DEENDAYAL PORT AUTHORITY
ISO 9001:2008 | ISO 14001 | ISPS Compliant Port

Office of Executive Engineer (Electrical), Ground Floor, Nirman Building, New Kandla, Kutch, Pin Code 370210.

No.: EL/WK/2859 Date: 06/05/2025

EXPRESSION OF INTEREST [EOI]

"Design, Supply, Installation, Testing & Commissioning of Hybrid Solar Street Light (LED Base) from KK Road to 8th Oil Jetty Substation, Kandla".

(This EOI is issued to elicit Expression of Interest from the parties interested in the work and does not constitute any binding commitment from the Deendayal Port Authority to proceed with the work or invite any or all the parties in the subsequent bidding process. The Open Tenders will be issued subsequently.)

Executive Engineer (Electrical), DPA invites Expression of Interest for the work of "Design, Supply, Installation, Testing & Commissioning of Hybrid Solar Street Light (LED Base) from KK Road to 8th Oil Jetty Substation, Kandla" from the reputed firms from those who have executed similar work in Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents containing details of Scope of Work and Technical Specifications are enclosed here with.

The interested firms are requested to submit their expression of interest for the said work in BOQ format as enclosed at Annexure I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before **16/05/2025**. A soft copy of EOI is also acceptable through e-mail Id anantrao.kumthekar@deendayalport.gov.in & deepak.hazra@deendayalport.gov.in.

Executive Engineer (E)
Deendayal Port Authority

Name of Work: Design, Supply, Installation, Testing & Commissioning of Hybrid Solar Street Light (LED Base) from KK Road to 8th Oil Jetty Substation, Kandla.

Annexure-I

Sr. No.	Description	Qty.	Unit	Rate	Amount
1	Design, Supply, Installation, Testing & Commissioning of 09-meter height dual arm octagonal type Pole with suitable LED(cool white) as per Technical Specification No. 1				
(A)	9-meter height dual arm octagonal type Pole (a) Supply (b) Erection, Testing & Commissioning	 150 150	 Nos. Nos.		
(B)	Suitable LED Street light as per design (cool white) (a) Supply (b) Installation, Testing & Commissioning	 300 300	 Nos. Nos.		
2	Supply, Installation, Testing & Commissioning of DC Power cable & Control cables for successfully commissioning of above solar system as per Technical Specification No. 02. (a)Supply (b)Installation, Testing & Commissioning	 300 300	 Set Set		
3	Supply, Laying, Termination, Testing & Commissioning of 1.1 KV grade, LT XLPE Cable for as mention below:				
(A)	Supply, Laying, Termination, Testing & Commissioning of 1.1 KV grade, LT XLPE 120 Sq. mm., 4 core, Aluminum Armored cable as per Technical Specification No. 3(A). (a) Supply (b) Laying, Termination, Testing & Commissioning in Hard/Soft Soil by Manual Excavation.	 4200 4000	 Mtr. Mtr.		
(B)	Supply, Laying, Termination, Testing & Commissioning of 1.1 KV grade LT XLPE 70 Sq. mm., 4 core, Aluminum Armored cable as per Technical Specification No. 3(B). (a) Supply (b) Laying, Termination, Testing & Commissioning in Hard/Soft Soil by Manual Excavation.	 3500 3500	 Mtr. Mtr		
(C)	Supply, Laying, Termination, Testing & Commissioning of1.1 KV grade LT XLPE 16 Sq. mm., 4 core, Aluminum Armored cable as per				

	Technical Specification No. 3(C). (a)Supply (b)Laying, Termination, Testing & Commissioning in Hard/Soft Soil by Manual Excavation.	5000 5000	Mtr Mtr		
4	Laying of LT XLPE upto 4 Core 120 sqmm XLPE cable through Road/RCC by putting Suitable HDPE pipe in between crossing of main roads to approach main feeder pillar for lighting complete with labours and materials as per Technical Specification No.4.	200	Mtr.		
5	Supply, Installation, Testing & Commissioning of Outdoor Type Feeder Pillar as per Technical Specification No.5	4	Nos.		
6	Supply, Laying, connecting of GI Strip of 50×6 mm size as per Technical Specification No. 6 (a)Supply (b)Laying, Connection etc.	100	Mtr		
7	Preparation of earthing system with suitable diameter 60mm or above, 3m GI electrode & chemical back fill compound as per Technical Specification No. 7.	8	Nos.		
	Total				

(In words Rupees_____only)

Note: The Quantity mention above are tentative for estimation, however contractor has to design as per his own to achieve not less than 25 Lux keeping 30-meter distance between pole to pole with dual arm for illumination on both side of the roads.

