कोचिन पत्तन प्राधिकरण
Cochin Port Authority

Phone : 91 0484 2666639
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OFFICE OF THE
CHIEF MECHANICAL ENGINEER
Willingdon Island
Cochin 682 009

GeM Bid No: GEM/2023/B/3207421 Dt:02/03/2023

CORRIGENDUM

Sub: Tender for "PROVISION OF HIGH VOLTAGE SHOREPOWER CONNECTION (HVSC) SYSTEM FOR SHIPS CALLING AT THE INTERNATIONAL CRUISE TERMINAL OF COCHIN PORT AUTHORITY" – **Amendment on tender due date** – Reg.

Ref: GeM Bid No: GEM/2023/B/3207421 dated 01/03/2023

The last date of tender submission and date of tender opening mentioned as 21/03/2023 in the Table 1.2 of NIT (**Page no.5**) of tender document uploaded on 01/03/2023 has been amended and to be read as **22/03/2023**.

The corrected tender document is uploaded in the GeM portal https://gem.gov.in as amendment.

Sd/-
CHIEF MECHANICAL ENGINEER

COCHIN PORT AUTHORITY

Tele:91-0484 -2666639/0484-258-2300
Telefax:91-0484-2666639
E-mail: cme@cochinport.gov.in
Website: www.cochinport.gov.in

Request for Proposal (RfP) for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis

(TECHNICAL BID)

(E-Tendering Mode)
Website: www.gem.gov.in

OFFICE OF THE
CHIEF MECHANICAL ENGINEER
COCHIN-682009

COCHIN PORT AUTHORITY

MECHANICAL ENGINEERING DEPARTMENT

CONTENTS

COCHIN PORT AUTHORITY

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Office of the Chief Mechanical Engineer,
Cochin Port Authority,
Willingdon Island, Cochin,
Kerala-682 009, India.

Tender no. GEM/2023/B/3207421 Dt.01/03/2023

1. NOTICE INVITING TENDER

1) On behalf of Cochin Port Authority, Tenders are invited through Government e- Market Place (GeM portal) in Single Stage Two Cover bidding procedure [Technical Bid and Financial Bid], by the Chief Mechanical Engineer, Cochin Port Authority, Willingdon Island, Cochin-682009, from eligible bidders meeting the Minimum Qualification Criteria specified below, for the **"Design, supply, installation, testing, commissioning and handing over, Operation and maintenance of High Voltage Shore power Connection (HVSC) System of 6MVA capacity for providing Power Supply to the ships calling at Q8 and Q9 berths at the International Cruise Terminal at Ernakulam Wharf of Cochin Port Authority"** through an Engineering, Procurement and Construction (the "EPC") contract as per details given below.

2) For submitting the e-tender, the prospective bidders willing to participate in this tender shall fulfill the Minimum Qualification Criteria and agree to the Terms and Conditions given are required to get registered their firm/ Consortium with Government of India e-tendering portal (GeM) well in advance on or before the scheduled date of submission. Tender timeline is available in the BID INFORMATION SHEET given in the tender document.

3) The detailed Qualifying Requirements (QR) is given below:

3.1 MINIMUM QUALIFICATION CRITERIA (MQC)

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

(1) Experience

The tenderer should have executed similar HT Electrical Works of value as detailed below during the last 7 (seven) years ending on 28/02/2023:

(i) One contract work costing not less than **Rs.14.44 Crore**

OR

(ii) Two contract works, each costing not less than **Rs.9.03 Crore**

OR

(iii) Three contract works, each costing not less than **Rs.7.22 Crore**

i) "Similar work" means "Design, supply, installation, testing and commissioning of any HT works of 6MVA and above".

ii) The experience may be furnished in the Proforma in 'Annexure-4' of the tender document. Please submit copy of Purchase Order/ Work order and Completion Certificate with work order number and value of the contract, issued by the Client/ Owners showing satisfactory performance/ completion of the work, as proof of having satisfactorily carried out those previous experiences mentioned in 'Annexure-4'. The previous experience carried out by the tenderer as subcontract to the main contractor will also be accepted.

iii) Experience certificates of works executed in private sectors/ organizations shall be considered for qualification, only on submission of Form 26AS from TRACES Site C along with work order and completion certificate.

