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E-QUOTATION DOCUMENT FOR "PROVIDING 72 KW LT POWER SUPPLY TO INDIAN COAST GUARD AT A2 AREA, WILLINGDON ISLAND, KOCHI, KERALA"

Website: www.gem.gov.in; www.cochinport.gov.in; www.eprocure.gov.in

DY. CHIEF MECHANICAL ENGINEER (ELE)'S OFFICE
FIRST FLOOR, NEW ADMINISTRATIVE BUILDING,
COCHIN PORT AUTHORITY,
COCHIN-682009

Due Date & Time for submission : As per GeM

Date & Time of Opening : As per GeM

E-QUOTATION No. **F1/ICG-72 KW-LT supply/2025/M** **Date: 15.09.2025**

COCHIN PORT AUTHORITY
Willingdon Island
Phone : 91 0484 2582351 **Deputy Chief Mechanical Engineer(Ele)'s Office,**
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e-QUOTATION No. F1/ICG-72 KW-LT supply/2025/M **Date: 15.09.2025**

e-QUOTATION NOTICE

1. **NOTICE INVITING QUOTATION**

e-Quotations are invited through Government e-Marketing Place (GeM portal) in Single Stage Single Cover bidding procedure [Single Bid - Technical and Financial], by the Dy.Chief Mechanical Engineer(Electrical), Cochin Port Authority, Willingdon Island, Cochin-682009, from reputed firms meeting the Minimum Qualification Criteria specified below for "**Providing 72 KW LT power supply to Indian Coast Guard at A2 area, Willingdon Island, Kochi".** Bidders, who fulfill the Minimum Qualification Criteria and Terms and Conditions given below, may register their Bids through GeM well in advance on or before the scheduled date of submission.

2. MINIMUM QUALIFICATION CRITERIA (MQC)

Bidder shall fulfill the following minimum qualifying criteria to prove the techno- commercial competence and submit the documents in support thereof:

2.1 Experience

The Bidder should have executed work involving **"**Supply, installation, testing and commissioning of works in LT electrical installations" as follows during the last 7 (seven) years ending on **31/07/2025**;

(a) One contract work, costing not less than **Rs.4,35,487/-** **OR**
(b) Two contract works, each costing not less than **Rs.2,72,179/-** **OR**
(c) Three contract works, each costing not less than **Rs.2,17,744 /-**

Satisfactory Clients'/Owners' Certificate or documentary proof shall be submitted in support of the Assignments/ Works performed and claimed by the Bidder, in Annexure-4(a)/4(b) to fulfill the Eligibility Criteria for Qualification.

2.2 Financial Turnover

Average annual financial turnover should be at least **Rs.1,63,308/-**during the last three (3) years, ending 31st March 2025[2022-23, 2023-24, 2024-25]. This may be furnished in the Proforma in 'Annexure-5' of the Bid document.

2.3 License

The bidder shall possess minimum valid **'B Class'** Electrical Contract License issued by any State/ Central Licensing Authority. Copy of the valid License shall be furnished.

Explanatory Notes:

Note 1: Following enhancement factors will be used for the costs of works executed for bringing the financial figures to a common base value in respect of the works completed in past years.

Table 1

Year before	Multiplying factor
One year [2024]	1.07
Two years [2023]	1.14
Three years [2022]	1.21
Four years [2021]	1.28
Five years [2020]	1.35
Six years [2019]	1.42

Note 2: The experience certificate of Works executed in private sectors/organisations shall be considered for qualification, only on submission of Form as per Annexure-5(a) certified by Chartered Accountant for the transaction of the Project, along with Work Order and Completion Certificate. Chartered Accountant is to provide their UDIN (Unique Document Identification Number) while certification with QR code if available.

Note 3: Performance/ completion certificate from the CoPA shall be submitted in support of the assignments/ works performed and claimed by the Bidder to fulfill the eligibility criteria for qualification. The completion certificate/ performance certificate shall contain the work order no, work order value, completed cost of work and completion date and signature of issuing authority.

Note 4: A statement duly certified by the Chartered Accountant showing the Average Annual Financial Turnover during the last three financial years and Annual Accounts duly certified by a Chartered Accountant shall be submitted along with the Bid. This may be furnished in the Proforma in 'Annexure-5' of the Bid document. Chartered Accountant is to provide their UDIN (Unique Document Identification Number) while certification with QR code if available.

3. Bid documents which include Eligibility Criteria, Technical Specifications, various Conditions of Contract, Formats etc. are available in the GeM portal(https://gem.gov.in/), in the CoPA website (www.cochinport.gov.in) as well as in the Central Public Procurement Portal of Govt. of India, (www.eprocure.gov.in). Interested bidders have to necessarily register themselves in the GeM portal to participate in the Bid and shall download the Bid documents from these portals as per the provisions available therein on the dates specified.

4. A Single Stage Single Cover Bidding Procedure with Earnest Money Deposit (EMD) will be adopted and will proceed as detailed in the Bid document.

5. The Dy.Chief Mechanical Engineer(Ele) reserves the right to call for the Shortfall documents in case the bidders have submitted partial documents.

6. Bank details of Cochin Port Authority is as follows: State Bank of India, Cochin Port Authority Branch, IFSC Code: SBIN0006367, Account No.41401802288.

7. Exemption from the payment of EMD shall be given to Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by the Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization or the concerned Ministry or Department. The Bidders shall furnish a copy of the NSIC /

MSME / UAM certificates for the exemption of EMD along with the Technical bid. Such Certificates should mention the QR code of such registration. The scanned copy of Exemption Certificate duly notarized shall be uploaded in the e-Bid Portal. If the Registration Certificate does not pertain to the Category of 'Similar Works' mentioned above, the Bid will be rejected.

8. Bidders should submit their bid proposal online, complete in all aspects including scanned copy of EMD or MSME / UAM registration certificate for exemption of EMD, in the Portal of GeM (https://gem.gov.in/) on or before last date and time of Bid Submission as mentioned in the Bid strictly in accordance with the instructions to bidders (ITB), terms and conditions of the Bid document. Original of EMD shall be submitted to the office of the undersigned on or before the due date of opening.

9. Any amendment(s)/ corrigendum(s)/ clarification(s) with respect to this Bid shall be uploaded on the above mentioned websites only and no intimation will be sent to the individual bidders. The Bidder should regularly check for any Amendment(s)/ Corrigendum(s)/ Clarification(s) on the above mentioned websites.

10. On the due date of bid opening, the Techno-Commercial bids will be opened online in the GeM Portal. Bid proposals received without the prescribed Earnest Money Deposit (EMD) or Documents for exemption of EMD will be considered as non-responsive. In the event of any date indicated is a declared Holiday, the Bid will be opened on the next working day.

11. For proper uploading of the bids on the portal namely https://gem.gov.in/ (referred to as the 'portal'), it shall be the sole responsibility of the bidders to appraise themselves adequately regarding all the relevant procedures and provisions as detailed in the portal as well as by contacting GeM, through e-mail to: helpdesk-gem@gov.in or call on Toll Free Numbers (Inbound): 1-1800-419-3436/ 1-1800-102-3436 (9:00am-6:00pm Mon to Sat) Help Desk Out bound No's: +911244875125, 7042737878& +917556685120, as and when required.