(NOTE: The rates should be inclusive of all taxes, duties, fees, cess etc. and all incidental charges; but exclusive of GST).

Signature & Seal of Firm

Executive Engineer (E)

Deendayal Port Authority

SCOPE OF WORK & TECHNICAL SPECIFICATION

Deendayal Port Authority (DPA) is one of the Major Port in India. The Specification is intended to cover the work for Design, Supply, Installation, Testing & Commissioning of Hybrid Solar Street Light (LED Base) from KK Road to 8th Oil Jetty Substation, at 8th Oil Jetty, Kandla. The Design of the street light shall be based on the lux achievement i.e. not less than 25 Lux must be achieved on both side of the main road, similarly there should not be any dark patches and lighting should be linear form starting to end of the road and on the evaluation of minimum electrical power in all cases. The work shall be executed to the satisfaction of the Engineer in-Charge. The quantity mention in Annexure – I is for reference only, however the contractor has to design its own parameter for octagonal pole, Solar Panel, Lithium battery, Charge controller, LED Light, earthing etc to sustain cyclonic wind pressure of 180km/hr and in normal period the wind pressure will be 25km/hr, apart from same the design of each and every component should also resist the same wind pressure accordingly mounting to be done. The contractor shall arrange all types of tools, tackles, temporary power supply at his own cost for installation, testing & commissioning of the work. Similarly based on power loading factor/criteria is to be consider while designing the complete installation.

TECHNICAL SPECIFICATION

Technical Specification No. 1:

(A)(a) Supply of 9-meter height octagonal pole along with dual arm bracket (as per design), (below details are for reference only)

Sr. .No:	DESCRIPTION:	DETAILS:
1	General Specifications:	Supply of 9Mtr Hot Dip Galvanized Street Light Octagonal Pole with Foundation Type Base Plate & Foundation Bolts (Dimensions for pole as Top Diameter 100 mm, Bottom Diameter 200 mm, Section Length- 9000 mm, Thickness-4 mm, Foundation Type Base Plate (250X250X20 mm), Foundation Bolts (M24 X 700/750 MM4Nos). with dual type arm bracket as per design.
2	Pole Shaft:	The pole shaft shall be made from sheet steel confirming to BSEN 10025.The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. All octagonal pole shafts shall be provided with the rigid flange plate of suitable thickness as per design with latest IS standard with provision for fixing 4 foundation bolts. This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside apart from same gusset shall also be provided.
3	Dimension:	Pole Top Diameter approximate 100 mm or above, Bottom Diameter approximate 200 mm or above, Section Length- 9000 mm, Thickness-4 mm Base Plate (250X250X20 mm), Foundation Bolts (M24 X 700/750 MM-4Nos).
4	Wind Speed	15 to 45 km/hr during normal. 180 Km/hr during cyclonic warning.
5	Material:	Octagonal Poles -Steel Grade BSEN 10025 - S355J0 or Equivalent Base Plate Fe 410 conforming to IS : 226 / IS : 2062
6	Pole Sections:	The Octagonal Poles shall be in single section. There shall not be any circumferential weld joint.
7	Galvanization:	The poles shall be hot dip galvanized as per relevant Indian standards with average coating thickness of minimum 100 micron from inside and outside being saline atmosphere.
8	Fixing Type:	The Octagonal Poles shall be suitable for bolting on a foundation with a set of four foundation bolts for greater rigidity. Bracket for fixing luminaire suitable as per Design: The brackets shall be made of specified size G.I heavy duty pipe suitable as per design. with necessary holding brackets or as per design, hold fasts etc. suitable for LED light mounting.
9	Bracket for fixing LED luminaire suitable as per Design:	The brackets shall be made of specified size G.I heavy duty pipe suitable as per design, hold fasts etc suitable for LED light mounting.

Documentation: Pole drawing along with details of baseplate, foundation bolts and foundation details (RCC) shall be submitted along with offer.

All MS Parts including hardware shall be hot dip galvanized with 100 microns. The bidder has to submit three dimensional drawing along with its detail specification and latest standard. This also includes suitable numbers of GI Pole earthing require with its complete accessories as per design & standard of street light poles and as directed by Engineer-In-Charge.

The contractor shall provide suitable nipple/arrangement at top of the Pole for installation of Hybrid Street Light with its accessories.

The rate shall be inclusive of all the taxes (excluding GST), insurance, packing, forwarding transportation & unloading etc at site as directed by Engineer in-Charge.