Note: In the case of the contractor who do not have experience in executing the same or similar work of on shore power supply, may have a tie up with the technology partner capable of erecting /installing the onshore power supply/retrofitting arrangements on board the ship for availing shorepower.

(2) Financial Turnover

The Bidder should satisfy the following financial requirement as per their latest audited Financial Statements/ Balance Sheets:

Average annual financial turnover should be at least **Rs.5.42 Crore** during the last three (3) years, ending 31st March 2022[2019-'20, 2020-'21, 2021-22]. This may be furnished in the Proforma in 'Annexure-5' of the tender document.

As proof of this, a statement duly certified by the Chartered Accountant showing the average annual Financial Turnover over the last three financial years and audited financial statements for the last three years ending 2021-22 shall be submitted.

(3) License

The bidder should possess valid 'A Class' Electrical Contractor's License issued by any State/ Central licensing authority and Copy of the valid License shall be furnished. OR the bidder should carry out the electrical works through a licensed A Class contractor, an undertaking to this effect shall be submitted in a stamp paper of Rs. 200/- while submitting the bid.

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 1.1

Year before	Multiplying factor
One year [2021]	1.07
Two years [2020]	1.14
Three years [2019]	1.21
Four years [2018]	1.28
Five years [2017]	1.35
Six years [2016]	1.42
Seven years [2015]	1.49

Note 2: Satisfactory Client / Owners' certificate or documentary proof shall be submitted in support of the assignments/ works performed and claimed by the tenderer to fulfill the eligibility criteria for qualification.

Note 3: In the case of ongoing Multiyear Contract, the experience of completed years will be considered proportionately, subject to the submission of completion certificate from the client certifying that the bidder has completed the part of the contract satisfactorily. No partial completion for a period of less than one year will be considered.

Note 4:- In case of bid submitted by JV/ Consortium, the Minimum Eligibility Criteria EXCEPT Financial Turnover can be fulfilled collectively by the Partners of the JV/ Consortium.

Note 5:- In the case of bid submitted by JV/ Consortium, the lead partner of the JV shall meet the Minimum Eligibility Criteria of Financial Turnover.

3.2 Eventhough the tenderers meet the above qualifying criteria, they are subjected to be disqualified if they have:

(i) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/ or

(ii) Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.

4) Pertinent information to the tender is given in the following tables:

(i) Schedule of different activities till submission of the tender are detailed as under:

Table 1.2

Sl. No.	Particulars	Date and Time
1.	Tender e-publication date	01/03/2023
2.	Download period of tender documents	12.00hrs. on 01/03/2023 to 14.30hrs.on 22/03/2023
3.	Date of pre-bid meeting	09/03/2023 10:00 hrs
4.	Last date for seeking clarification	09/03/2023
5.	Likely date for uploading the addendum/ clarification if any,	14/03/2023
6.	Last date and time of submission of bid	**22/03/2023 at 15.00 hrs.**
7.	Date and time of opening the bid	**22/03/2023 at 15.30hrs.**

5) The Invitation for Bids is open to all eligible bidders meeting the Minimum Qualification Criteria. The complete RfP Documents 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 . Enquiries can be made via email address: cme@cochinport.gov.in .

6) Any amendment(s)/ corrigendum(s)/ clarification(s) with respect to this RfP 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.

7) A Single Stage Two Cover Bidding Procedure with Earnest Money Deposit (EMD) will be adopted and will proceed as detailed in the RfP Documents. Cost of tender document /bid processing fee is not applicable since bidding is made through GeM portal.

