



ENERGY FIJI LIMITED

**TECHNICAL SPECIFICATION FOR
SUPPLY OF 12kV GANGED AIR BREAK
SWITCHES BY PREFERRED SUPPLIER**

MR 275/2024

Revision History & Document Control

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2	Reviewed		Basant Kumar	26/09/18
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TABLE OF CONTENT

Revision History & Document Control.....	2
1.0 Introduction.....	5
1 INSTRUCTIONS TO BIDDERS.....	6
1.1 Eligible Bidders	6
1.2 Eligible Materials, Equipment and Services	6
1.3 One Bid per Bidder	6
1.4 Cost of Bidding	6
1.5 Site Visits	6
1.6 Contents of Bidding Documents	7
1.7 Clarification of Bidding Documents	7
1.8 Amendment of Bidding Document	7
1.9 Language of Bid	7
1.10 Bid Prices	7
1.11 Bid Currencies.....	8
1.12 Bid Validity	8
1.13 Format and Signing of Bids	8
1.14 Sealing and Marking of Bids	8
1.15 Deadline for Submission of Bids	8
1.16 Late Bids	8
1.17 Modification and Withdrawal of Bids.....	8
1.18 Rejection of One or All Bids.....	9
1.19 Process to be Confidential.....	9
1.20 Clarification of Bids.....	9
1.21 Compliance with Specifications.....	9
2.0 References.....	10
2.1 Applicable Standards	10
3.0 System Conditions.....	11
3.1 Environmental Conditions.....	11
3.2 Service Conditions	11
4.0 Design and Construction.....	12
4.1 General	12
4.2 Switch Material	12
4.3 Electrical Ratings	12
4.4 Mounting.....	13
4.5 Insulators	13
4.6 Mass of Unit.....	13
4.7 Operating Equipment	13

4.8	Contacts	13
4.9	Terminal Connections	14
4.10	Hardware.....	14
4.11	Corrosion Protection	14
4.12	Corona.....	14
4.13	Marking.....	14
4.14	Lifting.....	14
4.15	Spares	15
5.0	Quality Assurance.....	15
6.0	Performance and Testing.....	15
6.1	Type Tests.....	15
6.2	Routine Tests	15
6.3	Witnessing of Tests	15
6.4	Compliance.....	15
7.0	Additional Requirements.....	15
7.1	Packaging and Marking	15
7.2	Storage	15
8.0	Technical Information to be supplied.....	16
9.0	Stock Availability.....	16
10.0	Product Warranty Period.....	16
11.0	Environmental Considerations.....	16
12.0	Reliability.....	16
13.0	Samples.....	16
13.1	Production Samples	16
13.2	Sample Delivery	17
14.0	Training.....	17
15.0	Appendix.....	18
15.1	Technical Data – ABS.....	18
15.2	Electrical Data – ABS	20
15.3	Typical Layout Drawing	21
15.4	Air Break Switch – Operating Instructions	23
15.5	Submission Requirements	24

1.0 Introduction

Energy Fiji Limited [EFL] is responsible for generation, transmission and distribution of electricity in Viti Levu, Vanua Levu, Ovalau and Taveuni in Fiji. By January 2023, the EFL had 215,515 customers. This included residential, commercial and institutional customers.

EFL is requesting proposal for the Preferred Supplier to supply item listed below for EFL's consumption to carryout repair, Construction and maintenance of Power line Network in Fiji.

The preferred Supplier arrangement will be for a period of three (3) years from the date of signing of the contract.

The item covered under this specification is tabulated below.

No.	Stock Code	Item Description
1	I04431	12kV Air Break Switch

This Specification covers the general requirements of design, manufacture, testing, supply and delivery of 12kV Ganged Air Break Switches (ABS) for overhead distribution systems.

1 INSTRUCTIONS TO BIDDERS

1.1 Eligible Bidders

This invitation is open to all Bidders who have sound Financial Background, and have previous experience in design, manufacture, testing and supply of such pole-mounted and platform-mounted transformers.

Bidders shall provide such evidence of their continued eligibility satisfactory to EFL as EFL shall reasonably request. Bidders who are not manufacturers of such transformers shall provide evidence of agency.