(b) **Installation, Testing & Commissioning of 9-meter height dual arm octagonal type Pole.**

This item includes erection of the supplied 9m dual arm Octagonal Pole on the approved design Foundation to be prepared by the contractor as directed and approve by Civil Department, DPA. The pole shall be erected at site with plumb. However, if any minor deviation is there then proper washers shall be provided in the bolt to remove the deviations. The pole shall be bolted on the Pole Foundation with a set of four foundation bolts. The work includes 04 Nos. of Anchor bolt of size 20mm dia and 750mm long J bolt along with 02 Nos. of Nuts & flat washer with RCC Foundation 450mm X 450mm X 1800mm, dip having 200mm PCC of ratio 1:4:8 below RCC or as par proven design and, all material, labour, tools & tackles as directed by Engineer in-Charge. This also includes suitable numbers of GI Pole earthing require with its complete accessories as per design & standard of street light poles and as directed by Engineer-In-Charge. The Pole Foundation work shall be executed under supervision of Civil Engineering Department, DPA. The decision of the Civil Engineering Department will be final and binding on the contractor with regard to the quality and suitability of the materials for Pole Foundation.

(B)(a) Supply of Suitable LED Street Light (Cool White) as per design (below details are for reference only)

Sr. No.	Parameters	Description
	PART B	**Pressure Die Cast Al (As per Design) - LM79**
1	**Warranty**	**5 years from the date of successful commissioning. It is clarified that during Warranty period, if the material is found to be defective or has poor performance or has lumen depreciation beyond permissible limit as per LM80 report, the Contractor shall promptly, Replace the material against manufacturing defects/rectify the material, on receiving the instruction from Engineer-in-Charge at contractor's cost. The contractor shall have final & total single point responsibility for performance of the LED light fittings supplied.**
2	**LED Wattage**	**As per Design**
3	**Lumen Output**	**175 LM/W OR Above (As per Design)**
4	**Module Capacity**	**The Solar Module Power (Wp) shall be of single dimension, per Mast Fixture with Inbuilt Tiltable arrangement. Capacity is as per Design.**
5	**Type of solar module**	**As per latest design**
6	**Module Efficiency**	**min 19%**
7	**Type of controller**	**Highly efficient microcontroller based integrated MPPT charger controller**
8	**MPPT Certification**	**Meeting latest EN50530 compliance for MPPT Charge Controller or latest**
9	**Working Temperature range (^{oC}) for use**	**Up to 45°C as per the IS Standard**
10	**Duty Cycle Profile**	**Fix Output & No Dimming**

11	Minimum operating hours	12 Hours - One Nights without Dimming with Hybrid Backup
12	Housing of Luminaire	The luminaire shall have single piece pressure die cast LM6 aluminium housing, quality & ruggedness and excellent heat dissipation with IP 65 protection and IK08 impact resistance.
13	Luminaire Design for ON/OFF	Dusk to Dawn
14	Luminaire Bracket	As per Design
15	Cover	UV stabilized polycarbonate cover
16	Ingress Protection (IP) rating	Min IP65
17	LM-79/ IS 16106 Test report	LM - 79 / IS: 16106 test report from a NABL accredited laboratory required
18	CRI	>70
19	CCT	Typical 5700K to 6500K
20	Minimum Impact Resistance	IK-08
21	Secondary lens/ optics type	As per latest design
22	System lumen output	As per Design
23	System Efficacy	As per Design
24	Painting shade	to be declared
25	LED Approved make:	CREE / NICHIA /OSRAM/LUMILED/Seoul
25(i)	LED Luminaries make:	Philips/Bajaj/Wipro/Crompton/Surya/Havells
26	LED Efficacy (lm per watt)	As per Design
27	LED life with LM80/TM21 criteria (copy to be attached)Minimum operation life of 50,000 burning hours	>=50000
28	View Angle	As per Design
29	Driver Type	As per Design and latest IEC Standard
30	Input	As per Design
31	Efficiency of Driver (%)	Min 90%
32	Battery Type	Lithium Ferro phosphate battery
33	Cycle life (Full charge to full discharge @ 25 °C before capacity of battery falls below 75%	DOD 90 % with 2000 Cycles
34	Battery capacity	The Battery shall be Rechargeable Lithium Ferro Phosphate (LiFePo4) Battery Pack with latest design
35	Nominal Voltage	As per Design
36	Charger controller type	As per latest Design
37	Charger Efficiency	As per latest Design
38	Protections	Battery & Solar polarity reverse protection; Lithium battery overcharge & over discharge protection; Over temperature protection; Load open, overcurrent, short circuit protection

