



**Fiji Electricity Authority**  
**Transmission Unit**  
2 Marlow Street, Suva

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**MR 25/2015**

**SUPPLY OF OPGW INSTALLATION  
FITTINGS AND ACCESSORIES**



# Fiji Electricity Authority

## Transmission Unit

2 Marlow Street, Suva

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### FIJI ELECTRICITY AUTHORITY

#### TENDER No. MR 25/2015

#### Supply of OPGW Fittings and Accessories

The Fiji Electricity Authority invites sealed tenders for the Supply of OPGW Fittings and Accessories.

Interested bidders are to contact the Supply Chain Department at the FEA Head Office Suva on phone **3224360/9991587** for collection of tender specification or e-mail [tenders@fea.com.fj](mailto:tenders@fea.com.fj)

**This tender closes at 4:00 p.m. on Friday, 27<sup>th</sup> February, 2015.**

Two (2) hard copies of Tenders in sealed envelopes and clearly marked as –

**“Tender No.MR 25/2015 – Supply of OPGW Fittings and Accessories”** must be addressed to the; **“The Secretary – Tender Committee, Fiji Electricity Authority, Private Mail Bag, Suva;** and be deposited in the **Tender Box** located at the **Fiji Electricity Authority Head Office, 2 Marlow Street, Suva;** by no later than the above stipulated date and time.

**The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act.**

**All late tenders, unmarked envelopes and envelopes without bidder’s name and address on the reverse will be returned to the Tenderers.**

The lowest bid will not necessarily be accepted as the successful bid.

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### Submission of Tender

**Two (2) hard copies** of the tender bids in sealed envelope shall be deposited in the tender box located at the Supply Chain Office at the FEA Head Office, 2 Marlow Street, Suva, Fiji.

**Courier charges for delivery of Tender Document must be paid by the bidders.**

**This tender closes at 4:00pm, on Friday 27<sup>th</sup> of February, 2015.**

**The Bidders also have the option to directly e-mail their tender submission to the The Secretary, Tender Committee, Fiji Electricity Authority – [TDelairewa@fea.com.fj](mailto:TDelairewa@fea.com.fj)**

Each tender shall be sealed in an envelope with:

The envelope bearing only the following marking:

**Tender- MR 25/2015 – Supply of OPGW Fittings and Accessories.**

The Secretary, Tender Committee  
Fiji Electricity Authority

Supply Chain Office

Private Mail Bag, Suva

**It must also indicate the name and address of the tenderer on the reverse of the envelope.**

**All late tenders, unmarked Envelopes and envelopes without bidder's name and address on the reverse of the envelope.**

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9991587.**

## TENDER SPECIFICATION

The Fiji Electricity Authority (FEA) invites bids for the supply of OPGW Line Hardware, Fittings and Accessories, which are to be utilized on a new Waqadra-Momi 33kV circuit line construction project, as per project drawings attached. The OPGW has already been purchased by the FEA, and suitable Line Hardware, Fittings and Accessories are required for its installation.

### SUPPLY OF OPGW LINE HARDWARE, FITTINGS, AND ACCESSORIES

1. OPGW Accessories should be easily installed on 17m Australian Hardwood wooden poles with pole top diameter in the range of 300mm to 450mm. The poles have been scarfed, dressed and installed as per the project's construction drawings.
2. FEA's preferred brand of products for this project is Electropar – Preformed Line Products, further information on which can be sought from the following website:  
<http://www.electropar.co.nz>
3. While FEA's confidence lies in the aforementioned manufacturer's product range, other brands with equal or superior technical qualities, proven reliability, design characteristics, and manufacturing quality control shall be equally considered by the FEA during tender evaluation.
4. All bidders, shall cite relevant AS/NZS standards and submit applicable documents proving and substantiating the compliance of the products in their bids with the relevant AS/NZS standards.
5. All bidders shall cite relevant ISO standards and submit applicable documents proving and substantiating the compliance of the existing quality control measures implemented at the factory in the manufacturing of the products for which bids are to be submitted.
6. Products should not cause any compression stresses that may be transferred to the core or optical elements within.
7. Provision should be integrated for electrically bonding of the OPGW to the supporting structure or ground lead.
8. In case of dead-ends, sagging/tension adjustment option shall be provided.
9. All OPGW Stringing Line hardware, fittings and accessories shall be rated at least at 70kN.
10. Components and arrangements should be designed to be reusable.
11. Suspension accessories shall be able to reduce compression, clamping, and bending stresses on OPGW. Negative effects of wind-induced OPGW motion, such as aeolian vibration, galloping, and wind sway should also be minimized. Technical performance of the aforementioned shall be substantiated in the bids.
12. Vibration dampers are to be able to effectively reduce vibration over a wider range of imposing frequencies. Technical performance of the aforementioned shall be substantiated in the bids.
13. Suspension components are also to provide electrical bonding to ground leads.
14. Suspension accessories are to be able to meet at least at least 30 degrees of deviation angle.
15. Downleads for ground arrangement are to contain electrical bonding.
16. Mounting for downleads should be able to be installed on wooden poles with diameter in the range of 300mm to 450mm
17. Splice cases are to be water tight, corrosion resistant and lightweight and should contain required fiber jointing / splicing materials for the specified OPGW. Splice cases and kit should contain 24 fiber cores, and provided with pole mounting brackets.
18. Complete Installation and assembly drawings are to be provided for each item and arrangement