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

1.2 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 where relevant) and from various countries and all expenditures made under the Contract will be limited to such materials, equipment, and services. Upon request, bidders may be required to provide evidence of the origin of materials, equipment, and services.

For purposes of this Contract, "services" means the works and all 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.

1.3 One Bid per Bidder

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

1.4 Cost of Bidding

The bidder 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.

1.5 Site Visits

Bidders can visit existing EFL networks by making arrangements to visit existing EFL installations. Bidders are required to familiarize themselves with the existing EFL installations so the solutions they offer does not require modification to existing poles and support infrastructure.

1.6 Contents of Bidding Documents

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

1.7 Clarification of Bidding Documents

A prospective bidder 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: +679 331 3333 Ext 2320 or
Mobile: +679 999 2400
Email: JReddy@efl.com.fj

EFL will respond to any request for clarification which it receives earlier than 10 days prior to the deadline for submission of bids.

1.8 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 bidder, modify the bidding documents by issuing addenda.

1.9 Language of Bid

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

1.10 Bid Prices

Unless specified otherwise, Bidders 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.

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

Bids shall be given on CIF basis. The point of delivery shall be EFL's Navutu Depot in Lautoka. The term CIF shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, Paris.

EFL has a marine insurance cover for items it is required for purchase for its project and operational works. Bidders are required to comment if the marine insurance component is covered in their bids.

1.11 Bid Currencies

Prices shall be quoted in a single currency only.

1.12 Bid Validity

Bids shall remain valid for a period of **120 days** from the date of Deadline for Submission of Bids specified in Sub-Clause 21.1.

1.13 Format and Signing of Bids

The bidder shall provide 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 bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

1.14 Sealing and Marking of Bids

Due to the Covid19 restrictions on movements, bidders are encouraged to bid via Tender link Portal.

1.15 Deadline for Submission of Bids

Bids must be received by EFL at the address specified above no later than **1600 hours (Fiji Time) 4th September 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 bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

1.16 Late Bids

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

1.17 Modification and Withdrawal of Bids

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

1.18 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 bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the rejection.

1.19 Process to be Confidential

- 2.19.1. Information relating to the examination, clarification, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process.
- 2.19.2. Any effort by a bidder to influence EFL's processing of bids or award decisions may result in the rejection of the bidder's bid.
- 2.19.3. Lowest bid will not necessarily be accepted as successful bid.

1.20 Clarification of Bids

To assist in the examination, evaluation and comparison of bids, EFL may, at its discretion, ask any bidder 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.

1.21 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 Bidder shall tender for the whole of the Works included in the Specification.

2.0 References

2.1 Applicable Standards

The item shall be designed, manufactured and tested in accordance with the latest edition of the Standards specified below and all amendments issued prior to the date of closing of tenders except where varied by this specification.

AS 1111	ISO metric hexagon commercial bolts and screws
AS 1112	ISO metric hexagon nuts
AS 1154	Insulator and conductor fittings for overhead power lines
AS 1214	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)
AS 1275	Metric screw threads for fasteners
AS 1444	Wrought alloy steels - Standard and hardenability (H) series and hardened and tempered to designated mechanical properties
AS 1824	Insulation co-ordination (phase-to-earth and phase-to phase, above 1kV)
AS 1856	Electroplated coatings – Silver
AS 2650	Common specifications for high-voltage switchgear and control-gear standards
AS 2837	Wrought alloy steels - Stainless steel bars and semi-finished products
AS 4169	Electroplated coatings - Tin and tin alloys
AS 4398	Insulators- Ceramic or glass- Station post for indoor and outdoor use - Voltages greater than 1000V a.c.
AS 4435	Insulators – Composite for overhead power lines – Voltages greater than 1000V a.c.
AS 4680	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles
AS/NZS 60265.1	High Voltage Switches. Part 1: Switches for rated voltages above 1kV and less than 52kV (IEC 60265-1)
IEC 815	Guide for the selection of insulators in respect of polluted conditions
AS/NZS 9001	ISO Quality management systems - Requirements

Should inconsistencies be identified between standards and/or this specification, the tenderer shall immediately refer such inconsistencies to EFL for resolution.