39	Battery management system	Required to ensure following a. Proper charging and discharging of each cell of battery. b. Protection against temperature reaching beyond battery permissible limit c. Better upper and lower voltage limit d. Providing constant current and voltage charging methodology. e. Minimize sudden failure and maximize the life cycle of battery. f. Should perform battery diagnostics, such as state of the charge (SOC) estimation, state of health(SOH) estimation and state of power (SOP) estimation(necessary certificates shall be submitted)
40	Indications	a. Charging under progress- Orange LED Blinking b. Battery Low: Red LED cyclic on and off c. Battery disconnect: Orange and Red LED Blinking
41	Standards Compliance	1. IEC60598-2-3 : Safety of Luminaire for Road and Street Lighting
		2. IEC 62109-1 : Safety of Power Converters used in solar Panel
		3. EN 50530 : Performance Evaluation of Maximum Power Point(MPPT)
		4. IEC 61547 : EMC immunity requirements
		5. CISPR 15 : Radio disturbance characteristics
		6. IEC 61730-1,2 & IEC 61215 : Safety of Solar Panel Module
		7. IEC 62133 & UL1642 - Safety of Lithium Ferro Phosphate Battery
42	Adjustable Tilt Angle [Deg]	Adjustable as per proven design
43	Outer Mounting Diameter in mm	as per design
44	Manufacturing Declaration	MAKE IN INDIA
45	Lighting Design	To be Submitted as required.
46	2 Samples to be Provided	2 Samples required during Technical Evaluation meeting Tender Specs
47	Demo / Mock up at Site	Demo Sampling to be done meeting above tender criteria for Successful Bidder
48	Housing	Make in India along with all related document

Field Test for Illumination Level:

The Contractor shall carry out field test for the illumination level provided for Six Lane Road in the presence of Engineer-in-Charge & TPIA. The lux level measurement shall be done by Third Party Inspection Agency (TPIA) (to be engaged & payment shall be made by DPA). The contractor shall prepare a grid of 5m × 3m for six lane road and mark the measuring points as directed by EIC for measurement of lux level by the TPIA as directed by Engineer in charge. The contractor shall demonstrate in the Field Test that their design achieves the required illumination level. It is clarified that the measured average lux level at the time of Field Test shall not be less than 25 lux on both side of the Road.

In the event of illumination levels not found as per the requirement at both side of road, the contractor shall have to carry out the work by replacing the LED street light fittings installed with other wattage and/or make of LEDs, without affecting structural design of the pole, at his own cost to complete the work within the stipulated time and as per the requirement. The contractor shall have to submit structural stability certificate from the IIT/state government institute at his own cost to this effect of change of LED fittings. Also, the contractor shall pay compensation to the Deendayal Port Authority for the assessed additional power consumption at the tariff @ ₹7.00 per Unit. Deendayal Port Authority shall not pay anything extra to contractor to achieve the required illumination level. The compensation on account of extra energy consumption shall be calculated as below:

Compensation on account of extra energy consumption = Additional Power of LED Flood Light Fitting (kW) × 6 hours × 365 days × 10 years × ₹7.00 (Prevailing tariff at DPA).

Hybrid street light as per technical specification consists of solar photovoltaic module, battery with battery management system, MPPT charge controller & Pole with mounting accessories etc.

Lighting Design:

Bidder should provide Lighting Desing as below #

Lighting design to be done for Minimum 25 Lux criteria for both sides of the Road Width 9.5 Meter Twin Central area with Median 1 meter. Lighting design to be submitted which provides minimum 30 meter pole to pole spacing with not less than lux level Emin 25 Lux Uniformity of Min/Avg : ≥ 0.6 and Min/Max ≥ 0.4

I: Table 1 BIS / IES Standards: As per reports attached.

Type of Test	**Standard**
Safety of Luminaire for Road and Street Lighting	IEC60598-1:2014 ; IEC 60598-1:2014AMD1:2017
Safety of Power Converters used in solar Panel Equipment	IEC 62109-1
Performance Evaluation of Maximum Power Point Tracking (MPPT)	EN 50530
EMC immunity requirements	IEC 61547
Radio disturbance characteristics	CISPR 15
Safety of Solar Panel Module	IEC 61730-1,2 & IEC 61215
Low Voltage Directive (LVD),2014/35/EU	EN 62493: 2015 EN 60598-1: 2015 + A1: 2018 EN 60598-2-3:2003 + A1:2011
Electromagnetic compatibility Directive (EMC),2014/30/EU	EN 61000-3-2:2014 EN 61000-3-3:2013 EN 61547:2009 EN 55015:2013 + A1:2015
Eco Design requirements for energy-related products Directive (ErP),2009/125/EC	Implementing Measure EC/1194/2012
Restriction of the use of certain Hazardous Substances in electrical and electronic equipment Directive (RoHS),2011/65/EU	EN50581:2012

List of Solar PV make list: TATA SOLAR, ADANI SOLAR, SERVOTEC, WAARRE, VIKRAM SOLAR, GOLDI SOLAR, RENEWSYS(INDIA), SAATVIK GREEN ENERGY, LOOM SOLAR, PATANJALI SOLAR, PANASONIC SOLAR OR EQUIVALENT UNDER MAKE IN INDIA INITIATIVE.

