



## DEENDAYAL PORT AUTHORITY

ISO 9001:2008 | ISO 14001 | ISPS Compliant Port



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

Email: [xenedpa@gmail.com](mailto:xenedpa@gmail.com)

No.: EL/AC/2832

Date: 16/02/2024

EXPRESSION OF INTEREST [EOI] for "Annual Maintenance Contract for HT & LT electrical installation at the RoRo Terminal at Ghogha"

(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 "Annual Maintenance Contract for HT & LT electrical installation at the RoRo Terminal at Ghogha" 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 is enclosed herewith.

The interested firms are requested to submit their expression of interest for the said work in BOQ format at Annexure – I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before 15/03/2024. A soft copy of EOI is also acceptable through e-mail Ids. [xenedpa@gmail.com](mailto:xenedpa@gmail.com) & [lightingkandla@gmail.com](mailto:lightingkandla@gmail.com)

-/sd

Executive Engineer (E)  
Deendayal Port Authority

ANNEXURE – I

Sr. No.	Description	Qty.	Unit	Rate	Amount
1	Maintenance for HT & LT electrical installation at the RoRo Terminal at Ghogha as per the Scope of Work.	12	Month		
<b>Total</b>					
<p>(In words Rupees _____ only) (NOTE: The rates should be inclusive of all taxes, duties, fees, cess etc. and all incidental charges; but exclusive of GST).</p> <p style="text-align: right;">-/sd <b>Executive Engineer (E)</b> <b>Deendayal Port Authority</b></p> <p><b>Signature &amp; Seal of Firm</b></p>					

## **SCOPE OF WORK**

The Contractor shall undertake the work for a period of 12 months from the date of issuance of the Work Order. The Contractor shall deploy qualified resources to successfully execute the task specified herein.

This Annual Maintenance Contract (AMC) shall be carried out on the basis of 24X7 at Ghogha Terminal. The AMC includes Periodical, Preventive and Breakdown Maintenance, fault finding & its rectification, attending of breakdowns, routine testing and cleaning of all electrical equipment's at RoRo Terminal, Ghogha.

The Scope of Work includes maintenance of all electrical equipment like Sub-station equipment, HT & LT Panel boards, Distribution Transformers, Diesel Generator Sets, APFC Panels, Incoming & Outgoing Power & control cables, 30m High Mast Lighting Tower, Street Lights, power supply distribution & lighting of Pontoon Area, Jetty Road, Main Terminal Building area, Administration building area, Minor Building area, Workshop cum driver's lounge & Canteen, Guest Houses, Security Gates, Fire Pump House, all Substation building, STP Plant etc. including internal wiring & its accessories. The contractor shall follow the best industrial practice in maintenance of the equipment under this contract. Also, Keeping of Biometric Attendance Machine is in the scope of the Contractor.

### **Detailed Scope of Work:**

#### **1. Maintenance of 11/0.433 kV Sub-stations and associated equipment:**

- 1.1 The maintenance work of all electrical equipment like Sub-station equipment, HT & LT Panel boards, Distribution Transformers, Diesel Generator Sets, APFC Panels, Incoming & Outgoing Power & control cables, 30m High Mast Lighting Tower, Street Lights, power supply distribution & lighting of Pontoon Area, Jetty Road, Main Terminal Building area, Administration building area, Minor Building area, Workshop cum driver's lounge & Canteen, Guest Houses, Security Gates, Fire Pump House, all Substation building, STP Plant etc. including internal wiring & its accessories. The brief details of electrical equipment at RoRo Terminal, Ghogha is at Annexure – V.
- 1.2 Maintenance of 0.433 kV LT distribution panels including LT Air circuit breakers, LT meters, Relay Panels, control and power cables from transformers of 11 kV substations at RoRo Terminal, Ghogha.
- 1.3 Maintenance of substation power supply including substation housekeeping, the electrical maintenance inside substation for example light fixtures, switch & socket, MCB's, MCCB's, Panel indication lamp, fans, etc.
- 1.4 Maintenance of 30m High Mast Lighting Tower is in the scope of the contractor with required manpower, material & spares, tools & tackles (i.e. luminaries, gear box, DD Winch, Motor, with necessary gear oil, 400 Watt HPSV lamp, choke, igniter, capacitor, if required wire rope & trailing cable same shall be provided by contractor).
- 1.5 Maintenance includes filtration of transformer oil with top-up of Oil & BDV test within first 6 months on award of contract. The report shall be submitted by the contractor to the Engineer-In-Charge.
- 1.6 Maintenance includes relay testing and checking the settings of relays. The report shall be submitted by the contractor to the Engineer-In-Charge.
- 1.7 Maintenance of any future installation of electrical equipment, done during the contract period, will be under the scope of the contractor.

- 1.8 The contractor shall inform well in advance for taking power shut down as and when required for preventive/ periodical maintenance in order to intimate concerned Terminal Operator to enable them to make necessary arrangements during power shut down.

## **2. Breakdown Maintenance:**

- 2.1 Under break down condition, fault /defect, once appeared/observed shall be identified, isolated, and rectified so that the failed equipment, machine, or system can be restored to an operational condition in a shortest possible time. However, defects which can be deferred for the regular periodic maintenance (provided it will not have any type of adverse effect on equipment) shall be recorded and reported in a suitable form for follow up action. Faults once observed shall be promptly attended and rectified to avoid major failures.
- 2.2 Periodical testing of equipment, troubleshooting as per Substation practices are carried out as per Annexure – II.