12. Cochin Port Authority will not be held responsible for any technical snag or network failure during online bidding. It is the bidder's responsibility to comply with the system requirement, i.e. hardware, software and internet connectivity, at bidder's premises to access the GeM Portal. Under any circumstances, Cochin Port Authority shall not be liable to the bidders for any direct/indirect loss or damages incurred by them, arising out of incorrect use of the GeM Portal or internet connectivity failures.

13. The bidder should not have been blacklisted or debarred by any Central / State Government / Agency of Central / State Government / Public Sector Undertaking / Regulatory Authority of India at the time of submission of this bid.

14. The undersigned reserves the right to reject/cancel/postpone/annul the Bids at any stage of the Bid, which will be binding on all bidders

15. The bidders shall agree to all the terms and conditions of the Bid document. This Bid notice shall form part of the Bid document and are to be signed and uploaded along with the technical bid.

Sd/-

DY.CHIEF MECHANICAL ENGINEER(ELE)

TECHNICAL SPECIFICATIONS

1. SCOPE OF WORK

The scope of work is for "Providing 72 Kw Power Connection to ICG at A2 Area". Detailed scope of work is as below.

a. Removal of existing feeder pillar after disconnection of cables and transport the same to T & R section.
b. Supply Installation Testing &Commissioning of 630 A MV panel as per requirement.
c. Earthing of the installations with pipe earthing for MV panel, Supply and laying of 25mm X 5mm GI strip 0.5 m below ground as strip electrode including connection and termination as required
d. Supply and Laying of HDPE 110 mm pipes for laying LT cables
e. Supply and Laying of 1.1 KV(E) armoured XLPE insulated, PVC sheathed UG cables of Sizes 3.5C X 300sqmm and 3.5C x 185 Sq mm through open trenches, Pipes, Cable Tray, Clamping along walls etc. with all interconnection arrangement etc.as required for rearranging the power supply system
f. Relaying of existing 3.5C X 300 sq.mm Cable through open trench
g. Supply and providing Glands and End terminations of the cables.
h. Providing Outdoor Meter Panel with LT CT Smart meter and CT s in the Consumer premise, Testing and commissioning of the entire system.

The bidder shall visit the site, ascertain the site conditions and scope before bidding

2. ELECTRICAL DISTRIBUTION SYSTEM

2.1 GENERAL TECHNICAL PARTICULARS

Fault level at W/Island at 11 KV	: 25 KA
Anticipated Max. fault level	: 50 KA
Rated system voltage	: 11 KV
Rated frequency	: 50 Hz
Neutral earthing	: effectively earthed.
Installation of cable	: Underground burial.
Rated short circuit current at 11 KV side	: 25 KA
Proximity of extraneous heat source	: Nil
Max. Permissible operating temp. of conductor	
under normal Operation	: 90 ^{0} C
Under short circuit	: 250^0 C
Ground temperature :	40^0 C
Type of installation	: Earthed
Maximum temperature of air	: 40 degree C
Minimum temperature of air	: 22 degree C

Maximum relative humidity	: 95%
Minimum relative humidity	: 10%
Average No. Of thunderstorm days	: 40 days
Average number of rainy days per annum	: 90 days

2.2 TYPE OF SOIL ALONG THE CABLE ROUTE

General condition of the earth is soft marshy. Some portions are tarred with rubble soling. However Contractor shall conduct route survey before submitting their quotes .

2.3 GENERAL CONDITIONS

In addition to the above, the scope intends to cover but not restrict to the following activities, services and works.

1. Complete design and engineering of all the systems, sub-systems, equipment, material and services.
2. Providing engineering data, drawing and O&M manuals for Employer's review, approval and records.
3. Supply, testing, packing transportation and insurance the equipments from the manufacturer's work to the site.
4. Receipt, storage, insurance, preservation and conservation of equipment at the site.
5. Fabrication, pre-assembly (if any), erection, testing and putting into satisfactory operation of all the equipment/ material including statutory clearances & successful commissioning.
6. In addition to the requirements indicated in Technical Specifications, all the requirements as stated in relevant regulations stipulated for successful commissioning of the installation also be considered as a part of this specification and Contractor is bound for compliance the same.
7. The Contractor shall be responsible for providing all material, equipment and services specified or otherwise which are required to fulfill the intent of ensuring operability, maintainability and the reliability of the complete work covered under this specification.
8. For individual equipment specifications reference shall be made to the relevant Technical Specification of the equipment as per contract condition.
9. The Contractor shall be responsible for the overall management and supervision of works. He shall provide experienced, skilled, knowledgeable and competent personnel for all phases of the project, so as to provide the Employer with a high quality system.
10. A project execution schedule called Master Network (MNW) in the form of PERT / Gant chart/ network and based on 'Work break down structure' shall be prepared by the Contractor for Employer's approval. The MNW shall identify milestones of key events for each work/ component in the areas of engineering, procurement, manufacture, dispatch, erection and commissioning.

3. PROJECT MANAGEMENT & SITE SUPERVISION

In case the contractor intends to subcontract the electrical works, the subcontractor who will be employed shall be a class A contractor / EHT contractor issued by state electrical inspectorate/central electricity authority. The contractor shall submit all the required credentials of the subcontractor to the employer for approval of the appointment of subcontractor.

3.1 TESTING AND COMMISSIONING

The scope includes testing and commissioning of all equipment, sub-systems and systems of the project and putting them into successful commercial operation. The scope shall include but not limited to the requirements given elsewhere in the specification. The Contractor shall be responsible to provide all necessary testing and commissioning personal, tools and plant, test equipment, etc.

The Contractor shall identify all interface issues with Employer and other agencies, and shall be responsible for each interfacing, coordination and exchange of all necessary information.

The Contractor shall submit to the Employer all drawings for review. He shall list out the detailed requirements of interface between Contractor's work and the material and services to be supplied by Employer.

The interpretation of the Employer in respect of the scope, details and services to be performed by the Contractor shall be binding, unless specifically clarified otherwise by the Employer in writing before the award of the contract.

The drawings (enclosed), forming a part of the specification shall supplement the requirements specified herein. These are preliminary/ tentative drawings for bidding purpose only and are subject to changes that may be necessary during detailed engineering after award keeping the basic parameters as specified.

Failure of any equipment to meet the specified requirements of tests carried out at works or at site shall be sufficient cause for rejection of the equipment. Rejection of any equipment will not be held as a valid reason for delay in the completion of the works as per schedule. Contractor shall be responsible for removing all deficiencies and supplying the equipment that meet the requirement after furnishing of necessary fresh type test report, as per relevant ISS Standard from NABL Accredited Laboratory.

4. COMPLIANCE OF ELECTRICITY ACT, REGULATIONS, ETC.

Contractor is required to follow statutory regulations stipulated in Electricity Act 2003, Indian telegraph act 1889, Electricity (Supply) Act 1948, Indian Electricity Rules 1956, CEA (Regulation relating to safety of electrical installation) regulation 2010, with all amendments till date and other local rules and regulation referred in this specifications.