(b) Installation, Testing & Commissioning of Solar LED will be as per proven design and as per site requirement as directed by Engineer In-Charge. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

Technical Specification No.02.

(A) **(a)**This includes supply at site 1 X 4sqmm Solar DC cables with multi stranded copper conductors XLPE or XLPO insulated and sheathed with the voltage rating of 1000 V DC or higher UV stabilised single core flexible copper cables shall be used for Positive, Negative and earth of three colour of Red, black & green with JBs & PG Gland of polycarbonate with IP65. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(b)This includes installation, testing and commissioning of Solar DC Cable for connecting Solar PV Panel, Battery, Charge Controller, LED light at suitable height of 9000mm +/- 300mm. Cable Routing/ Marking: All cable/wires are suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. The Cable should be so selected

that it should be compatible up to the life of the solar PV panels i.e. minimum 10years. All cables and conduit pipes shall be clamped to the rooftop poles with thermo-plastic clamps at suitable intervals. The DC cables from the SPV module array shall run through a UV-stabilised PVC flexible conduit pipe of adequate diameter with a adequate wall thickness or through a High Density Poly Ethylene (HDPE) conduit. Wherever Junction point of copper & aluminium is there bimetallic copper aluminium washer is to be installed. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

Technical Specification No. 3.

Supply, Laying, Termination, Testing & Commissioning of 1.1 KV grade, LT XLPE upto 120 Sq. mm., 4 core, Aluminum Armored cable.

(A)(a) This includes supply at site 1.1 KV grade, 4 Core, 120 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(b) This includes supply at site 1.1 KV grade, 4 Core, 70 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(c) This includes supply at site 1.1 KV grade, 4 Core, 16 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(B)(b) This includes laying of cable of size upto 4 core, 120 Sq.mm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade through manual excavation in soft/hard soil in single length. The trench to be excavated 150mm wide, 150mm deep. The bed of 50mm of river sand shall be provided in the bottom of the excavated trench. The cable shall be laid over the bed of river sand. The cable shall be protected by providing and laying bricks both the sides lengthwise parallel to the cable and top bricks to the cable & the gaps shall be filled with river sand. The filling of the trench shall be done with the excavated stuff & should be watered and rammed properly to its original position. The excess excavated stuff shall be disposed off from the Site of work and spreader in low laying area as directed. Contractor has to places cement concrete route marker at and interval of 50-meter length, of size 300 x 300 mm duly embossed in cement concrete with red wall colour duly painted. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

Technical Specification No. 4.

Laying of LT XLPE upto 4 Core X 120 sqmm XLPE cable through Road/RCC by putting Suitable HDPE pipe in between crossing of main roads to approach main feeder pillar for lighting.

This includes Laying of LT XLPE upto 4 core X 120 sqmm XLPE cable by putting 125mm diameter and 3.8mm thickness or above HDPE pipe, through road/RCC crossing. If the Road/RCC crossing length more than length of HDPE coil pipe, and make a strong and trouble free connection so that pushing and pulling of cable within such pipes is unaffected and fuss free & then lay across the Road crossing. Single cable shall be passed through one pipe, the excavated stuff shall be disposed off from the site of work and spread in low laying area.

Cable laying, which shall include the route marker, cable tagging, dressing, appropriate size of glands & ferrule work as per requirement etc. The work includes complete labours and materials.

Technical Specification No.5

Supply, Installation, Testing & Commissioning of Outdoor Type Feeder Pillar as per Technical Specification No.5:

This includes Supply of outdoor type FRP Feeder Pillar for lighting Street Light at site. The Feeder Pillar shall be outdoor pedestal type with door, handle with locking arrangement and top canopy. The Feeder Pillar shall be of suitable size; however, it shall be specious for easy maintenance and also, the minimum depth of the Feeder Pillar shall be 300mm.

