suva Substation includes site surveys, data compilation, engineering studies and design of earthing and lightning protection systems for the new 33kV/11kV/6.6kV transformer installation works.

7.2 General Requirements

The lightning protection system shall:

- be designed according to recommendations and requirements of AS 1768 as a minimum to ensure that all buildings and equipment at the substation is shielded from lightning at all times (where existing lightning protection exists, its adequacy must be assessed based on this)
- be designed to ensure that lightning masts (where provided) are strategically located within the substation boundaries to ensure lightning protection coverage is optimized
- be designed to ensure that lightning masts must be connected by a dedicated insulated conductor directly to the substation earth grid and be supported to the structure with necessary clamps

The earthing system shall:

- be designed for effective operation of the protection equipment under earth fault conditions
- be designed to ensure a system of equipotential bonding is provided for protection of personnel
- be designed to ensure that the step and touch potentials are kept to safe levels
- be designed to ensure that the transfer of voltages out of the substations is controlled
- be designed to ensure that the interference to telecommunications systems is limited
- be designed to provide earthing system for all buildings and structures (including switchyards), and equipment to be connected to an effective earth shall include, without limitation, the following:
 - the earth grid
 - all accessible exposed metal parts containing or supporting high voltage conductors, including metal parts mechanically connected to the exposed metal parts
 - metallic substation enclosures of all substation equipment
 - surge protection devices
 - cable sheaths, screens and armoring
 - exposed metal of all floor and reinforcing
 - metallic fences
- be designed based on the methodology as described in AS 2067, AS/NZS 3000 and IEEE Standard 80
- be designed by computer analytical methods (such as through use of CDEGS software or similar) and not by empirical calculations
- provide the types of earthing conductor and connection and jointing methods recommended

8 DELIVERABLES

Within one week of commencement, the Consultant shall submit to EFL a detailed work program outlining time inputs, field visits and the methodology, in MS Project format.

An inception report shall be submitted with the detailed work program.

A draft final report shall be submitted to EFL within 6 weeks of commencement of services. The final report incorporating EFL comments shall be submitted within 2 weeks of receiving EFL comments. Design drawings shall be submitted with the design reports together with specifications/guidelines for installation of lightning protection and earthing systems. In addition to this, a presentation in MS Powerpoint format shall be submitted to EFL documenting the design.

Weekly progress reports shall be submitted every Monday from the date of commencement.

The Consultant will provide, upon request from EFL, presentation of activities, findings and recommendations to the EFL executive management group at the proposed date below.

9 PROGRAM

The anticipated program for the work is shown below.

Milestone	Target Deadline
Site Visit	9 th September 2020
Close of Tender	16 th September 2020
Award of Tender	14 th October 2020
Issue of Purchase Order	30 th October 2020
Commencement of Study	30 th October 2020 (or earlier if P.O is issued earlier)
End of Study	No later than 14 th December 2020
Submission of Draft Report to EFL	No later than 14 th December 2020
Submission of Final Report to EFL	No later than 29 th December 2020

10 SUPERVISION AND REPORTING

The EFL Project Manager for this work package will be Substation Engineer Projects - Central. The project will fall under General Manager Network.

11 EXPERTISE AND QUALIFICATION

The following is required:

- The Consultant, or its team members, must have as minimum a degree in electrical engineering/science, or equivalent standard of education, and lead engineer shall be a Chartered Professional Engineer certified to practice in the Oceania region.
- The Consultant, or its team members, shall have at least 15 years working experience in power system earthing and lightning protection design and be familiar with the Australian and New Zealand standards commonly used in this region

- Good management and co-ordination skills, and experience on technical project implementation.
- Proven experience in design and review of power system protection
- Experience and skills in training and transfer of knowledge.
- Excellent interpersonal and communication skills required to train / coach staff and give occasional presentations during the assignment

12 PAYMENT SCHEDULES AND TERMS

The payment will be based on the milestones defined below. EFL will not be making any advance payment for this work. The prices quoted shall be inclusive of With-holding Tax in Fiji (for off-shore service providers), or provisional tax, for local service providers.

Milestone Activity	Percentage Payment
Suva Substation - Draft Report Submission and Acceptance by EFL	50%
Submission of Final Reports and Acceptance by EFL	50%

13 INPUTS AND FACILITIES PROVIDED BY EFL

The successful bidder shall provide its own accommodation in Fiji for any trips to Fiji. EFL can provide transportation for maximum two persons for any visits to Fiji.

EFL will provide access to Suva Substation site.

TENDER SUBMISSION CHECK LIST

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

Tender Number _____

Tender Name _____

1. Full Company 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)

9. Company Registration Number: _____

(Attach copy of the Business License)

10. FNPF Employer Registration Number: _____

(For Local Bidders only)

11. Contact Person: _____

I declare that all the above information is
correct.

Name:

Position: _____

Sign: _____ Date: _____

Tender Submission - Instruction to bidders

It is mandatory for Bidders to upload a copy of their bid in the TENDER LINK Electronic Tender Box no later than 4.00pm (1600hrs Fiji Time) **Wednesday 16th September, 2020.**

To register your interest and tender a response, view 'Current Tenders' at: <https://www.tenderlink.com/efl>

For further information contact The Secretary Tender Committee, by e-mail JReddy@efl.com.fj

In additional, hard copies of the tender, one original and one copy must be deposited in the tender box located at the EFL Head Office, 2 Marlow Street, Suva, Fiji no later than 1600hrs on **Wednesday 16th September, 2020**

Addressed as

Tender - MR 206/2020 - Consultancy Services for Lightning Protection and Earthing Design for EFL Suva Substation, Suva

The Secretary Tender Committee
Energy Fiji Limited
Head Office
Suva
Fiji

Hard copies of the Tender bid will be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and it is dispatched before the closing date and time.

Tenders received after closing time 4.00pm (1600hrs Fiji Time) **Wednesday 16th September, 2020.**

- Will not be considered.
- Lowest bid will not necessarily be accepted as successful bid.

It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission.

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

(Tender Submission via email or fax will not be accepted)