The Contractor shall comply with all the statutory rules and regulations prevailing in the state of Kerala including those related to safety of equipment and human beings.

The successful Contractor (individual) or any of the partner of joint venture who has qualified, should obtain "A" class electrical license from Electrical inspectorate of Govt. of Kerala/GoI/ any other state/ Union territory etc, before award of contract and to be kept valid till such time all the erected work as per scope of the award is taken over by the Employer.

The Contractor shall do complete coordination with all local and statutory agencies for execution of complete works including obtaining clearance for energizing of the HT system upon completion of entire works.

The Contractor shall obtain approvals & clearances and right of way from all agencies involved. All cable routes shall generally be routed through public land/ along the road.

The Contractor shall be responsible for transportation to site all the materials to be provided by the Contractor as well as proper storage and preservation of the same at his own cost, till such time the erected installation is taken over by the Employer.

5. METHODOLOGY OF PROCUREMENT

All equipments/material shall be sourced from reputed manufacturers only. All equipment/ material offered shall be of reputed manufacturers only as per the list of approved make mentioned in the Bid document and who have designed, manufactured, completely tested for relevant Indian Standards and supplied the equipment/ material to various State Electricity Boards or other reputed utilities which are in trouble free services at least two different locations for a period of more than two (2) years as on the date of bid opening.

6. QUALITY ASSURANCE, INSPECTION AND TESTS

The Contractor shall offer proven and type tested equipment for the project. The type test Certificates shall be complete as per the relevant I.S., carried out by NABL, CPRI or any other statutory bodies responsible for testing of equipment and it shall not be older than 5 years.

If required, Sub-vender's credentials, copies of valid BIS license, past supply& performance certificates as per requirement will also be required for sub-vender's approval, if not already approved for a specific item.

In case during post award detail engineering stage, if any equipment is found to be not type tested or partially type tested, as per I.S., the Contractor shall carry out complete type test for the items at his own cost.

The Contractor shall arrange all type, routine and acceptance tests at manufacturer's works as per approved Material Quality Programme with CoPA's officer. Any expenditure in connection with deputing the representative to the manufacturer's work site will be borne by CoPA. The Contractor shall arrange the inspection program in consultation with engineer-in-charge to give sufficient advance intimation of the manufacturing and testing schedules to facilitate timely inspection of the equipments by CoPA. Fake inspection call will attract penalty as per the discretion of the employer.
The Contractor shall provide one set of tests reports to Employer on successful completion of the tests.

7. GENERAL TECHNICAL SPECIFICATIONS

7.1. SUPPLY OF MATERIALS -GENERAL

All materials required to complete the work as per given specifications & drawings etc, must be manufactured and supplied using fresh raw materials. Re-moulded, re-circulated materials are not acceptable. The procurement of materials must be made directly from manufacturer or through authorized dealer / distributors. Documentary evidences to this effect are to be made available to the engineer-in-charge for necessary checks / verification of source of supply of materials. Second hand materials / partial used materials / used materials would not be acceptable. The offer should be as per Technical Specification without any deviation. But any deviation felt necessary to improve performance, efficiency and utility of equipment must be mentioned in the Deviation Schedule with reasons duly supported by documentary evidences during pre bid meeting. Such deviations suggested may or may not be accepted by the employer. Any deviations projected after the pre bid meeting shall not be entertained at any cost.

7.2. INSTALLATION OF EQUIPMENTS – GENERAL

7.2.1. STANDARDS

Erection, testing and commissioning of the equipments covered shall be done as per standard codes of practice and shall comply with requirements of following Indian Standards and other relevant standards, Indian Electricity Rules and acts and also to the regulations that are in force at the place of installation.

IS: 1255	Code of practice for installation and maintenance of power cables upto and including 33 kV rating.
IS: 5216	Guide for safety procedures and practices in Electrical work.
IS :100118	Code of practice for selection, installation and maintenance for Switchgear and control gear-Part-III Installation.
IS: 13408	Code of practice for the selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining application of explosives processing and manufacture).
IS:3043/87	Code of practice for installation and maintenance of earthing of installation.

7.2.2. REFERENCE

Following documents shall be read in conjunction with this specification

(i) Scope of work and special requirements
(ii) Schedule of items of work
(iii) Engineering Specification and Data sheet of General requirements of Electrical system.

7.2.3. GENERAL CONDITIONS FOR INSTALLATION OF EQUIPMENTS

a) The erection/installation, testing and commissioning shall be carried out in accordance with specification, data sheets, drawings, manufacturer's recommendations, and relevant standards or as directed by owner/Engineer-In-Charge. Requirements regarding erection/installation, testing and commissioning of switchboards, cables, etc, are generally explained here in. It is the responsibility of the contractor to supply all equipment, items, accessories, materials, tools, tackles, transporting, and lifting vehicles, consumables etc. required for unpacking, checking, transportation, storage, safe custody, installation, erection, testing, commissioning, return of unused equipment/items which are supplied from owner's stores and handing over of the installation to the entire satisfaction of owner.

b) The erection scope shall include supply of all hard wares and accessories such as bolts, nuts, washers, gaskets, cable termination accessories, lugs, paint, primer, sand etc. required for completeness of the work. All consumable materials such as insulation, tape, cleaning and paint brushes, welding electrodes, rust preventive materials, jute, cotton waste, hack saw blades, bolts, nuts, inhibitive grease, fuel, lubricants, etc, and any other material required in carrying out the work but not for incorporation in to the permanent work, shall also be included in the scope of contractor.

c) The equipment/items to be erected shall be handled with care by experienced workers under the guidance of the competent supervisor. Proper handling and transporting equipments are to be used and dragging is to be avoided.

d) The equipment/items supplied by the owner, shall normally be kept at their stores. The contractor shall inspect these items at the stores by unpacking the containers, if necessary. Responsibility of safe custody of materials after

delivery and till handing over shall rest with the contractor. Unused materials and containers shall be returned to the stores. The items supplied by the owner shall be transported from the point of storage to the point of erection / installation using proper capacity transporting vehicles. The scope shall include unpacking the containers, assembling parts, fixing loose items, components, etc. Materials supplied by the contractor or issued by the owner shall be given suitable protection against weather, dust and vermin. In storage places, equipments shall be placed over wooden sleepers to keep them above ground. Before carrying out erection/installation works of any item, proper care regarding leveling, alignment, access to working parts, facilities for removing the items for repair, statutory clearance, etc. shall be taken.

e) Foundation bolts, nuts, lock nuts, washers, etc. will normally be supplied by the equipment supplier. Any further requirement of these items shall be under the scope of contractor. The equipment shall be installed on the foundation bolts firmly such that there will not be any vibration during operations. For mounting of equipment/items on the walls/ columns / supports, suitable MS/GI brackets shall be fixed / grouted.

f) Electrical connections shall be done with great care using spring washers, bimetallic strips, conducting grease, etc. wherever required to ensure good contact without creating undue stresses. Copper bus bar joints shall be made after tinning the contact area. Supply of all required accessories or electrical connections shall be included in the contractor's scope. Discrepancies if any found between drawings/statutory requirements and actual conditions at the site, shall be immediately brought to the attention of owners representative. If any modification is found required in the writing or to suit site condition the same shall be carried out as per the instruction of the Engineer-In-Charge without any extra cost.