The FRP Feeder Pillar shall have following features:

- The material for the enclosure shall be Fiber Reinforced Polyester (FRP) with F1 grade raw material.
- Protection Class: IP 65.
- Impact Resistance: IK 10
- FRP Feeder pillar sheet thickness shall be minimum 4 mm.
- Feeder Pillar's gasket shall be of properly greed with proper compression to maintain the ingress protection.
- FRP Feeder Pillar enclosure shall comply with the requirement of dielectric strength as per IEC62208 standard, ultraviolet resistance test as per UL746Cstandard and glow wire test with flammability of 5VA as per UL94 standard.
- The FRP Feeder Pillar shall have continuous hinges. All the accessories like hinges, locking arrangement, screws & mounting brackets shall be of SS304 or higher grade SS.
- The FRP feeder Pillar shall have backside mounting arrangement.
- All panel edges and door edges shall be reinforced against distortion. Cut outs shall be true in shape and devoid of sharp edges.
- The complete structure shall be rigid, self-supporting free from vibration, twists & bends.
- Finished painted appearance of equipment shall present an aesthetically, pleasing appearance, free from dents and uneven surfaces.
- The FRP feeder pillar panel shall be provided with following electrical items:
    1) Manual change over switch of 415V, 100A, 50Hz AC: 01 No.
    2) Incomer – 4 Pole MCCB, 63A/100A, 25 kA, 50Hz: 2 Nos.
    3) Outgoing – 4 Pole MCCB, 63A, 25 kA, C Curve: 2 Nos.
    4) Wiring: Internal with complete wiring with suitable size of flexible copper cable for I/c to O/g, suitably bind with proper gap as per IS.
    5) 100A, 415V, 3 phase contactor with coil voltage 440 V: 2 Nos.
    6) Astronomical Digital Timer switch for switching, single phase operated: 2 Nos.

7) Digital Multi-Function Energy Meter (Accuracy Class 1): 2 Nos.
8) 60/5 Amp CT (Class 1): 3 Nos.
9) Connector of 25A or above: 10 Nos.

The panel shall be complete in all respects having interconnection with PVC insulated cable single core of 6sqmm, standard copper conductor of 650/1100V grade. The cable entry and exit shall be from bottom of the feeder pillar.

The panel shall be provided with 2 Nos. GI terminals for earthing. Before placing the order for manufacturing the panel drawing should be approved by Engineer in charge showing the arrangement of the electrical components and should fulfil the needs of IE rules. The Feeder Pillar shall be manufactured from type test certificate holder for Feeder Pillar of similar or above rating.

The rate shall be inclusive of all taxes (excluding GST), packing, forwarding, insurance, transportation, and unloading at site of work. The feeder pillar shall be erected on a stainless steel angle of SS304 of appropriate size with 04 Nos of leg of one-meter length same is to be installed in cement concrete.

This includes installation, testing & commissioning of FRP Feeder Pillar. FRP Feeder pillar shall be installed on base frame (four leg) made of Stainless Steel (Grade SS304) angle of size 25mm×5mm with leg length one meter. The base frame shall have extended angle of suitable length for fixing of Feeder Pillar. The panel shall be erected on CC foundation of suitable size having height of 300mm aboveground level and shall be grouted 500 mm below ground level by providing reinforced foundation of suitable design. The grouting portion shall be such that the height of the base frame should be 600mm above ground level. This work also includes termination of the incoming & outgoing Cable along with providing suitable size of glands & PVC shroud (Gland suitable for XLPE aluminium Incoming/outgoing cable size: 35 sq.mm) and necessary earth linking connection. The work includes all labours and materials as directed by Engineer in-charge.

Technical Specification No. 6

This item includes supply at site, laying, fixing and connection of GI strip of size 50x6 mm from earth station to Feeder Pillar / LT Power Distribution Board as directed. The GI strip shall be laid and clamped suitably on wall/floor/structure or buried in the ground as directed. This work includes all material, labour, tools & tackles etc. as directed by Engineer in-Charge.

Technical Specification No. 7

This item includes preparation of maintenance free earth station by providing suitable diameter 60mm or above, 3 meter, 100-micron hot dipped GI chemical electrode with back fill compound including accessories & masonry work. A cement concrete (ratio 1:4:8) chamber of at least 500 mm × 500 mm × 500mm × 50mm (thickness of wall) shall be prepared and a cover of suitable size shall be provided for the chamber. The work shall be carried out to entire satisfaction of Engineer in Charge. This work includes all material, labour, tools & tackles etc. as directed by Engineer in-Charge.