3.0 System Conditions

3.1 Environmental Conditions

The Air Break Switch shall be suitable for installation outdoors and shall be designed to withstand the following service conditions.

Description	Conditions
Atmosphere Pollution Level	: Very heavy (IEC 815), corrosive and dusty
Ambient Temperature	: Peak: 40°C 24 Hour Average: 30°C Annual Average: 22°C Minimum: 10°C
Relative Humidity (Average)	: 85%
Rainfall	: Annual Average: 2663mm
Isokeraunic (Thunder day) 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.

3.2 Service Conditions

Nominal Voltage	11kV
System Highest Voltage	12kV
System Frequency	50Hz
Number of Phases	3
System Earthing	Effectively Earthed
Impulse Withstand Voltage (peak)	95kV
Short Duration Power Frequency Withstand Voltage	28kV (rms)

4.0 Design and Construction

Equipment offered by the bidders will need to conform to this Specification.

4.1 General

The switch shall be of “unitized” construction i.e. supplied complete with the required accessories as listed in Clause 4.4.

The switch shall be designate as class M1 mechanical endurance requiring mechanical operation tests of 1000 operating cycles as per AS 60265.1 Clause 6.102.2.

4.2 Switch Material

All components of the switch (excluding porcelains and pole mounting bracket) shall be of non-corroding materials and any galvanized ferrous metals unless approved by the responsible Engineering Officer.

No Timber material will be acceptable for any part of the air-break switch.

4.3 Electrical Ratings

Air-break switches shall comply with the relevant requirements of AS 2650 and AS 60265.1 and shall have the following ratings under the service conditions detailed in clause 3.2 above.

Particulars	Units	Ratings
Nominal System voltage	kV	11
Rated Voltage of Switch	kV	12
Rated Frequency	Hz	50
Continuous Operating Current	A	630
Short Time (1 sec) Withstand Current	kA	25
Peak Withstand Current	kA	50
Insulation Level (Outdoor Service)		
(a) to earth & between phases	kV	150
(b) across isolating distances	kV	170
Phase Separation		
Minimum Phase to Earth Air Clearance	mm	120
Minimum Phase to Phase Air Clearance	mm	140
Insulator Characteristics:		
Minimum Wet Power Frequency Withstand Voltage	kV	50
Minimum Creepage Distance (Specific Creepage – 35mm/kV)	mm	660
Min Rated Switching Capacity (Breaking):		
Mainly Active Load (approx 0.85 p.f.)	A	630
10% System Voltage Closed Loop Breaking Current	A	630
Line Charging Current	A	10
No-load Transformer Breaking Current	A	12
Min Rated Switching Capacity (Making):		
Mainly Active Load (approx 0.85 p.f.)	A	630
10% System Voltage Closed Loop Making Current	A	630
Line Charging Current	A	10
No-load Transformer Making Current	A	12

4.4 Mounting

The ABS supplied shall be suitable for pole top mounting in a horizontal position. The following shall be supplied with each set of ABS for mounting:

Item Description	Quantity
12kV Polymer Strain Insulator and thimble	6
120mm ² AL PVC Jumper Kit	6
Hex Head Bolt – M16 x 240mm (Class 8.8)	2
Square Washer – M16 (50x50x5mm)	4
Nut – M16	4

The 120mm² AL PVC Jumper kit shall be supplied fully terminated with both ends fitted with clamps. One clamp shall be suitable to be fitted with the ABS and the other end suitable for conductor diameter up to 25mm. Full details of the above materials with test reports and dimensional details shall be submitted with the bid.

Refer to EFL drawing number A3 01 E24 023(1) for mounting and material details.

4.5 Insulators

The insulator shall be a single piece, fully vitrified non-puncturable porcelain with cap type end fittings in accordance with AS 4398. Sulphur cement will not be accepted as the bonding agent between the cap end fittings and porcelain. The preferred color is munsel grey in accordance with AS 2700.

The insulator shall be of adequate mechanical strength class to withstand the loads applied during the opening and closing cycles. The torsion strength of the insulator shall not be less than the minimum values specified in Table IV of AS 4398.1.