g) All equipments under erection shall be kept properly cleaned and free of dust, vermin, moisture, etc. After erection, it shall be ensure that non-foreign materials, tools or tackles are left in the equipment. All unused cable entries, cutouts, etc. shall be sealed properly. For hazardous area, blanking plugs suitable for the area classification applicable shall be used.

h) All tests shall be carried out in the presence of owner's representative and test shall be recorded on an approved proforma duly certified. The records of all tests shall be submitted to the purchaser's representatives. All interconnected wiring shall be checked thoroughly for correct connection with the wiring and schematic drawings of the manufacturer and the drawings supplied by owner before energizing.

i) All power and bus bar connection shall also be thoroughly inspected and checked for connections, foreign materials, tightness, etc. before energizing the equipment. All components within the main equipment shall be tested for proper performance and correct operation before commissioning the equipment.

j) All labeling shall be checked for correctness. All nuts, bolts, clamps, joints, connections, etc. shall be checked for tightness and tightened wherever required. All moving parts shall be checked for its correct movement and proper lubrication. Apply lubrication wherever required. All equipment containing liquid shall be checked for correct quantity filling and all gaskets, walls, etc, shall be checked for leak proof. Oil filling, if found required, shall be done with dry and clean oil. Gaskets shall be replaced if found required. It shall be ensured that all CT leads are loaded or shorted prior to testing and commissioning. Insulation tests shall be carried on all electrical devices, whether specifically mentioned or not, as per this work after properly cleaning these devices.

k) All the relays and its settings after commissioning shall be furnished to owner detailing relay type number, panel number etc. In case of any component of an equipment supplied by the owner is found to faulty/ unsuitable, the same shall be replaced by the new one issued by owner. All relays, before installation, the rating, range and auxiliary supply voltages for the relay should be checked against drawings/ schematic/ schedule.

7.2.4. CIVIL AND STRUCTURAL WORKS

a) Miscellaneous civil works associated with the erection/installation such as excavation, dewatering and refilling of earth work for earth pits and cable trench, chipping, grouting, small cutting, etc. on floors/ walls/ columns / structures and bringing back the same to original finish, grouting of supports, providing suitable fixing arrangements for cables, push button stations, DBs etc. shall be included in the rates quoted for erection of the respective items, unless specifically excluded in the "Schedule of Items of Work". All structural works associated with cabling, earthing, equipment erection and supporting arrangements shall be included in the scope of the contractor. All the welding and cutting works shall be carried out by certified welders. Painting shall be done on all MS materials provided, by the contractor such as base channels, frames, supports, pedestals, cable trays/racks/risers, enclosures, boxes, conduits, chequered plates etc. Before painting, the surface should be thoroughly scraped and cleaned to remove dust, grease, plaster or any other foreign materials. It is the responsibility of the contractor to supply and install all the required materials for painting including paint. Cement concrete footing shall be provided for, cable trays/racks/risers, pedestals, supports, etc. Footing shall be provided using 1:2:4 PCC with 20mm broken stone. It is responsibility of the contractor to supply and install all materials such as river sand, reinforcement rods, 20mm broken stone, etc. without any extra cost to owner. All concrete works and grouting shall be cured for a minimum period of 48 hours.
b) Chipping, grouting, etc as recommended shall be done for completion and installation work on the finished floor, wall, roof, etc. It is the responsibility of the contractor to supply all necessary materials and to bring the disturbed surface to the original finish. Touch painting of scratches found on equipment, other painted metallic surfaces, galvanized etc. associated with this work is also included in the scope of contractor without any extra cost. Base steel structures shall be painted with 2 coats of epoxy primer and 2 coats of epoxy paint.

7.2.5. STANDARD REQUIREMENTS FOR TESTING AND COMMISSIONING

a) The standard requirements for testing and commissioning are furnished below.
b) All tests shall be carried out in the presence of Owner's representative and tests shall be recorded on an approved format duly certified. The records of all tests shall be submitted to the purchaser's representative.
c) All interconnected wiring shall be checked thoroughly for correct connections with the wiring and schematic drawings of the manufacturer before energizing. All Power and bus bar connections shall also be thoroughly inspected and checked for correctness, foreign materials, tightness, etc. before energising the equipment.
d) All components within the main equipment shall be tested for proper performance and correct operation before commissioning the equipment. All labeling and nameplates shall be checked for correctness. All nuts, bolts, clamps, joints, connections, etc shall be checked for tightness and tightened

wherever required. All moving parts shall be checked for its correct movement and proper lubrication. Apply lubrication wherever required. All equipment containing liquid shall be checked for correct quantity filling and all gaskets, valves, etc. shall be checked for leak proofness. Oil filling if found required shall be done with dry & clean oil. Gaskets shall be replaced if found required. The condition of oil shall be tested in accordance with IS-335.

8. DETAILED TECHNICAL SPECIFICATION-SUPPLY OF MATERIALS

8.1. 630 A, OUT DOOR LT PANEL, DOUBLE DOOR,14 SWG CRCA Sheet

Item	Description	Qty
INCOMER	630A, 4P MCCB, 50 KA with Micro Processor LSIG trip, with O/C, S/C Release, Ics=100% Icu (Adjustable O/C & Adjustable SC), over load setting % .4In-1In , with spreader links ,RYB indicator etc. as per the details attached in annexure	**1 No.**
OUT GOINGS		
1	400 A , 50 KA, 4P MCCB , with Micro Processor LISG trip , with O/C, S/C Release, Ics=100% Icu (Adjustable O/C & Adjustable SC), over load setting % .4In-1In , with spreader links etc. as per the details attached in annexure	**1 No.**
2	250 A, 36 KA, 4P MCCB , with Micro Processor LISG trip , with O/C, S/C Release, Ics=100% Icu (Adjustable O/C & Adjustable SC), with spreader links. as per the details attached in annexure	**1 No.**
3	Provision for accommodating 250 A 4Pole MCCB	**1 No.**
4	Provision for DT Metering for connecting Smart Energy Meter, Cubicle for accommodating 4 nos. of CTs, Meter Chamber with Test Terminals.	**Set**

8.1.1. Scope

This specification provides for delivery outdoor type LT panels for giving the supply to ICG at A2 Area.

8.1.2. Application

The panels are intended for distribution of the power to various utilities.

8.1.3. Technical requirements

Normal voltage	:	415 V, +/- 5%
Frequency	:	50 cycles/sec
Bus bars	:	Copper with current carrying capacity of 1.2A /Sq mm for phase and for neutral half of main bus Earth as per standards

(i) The panel shall be type tested as per CPRI for the current rating specified. The panel manufactures shall be ISO 9001-2008 certified and CPRI approved.

(ii) The CRCA sheet panel, the finish of panel board shall be epoxy grey (PP).

(iii) Powder coated shall be for outdoor type as given in the specification.

(iv) The cable entry shall be through from top or bottom as per the site location of panels; this has to be considered while making of drawing of panels. Sufficient knock outs to be provided.

(v) The bus bar shall be Copper and shall be supported with FRP/SMC support. The panel shall be in single front execution only.

