



ENERGY FIJI LIMITED

**TECHNICAL SPECIFICATION FOR SILICA
GEL**

MR 165/2024

Revision History & Document Control

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1. INTRODUCTION AND SCOPE OF WORK

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 operations to carryout repair, construction and maintenance of Power line Network in Fiji.

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

This document outlines the technical requirements for orange indicating silica gel for use in EFL's distribution network.

The items covered by this specification are listed below:

No.	Stock Code	Item Description
1	I04330	Orange Indicating Silica Gel

Table 1.1: Items Covered Under this Specification

This Specification covers the general requirements of design, manufacture, testing, supply and delivery of orange indicating silica gel to be used in EFLs distribution network.

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 **90 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) 29th May 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. REFERENCES

2.1. Applicable Standard

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/NZS ISO:9001	Quality Management Systems – model for quality assurance in design, development, production, installation and servicing
AS ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories

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

3. SERVICE CONDITIONS

3.1. Environmental Conditions

The silica gel shall be suitable for installation outdoors and indoors and shall be designed to withstand the following service conditions.

Description	Conditions
Atmosphere Pollution Level	: Sulfurous, Corrosive and Dusty
Ambient Temperature	: Peak: 40°C 24 Hour Average: 30°C Annual Average: 22°C Minimum: 10°C
Relative Humidity (Average)	: 90%
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. System Conditions

Nominal Voltage	240/415 V	11kV
System Highest Voltage	660 V	12kV
System Frequency	50Hz	50Hz
Number of Phases	1 or 3	3
System Earthing	Effectively Earthed	Effectively Earthed
Impulse Withstand Voltage (peak)	-	95kV
Power Frequency Withstand Voltage	15 kV (rms)	28kV (rms)

4. DESIGN AND CONSTRUCTION

4.1. General

This Specification comprises general, technical and performance requirements for orange indicating silica gel.

4.2. Orange Indicating Silica Gel

The silica gel shall have the following properties:

- Be of type A, orange to green indicating and 2-5mm beaded.
- The Orange Indicating Silica Gel shall be comprised of a naturally occurring mineral silicon dioxide that is purified and processed into a beaded form. When the beads are dry, they appear yellow/orange in color, and when they have become saturated with moisture to about 15% by weight the beads will change to a green color. This type of indication enables users to visually confirm when the desiccant is needs to be replaced or regenerated.
- The color shall typically begin to change as moisture content passes 6% by weight and is complete by 15% by weight. A bright green color indicates moisture saturation and that it is time to replace or regenerate the desiccant.
- The silica gel shall meet the needs of environmentally concerned companies and conforms to European Union requirements for moisture indicating desiccants.
- The typical application as a primary desiccant in any application where visual control of moisture is required, such as compressed air dryers, gas drying, breathers, for protection of non-consumable packaged goods. EFL will use the silica gel indications in breathers for distribution transformers.
- The Orange Indicating Silica Gel shall also have a high adsorption capacity, and shall also remove moisture at temperatures as high as 65°C.
- The silica gel shall be best used at room temperature 21-32°C.

4.3. Technical Characteristics

Index – Silica Gel Properties		Standard
Bead Size		2-5mm
Bulk density kg/m ³		700
Color change		Orange to Green Indication (@20% RH±6% @ 20°C)
Adsorption Capacity	RH20%≥	10.5
	RH50%≥	23
	RH90%≥	34

5. PERFORMANCE AND TESTING

5.1. Type Testing

Type tests and routine tests shall be done in accordance with the requirements of AS/NZS and IEC standards and this specification. It shall be the responsibility of the supplier to perform or to have performed all the tests specified in appropriate standards.

Copies of Type Test Certificates & Type Test Reports issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. A copy of the accreditation certificate to ISO/IEC 17025 for the testing laboratory shall also be submitted (all in English language).