The manufacturer shall state the design features including the mechanical rating of the insulators and testing undertaken to meet these requirements.

Each insulator shall be indelibly marked with the supplier name, date of manufacture and mechanical strengths for traceability.

For all insulators offered the Tenderer shall provide the name of the manufacturer, country of origin and independent test reports as per Attachment 1.

4.6 Mass of Unit

The nominal mass of the 12kV switch shall preferably be not greater than 75kg. Manufacturer to provide details of weight.

4.7 Operating Equipment

The switch shall be incorporated with spring-loaded actuator mechanism which can be operated with a standard hook stick (appropriate link stick accessories).

The actuator mechanism shall be lockable at either on the "OPEN" position and the "CLOSE" position using a standard hook stick. An interlocking device shall be fitted to the up/down lever preventing the switch from opening or closing unless the interlock is in the "unlocked" position.

Further operating instructions are described in EFL drawing number A3 01 E24 023(2).

4.8 Contacts

All electrical contact surfaces are to be silver plated in accordance with AS 1856 to ensure that the thickness of plating provides durability of the contact surfaces for a service life of 35 years.

Contacts shall be of the self-aligning type. The material used in both fixed and moving contacts is to be stated in the offer.

Each switch shall be supplied complete with load-break expulsion interrupters fitted. Full details of the load break devices offered including the method of changing them in service shall be submitted with the tender.

The load-break devices shall be capable of making and breaking of load currents of up to 630 amps with full recovery voltage across the switch and interrupting and making transformer magnetizing and line charging currents as specified in Clause 4.3.

Details of the operating characteristics of the load-break device i.e. a graph of “Switching Current” Vs “Number of Interruptions” shall be provided with the offer.

4.9 Terminal Connections

Terminal palms of 4.5mm minimum thickness shall be provide on both the supply and load side of the switch and shall provide for a lug connection using a single M12 bolt.

M12 x 40mm stainless steel bolts and nuts shall be provided on both the supply and load side terminal palms and shall be fitted with stainless steel belleville or spring washers so as to provide positive locking pressure at all times when tightened.

The connections shall be designed for use with Aluminium or Copper conductors and to minimise the effects of electrolytic corrosion of dissimilar metals.

4.10 Hardware

All nuts, bolts and washers associated with each phase assembly shall be stainless steel in accordance with AS 2837. The bolts and washers shall be grade 316 and to avoid binding, the nuts shall be grade 304 and a suitable lubricant shall be applied to the threads of all stainless steel bolts before tightening. The lubricant shall not contain graphite.

The bolts and nuts shall be threaded in accordance with AS 1111 and AS 1112 respectively. The resulting thread form shall conform to the commercial quality recommended in AS 1275.

4.11 Corrosion Protection

All support brackets and other ferrous parts of the units other than stainless steel shall be galvanized in accordance with AS 4680.

All current carrying parts shall be of a high electrical conductivity, corrosion resistant metal. All copper and associated alloys shall be electrolytically bright tin plated in accordance with AS 4169.

Corrosion of the ABS insulator metal hardware and consequent failure of the insulators has been a major cause of ABS failures. Tenderers are requested to submit full details of corrosion prevention features incorporated in the products offered to ensure a service life of 35 years under the specified conditions.

4.12 Corona

Precautions shall be taken to avoid corona by ensuring there are no sharp edges, points, or loose metal fittings on the switch where these parts will be energized.

4.13 Marking

Each switch shall be clearly and durably marked in accordance with AS 60265.1 Clause 5.10. Individual air-break switch shall be provided with serial number to allow traceability.

4.14 Lifting

Lifting lugs or any other means to prevent sling slippage during lifting shall be provided. The location of the lifting points shall ensure that during the lifting operation by a crane, the switch shall remain in its final orientation with respect to the mounting bracket.

4.15 Spares

Bidders are responsible to provide any spares that may be required during the service life of the air-break switch.

5.0 Quality Assurance

The manufacture shall submit evidence that the design and manufacture of the Air-break Switches is in accordance with AS/NZS ISO 9001 and shall include the Capability Statement associated with the Quality System Certification.