## **3. Tools/Tackles, Consumable & Spare:**

- 3.1 Tools and tackles including, but not limited to, vacuum cleaners, blowers, welding sets, drilling machines, gas cutters, hydraulic/hand crimping machine/tools with set of dies, T&P, HT meggers, temporary lighting arrangement like extension boards and hand lamps, multi-meters, clamp meter, etc. shall be arranged by the contractor. List of tools and tackles is enclosed at Annexure – III.

## **4. Consumables:**

The Consumables as per Annexure – IV shall be arranged and maintained by the contractor. The stock shall be jointly verified quarterly by the Contractor & representative of DPA. The consumables shall be handed over to DPA after completion of the contract period.

## **5. Vehicle for manpower and material:**

Contractor shall arrange on its own cost a suitable vehicle to handle its manpower, material, tools & tackles.

## **6. Providing 24x7 Communication aid:**

The contractor shall provide one communication aids (Mobile) on 24 x 7 day basis for communication with the Site-In-Charge deployed at RoRo Terminal, Ghogha.

## **7. Documentation:**

Substation Equipment's parameters should be recorded in daily logbooks. Contractor should maintain individual History Records for all critical equipment's, earth pits and other safety related items, this history record should have all the details of work carried out on day to day, monthly, quarterly, half yearly and yearly. Detailed inventory records like materials movement, material consumption, materials disposed etc. also should be maintained. The following registers are statutory requirement of contract and this will be regular inspected & verified by Engineer-in-charge & TPIA.

Maintenance (Planned /Preventive/ Breakdown) Register, Log Book for each substation.

- a) Following Register shall be strictly maintained by the Contractor during O&M period as per the Contract Labour (Regulation & Abolition) Central Rules, 1971.
- (i) Muster Roll Register i.e. Form No. 16

- (ii) Register of Wages i.e. Form No. 17
- (iii) Register of overtime i.e. Form No. 23
- (iv) Register of advance pay i.e. Form No. 22
- (v) Register of accident, major accident & dangerous occurrence i.e. Form No. 29
- (vi) Register of Workman employed by Contractor i.e. Form No. 13.

b) Profile of staff personnel for this AMC.

c) Consumable, Tools and Plants.

All the documents prepared by the Contractor will be the property of DPA. The Contractor will not share the information contained in the above registers with any outside person without written permission of the EIC. Contractor shall hand over the logs and registers to DPA at the time of completion of contract period.

## **8. Deployment of Resources:**

The Contractor shall have to deploy a Site-in-Charge who shall deal with Engineer-in-Charge, DPA for technical and administrative matters. However, during break-down/power interruption/emergency, the contractor may deploy more manpower, without any additional cost to reduce the down time of equipment as per site requirement.

Contractor shall deploy a team consisting of Site in Charge along with one Electrician, one Wireman and one Helper for carrying out the maintenance work as per the Scope of Work. The staff of the contractor should be provided with a standard uniform along with an engraved logo of the contractor firm for clear identification. Providing the PPEs for the staff engaged by the contractor would be the contractor's responsibility. DPA holds the right to penalize the individual staff engaged by the contractor if they miss-out on the uniform or appropriate PPEs, with a penalty of ₹500/- for Site in Charge and ₹250/- for other staff members after 3 consecutive warnings. The minimum qualification of manpower is given below:

### **(I) Minimum qualification of Manpower:**

Designation	Qualification & Experience
Site In-Charge	B.E. (Electrical) with 2 years' experience /D.E.E. (Diploma) with 5 years' experience, in maintenance of 11kV substations in any reputed organization.
Electrician	License holder of Electrician with 5 years' experience in the 11kV line.
Wireman	License holder of Wireman with 5 years' experience in the line.
Helper	SSC Pass with 1 year experience in HT/LT electrical installation in any reputed organization.

The general duty timing of above staff shall be from 09:30 am to 05:30 pm.

(II) Arrival & Departure of staff should be well-planned to up-keep the maintenance requirement. However, in case of exigency, the staff deployed by the contractor should attend the work immediately. The above staff shall be posted at Substation No. 1 or as decided by Engineer-In-Charge for carrying out day to day, planned, preventive & breakdown maintenance of 11/0.433 kV substations in consultation Engineer-in-charge or his representative. If the Contractor requires additional staff on any day/days for day to day preventive/breakdown maintenance, the same shall be arranged by Contractor at his own cost. However, due to the exigency of work, Contractor shall carry out or

attend the fault during odd hours, Sunday & Holiday as directed without any financial implication to DPA.