5.2. Acceptance Tests

The EFL may carry out acceptance test on equipment to prove it conforms to the requirements of this Specification. Any equipment showing evidence of failure to comply with the requirements of this specification will be liable to rejection.

5.3. 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 two (2) EFL engineers 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.

5.4. 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.

6. RELIABILITY

6.1. Service Life

Bidders are required to comment on the reliability of the equipment and the performance of the materials offered for a service life of 35 years under the specified system and environmental conditions in clause 3.

6.2. Evidence in Support of Reliability

Where the specified guaranteed service life is less than 35 years Suppliers are required to provide comment and submit evidence in support of the reliability and performance claimed including detailed information on Failure Mode and Effect Analysis.

7. ENVIRONMENTAL CONSIDERATIONS

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

8. PACKAGING AND MARKING

8.1 Packaging

The packaging of items by the bidder must ensure that they are capable of being delivered undamaged giving due consideration to the quantity, distance of transportation and the preferred method of handling at each location.

Each packaged lot shall be marked with the following information:

- Manufactures Name
- Purchase Order Number
- Contact No.
- EFL Stock Code
- Item Description
- Applicable standards
- Pack Size
- Pack Weight

8.2 Marking

The following information shall be marked and permanently attached to the cable glands in English language:

- The manufacturer's name or trade mark
- The year of manufacture
- The letter "PROPERTY OF EFL"

9. QUALITY REQUIREMENTS

Tenderers are required to submit evidence that the design and manufacture of the silica gel is in accordance with AS/NZS ISO 9001 and shall include the Capability Statement associated with the Quality System Certification.

If the Tenderer is a non-manufacturing supplier, the documentary evidence shall include the quality system certifications of both the supplier and the manufacturer.

10. STOCK AVAILABILITY

The bidder is required to indicate the size of consignment stock it will hold and the ability to meet the required demand of the estimated quantity at any given time during the contract period. The movement of the silica gel will depend on the 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.

No.	Stock Code	Item Description	Approximate 3 Year Stock Movement
1	I04330	Orange Indicating Silica Gel	842kg

11. PRODUCT WARRANTY PERIOD

The bidders are 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.

12. INFORMATION TO BE SUPPLIED BY THE BIDDER

12.1. Documentation to be supplied with the tender

To enable the EFL to fully evaluate the silica gel offered, (in addition to the completed Specification Requirement and Guaranteed Performance schedule) the bidder shall submit the following information with their tender: **(Note these are mandatory requirements)**

- List showing similar equipment supplied to or on order for other utilities in Australia or New Zealand or the Oceania region for the past 5 years
- Typical arrangement drawings and full details of the dimensions including drawings for the accessories offered
- Type test certificates as per Clause 5
- End of service life disposal methods
- Evidence of Quality Management Systems used in the manufacturing process
- Evidence of Health, Safety and Environmental plans
- Evidence of financial ability to provide the level of service and support
- Origin of materials used in manufacture of the silica gel
- **Material safety datasheet**
- Names and resumes of key team members who will be assigned to work with EFL upon successful award of the three-year supply contract (if bidder is successful)

Bidders may be asked to provide additional information during tender assessment period or following award of contract.

12.2. Samples

When requested, production samples of the item shall be submitted with the offer.

Each sample shall be delivered freight free (Delivery Duty Paid (DDP)), suitably packaged and labelled with the following information:

- Name of supplier and this contact number
- Tender number
- Any supporting data on features or characteristics

12.3. Training

Training material in the form of drawings, instructions and/or audio visuals (in CD format) are required to be provided for the items accepted under the tender. The Tenderers shall allow the cost of production and delivery of training material in the tendered prices.

The training materials should include but not be limited to the following topics:

- Handling
- Storage
- Application
- Installation

- Maintenance
- Environmental performance
- Electrical performance
- Mechanical performance
- Disposal

13. APPENDIX

13.1. Price Schedule

Bidders are required to complete the following price schedule and submit with the offer. EFL requires the bidding prices to be in CIF incoterms.