6.0 Performance and Testing

6.1 Type Tests

Test reports on the type tests in accordance with Clause 6 of AS 60265.1 for switches shall be provided with the offer. Type test report for the insulators shall also be provided with the offer.

6.2 Routine Tests

Routine Tests shall be conducted in accordance with Clause 7 of AS 60265.1. Mechanical endurance test to class M1 shall be required on 2% of the switches delivered.

6.3 Witnessing of Tests

The EFL reserves the right to witness all testing. The Supplier shall give EFL reasonable notice of when testing will be carried out and one (1) EFL engineer to be invited to witness the testing. The return-air travel, accommodation, meals and other expense related to test witnessing shall be borne by the Bidder as a value adding service.

6.4 Compliance

The Supplier shall state in writing that their offer complies with the relevant Standards and this specification. If the Supplier is offering equipment manufactured to an equivalent standard, full details of that standard must be given including a copy written in English.

7.0 Additional Requirements

7.1 Packaging and Marking

Each switch shall be supplied not assembled in crates. Crates shall contain individual switches and ancillary equipment together with assembly instructions.

Crates must be sufficiently sturdy to allow for handling and transportation to the purchaser and storage at the purchaser's warehouse.

The following information shall be legibly and indelibly marked on BOTH sides of the crate:-

1. Manufacturer's name
2. Rated Voltage and Current
3. Purchase Order Number, Contract Number and EFL Stock Number
4. Compliance standards
5. Gross Mass of crate and contents
6. Handling or lifting instructions where applicable

7.2 Storage

The equipment shall be capable of being stored without deterioration within the temperature range of 10°C to 40°C for no less than 24 months.

8.0 Technical Information to be supplied

The following information shall be supplied with the offer:

- a) List showing similar equipment supplied to or on order for other utilities for at least the past 3-5 years
- b) Completed schedule 15.1 & 15.4
- c) Catalogue describing the items and indicating the model number
- d) Constructional features and material used for components
- e) Electronic drawings of item to be supplied in AutoCAD format.
- f) End of service life disposal method
- g) Origin of materials used in manufacture of ABS
- h) Quality assurance certificate as per clause 5.0
- i) Type and routine test certificates as per clauses 6.1 and 6.2

Offers of vendors who fail to furnish above particulars shall be rejected.

9.0 Stock Availability

The bidder is required to show the size of his/her stock holding and the ability to meet the required estimate quantity per annum. The movement of the ABS will depend on EFL's project works and for operation and maintenance purposes. An estimate movement of the item are outlined in the table below but it will not be purchase as a lump sum quantity at once. Hence, the successful bidder will be required to carry a consignment / safety stock at times to meet EFL's demand within the three year contract period.

Bidders must not base their price on EFL to buy the entire quantity mentioned below within the contract period.

No.	Stock Code	Item Description	Approximate 3 year Stock Movement
1	I04431	12kV Air-break Switch	141

10.0 Product Warranty Period

The bidder is required to provide the warranty period as part of the proposal. A minimum warranty period of twenty-four (24) months from time of dispatch from factory shall be provided.

11.0 Environmental Considerations

Suppliers are required to comment on the environmental soundness of the design and the materials used in the manufacture of the items tendered. In particular, comments should address such issues as recycling and disposal at the end of service life.

12.0 Reliability

Suppliers are required to comment on the reliability of the equipment and the performance of the materials tendered for a service life of 35 years under the specified system and environmental conditions.

13.0 Samples

13.1 Production Samples

Samples of items may be required during the tender assessment period. Samples would normally only be required from tenderers who have previously not supplied the items to the Purchaser.

13.2 Sample Delivery

When samples are required, production samples shall be delivered freight free (Delivery Duty Paid (DDP)), suitably packaged and labelled including reference to the Tender Number.

Samples shall be supplied within 7 days of official request.

14.0 Training

Training material in the form of drawings, instructions and/or audio visuals shall be provided for the items accepted under the offer.

This material shall include but is not limited to the following topics:

- Handling
- Storage
- Application
- Installation
- Maintenance
- Environmental performance
- Electrical performance
- Mechanical performance
- Disposal

15.0 Appendix

15.1 Technical Data – ABS

All tenderers are required to complete and submit a copy of this form with their bid submissions.