- (III) Contractor shall provide one **Biometric Attendance Machine** at the Substation for registering the attendance for both entry & exit of his entire staff. The monthly copy of the print out or as & when requires shall be submitted to the Engineer-In-Charge. An attendance register has to be maintained by contractor and the same would be verified by Engineer In-charge, DPA or his nominated representative as and when required.
- (IV) It is fully the responsibility of the contractor to deploy qualified manpower having in-hand experience, relevant License/Permit to handle electrical equipment, as applicable. They should be well conversant with Indian Standards, Indian Electricity Rule and Acts, as applicable should have knowledge of electrical and Industrial safety practices.
- (V) Contractor shall ensure consistency of work and work force, correct trouble shooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain healthy environment and reliable services.
- (VI) If any of the staff member, appointed by contractor, is found to be 'not competent', he has to be replaced by a right person within a stipulated time as instructed by Engineer In-charge. All the relevant documents pertaining to staff deployed, like copies of address proof, photocopy of ID card issued by the contractor and other details as sought shall be provided by the contractor under his responsibility for the correctness.
- (VII) Wages of the staff deployed should not be less than as that mentioned in Minimum Wage Act applicable to the respective category/experience, as on date. The ESI, PF, ELI, bonus etc., and labour law, other rules and norms requirement as found required for Contracts of this nature should be met. The same details shall be submitted to DPA after award the Work.
- (VIII) In no case, the contractor or his/her employees shall claim job / employment with DPA. No transport/accommodation facility shall be provided for the contractor or his employees. It is purely contractor's responsibility to get his staff acquainted/trained with the site conditions, operation and maintenance procedure, equipment detail, safety devices, scope of work etc., Contractor will be responsible for any act of sabotage, misdeed, indiscipline, and negligence on the part of contractor or his employees.

DPA will not be responsible for death, accident or injury to the contractor's employees engaged by him, which may arise in the course of their duty at RoRo Terminal, Ghogha premises, nor shall DPA be responsible and be liable to pay damages or compensation to such persons or to third parties. The contractor shall at all times indemnify and keep DPA indemnified against all claims which may be under the Workmen's Compensation Act, 1923, or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person/ person at the Centre or premises, building, equipment etc. is attributable to the Contractor or his workmen, such damages shall be made good by the Contractor or his workmen, such damages shall be made good by the Contractor.

**Signature & Seal of Firm**

-/sd  
**Executive Engineer (E)**  
**Deendayal Port Authority**

**INDICATIVE LIST OF MINOR WORKS, ROUTINE, PREVENTIVE MAINTENANCE & TESTING OF SUB-STATION'S EQUIPMENT**

**I. General Maintenance work at 11 kV Substations:**

- a. Ensuring proper locking of Substations, kiosks etc.
- b. General cleaning of Sub-station (indoor, kiosk, plinth/pole mounted) & all equipment for proper housekeeping including removal of weeds grass, malba, any other vegetation, jallas (spider webs) and scavenging etc.
- c. Coupling of the panel with Bus bar.
- d. To test earthing & wherever result not found OK, to provide fresh ground earthing and to install additional earthing if required, material to be provided by DPA.
- e. Plugging of cable entry points in the substation as and when required.
- f. Providing earthing continuity of HT panel/ Distribution Transformer/ LT board and Switches and any other metallic part work with the existing running earth wire after proper binding/ cleating wherever required at site as directed by Engineer-In-Charge.

**II. Distribution Transformers**

**A. Hourly:**

- a. Check oil & winding temperatures, check for abnormalities & recording them.
- b. Observe and record Load (amperes) and Voltage. Check against rated figures.
- c. Visual check for overheating if any at terminal connections (Red hots) and observation for any unusual noises.

**B. Daily:**

- a. Observation of oil levels in conservator tank and examining for oil leaks, if any, from the transformer.
- b. Checking the Color of silica gel in the breather and also oil level of the oil seal. If silica gel colour changes from blue to pink by 50% the silica gel is to be reconditioned or replaced.
- c. Visual check of explosion vent diaphragm for any cracks.

**C. Monthly:**

- a. Physical examination of diaphragm of vent pipe for any cracks.
- b. Checking of Oil levels and providing oil top-ups.
- c. Cleaning of bushings, inspect for any cracks or chippings of the porcelain and checking of tightness of clamps and jumpers.
- d. Cleaning of Silica gel breather.
- e. Checking of temperature alarms by shorting contacts by operating the knob.

**D. Six Monthly:**

- a. Measurement of Earth Resistance

- b. Transformer Buchholz Alarm & Tripping Check.
  - c. WDG Temp. Alarm & Tripping Checking
  - d. Oil Temp. Alarm & Tripping Checking
  - e. Oil BDV Check
- E. Yearly:
- a. Oil filtration
  - b. Testing of oil for dissolved gas analysis, acidity, tan delta, interface tension specific resistivity.
  - c. Calibration & testing of oil & winding temperature indicators.
  - d. Measurement of magnetizing current at normal tap and extreme taps.
  - e. Measurement of DC winding resistance.
  - f. Turns ratio test at all taps.
  - g. Changing the gaskets at all locations as when leakage is found or the gasket is damaged or else yearly.
  - h. Replacing of Buchholz relay, OTI, WTI if found malfunctioning (material to be provided by DPA)
  - i. Replacement of bushing when required.
  - j. Measurement and recording of the IR value.

### **III. Vacuum Circuit Breakers of 11 kV Substation**

- A. Daily:
- a. Check for load conditions on 3 phase, adjust relay settings, if necessary.
  - b. Examine the switchgear premises doors for general cleanliness.
- B. Weekly:
- a. Check that auxiliary fuses are intact.
  - b. Visual inspection to see that mechanism is in operating condition.
  - c. See that all power/control circuit switches are closed.
- C. Monthly:
- a. Air cleaning with blower.
  - b. Cleaning of circuit breaker body and bushings.
  - c. Tightening of nuts and bolts.
  - d. Checking breaker Operation (Local/Remote operation).
  - e. Check anti-condensation protection.
  - f. Check of motor control
  - g. Use of anti-corrosion spray where required.
- D. Half-yearly:
- a. Complete servicing, oiling and greasing of all moving parts.