(vi) The general arrangement drawing and SLD of the panel shall be got approved by engineer in charge before its fabrication.

(vii) The size of panel shall be uniform, which accommodate maximum number of cable termination shall be treated as standard one.

(viii) The Panel shall be made of CRCA sheet and double door entry shall be provided depends on the convenience. For the Load bearing membrane the angle supports shall be provided with suitable size.

(ix) The decision of Engineer in charge shall be final regarding the dimensions of the DB and the SLD, GA diagram etc of DB shall be got approved before its fabrication

8.1.4. Earthing system.

The equipment shall be supplied with earth bus required copper bus. The earth bus of the equipment shall also be interconnected to the existing earth pit with GI strips. The existing earth strips may also be used for interlinking purpose, however if the existing strip is not sufficient, the additional quantity shall be supplied by the contractor.

8.1.5. Documentation

An instruction manual should be provided with necessary information for receiving, handling, storage, installation, operation and maintenance.

Routine test certificate should be follow each unit, and standard schematic drawings should be delivered for Ring Main Units. Compact Switchgear should have drawings that consist of system single line drawings, general arrangement and schematic drawings for order specific units.

All drawings shall confirm to Standards "A" series of drawing sheets/Indian Standards Specification IS : 11065. All dimensions and data shall be in S.I. Units.

8.1.6. Testing and Certification

8.1.6.1. Type Tests

Units should be type tested in accordance with IEC standards – 61439 as per requirements.

8.1.6.2. Routine tests

Routine tests should be carried out in accordance with standards. These tests should ensure the reliability of the unit.

8.1.7. List of drawings and Documents

The bidder shall furnish relevant descriptive and illustrative published Literature, pamphlets and the General outline drawings showing dimensions and shipping weights, quantity of Insulating media.

Sectional views showing the general constructional features of the circuit breaker

Including operating mechanism, arcing chambers, contacts with lifting dimensions for maintenance.

Drawings showing control cabinets and circuit diagrams for operating mechanism.

Foundation plan and loading data and foundation design.

Drawings showing the complete operation cycle of the Ring Main Unit with description.

8.2. Outdoor metering panel

Supply of Outdoor Meter Panel Polycarbonate Box approximately (485mm (H) x 340mm (W) x 185mm (D)), IP66 or equivalent as per IS standard with all accessories for fixing the Meters and CT's as per requirements.

Supply of 150/5A CT, 10 VA, Class 0.5 S with required TEST CERTIFICATE and from Statutory authority.

Supply of Smart Meter LT CT as per CoPA approved Standard for consumer Metering.

8.3. HDPE (HIGH DENSITY POLYETHYLENE) PIPE

HDPE pipe shall be provided for laying the LT cable at road crossing/hard surfaces. The HDPE pipes shall be 110 mm. dia: with thickness of not less than 5 mm. The HDPE pipe shall be made from high-density polyethylene (HDPE) resins meeting the following requirements:

The HDPE material supplied under this specification shall be high density, high molecular weight conforming to relevant IEC/BIS. The HDPE material shall conform to IS 14930/IS 4984/ASTM D 3350. Suitable size PVC flexible pipe with collar shall be provided for the end portion of HDPE pipe

8.4. 1.1 KV CABLE END TERMINATION & STRAIGHT THROUGH JOINT KITS

8.4.1. Scope

This specification provides for delivery of 1.1 KV grade outdoor type end termination with brass compression gland and aluminium lugs for L.T Cables of XLPE insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.

8.4.2. Application

The 1.1 KV cable end terminations are intended for use on Distribution network, outdoor application for terminating the 1.1 KV grade Cables for better distribution network.

8.4.3. Codes & Standards

All standards, specifications and codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions as on date of opening of bid. In case of conflict between this specification and those (IS: codes, standards, etc.) referred to herein, the former shall prevail. All the cable end

terminations & straight through joint kits shall conform to the requirements of the following standards and codes:

8.5.1.1 KV LT POWER CABLE

The cable shall be 1.1 KV grade(E), XLPE Aluminium conductor cable of size 3.5C x 300 sq.mm& 3.5C x 185 sq.mm. The cable shall be of best quality and as per the approved makes. The cables shall confirm to relevant Latest Indian Standards as applicable.. The length of the cables mentioned in the schedule is only approximate and is likely to change. The payment for the cable work will be made on the actual length of the cable used for the work. All routine tests shall be conducted as specified in the relevant standards and test certificate shall be furnished.

8.5.1. Scope

This specification provides for manufacture, testing at works before dispatch and delivery of 1.1 KV grade XLPE insulated, PVC FR cables as required.

8.5.2. Application

The 1.1 KV cable is intended for use on Distribution net work, lightings purpose etc. for outdoor application.

8.5.3. Codes & standards as applicable .

All standards, specifications and codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions as on date of opening of bid. In case of conflict between this specification and those (IS: codes, standards, etc.) referred to herein, the former shall prevail. All the cables shall conform to the requirements of the following standards and codes for 1.1KV grades if any applicable .

The cables shall comply with the latest edition of the following standards: The cables shall comply with the latest edition of the following standards:

a) IS:1554 - PVC insulated heavy duty cables
b) IS:7098 (Part –I) - XLPE Cables – LT
c) IS:7098 (Part -II) - Cross-linked polyethylene insulated PVC sheathed cables for working voltages from 3.3 kV up to and including 33 kV.
d) IS:1255 – 1983 - Code of practice for installation and maintenance of power cables.
e) IS:8130 - Conductors for insulated electric cables and flexible cords.
f) IS:5831 - PVC insulation and sheath of electric cables
g) IS:5819-1970 - Recommended short circuit rating of high voltage PVC cables
h) IS:3961-1987 - Recommended current rating
i) IS:3975 - Mild steel wires, strips and tapes for armouring of cables.
j) IS:2633 - Methods of testing weight, thickness and uniformity of coating on hot dipped galvanized articles.
k) IS:209 - Specification of zinc.
l) IS:3961 (Part-II) - Recommended current ratings for PVC insulated and PVC sheathed heavy duty cables
m) IS:10418 - Wooden drums for electric cables.
n) IEC:540 & 540A - Test methods for insulation and sheaths of electric cables and cords
o) IS:10462 (Part-I) - Fictitious calculation methods for determination of dimensions of protective covering of electrometric and thermoplastic insulated cables.
p) IS:10810 (Part 58) - Oxygen Index test

q) BS 7655 LTS2 - Flammability Characteristics of Cables
r) IEC 60092-SHF-1 - Flammability Characteristics of Cables
s) IEC-332 - Flammability Characteristics of Cables
t) SS4241475 class F3 - Flammability Characteristics of Cables
u) ASTM-D-2843 - Determination of smoke generation of outer sheath under fire

8.5.4. Technical particulars of LT cables (As per Latest IS)

Size of Cable	: 3.5 C X 300 Sq.mm
Voltage Rate	: 1100 V
Conductor Material	: Plain Aluminium
Insulation Type	: XLPE Compound
Tolerance	: 0.1 mm + 0.1 nominal thickness of insulation
Inner sheath thickness	: As per IS
Outer sheath - Thickness	: As per latest IS
Process of application	: Extrusion

8.6. EARTHING

8.6.1. Applicable Standards

Earthing Materials shall conform to latest applicable standards

IS: 2062 - Grade A Quality Specification for MS angles, MS channel & MS Flat
IS: 2062 - Chemical & Physical composition of materials.
IS: 1852 - Rolling & Cutting tolerances for Hot Rolled Steel products

8.6.2. GI FLAT for earthing

The steel sections shall be re-rolled from the BILLETS/INGOTS of tested quality as per latest version of IS 2830 .The GI Flat shall be of size 40mm X 6mm. The GI Flats shall be free from any defects. The Zinc for galvanizing shall conform to grade Zen 98 specified in IS 209-1966 & IS : 4826-1979 with up to date amendments.