Particulars	Units	Requirements	Bidders Response
Name of Manufacturer			
Address of Manufacturer			
Place of Manufacture			
Origin of materials used for manufacturing			
Rated Voltage	kV	12	
Rated Continuous Current	A	630	
Rated Load Switching Capacity:			
a) Making	A/pf	630	
b) Breaking	A/pf	630	
Short Time Withstand Current (1 Sec)	kA	25	
Line Charging Current	A	10	
No-load transformer breaking current	A	12	
Mainly Active Load (approx. 0.85 pf)	A	630	
Material of Current Carrying Parts		Bidder to state	
Details of Plating on Current Carrying Parts:			
a) Plating Material		Bidder to state	
b) Thickness of Plating	mm	Bidder to state	
Details of Plating on Contact Surfaces:			
a) Plating Material		Bidder to state	
b) Thickness of Plating	mm	Bidder to state	
Moving Contact Material		Bidder to state	
Details of Plating on Moving Contact Surfaces:			
a) Plating Material		Bidder to state	
b) Thickness of Plating	mm	Bidder to state	
Fixed Contact Material:		Bidder to state	
Details of Plating on Fixed Contact Surfaces:			
a) Plating Material		Bidder to state	
b) Thickness of Plating	mm	Bidder to state	
Total Mass of Switch	Kg	Bidder to state	
Switch Insulation Co-ordination:			
Rated Lightning Impulse Withstand Voltage between phases	kV		
Rated Lightning Impulse Withstand Voltage across the isolating distance	kV		
Critical Flashover Voltage between phases in air in the open position	kV		
Critical Flashover Voltage between phases in path of support insulator/base/support insulator in the open position	kV		
Critical Flashover Voltage across isolating distance in the open position	kV		

Rated One-Minute Power Frequency Wet Withstand Voltage between phases	kVrms		
Rated One-Minute Power Frequency Wet Withstand Voltage across isolating distance	kVrms		
Insulators:			
Name of Manufacturer:			
Place of Manufacture:			
Applicable standards		AS 1154	
Type of bonding material used for bonding metal end caps to porcelain insulator		Bidder to state	
Rated cantilever strength of insulator	kN	Bidder to state	
Rated torsional strength of insulator	kN.m	Bidder to state	
Power Frequency Wet Flashover Voltage	kVrms	50	
Impulse Withstand Voltage	kV	170	
Nominal Creepage Distance	mm	354	
Dry Arcing Distance	mm	205	
Switch Support:			
a) Support arm material		Bidder to state	
b) Details of corrosion resistance		Bidder to state	
Force Required to Operate the Switch:			
a) Vertical movement of hook stick	N	Bidder to state	
Lubricants Used:			
Lubricant used on electrical contacts		Bidder to state	
Lubricant used on stainless steel bolts/nuts		Bidder to state	
Lubricant used on moving parts		Bidder to state	
Load Break Expulsion Interrupters:			
Name of Manufacturer:			
Place of Manufacture:			

Name of Tenderer: _____

Signature of Tenderer: _____

Date: _____

15.2 Electrical Data – ABS

All tenderers are required to complete and submit a copy of this form with their bid submissions.