- b. Operation and control of Auxiliary circuits.
  - c. Tripping of Breaker through Relay
  - d. Checking of Interlocking
  - e. Checking of Relay Tripping
  - f. Checks on specific operations.
- E. Yearly:
- a. Checking contact resistance of Breaker main contact.
  - b. Mechanism checking and lubrication to all moving parts.
  - c. IR values of Power and Control Circuits.
  - d. Verification of correct rated operating sequence.
  - e. Checking and adjustment of Track alignment and Interlocking mechanism.

#### **IV. LT Panel/ACDB with in substation**

- A. Daily:
- a. Visual inspection
  - b. Check whether indication lamps, selector switch, TNC & all meters are working.
- B. Quarterly:
- a. Visual inspection of panels.
  - b. Checking and sealing of cable entry holes.
  - c. Checking of Indication lamps, replacement if required.
  - d. Checking of Indication Meter and rectification/replacement if, required.
  - e. Checking/replacement of fuses if required.
  - f. Checking of Bus bar connection, tightening of nut bolts, cleaning of bus bar if, required.
  - g. Cleaning and tightening of bus bar in the bus bar chamber.
  - h. Tightening of all earthing connections.
  - i. Cleaning of the inside and outside panels using blowers and vacuum cleaner.
- C. Yearly:
- a. Checking & ensuring the closing of the all panels doors including the supply of necessary material if required
  - b. Cleaning of circuit breakers, lubricating the moving parts as per maintenance procedure
  - c. Checking of alignment in racking mechanism of breakers for free and smooth movement of circuit breakers.
  - d. Checking of contact erosion of circuit breakers.
  - e. Checking of mechanical/electrical interlocks, interlocks within the switchboard to ensure proper functioning of same.

- f. Functional operations check of limit switches, auxiliary contacts.
- g. Visual inspection of earth connections and checking of tightness
- h. Measurement of insulation resistance value of circuit breakers
- i. Measurement of circuit breaker closing and tripping time.
- j. Functional operations check of circuit breaker
- k. During operation, any of the items found malfunctioning must be replaced. All material will be provided by DPA.
- l. Measurement and recording of IR values for Main Bus bar.
- m. Checking of all terminations for tightness.
- n. Checking of CT and Relays connections for tightness.
- o. Testing of all panel Relays and Meters CT.

**V. Distribution System (MDBs and DBs):**

- A. Daily:
  - a. Visual inspection
- B. Quarterly:
  - a. Check if all the panels are ingress protected.
  - b. Checking of termination of incoming and outgoing cables.
  - c. Routing of cables for new loads if required (only flexible cables and indoor).
  - d. At the time of adding new cable proper tags and ferruling must be done.
  - e. Cleaning of the panel.
  - f. Tightening of all earthing connections.
- C. Repairs:
  - a. If any component is found malfunctioning it has to be replaced. Material will be provided by DPA.

**VI. PROTECTION RELAYS**

- A. Quarterly:
  - a. Visual inspection and cleaning from outside.
- B. Yearly:
  - a. Checking of each relay for its correct operation by secondary injection.
  - b. Cleaning of relay contacts.
  - c. Calibration of relay.
  - d. Checking of current/voltage setting as per recommended setting.
  - e. Checking of time characteristic as per recommended setting.

**Signature & Seal of Firm**

-/sd  
**Executive Engineer (E)**  
**Deendayal Port Authority**

**ANNEXURE – III****INDICATIVE LIST OF TOOLS & TACKLES**

The contractor shall maintain the following tools & tackles in healthy condition through the period of Contract.

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>
1	12 to 50 feet height Wheel Mounted Portable Aluminium Tower Ladder	1 No.
2	Line tester	1 No.
3	Test lamps with 2x200W lamps in series	1 No.
4	Test lamp with 2 nos. spare 60W B/C lamps	1 No.
5	Drill machine with bits	1 No.
6	Power operated hand blower	1 No.
7	Insulated combination pliers 150mm, 250mm	1 No. each
8	Nut Driver 4mm – 10 mm	1 No.
9	Allen Key set	1 No.
10	Megger 500 V (Hand driven) and 1 kV (Hand driven) of reputed make	1 No. each
11	Earth Tester	1 No.
12	Digital multi meter (3.5-digit precision multi meter of Fluke /Yokogawa/ Rishabh make	1 No.
13	Clamp on Meter for current measurement (one micro to 2 A range & one up to 1000A range)	1 No.
14	Wire Brush for cleaning Hacksaw frame and blades	1 No.
15	Earthing rod	2 No.
16	Crimping machine/Tools for cables and conductors (up to 185 sq.mm. cable size)	1 No.
17	Power extension Board	1 No.
18	Air blower	1 No.
19	Hot Air Blower	1 No.
20	Industrial Vacuum Cleaner	1 No.
21	Equipment for digging kaccha / pakka, bitumen roads for attending underground faults	As per requirement
22	Complete set of all sizes of double ended, Ring, Tubular & box spanners	1 Set each
23	Complete set of all sizes of screw drives	1 Set

24	Heavy duty insulated hand gloves suitable for working voltage of 22kV/11KV system	3 Set
25	Safety Belts/ harness	1 No.
27	Heavy duty dry cell or rechargeable (without acid) torches.	2 No.
28	First aid box	1 No.
29	Safety google	4 No.
30	Reflective Jacket	4 No.
31	Safety rope and Belt	2 No.
32	Insulated Cutting plier	1 No.
33	Torque Wrench	1 Set
34	8 feet Aluminium Ladder	1 No.