Approved Make List of Electrical Items		
Sr. No.	**Description**	**Recommended Makes**
1	HVVCB	Siemens/Crompton Greaves/ABB/Schneider
2	HV Gas Insulated Breaker	Siemens/Schneider/ABB
3	Power Transformer	Voltamp/ Crompton Greaves/ Bharat Bijlee/ BHEL/ Siemens/ ABB/ Schneider/ T&R
4	Distribution Transformer	EMCO/Kirloskar/Patson/Voltamp/ABB/ Schneider/ T&R
5	Resin Cast Transformer	Voltamp/Kirloskar/EMCO
6	Dry Cast Transformer	Voltamp/Kirloskar/EMCO
7	HT XLPE Cable	Polycab/Torrent/RPGAsian/Gloster/Unistar
8	LT XLPE Cable	Polycab/Torrent/RPGAsian/Rallison/Primecab/ Havells/Unistar/ Avocab/ Allcab/ Adcab
9	LT ACB	Siemens/LKE&A/SchneiderElectric/C&S
10	Protection Relay	Areva/LKE&A/Siemens/ABB/C&S
11	LT Panel	CPRI Approved
12	Changeover Switch	Siemens/ LK E&A/ ABB/C&S/ Schneider Electric/ Legrand/ Indoasian
13	SFU for Main LT Distribution Panel	Siemens/LKE&A/ABB/C&S
14	SFU for Distribution Panel & Feeder Pillar	Siemens/ LK E&A/ ABB/C&S/ Schneider Electric/ Legrand/ Indoasian/ Havells
15	MCCB for Main LT Distribution Panel	Siemens/LKE&A/ABB
16	MCCB for Distribution Panel& Feeder Pillar	Siemens/ LK E&A/ ABB/C&S/ Schneider Electric/ Legrand/ Indoasian/ Havells
17	MCB/ ELCB/ RCCB/ RCCBO for Main LT Distribution Panel	Siemens/Hager/LKE&A/ABB
18	MCB for Distribution Panel& Feeder Pillar	Siemens/ LK E&A/ ABB/C&S/ Schneider Electric/ Legrand/ Indoasian/ Havells/ Standard
19	Distribution Board	Standard/Hensel/Legrand/Indoasian/Havells
20	Multi-Function Digital Meter for Main LT Distribution Panel/ Digital kWh Meter	LKE&A/Enercon/Secure/L&G/Rishabh
21	Analog Volt/Ampere Meter for Distribution Panel &Feeder Pillar	Rishabh/AE/Enercon/LKE&A

22	Selector Switch for Voltmeter/Ampere Meter	LK E&A/Siemens/C&S
23	Power Contactor & Overload Relay	LK E&A/Siemens/ ABB
24	Quartz Time Clock Switch	LK E&A/Indoasian/Siemens
25	PVC Wire with Copper Conductor	RR Kabel/KEI/Polycab/Milex/ Gujcab/Standard/ Finolex/Anchor
26	Flush type Switch, Socket, Holder, Ceiling Rose& Electronic Regulator	Anchor/MK/Northwest/Vinay/Panama/Havells
27	Bells/Call Bells	Anchor/Legend/MK/Northwest
28	Modular Switch, Socket, Plate &Box	Anchor/MK/Northwest/Legrand/Havells/Indoa sian/ Siemens
29	PVC Conduit/ Oval Conduit & Casing Capping and Accessories	Precision/Vulcan/Finolex/Garware/Restoplast/ Swastik/BPI
30	Lamp & Fluorescent Lamps	Philips/Bajaj/Wipro/Crompton/Osram/Surya Roshni/GE
31	HPMV & Metal Halide Lamps	Philips/Bajaj/Wipro/Crompton/Osram/Surya Roshni/GE
32	Ignitor for HPSV & Metal Halide Lamps	Philips/Bajaj/Wipro/Crompton/Osram/Surya Roshni/GE
33	Luminaries	Philips/Bajaj/Wipro/Crompton/Osram/Surya Roshni/GE
33	LED Luminaries	Philips/Bajaj/Wipro/Crompton/Surya/Pyrotech/S yska/ Nessa/Havells having Surge Protection ≥ 10 kV for Fittings& Internal Surge Protection for Driver of ≥ 4kV, LED Chip of only OSRAM/ CREE/ Philips Lumileds/ Citizen/ Nicia, with LM-79 & LM80 Certification
34	Ceiling Fan	Bajaj/Orient/Usha/Crompton/Almonard/GEC
35	Wall mounting Fan	Bajaj/Orient/Usha/Crompton/Almonard/GEC
36	Exhaust Fan	Bajaj/Orient/Usha/Crompton/Almonard/GEC
37	Heavy duty Industrial Wall mounting Fan	Bajaj/Orient/Usha/Crompton/Almonard/GEC
38	Water Cooler	Voltas/Usha/BlueStar
39	Air Conditioner	Voltas/Carrier/BlueStar/Usha/Hitachi/LG/Samsun g/ Onida
40	Refrigerator	Voltas/Carrier/BlueStar/Usha/Hitachi/LG/Samsun g/ Whirlpool