No.	Stock Code	Item Description	Unit Price (CIF)	Currency of bid
1	I04330	Orange Indicating Silica Gel		
2		Factory Acceptance Testing (FAT) for 2 EFL Engineers.		

Bidders are to clearly indicate the currency of bid.

13.2. Technical Details – Orange Indicating Silica Gel

This schedule shall be completed and submitted with the offer. A separate schedule shall be provided for each item offered: **(Note these are mandatory requirements)**

Particulars	Requirements	Bidders Response
Name of Manufacturer		
Origin of materials used for manufacturing of silica gel		
Country of manufacture		
General		
Silica gel type	Type A	
Silica gel color – before saturation	Orange	
Silica gel color – after saturation	Green	
Percentage saturation before color change	15%	
Basic operating temperature	21-32°C	
Highest operating temperature	65°C	
The orange indicating silica gel shall have high adsorption capacity	Yes/No	
Storage details	To be stated by bidder	
Technical Details		
Bead Size	2-5mm	
Bulk density kg/m ³	700	
Color change	Orange to Green Indication (@20% RH±6% @ 20°C)	
Adsorption Capacity - RH20%≥	10.5	
Adsorption Capacity – RH50%≥	23	
Adsorption Capacity – RH90%≥	34	
Packaging Details		
Packaging type	25kg bags/ 12.5kg pails	
Weight of each unit	To be stated by bidder	

Name of Tenderer: _____

Signature of Tenderer: _____

Date: _____

13.3. Submission Requirements

All tenderers are required to complete and submit a copy of the submission requirements with their bid submissions. **(Note these are mandatory requirements)**

Requirements	Response from Bidders
Validity of bid (180 days required) (Yes/No)	
List of test reports/certificates provided. (As per Clause 5)	
Minimum warranty period offered for this product	
Completed price and technical schedules (Clause 13.1 and 13.2) (Yes/No)	
The bidding pricing to be in CIF incoterm.	
Currency of bid.	
Lead time of delivery after tender award.	
Bidders company profile outlining financial, technical and production capabilities.	
Disposal method after service life.	
Quality management system used in the production of cable gland, attached certificate.	
Material safety datasheet to be provided for all items	
The bidder to include the following as part of the bid:	
Company profile	
Company registration details	
Company financial capability statement	
Reference list of customers the same product is supplied to and contact details for reference check	
If the bidder is the manufacturer, the ISO certification shall be provided	
If the bidder is only the supplier of the product, then both the manufacturer and supplier ISO certifications shall be provided	

Name of Tenderer: _____

Signature of Tenderer: _____

Date: _____

Complete the following schedule as part of the bid: (Note these are mandatory requirements)

Stock Codes	Items	Country of Manufacture	Manufacturer of product	Brand Offered	Manufactured to standards	ISO Certification of Manufacturer
I04330	Orange Indicating Silica Gel					

Name of Tenderer: _____

Signature of Tenderer: _____

Date: _____

TENDER CHECKLIST

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

Tender Number _____

Tender Name _____

1. Full Company / Business Name: _____

(Attach copy of Registration Certificate)

2. Director/Owner(s): _____

3. Postal Address: _____

4. Phone Contact: _____

5. Fax Number: _____

6. Email address: _____

7. Office Location: _____

8. TIN Number: _____

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

9. FNPF Employer Registration Number: _____ **(For Local Bidders only) (Mandatory)**

10. **Provide a copy of Valid FNPF Compliance Certificate (Mandatory- Local Bidders only)**

11. **Provide a copy of Valid FRCS (Tax) Compliance Certificate (Mandatory Local Bidders only)**

12. **Provide a copy of Valid FNU Compliance Certificate (Mandatory Local Bidders only)**

13. Contact Person: _____

I declare that all the above information is correct.

Name: _____

Position: _____

Sign: _____

Date: _____

Tender submission

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

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

This tender closes at 4.00pm (1600hrs) on Wednesday 29th May, 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.