Note: Tools and tackles shall be arranged and maintained by Contractor. In addition to the above, if any material is required for smooth functioning of the system, which is not mentioned in the list, the same shall be arranged by the contractor at their own cost.

**Signature & Seal of Firm**

-/sd  
**Executive Engineer (E)**  
**Deendayal Port Authority**

**ANNEXURE – IV****INDICATIVE LIST OF CONSUMABLES**

<b>Sr. No.</b>	<b>Item description</b>	<b>Quantities</b>
1	11kV Potential Transformer	3 No.
2	11kV Fuse	3 No.
3	Various sizes of LT Fuse	As per requirement
4	PVC tape	20 No.
5	AVL tape	5 No.
6	H.T. Heat Shrink Tape	5 No.
7	Indication lamps for panels	As per requirement
8	Indication lamp holder	As per requirement
9	Various size of Nuts, Bolts & Washers	As per requirement
10	Silica Gel	As per requirement
11	Cleaning Cloth / Cotton waste.	As per requirement
12	Yellow cloth	As per requirement
14	Various type of Control Contactors for panels	As per requirement
15	Anti-Tracking for cleaning of equipment's	1 Tin (1 tin of 10 L)
16	Contact Cleaner Spray	As per requirement
18	Transformer oil for oil top ups in the equipment	As per requirement
19	Connector all type	As per requirement
20	Cleaning Detergent/Soap	As per requirement
21	Opening & Closing coil of circuit breaker	As per requirement
22	Various types of MCBs/ELCBs/RCCBs	As per requirement
23	VCB breakers Close coil	4 No.
24	VCB breakers Open coil	4 No.
25	Relay coil	5 No.
26	HPSV bulb, Choke, & Ignitor	10 No. each
27	9W LED Bulb	10 No.
28	18/20 LED Tube Light	10 No.

Note: Consumables shall be arranged and maintained by Contractor throughout the AMC period. In addition to the above, if any material is required for smooth functioning of the system, which is not mentioned in the list, the same shall be arranged by the contractor at their own cost.

**Signature & Seal of Firm**

-/sd  
**Executive Engineer (E)**  
**Deendayal Port Authority**

## **ANNEXURE – V**

### **List of Equipment at Ro-Ro Terminal, Ghogha:**

The detail of installation of HT & LT Electrical Equipment, Distribution Transformer & Compact Substation at Ro-Ro Terminal, Ghogha are as below:

#### **Substation No. 1**

##### HT Panel:

HT Circuit Breaker	Type of Feeder	Description
I/C	Incomer	11KV, 800A VCB HT Panel
O/G-1	Outgoing – 1	11KV, 800A VCB HT Panel (Cable to Substation No. 1, 630KVA Transformer, Main Terminal Building Area)
O/G-2	Outgoing – 2	11KV, 800A VCB HT Panel (Cable to Substation No. 2, 200KVA Transformer, Administration Building Area)
O/G-3	Outgoing – 3	11KV, 800A VCB HT Panel (Cable to Substation No. 3, 100KVA Transformer, Workshop Area)
O/G-4	Outgoing – 4	11KV, 800A VCB HT Panel (Cable to Substation No. 4, 315KVA Transformer, Link Span Area)
-	-	PT Compartment

##### Distribution Transformer:

630kVA, 11/0.433kV, Make: Sudhir.

##### LT Panel:

Sr. No.	LT Panel Incomer	Feeder Tag
1	Rating: Incomer 1: 1000 Amp Incomer 2: 500 Amp	4 Nos. Main Bus Bar chamber
2		Cable Alley
3		APFC Panel
4		Spare
5		High mast
6		3 Nos. Vacant Box
7		2 Nos. Busbar Alley
8		Metering I/C – 1
9		Incomer – 1
10		Ext.LDB – 2
11		Metering for B/C
12		Bus Coupler
13		SWT
14		Metering for I/C – 2
15		Incomer – 2

16		Cable Alley
17		FWPH DB
18		Spare
19		MTB Raw Power DB – 1
20		MTB Raw Power DB – 2
21		MTB HVAC LDB – 1
22		Spare
23		Spare
24		MTB HVAC DB – 2
25		MTB LDB – 2
26		Bus Bar Alley

APFC Panel:

Sr. No.	Description
1	Capacitor Bank – 1, 50 KVAR (Auto/Off/man. Switch)
2	Capacitor Bank – 2, 50 KVAR (Auto/Off/man. Switch)
3	Capacitor Bank – 3, 50 KVAR (Auto/Off/man. Switch)
4	Capacitor Bank – 4, 50 KVAR (Auto/Off/man. Switch)
5	Capacitor Bank – 5, 20 KVAR (Auto/Off/man. Switch)
6	Capacitor Bank – 6, 10 KVAR (Auto/Off/man. Switch)
7	Capacitor Bank – 7, 50 KVAR (Auto/Off/man. Switch)
8	Capacitor Bank – 8, 20 KVAR (Auto/Off/man. Switch)

Diesel Generator Set:

320 kVA, Type: Outdoor, Make: Kirloskar

Fire Extinguisher:

3 Nos. Fire Extinguisher 5 kg

1 No. Fire Extinguisher 6.5 kg

**Substation No. 2**

Distribution Transformer:

100kVA, 11/0.433kV, Make: Sudhir.