41	Voltage Stabilizer	Veeline/Capri/Mindra/Kankai/KPS/
42	Inverter	Sukam/Microtek/Luminous/Hitachi/Mindra
43	Engine for D.G. Set	Cummins/ Greaves/ Kirloskar/ Caterpillar/ Ashok Leyland/ Volvo
44	Alternator for D.G. Set	Stamford/ Crompton Greaves/ Jyoti/ Kirloskar Electric
45	Electric Motor	Alstom/ Crompton Greaves/ Siemens/ Kirloskar/ ABB
46	Water Pump	Swastik/KSB
47	Water Geyser	Bajaj/Usha/CromptonGreaves/Sphereho t/ Racold
48	Lug & Cable Glands	Dowells/Jainson/Braco

Note:
In case of supply of Make of material which is not in the DPA approved Make list, the said material should be supplied as per the latest GETCO approved Make list.

In case of supply of Make of material which is neither available in the DPA approved Make list not in the latest GETCO approved Make list, the said material should be supplied as per the Make decided by EIC for which written intimation will be given to the contractor.

Before procurement of material, the Make of the material should be approved by EIC in writing.

Signature & Seal of Contractor

Executive Engineer (E)

Deendayal Port Authority

TERMS AND CONDITIONS

(1) Time Schedule: The work shall be completed within 120 days from the date of issue of Work Order.

(2) The bidder, at his own responsibility and risk is encouraged to visit and examine the site of work and its surroundings and obtain all information that may be necessary for preparing the Bid. The costs of visiting the site shall be at the Bidders' own expense.

(3) DPA will award the work to the bidder whose bid has been evaluated to be techno – commercially responsive and the lowest valuated amount bid.

(4) Work shall be guaranteed for 12 months from the date of completion of the work.

(5) The rates should be quoted in figures and words both. In case of difference in figure & words, the rate mentioned in words will be considered.

(6) The contractor shall affix SEAL along with SIGNATURE in the Offer.

(7) The work shall be carried out in accordance with the best standards of workmanship and to the entire satisfaction of the Engineer in-Charge.

(8) Security Deposit @ 5% recovered from the bill and the SD can be released only after successful completion of guarantee period.

(9) **Payments Terms**: All payments shall be made in Indian rupees unless specifically mentioned.

- 50% of supply item rate against receipt of material at site in good condition after obtaining insurance cover as per tender condition (if TPI appointed then after inspection & certification of the same by Third Party Inspection Agency).
- 40% of supply item rate after completion of erection, installation, testing and commissioning, etc. (if TPI appointed then after inspection & certification of the sameby Third Party Inspection Agency)
- 90% of item rate covers only laying/fixing/installation.
- Remaining 10% will be released after successful completion of whole work (if TPI appointed then after inspection & certification of the same by Third Party Inspection Agency).

(10) Payment will be made by RTGS only after satisfactory completion of work and submission of duly signed bill.

(11) The contractor shall not deposit any materials at such a place that may cause inconvenience to the public or staff or near by offices.

(12) The Contractor shall execute the work in such a way that not to cause inconvenience to the public or staff or nearby offices and not to cause hindrance. Necessary barricading shall be done by the contractor at his own cost if required.

(13) Income-tax and surcharge as applicable will be deducted from the bill while making payment to the contractor for carrying out the work and only net amount shall be paid to the contractor.

(14) All the materials should be got approved from Engineer-in-Charge before put in to use.

(15) All the rules and regulations governing DPA will be applicable.

(16) After completion of the work, the site should be neatly cleaned by the contractor.

(17) The contractor shall ensure not to cause any damages to the port properties in the vicinity of work site during execution of work. If any damage occurs due to workmen/machinery of the contractor, the contractor has to make good the loss / damage at hiscost.

(18) For Entry & exist of material and contractor personnel, pass shall be arranged by firm.

(19) The contractor shall quote the price exclusive of GST. The contractor shall quote prevailing GST rate separately, which shall be reimbursed by DPA after ascertainingnecessary compliance as per Goods & Service Tax, 2017. All other duties, taxes, cesses applicable if any, shall be borne by the contractor.

Income-Tax deductions and surcharge as applicable thereon shall be made good while making payments due to the contractor for carrying out the work and only net amount shall be paid as directed by the Central Board of Direct Taxes, Ministry of Finance, Government of India.

The rates quoted by the contractor shall be deemed to be inclusive of the taxes, duties etc. which the contractor will have to pay for the performance of this contract, except GST. The employer will perform such duties in regard to the deduction of such taxesat sources as per applicable law.

(20) All the work shall be carried out to the entire satisfaction of Engineer in-Charge.

(21) The above work is to be executed in a short period, hence EOI is invited.

Signature & Seal of Contractor

Executive Engineer (E)

Deendayal Port Authority