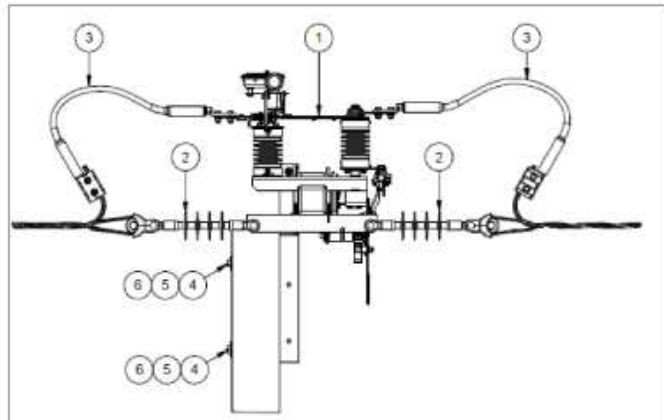
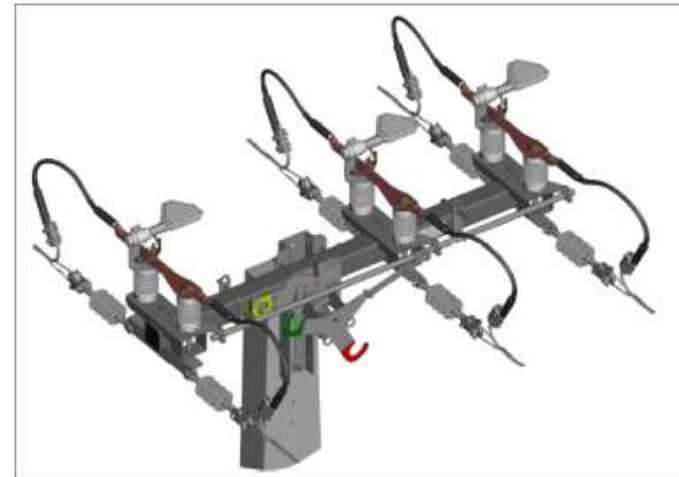
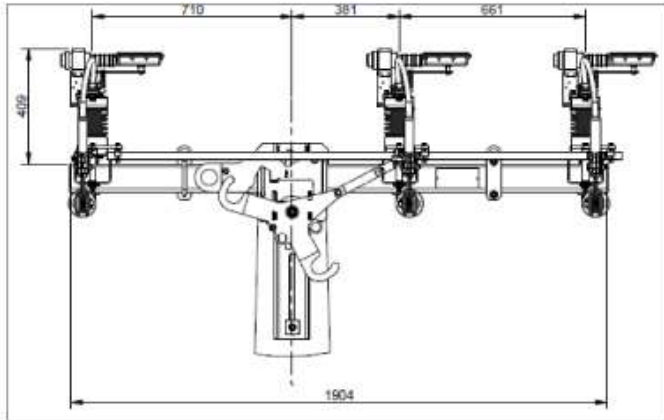
Particulars	Units	Requirements	Bidders Response
Nominal System voltage	kV	11	
Rated Voltage of Switch	kV	12	
Rated Frequency	Hz	50	
Continuous Operating Current	A	630	
Short Time (1 sec) Withstand Current	kA	25	
Peak Withstand Current	kA	50	
Insulation Level (Outdoor Service)			
(a) to earth & between phases	kV	150	
(b) across isolating distances	kV	170	
Phase Separation			
Minimum Phase to Earth Air Clearance	mm	120	
Minimum Phase to Phase Air Clearance	mm	140	
Insulator Characteristics:			
Minimum Wet Power Frequency Withstand Voltage	kV	50	
Minimum Creepage Distance (Specific Creepage – 35mm/kV)	mm	660	
Min Rated Switching Capacity (Breaking):			
Mainly Active Load (approx 0.85 p.f.)	A	630	
10% System Voltage Closed Loop Breaking Current	A	630	
Line Charging Current	A	10	
No-load Transformer Breaking Current	A	12	
Min Rated Switching Capacity (Making):			
Mainly Active Load (approx 0.85 p.f.)	A	630	
10% System Voltage Closed Loop Making Current	A	630	
Line Charging Current	A	10	
No-load Transformer Making Current	A	12	

Name of Tenderer: _____

Signature of Tenderer: _____


Date: _____

15.3 Typical Layout Drawing



PARTS LIST		
ITEM	QUANTITY	DESCRIPTION
1	1	EP81FS TS OMNI R4 H2S
2	6	11kV POLYMER STRAIN INSULATOR KIT
3	6	120mm ² AL PVC JUMPER KIT
4	2	HEX HEAD BOLT - M16X240mm CLASS 8.8
5	4	SQUARE WASHER M16 50X50X5mm
6	4	NUT - M16