LT Panel:

Sr. No.	LT Panel Incomer	Feeder Tag
1	Rating:	03 Nos. Main Bus Bar chamber
2	Incomer 1: 200 Amp	02 Nos. Cable Alley

3	Incomer 2: 100 Amp	APFC Panel
4		Workshop Area Power DB
5		Spare
6		Spare
7		Vacant Box,
8		Busbar Alley
9		Metering for I/C – 1
10		Incomer – 1
11		Metering for B/C
12		Bus Coupler
13		Metering for I/C – 2
14		Incomer – 2
15		Bus bar Alley
16		Spare
17		Spare
18		Workshop LDB
19		Ext. LDB – 2
20		Spare
21		Spare
22		Ext. LDB – 03
23		Spare
24		Spare

APFC Panel:

Sr. No.	Description
1	APFC Relay
2	7 Nos. Capacitor (Auto/off/Man.), 80 KVAR Capacitor Bank

Diesel Generator Set:

62.5 kVA, Type: Outdoor, Make: Kirloskar

Fire Extinguisher:

3 Nos. Fire Extinguisher 5 kg

1 No. Fire Extinguisher 6.5 kg

**Substation No. 3**

Distribution Transformer:



200kVA, 11/0.433kV, Make: Sudhir.

LT Panel:

Sr. No.	LT Panel Incomer	Feeder Tag
1	Rating: Incomer 1: 315 Amp Incomer 2: 250 Amp	03 Nos. Main Bus Bar Chamber
2		02 Nos. Cable Alley Both Side
3		APFC Panel
4		Admin Building HVAC DB
5		Spare
6		02 Nos. Vacant Box
7		02 Nos. Bus Bar Alley
8		Metering for Incomer – 1
9		Incomer – 1
10		Metering for Bus Coupler
11		Bus Coupler
12		Admin LDB
13		Metering for Incomer -2
14		Incomer – 2
15		Spare
16		Water Tower DB
17		Spare
18		Admin Building Power DB
19		Spare
20		Spare
21		Lighting DB in water tank room
22		Ext LDB – 4
23		Spare
24		Security Cabin & Police Station
25		Spare

APFC Panel:

Sr. No.	Description
1	APFC Relay
2	05 Nos. Capacitor(Auto/Off/main), 40 KVAR Capacitor Bank

Diesel Generator Set:

160 kVA, Type: Outdoor, Make: Kirloskar

Fire Extinguisher:

3 Nos. Fire Extinguisher 5 kg

1 No. Fire Extinguisher 6.5 kg

**Substation No. 4**

Compact Substation:

315kVA, 11/0.433kV Compact Substation, Type: Outdoor, Make: Kirloskar.

LT Panel (Installation inside Container):

Sr. No.	LT Panel Incomer	Feeder Tag
1	Rating: Incomer 1: 500 Amp Incomer 2: 315 Amp	3 Nos. Main Bus Bar Chamber
2		2 Nos. Cable Alley
3		APFC Panel
4		Pontoon PDB cum Shore Power
5		Spare
6		Vacant Box
7		Metering for I/C – 1
8		Incomer – 1
9		Metering for B/C
10		Bus Coupler
11		Metering for I/C – 2
12		Incomer – 2
13		2 Nos. Bus Bar Alley
14		Spare
15		Pontoon Pump load DB
16		Ext LDB
17		Spare
18		Spare
19		Spare
20		Spare

APFC Panel:

Sr. No.	Description
1	APFC Relay
2	6 Nos. Capacitor (Auto/Off/Man), 110 KVAR Capacitor Bank

Diesel Generator Set:

160 kVA, Type: Outdoor, Make: Kirloskar

Fire Extinguisher:

1 No. Fire Extinguisher 6.5 kg

The details of miscellaneous Electrical Installation at Ro-Ro Terminal:

Sr. No.	Miscellaneous	Description
1	Substation No. 1	External Lighting DB (1) 7 Nos. Single Pole 6A MCB (2) 1 No. Four Pole 25A ELCB
2	Substation No. 3	Street Light DB (1) 10 Nos. 3 Pole 32A MCB (2) Single Phase Digital Timer (3) 40A Contactor (4) 50A 4 Pole Main MCB  Station Internal Lighting (1) 6 Nos. Single Pole 6A MCB (2) 1 No. 4 Pole 25A ELCB
3	Substation No. 4	Jetty Road Lighting DB (1) Main Incomer 63Amp MCB (2) 3 Nos. Pole 32Amp MCB (3) 2 Pole 25A ELCB
4	Workshop cum Driver's lounge & Canteen	Workshop cum Driver's lounge & Canteen (1) 1 No. main incomer 32A MCB (2) 3 Nos. 25A ELCB (3) 8 Nos. LED 70W (4) 12 Nos. Tube Light 20W (5) 2 Nos. wall mounted Fan  Street Light DB (Workshop/ Canteen) (1) 1 No. 50A MCB Main Incomer (2) 10 Nos. 32A MCB (3) Timer 16A, Contactor 40A
5	Fire Pump	(1) Metering Analog (2) 200A TP MCCB Main incomer (3) Vacant Box