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### QUANTITIES REQUIRED

Requirement	Quantity
Suspension Pole Assembly – Suspension Line hardware, shackles, fittings and accessories (for Suspension 450 Poles)	450 sets
Strain Pole Assembly - Dead End Line hardware, shackles, fittings and accessories (for 35 Strain Poles)	100 sets
OPGW Vibrational Dampers (425 Poles) – Spiral Type	850 units
Pole Mounted OPGW Cable Coiling Bracket and Mounting Accessories	90 sets
Pole Mounted Stainless Steel Splice Cases with splicing kits and pole mounting brackets & accessories, with strain relief brackets. Item to be mounted on 17m Australian hardwood pole	25 sets
Eye Bolt – M16 or M18, 70kN Rated 500mm total bolt shaft Length, with 300mm threaded shaft. Each bolt to be provided with Two (2) suitable 75mm X 75mm X 5mm Galvanized Steel Square Flat Washer, Two (2) Suitable Nuts, and One (1) suitable Spring Lock Washer	605 sets
Earth Bonding Leads with 15m Down Conductor, Lugs and Bi-Metallic Coupling for Bonding to buried copper grounding. Each down lead to be provided with ten (10) mounting/clamping brackets and hardware for securing lead at ten (10) locations to Australian hardwood wooden pole of variable diameter (300mm to 500mm).	600 sets
OPGW Down Lead Cushion kits with dual OPGW grooves for securing OPGW downlead to Australian hardwood wooden pole of variable diameter (300mm to 500mm). Item shall be utilized at OPGW splicing poles and/or OPGW coiling poles.	755 sets

### PRICE

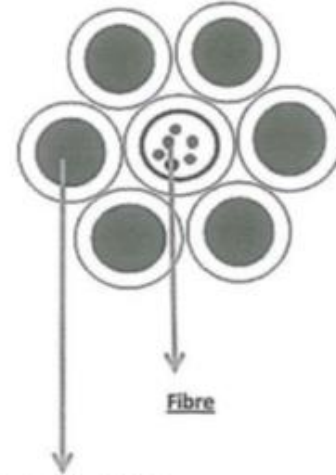
Prices shall be quoted in AUD, NZD, FJD, or USD Currency, inclusive of all applicable taxes and duties and for delivery made to FEA's Navutu Depot in Lautoka, Fiji Islands. Prices to be separately quoted for both air-freight and sea-freight shipments. Prices shall be valid for at least 90 calendar days.

### DELIVERY SCHEDULE

Bidders shall clearly indicate duration of production and shipping.

**GW SPECIFICATION TABLE**

DESCRIPTION	VALUES
CONDUCTOR MATERIAL	Aluminum Clad Steel Wire
CONDUCTOR CROSS SECTIONAL AREA	49.77
ALUMINIUM CLAD STEEL WIRES - 6	6 wires
STRAND DIAMETER - 3.25MM	3.25 mm
CENTER - STAINLESS STEEL TUBE DIAMETER	3.25 mm
OVERALL WIRE DIAMETER	9.75 mm
LAY DIRECTION - OUTER LAYER	Right
CALCULATED MINIMUM BREAKING LOAD	57.2 KN
APPROXIMATE MASS OF EARTH WIRE	
ELECTRICAL RESISTANCE AT 20 DEG C	1.1 Ω/km
FINAL MODULUS OF ELASTICITY	151 KN/mm <sup>2</sup>
COEFFICIENT OF LINEAR EXPANSION	13.2×10 <sup>-6</sup> /°C
SHORT CIRCUIT CURRENT CAPACITY	16 KA <sup>2</sup> s
GROSS WEIGHT OF DRUM	950 kgs
CABLE LENGTH PER DRUM	3000 m



**AL Clad Steel Wire**

**OP SPECIFICATION TABLE**

OPTICAL FIBRE TYPE	G.652
MODE FIELD DIAMETER	(8.6~9.5)±0.7µm
CLADDING DIAMETER	125±1µm
CORE-CLAD CONCENTRICITY	≤0.8µm
CLADDING NON-CIRCULARITY	≤2.0%
COATING DIAMETER	245±10µm
COATING CLADDING CONCENTRICITY	≤12.5µm
ATTENUATION COEFFICIENT	1310nm@≤0.361550nm@≤0.22
CABLE CUT OFF WAVELENGTH	≤1260 nm
ZERO DISPERSION WAVELENGTH	1300~1324 nm
ZERO DISPERSION SLOPE	≤0.093 ps <sup>2</sup> / (nm <sup>2</sup> •km)

**OUR ADDITIONAL TECHNICAL SPECIFICATION**

Type Model	OPGW data
Fiber count	24 Fiber
Center tube	Stainless Steel Tube
Out wire	Aluminium Clad Steel
Wire no & diameter	6 wires / 3.25 mm
Cable diameter	9.75 mm
Cross-section carry area	50 mm <sup>2</sup>
Cable weight	300 kg/km
Rated Tensile Strength (RTS)	57.2 kN
UTS	60.2 kN
DC resistance at 20°C	1.1 Ω/km
Short current capacity (40 - 200°C)	16.3 kA <sup>2</sup> -s
Linear expansion coefficient	13.2 x 10 <sup>-6</sup> /°C
Modulus of elasticity	151.0 kN/mm <sup>2</sup>
Install temperature	-10°C~+50°C
Working temperature	-40°C~+80°C
Z-Stranding layer	Right