8.7. MOULDED CASE CIRCUIT BREAKERS (MCCBS)

Moulded case circuit breaker shall be of current limiting type and preferably double break. MCCB shall conform to IS 13947-1/IEC 947-1 for general rules and IS 13947-2/IEC 947-2 for circuit breakers in all respects. The MCCB case & cover shall be made of high strength heat resistant and flame retardant thermosetting insulating material. The operating handle shall be quick make, quick break trip free type. The operating handle shall have suitable "ON", „OFF" indicators. In order to ensure suitability for isolation complying with IS13947-2/IEC947-2, the operating mechanism shall be designed such that the toggle or handle can only be in „OFF" position. The MCCB unless otherwise specified shall have thermal-magnetic trip unit with adjustable overload protection from 80% to 100% of nominal current (In) and fixed magnetic protection. The MCCB shall be possible to fully co-ordinate the over-load & short-circuit tripping of the circuit breakers with the upstream and downstream circuit breakers to provide Total Discrimination

9. TECHNICAL SPECIFICATION-INSTALLATION OF EQUIPMENTS

9.1. INSTALLATION OF MV Panel

a) The Equipments shall be erected at convenient locations as per the instruction from the Engineer in charge. All civil works, foundation including supply and

laying of MS angles, channels and grouting fasteners for erection shall be responsibility of the Contractor. After installation of the equipments they shall be tested and commissioned in the presence of Engineer- in- charge in accordance with IE rules, relevant standards and as per requirements. All backfill of the site must be compacted before final site finish.

b) It is necessary to measure the soil resistivity at the site even before the foundation pits are dug. The earth electrodes shall be installed and the required earth resistance is obtained. It may even become necessary to shift the location in case the desired earth resistance cannot be achieved. Hence to avoid possible relocation in such cases and consequent additional expenditure, the earth electrodes shall be installed before commencing the associated works. The contractor shall note and keep in mind that the success of the operation of the RMU depends on the way it is erected to a large extent and also depend on leveling of foundation. The flooring on which the RMU is erected shall be perfectly leveled using a spirit level. The position of the hold down bolts shall be fixed by using a suitable template made to suit the corresponding holes in the equipment. The verticality of the panels shall be checked and ensured. Only appropriate foundation-hold-down bolts, nuts and check nuts shall be used and all the necessary spring and flat washers shall be provided. Suitable packing shims shall be used wherever necessary under the bottom of the frame for adjustment and leveling and checked with a spirit level. All the units shall then be assembled at site.
c) After installation of MV Panel, it shall be tested and commissioned in the presence of Engineer- in- charge in accordance with IE rules, relevant standards and as per requirements. The bus bars shall be connected properly with fishplates and tightened giving the appropriate tightening torque, wherever necessary using a torque wrench. These bolted joints shall be properly addressed with the insulating plastic compound pressed to form a spherical or elliptical shape and exclude trapped air pockets. The same shall be covered with PVC adhesive tapes to form a suitable protective covering. Adequate precaution shall be taken to prevent flashover between metallic portion of the panel and the bus bars.
d) The locations shall be finalized in consultation with the Engineer in charge. The provision for the cable entry shall be from bottom and necessary space/ provision shall be made for drawing the cables conveniently into the feeder pillar. The verticality of the panels shall be checked and ensured. Only appropriate foundation-hold-down bolts, nuts and check nuts shall be used and all the necessary spring and flat washers shall be provided. Suitable packing shims shall be used wherever necessary under the bottom of the frame for adjustment and leveling and checked with a spirit level. All the units shall then be assembled at site if necessary.

e) A standard danger board notice in English, Hindi and local language with sign of skull &bones shall be affixed permanently at noticeable places. Warning strips "ISOLATE POWER SUPPLY BEFORE OPENING THE PANEL COVER" shall be affixed at the rear side of each panel.

f) MV Panel shall be connected to the earth pit with suitable strips.

9.2. LAYING OF CABLE THROUGH TRENCHES

9.2.1. Excavation of Trenches

Cables shall be laid along the open trench/ pipes/ the excavated trench/clamping through cable tray etc. as per IS. Necessary material such as RCC slab/ loose earth

/concrete slab, fastening materials etc., if required , shall also be supplied by the contractor.

Contractor shall construct the cable trenches required for directly buried cables. The scope of work for construction of cable trenches shall include excavation, preparation of loose earth bedding, loose earth cover, supply and installation of brick or concrete protective covers, back filling and reaming, supply and installation of route markers and joint markers. The bidder shall ascertain the soil parameters prevailing at site, before quoting the unit rates. The trenches after that shall be excavated manually/by using JCB and utmost care shall be taken while excavating the trenches. The trenches shall be excavated with 50 cm width and 75 cm depth from the ground level. The trenches shall be resurfaced and provide the compaction after laying the cable.

If cables has to laid below the beams/rails etc. from the ground level the excavation has to done without causing any damage to the structures etc. with suitable depth for laying the cables through GI pipes etc.

9.2.2. Laying of cables

Cable drums shall be checked for any damage in transit. Insulation test of the cable shall be carried out between phases and phase to earth before unwinding the drum.
Cables shall be laid direct in ground, masonry trench, pipes/closed ducts, open ducts or on racks as per requirement. When the cable has been properly straightened, the cores are tested for continuity and insulation resistance and the cable is then measured. In case of PVC cables, suitable moisture seal tape shall be used for this purpose.

9.2.3. Loose soil / earth cushion/ Cable protection

When the cable has been properly straightened the trench shall be covered with 100 mm thick layer of good quality clean loose earth, then the cables shall be lifted and placed over this loose soil / earth cushion. Again, another layer of good quality clean loose earth 100mm thick should be laid and gently pulled on to the top of the cable to form a depth of 100mm from the top of the cable. The minimum envelop cushion around the cable shall not be less than 200 mm. Sufficient loose soil / earth shall be supplied by the contractor.

The cables shall be protected by second class country brick of size 20 cm length as per standards. The protection brick placed on top of the loose earth shall be laid breadth wise for the full length of the cable. This protective covering shall cover all the cables and project at least 50 mm over the sides of end cables. The trenches shall be then backfilled with excavated earth free from stone or other debris and shall be rammed, watered if necessary, in successive layers, unless otherwise specified a crown of earth shall be formed to allow for subsidence.
Where road or lawns are cut or curb stone displaced, these shall be made good, and all excess earth removed from site.