		(4) Bus coupler (5) 20A DP MCB Diesel Engine Control Panel (DG Pump feeder) (6) 160A TP MCCB Main Pump (7) 63A TP MCCB Jockey Pump (8) Cable Alley
6	Lighting Installation	(1) There are approximately 167 Nos. of Street Light Poles with LED & HPSV Light Fittings. (2) 1 No. 30m High Mast Lighting Tower with 20 Nos. 2x400W HPSV Conventional Light Fittings

<b>Make List for Electrical Items</b>		
<b>Sr. No.</b>	<b>Description</b>	<b>Recommended Makes</b>
1	HV VCB	SIEMENS / CROMPTON GREAVES/ABB/Schneider
1(a)	HV Gas Insulated Breakers	SIEMENS /Schneider/ABB
2	POWER TRANSFORMERS	VOLTAMP/CROMPTON GREAVES /BHARAT BIJLEE/ BHEL/ SIEMENS/ABB/ Schneider/T&R
3	DISTRIBUTION TRANSFORMERS	EMCO/KIRLOSKAR/PATSON/VOLTAMP /ABB/Schneider/T&R
4	RESIN CAST TRANSFORMERS	
	A) RESIN CAST IMPREGNATED	VOLTAMP / KIRLOSKAR / EMCO
	B) DRY CAST	VOLTAMP/KIRLOSKAR/EMCO
5	HT XLPE CABLES	POLYCAB/ TORRENT/ RPG ASIAN/ GLOSTER/ UNISTAR
6	LT XLPE CABLES	POLYCAB/TORRENT/RPG ASIAN/ RALLISON/PRIMECAB/ HAVELLS/ UNISTAR/AVOCAB/ALLCA B/ADCAB
7	LT ACB	SIEMENS/L&T/SCHNEIDER/C&S
8	PROTECTION RELAYS	AREVA/L&T/SIEMENS/ABB/C&S
9	LT PANEL	CPRI APPROVED
10	CHANGE OVER SWITCH	SIEMENS/L&T/ABB/C&S/SCHNIDER/ LEGRAND / INDOASIAN
11	SFU FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/L&T/ABB/C&S
12	SFU FOR DISTRIBUTION PANELS & FEEDER PILLERS	SIEMENS/L&T/ABB/C&S/ SCHNEIDER/ LEGRAND/ INDOASIAN/HAVELLS
13	MCCB FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/L&T/ABB
14	MCCB FOR DISTRIBUTION PANELS AND FEEDER PILLERS	SIEMENS/L&T/ABB/C&S/ SCHNIDER/ LEGRAND/ INDOASIAN/HAVELLS

15	MCB/ELCB/RCCB/ RCCBO FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/HAGER L&T/ABB
16	MCB FOR DISTRIBUTION PANELS AND FEEDER PILLERS	SIEMENS/L&T/ABB/C&S/ SCHNEIDER/ LEGRAND/ INDOASIAN/ HAVELLS/ STANDARD
17	MCB DISTRIBUTION BOARD	STANDARD / HENSEL/LEGRAND / INDOASIAN / HAVELLS
18	MULTI FUNCTION DIGITAL METER FOR MAIN LT DISTRIBUTION PANELS/DIGITAL KWH METERS	L&T/ENERCON/SECURE/L&G/ RISHABH
19	ANALOG VOLT/AMPARE METER FOR DISTRIBUTION PANELS AND FEEDER PILLERS	RISHABH/AE/ENERCON/L&T
20	SLECTOR SWITCH FOR VOLTMETER/AMPARE METER	L&T/SIEMENS/C&S
21	POWER CONTACTOR & OVER LOAD RELAYS	L&T/SIEMENS/ABB
22	QUARTZ TIME CLOCK SWITCH	L&T/INDOASIAN/SIEMENS
23	PVC WIRE WITH COPPER CONDUCTOR	RRKABEL/KEI/POLYCAB/MILEX/GUJC AB/ STANDARD/ FINOLEX/ ANCHOR
24	FLUSH TYPE SWITCHES, SOCKETS, HOLDERS AND CEILING ROSES & ELECTRONIC REGULATORS	ANCHOR/MK/NORTHWEST/VINAY/PANAMA/HAVELLS
25	DOOR BELLS/CALL BELLS	ANCHOR/LEGEND/MK/NORTHWEST
26	MODULAR SWITCHES, SOCKETS, PLATES & BOXES	ANCHOR / MK / NORTHWEST / LEGRAND /HAVELLS/ INDOASIAN/ SIEMENS
27	PVC CONDUIT/OVAL CONDUIT & CASSING CAPPING AND ACCESSORIES	PRECISION/VULCAN/FINOLEX/ GARWARE/ RESTOPLAST/ SWASTIK/ BPI
28	GLS LAMPS & FLUORESCENT LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI /GE
29	HPSV, HPMV & METAL HELIDE LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI /GE
30	IGNITORS FOR HPSV, METAL HELIDE LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI /GE
31	LUMINARIES	PHILIPS/BAJAJ/WIPRO/CROMPTON GREAVES / OSRAM / SURYA ROSHNI /GE