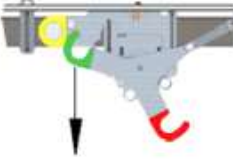

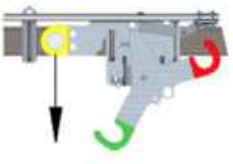


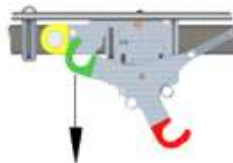
PAGE 1 OF 2

						 EFL Energising Our Nation		DRAWN: SHANE CHECKED: [Signature] ENGINEER: [Signature] HEAD OF DEPARTMENT: [Signature]	26.07.18	ENERGY FIJI LIMITED 11kV ABS TYPICAL LAYOUT DRAWING			DRAWING NUMBER A3 01 E24 023(1)			
No.	REVISION	DATE	BY	CHK	PSD	APP						SCALE 1:1000				

15.4 Air Break Switch – Operating Instructions

A3 01 E24 023(2)

OPERATING INSTRUCTIONS

TO OPEN THE AIR BREAK SWITCH		TO CLOSE THE AIR BREAK SWITCH	
THE AIR BREAK SWITCH MUST BE OPERATED WITH A SMOOTH, FIRM ACTION WITH VIGOROUS DOWNWARD FORCE.		THE AIR BREAK SWITCH MUST BE OPERATED WITH A SMOOTH, FIRM ACTION WITH VIGOROUS DOWNWARD FORCE.	
	1. PULL DOWN ON THE GREEN HOOK ARM (LEFT) OF THE OPERATING MECHANISM.		1. GENTLY LIFT THE YELLOW LOCKOUT HANDLE TO DISENGAGE THE LOCKOUT MECHANISM.
	2. PULL DOWN THE YELLOW LOCKOUT HANDLE.		2. PULL DOWN ON THE RED HOOK ARM (RIGHT) OF THE OPERATING MECHANISM.
	3. PULL DOWN ON THE RED HOOK ARM (RIGHT) TO ENSURE LOCKOUT IS ENGAGED AND THE SWITCH IS LOCKED IN THE OPEN POSITION. NOTE: ENSURE ALL TIES SECURING THE PHASE BLADES ARE REMOVED BEFORE OPERATING THE SWITCH.		3. CHECK THAT THE OVERTOGGLE ACTION IS ENGAGED BY PULLING DOWN GENTLY ON THE GREEN HOOK ARM (LEFT). THE MECHANISM SHOULD BE TIGHT WITH NO MOVEMENT WHEN FULLY ENGAGED. NOTE: 1. THE AIR BREAK SWITCH WILL NOT LOCK IN THE CLOSED POSITION EVEN WHEN THE LOCKOUT HANDLE IS PULLED DOWN. 2. IF THE LOCKOUT HANDLE IS LEFT IN THE DOWN POSITION, THE LOCKOUT WILL AUTOMATICALLY ENGAGE DURING THE NEXT OPENING OPERATION.

PAGE 2 OF 2

							DRAWN SHANE 22.06.18			ENERGY FIJI LIMITED			
							CHECKED						
							CHIEF			A3 01 E24 023(2)			
							DESIGNER						
							TEAM LEADER			11kV ABS			
							DESIGN & PLANNING						
							ENGINEER			REVISION			
							HEAD OF DEPARTMENT						
										BY			
										PSD			
										No.			
										SK			

15.5 Submission Requirements

All tenderers are required to complete and submit a copy of the submission requirements with their bid submissions.

Requirements	Response from Bidders
Completed technical details (Clause 15.1 to 15.3) (Yes/No)	
Witnessing included as part of bid. (Yes/No)	
Validity of bid (120 days required) (Yes/No)	
Payment conditions.	
Delivery Term. (CIF preferred)	
Price review period after award of tender. (months)	
Bidders company profile outlining financial, technical and production capabilities.	
Detailed reference list of customers already using equipment offered during the last 5 years with particular emphasis on units of similar design and rating.	
Quality management system used in the production of insulators, attached certificate.	
Health, Safety and Environmental plans.	
Detailed receiving, handling and storage details.	
Minimum warranty period from time of acceptance of insulators.	
Sample inspection and test plan.	
Typical installation manual for insulators.	
Disposal method after service life.	
Complete dimensional drawing.	
List of Type test certificates provided. (As per Clause 6.1)	
Sample routine test certificates.	

Name of Tenderer: _____

Signature of Tenderer: _____

Date: _____

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. 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 4th September 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. 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.