9.2.4. Cable tags and marker

Each cable and conduit run shall be tagged with numbers that appear in the cable and conduit schedule. The tag shall be of aluminum with the number punched on it and securely attached to the cable conduit by not less than two turns of 20 SWG GI wire conforming to IS: 280. Cable tags shall be of rectangular shape for power cables and of circular shape for control cables. Alternately, the contractor may provide cable tags made up of nylon, cable marking ties of 'TY-CAB' or equivalent type with cable

number heat stamped on the cable tags. Location of cables laid directly underground shall be clearly indicated with cable marker made of galvanized iron plate. Location of underground cable joints shall be indicated with cable marker with an additional inscription "Cable joint". The marker shall project 150mm above ground and shall be spaced at an interval 100 meters and at every change in direction. They shall be located on both sides of road and drain crossings. Cable tags shall be provided on all cables at each end (just before entering the equipment enclosure), on both sides of a wall or floor crossing, on each duct/conduit entry. Cable tags shall be provided inside the switchgear, motor control centers, control and relay panels etc., wherever required for cable identification, such as where a number of cables enter together through a gland plate. The price of cable tags and markers shall be included in the installation rates for cables /conduits quoted by the Contractor. Specific requirements for cabling, wiring ferrules as covered in respective equipment section shall also be complied with.

9.3. PROVIDING END TERMINATION OF LT CABLES

Supply and making of end terminations with brass/ pvc glands, lugs etc complete suitable for cables as per schedule of work. The item shall be single compression type tinned/nickel plated (coating thickness not less than 20 microns in case of tin and 10 to 15 microns in case of nickel) brass cable/pvc glands shall be provided by the contractor for all power and control cables to provide dust and weather proof terminations. They shall comprise of heavy duty brass casting, machine finished and tinned to avoid corrosion and oxidation. Rubber components used in cable gland shall be neoprene and of tested quality. Required number of packing glands to close unused openings in gland plates shall also be provided. For copper cable the termination materials shall be copper materials.

10. SPECIAL CONDITIONS FOR ELECTRICAL WORKS

a) All current carrying components in all installation shall be of appropriate rating of voltage and frequency as required at respective areas.
b) All equipments to be supplied and works to be executed shall conform to the CEA standards including protection and metering accessories. No extra amount will be paid in this regard.
c) All testing and calibration etc are to be carried out as per requirement of statutory authority concerned.
d) On completion of work the contractor has to obtain necessary safety/energisation certificate from statutory agency concerned, by submitting necessary completion statement/ drawing, equipment details etc. before energisation.
e) All costs incurred in obtaining such approval/certificate are to be borne by the contractor. Statutory fees paid shall be reimbursed on presentation of document.

11. APPROVED MAKES

APPROVED MAKES		
1	1.1 KV XLPE CABLE	CCI / INCAB/ UNIVERSAL/ RPG/ NICCO/ TORRENT / POLYCAB / PARAMOUNT/ KEI / HAVELLS / FINOLEX / V-GUARD/ L&T / PRIMECAB / RR KABEL / GLOSTER
2	MCCB / MCB / CONTACTOR / TIMER	LEGRAND / MERLIN GERIN / MK / ABB/HPL INDOASIAN / L &T / SIEMENS /SCHNEIDER /
3	HDPE PIPE/ FLEXIBLE HOSE	KONDOOR or any other make with BIS
4	ENERGY METER	GENUS/L&T – Compatible with Existing Smart meter system.
5	AMMETER / VOLTMETER	S IMCO / MECO/ L&T/ HPL/ AE / RISHAB / SCHNEIDER / SECURE /SOCOMEC / CONZERVE /SIEMENS/ABB/C&S
6	CURRENT / POTENTIAL TRANSFORMER	INTRANS/ KAPPA/ INDUS/ CG/CYRO/ ABB/ BHEL/CG/ MEGAWIN/TRANSDELTA / KEL
7	POLYCARBONATE BOX	HENSEL/SINTEX
8	MV PANEL	INTRANS/ HESSEL/ WAVES/POWER CONTORLS / ABB /L&T/SIEMENS/ SCHNEIDER/ RITTAL /HENSEL/ CAMEX/ IMPERIAL ENGG/ PAS/CPRI Approved .

BOQ for 72 KW L.T Connection to ICG at A2 Area

Sl.no.	Item Description	Qty	Unit	Rate (Rs.) Inclu. GST	Amount (Rs.) Including GST
	PART A- SUPPLY				
1	Supply of M.V Panel, 14 SWG CRCA Sheet with Double Door Construction, Outdoor, Copper Busbar with RYB Indications, DT Metering provision for connecting Smart Energy Meter, Cubicle for accomodating 4 nos. of CTs, Meter Chamber with Test Terminals, Incomer 630 A, 50 kA, 4 Pole Microprocessor MCCB with LSIG - 1 no., Outgoing 400 A, 36 kA, 4 Pole Microprocessor MCCB with LSIG - 1 no., 250 A, 36 kA, 4 Pole Microprocessor MCCB with LSIG - 1 no., Provision for accomodating 250 A 4 Pole MCCB.	1	No.		
2	Supply of items for Pipe earthing as per IS 2063 for M.V Panel	2	Nos.		
3	Supplying of 25 mm X 5 mm G.I strip for earthing	10	M		
4	Supply of 3.5 C X 300 sqmm 1.1 KV Grade, Armoured UG cable, XLPE insulated, Armoured, overall PVC sheathed, stranded, Aluminium conductor, PVC Outer Sheathed cable conforming to IS with latest IS amendments.	14	M		
5	Supply of 3.5 C X 185 sqmm 1.1 KV Grade, Armoured UG cable, XLPE insulated, Armoured, overall PVC sheathed, stranded, Aluminium conductor, PVC Outer Sheathed cable conforming to IS with latest IS amendments.	35	M		
6	Supply of cable end termination and Glanding complete with all accessories including lugs suitable for 3.5 C X 300 sqmm, XLPE aluminium conductor cable of 1.1 KV grade as required.	5	Nos.		
7	Supply of HDPE Pipe, 110 mm dia. 5mm thickness through the existing duct/ trench	20	M		
8	Supply of cable end termination and Glanding complete with all accessories including lugs suitable for 3.5 C X 185 sqmm, XLPE aluminium conductor cable of 1.1 KV grade as required.	2	Nos.		
9	Supply of CT 150/5 A, 10 VA , Class 0.5 S with Test Certificate for Consumer Metering	4	Nos.		
10	Supply of Smart Meter LT CT as per CoPA Approved Standard for Consumer Metering	1	No.		