31a	LED Luminaries	Philips /Bajaj/Wipro/CG/Surya/Pyrotech/Syska/Nessa having surge Protection ≥10KV for fittings & internal Surge protection for Driver of ≥4KV, LED Chip only OSRAM/CREE/Philips Lumileds/Citizen/Nicia with LM-79,80 CERTIFICATION
32	CEILING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
33	WALL MOUNTING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
34	EXHUAUST FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
35	HEAVY DUTY INDUSTRIAL WALL MOUNTING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
36	WATER COOLER	VOLTAS/SHRIRAM USHA/BLUE STAR
37	AIR CONDITIONERS	VOLTAS/CARRIER/BLUESTAR/USHA/HITACHI/LG/ SAMSUNG/ONIDA
38	REFRIGERATORS	VOLTAS/CARRIER/BLUESTAR/USHA/HITACHI/LG/ SAMSUNG/WHIRLPOOL
39	VOLTAGE STABILIZER	VEELINE / CAPRI
40	INVERTERS	SUKAM / MICROTEK
41	D.G. SETS (a) ENGINE (b) ALTERNATOR	CUMMINS/GREAVES/KIRLOSKAR/CATERPILLAR/ ASHOK LEYLAND/VOLVO  STAMFORD/CROMPTON GREAVES /JYOTI/ KIRLOSKAR ELECTRIC
42	ELECTRIC MOTOR	ALSTOM/CROMPTON GREAVES /SIEMENS/ KIRLOSKAR/ABB
43	WATER PUMPS	SWASTIK / KSB
44	WATER GEYSER	BAJAJ/USHA / CROMPTON GREAVES / SPHEREHOT / RACOLD
45	LUGS & CABLE GLANDS	DOWELLS / JAINSON / BRACO

## **TERMS AND CONDITIONS**

1. Time Schedule: The Maintenance Contract shall be for 12 months from the date of issue of Work Order. The AMC may be extended for further period of up to 12 months by DPA with the same rate, terms & conditions with mutual consent of the Contractor.
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 offer. The costs of visiting the site shall be at the firm's own expense.
3. DPA will award the work to the bidder whose bid has been evaluated to be techno – commercially responsive and the lowest evaluated amount bid.
4. 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.
5. The firm shall affix SEAL along with SIGNATURE in the Offer.
6. The work shall be carried out in accordance with the best standards of workmanship and to the entire satisfaction of the Engineer in-Charge.
7. Security Deposit @ 5% recovered from the bill and the SD can be released only after successful completion of guarantee period.
8. Payments Terms:  
100% monthly payment shall be released on submission of bill along with necessary supporting documents in the prescribed format along with invoice in triplicate after inspection & certification of the same by Third Party Inspection Agency.  
All payments shall be made in Indian rupees unless specifically mentioned.
9. Payment will be made by RTGS only after satisfactory completion of work and submission of duly signed bill.
10. Shortfall of staff:  
In case of any shortfall in deployment of maintenance staff at site of work mentioned in the scope of work, a penalty amounting to ₹1000/- per day for Site-in-Charge, ₹800/- per day for Electrician, ₹700/- per day for Wireman and ₹500/- day for Helper shall be deducted from the monthly bill of contractor.
11. Restoration of HT power supply:  
In case, the contractor fails to restore the HT power supply within stipulated time period of 6 hrs after intimation from Engineer-in-Charge (through mobile/text message/email or through any other mode of communication) except for major breakdown like cable fault/ transformer fault/ VCB fault, PGVCL incomer failure, the Penalty of ₹1000 per hour shall be levied till the restoration of power.
12. Restoration in LT power supply:  
In case, the contractor fails to restore the LT power supply within stipulated time period 4 hrs after intimation from Engineer-in-Charge (through mobile/text message/email or through any other mode of communication) except for major breakdown like cable fault/ transformer fault/ VCB fault, PGVCL incomer failure the penalty of ₹500 per hour shall be levied till the restoration of power.
13. The contractor shall not deposit any materials at such a place that may cause inconvenience to the public or staff or nearby offices.



14. 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 to traffic. Necessary barricading shall be done by the contractor at his own cost if required.
15. All tools, plants, scaffolding, ladder etc. and other machinery etc. required temporary for the purpose of execution of work will have to be arranged by the contractor at his own cost and storing of such tools, plants etc. will have to be made by him.
16. Any material to be used in maintenance shall be as per the approved make list.
17. Correction if any should be signed / initialed by the contractor. White ink correction will not be allowed and lead to rejection of quotation.
18. All the rules and regulations governing DPA will be applicable.
19. After completion of the work, the site should be neatly cleaned by the contractor.
20. 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 his cost.
21. For Entry & exist of material and contractor personnel, pass shall be arranged by contractor.
22. The contractor shall quote the price exclusive of GST. The contractor shall quote prevailing GST rate separately, which shall be reimbursed by DPA after ascertaining necessary 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 taxes at sources as per applicable law.
23. All the work shall be carried out to the entire satisfaction of Engineer in Charge.

**Signature & Seal of Firm**

-/sd  
**Executive Engineer (E)**  
**Deendayal Port Authority**