11	Supply of out door Meter Panel Polycarbonate or equivalent material with all acessories for fixing the meter , CT etc as per requirements.	1	No.		
A	**Total for supply**				
	PART B- ERECTION				
12	ITC of M.V Panel mentioned in item No.1 as per annexure	1	No.		
13	Providing Pipe earthing as per IS 2063 for M.V Panel	2	Nos.		
14	Laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/terminating etc.	10	M		
15	Removal of existing Feeder Pillar after disconection of cables, transport the same to T&R Section, make suitable to install the New M.V Panel as per Sl.no.1 in the same location, disconnection of about 10 mtrs. of 3.5 CX 300 Sq.mm 1.1 KV cable from DT Terminals and re-laying in ground up to the New M.V Panel	1	LS		
16	Excavation & Laying of 2 Runs of 3.5 X 300 Sq.mm XLPE, 1.1 KV Al LT UG Cable through open trench & refilling as required .	7	M		
17	Providing of cable end termination and Glanding complete with all accessories including lugs suitable for 3.5 C X 300 sqmm, XLPE aluminium conductor cable of 1.1 KV grade as required.	5	Nos.		
18	Laying of HDPE Pipe,110 mm, 5mm thickness through the existing duct/ trench	20	M		
19	Laying of 3.5 C X 185 sqmm Cable through HDPE Pipe	20	M		
20	Laying of 3.5 C X 185 sqmm Cable through open trench & Refilling	15	M		
21	Providing of cable end termination and Glanding complete with all accessories including lugs suitable for 3.5 C X 185 sqmm, XLPE aluminium conductor cable of 1.1 KV grade as required.	2	Nos.		
22	ITC of CT 150/5 A, 10 VA , Class 0.5 S with Test Certificate for Consumer Metering	4	Nos.		
23	ITC of Smart Meter LT CT as per CoPA Approved Standard for Consumer Metering	1	No.		
24	ITC of out door Meter Panel Polycarbonate or equivalent material with all acessories for fixing the meter , CT etc as per requirements.	1	No.		
B	**Total for erection**				
	TOTAL FOR SUPPLY & ERECTION WITH GST				

GENERAL CONDITIONS

1. **Rate quoted :** The rate quoted by the Bidder shall be inclusive of GST. The Bidder shall have valid GST Registration number. GST as applicable for the work will be paid extra by the Port. The GST applicable as per law can be billed on the Port Authority, which will be paid to the Bidder by the Board along with the bills, for which the Bidder shall hold valid GST Registration number.

2. **Validity of Quotation** : The Quotations shall be valid for a period of 90 days from the due date of submission of quotation.

3. **Completion Period**: The whole work shall be completed within 45 days from the date of receipt of work order. In case the Bidder is not permitted to carry out the work due to some problem from Employer's side, he should maintain a record of such time lost, duly counter signed by the Engineer-in-Charge and this period will not be included while determining the delay in completion period. In case the works are not completed within the specified completion periods due to any fault of the Bidder, it will be considered as a breach of contract and the Bidder will not be considered for any other work in future.

4. **Payment Term**: Payments will be made online after completing the work to the entire satisfaction of the Engineer-in-Charge and also after deducting the taxes prevailing in force at the time of payment of bills. The quantities specified in the schedule of quantities of work are only approximate and shall be increased or decreased at the discretion of the Engineer-in-Charge according to actual requirements. Payment will be made as per actual measurements, according to the percentage quoted.

5. **Deductions:** Income tax at the prevailing rates will also be deducted from the bills of the Contractor. The amount of all cost of work executed or other sums, which under the contract shall be payable by the contractor to the employer, will be deducted /adjusted by the employer from any money due or becoming due by him to the contractor under the contract, without prejudice to the employer's right to recover the same by the ordinary process of law.

6. **Liquidated Damages**: In case of delay in completion of the contract, liquidated damages (L.D) may be levied at the rate of half percent (½%) of the Contract Price per week of delay, subject to a maximum of 10% of the Contract Price. The amount of Liquidated Damages can be adjusted or set-off against any sum payable to the Bidder.

7. **Defects Liability Period**: The defects liability period for the work shall be 12 months from the date of completion of the work. In the event of any defect/ deficiency being noticed during the period, which is attributable to the defective materials/design/ workmanship, the Bidder shall make good the same at his cost.

8. **Security Deposit**: Security deposit @ 10% of Contract Price shall be recovered from the Bidder's bill. The amount towards Security Deposit so deducted will be released only after successful completion of the defect liability period, subject to certification from the Engineer-in-Charge.

9. **Execution of Agreement**: The successful Bidder will be required to execute within 14 days from the date of receipt of work order, an agreement at his expense on proper value Kerala State Stamp Paper in the prescribed departmental form, consisting of the work order issued to the Bidder, together with the Quotation submitted by him including General Conditions, for the due and proper fulfillment of the contract. Till signing of agreement, the Quotation together with the acceptance letter shall constitute a binding contract between the Bidder and Cochin Port.

10. **Engineer-in-Charge**: The Engineer-in-Charge of the work is the Superintending Engineer (Ele), CoPA. Clarifications if any required can be obtained by contacting the Superintending Engineer (Ele) / Executive Engineer(Ele-I) of the Electrical Division of CoPA (0484-2582320 OR 0484-2582336).

11. **Water & Electricity:**
    Water: Water, if required for the work, shall be arranged by the Bidder at his own cost.

    Electricity: The Bidder shall make his own arrangements for the temporary connection for electricity required, if any, and make necessary payment for it direct to the Department concerned.

12. **Brand new :** All equipments, components and accessories offered shall be brand new and readily available indigenously. All items offered shall be as per approved quality and standards. All works shall be carried out as per relevant ISS.

13. **Tests :** The Contractor shall perform all the tests as required by the employer on completion of the work. The energy required for testing of equipments engaged for the work shall be supplied by the department at free of cost subject to the availability. In case no power supply is available in the site the same shall be made available by the contractor and conduct the tests as required.

14. The Contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, Public Liability Policy, Provident Fund Regulations, Employees Provident Fund and ESI Act etc. amended from time to time and rules framed there under and other laws affecting the Contract labour that may be brought in to force from time to time.

15. The Contractor shall be registered under EPF and ESI act and the employees employed under them shall be covered in the EPF and ESI Scheme, if required as per applicable rules. The Contractors shall regularly remit, the Employer & Employee contribution to the authorities in such cases. If not, the Dept. would be required to remit the same and the amount so remitted shall be deducted from the part/ final bill of Contractors.

16. All materials, tools, plants and equipments required for completing the work shall be provided by the Contractor at his own cost. All materials required for the work shall be got approved by the Engineer-in-Charge before using for the work. Any fittings or accessories which may not be specifically mentioned in the specification but are usual or necessary as per good industry practice, shall be provided by the Bidder without extra cost to the Port. All works shall be carried out as per relevant ISS.

17. All labour, skilled or unskilled for the work shall be provided by the Contractor at his own cost and settling any disputes with the labour shall be the Contractor's responsibility.

18. All care and precautionary measures for avoiding any kind of damage/ accidents in the work site shall be taken by the Contractor. All safety precautions shall be taken while carrying out the work. The Contractor shall supply the necessary safety equipments to the workers employed by him and also ensure that they use it, while carrying out the work. The Contractor shall be solely liable and responsible for accidents if any, occurring during the period of Contract.

19. The work shall be completed without causing any damage to the existing structures/cables etc. In case any damage is caused, the same has to be rectified at Bidder's risk and cost.

20. The Port will in no way be responsible for any loss/damages caused in connection with the work.

21. Disputes if any shall be under the jurisdiction of courts in Cochin Corporation limits only.

SIGNATURE OF THE BIDDER