8) Interested bidders shall download the RfP Documents from these portals as per the provisions available therein. Tenders attaching all documents required shall be submitted through GeM portal strictly in accordance with the instructions to bidders (ITB) and terms &conditions of the tender document, before the tender submission time mentioned in the tender.

9) (i) Bidder shall submit their bid proposal online along with proof of Earnest Money Deposit (EMD), complete in all respects on or before last date and time of Bid Submission as per the Bid Information Sheet. Bid security / EMD shall be furnished in the form of Account Payee Demand Draft, Banker's Cheque, or payment online to the designated bank account of CoPA in an acceptable form safeguarding the purchaser's interest in all respects. Techno-Commercial bids will be opened online in the GeM Portal. Bid proposals received without the prescribed Earnest Money Deposit (EMD)/Documents for exemption of EMD will be considered as non-responsive. **In the event of any date indicated is a declared Holiday, the tender will be opened on the next working day.**

(ii) Bank details of Cochin Port Authority are as follows for online payment of EMD: State Bank of India, Cochin Port Authority Branch, Bank Branch MICR code: 682002021, IFSC Code: SBIN0006367, Cochin Port Authority General Reserve Fund (GRF), Savings Bank Account No. 41401802288.

(iii) Exemption from the payment of EMD shall be given to Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization or the concerned Ministry or Department as provided in GFR 2017. In this regard the Bidder shall produce documentary evidences like NSIC/ MSME/ UAM certificates for claiming exemption of EMD.

10) For proper uploading of the bids on the portal namely **https://gem.gov.in/** (hereinafter 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 & +917556685120, as and when required, contact details are also mentioned on the Bid Information Sheet. The Employer in no case shall be responsible for any issues related to timely or properly uploading/ submission of the bid in accordance with the relevant provisions of Section II - ITB of the Bidding Documents.

11) 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.

12) The bidders have to execute an "Integrity Pact"(IP) as per the format enclosed in the tender document and also available in the CoPA's website www.cochinport.gov.in. The Tenderer should sign and upload the "Integrity Pact" duly signed in all the pages duly affixing the firm's seal, in techno-commercial bid.

13) The Independent External Monitors (IEM) for Cochin Port are as follows:

1) Shri. M J Joseph, ICAS (Rtd.)
37, Da Costa Square, 3rd Cross,
Cooke Town, Bangalore – 560 084
Email:
joseph.iem@cochinport.gov.in

2) Shri. Punati Sridhar, IFoS(Retd)
8C, Block -4, 14-C Cross,
MCHS Colony, HSR 6th Sector,
Bangalore -560102
Email ID :sridhar.iem@cochinport.gov.in

14) 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.

15) CoPA reserves the right to cancel/ withdraw this invitation for bids without assigning any reason and shall have no liability whatsoever consequent upon such a decision.

16) Electrical works should be carried out through a licensed Electrical contractor since clearance has to be obtained from the Central Electricity Authority (CEA). The Electrical contractor engaged by the developer shall hold valid "A-Class" license. A copy of the license shall be submitted along with tender or furnish an undertaking that the developer shall tie-up with a contractor having A class Electrical license in the case of award contract.

17) 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. The bidder is responsible to download Addendums/ Amendments/ Errata/ Replies to the queries of the bidder etc., if any, issued by the Employer, from the website before submission of the bid. Any shortfall in submissions of the said Addendums/ Amendments/Errata/Replies to the queries of the bidder duly signed etc. along with the downloaded documents while submitting the bid will not be considered. Incomplete bid documents may be rejected.

CHIEF MECHANICAL ENGINEER
Cochin Port Authority

BID INFORMATION SHEET

A	NIT NO. & DATE	**No.** GEM/2023/B/3207421 dated 01/03/2023
B	Document Description	**PROVISION OF HIGH VOLTAGE SHOREPOWER CONNECTION (HVSC) SYSTEMFOR SHIPS CALLING AT THE INTERNATIONAL CRUISE TERMINAL OF COCHIN PORT AUTHORITY**
C	NAME OF WORK/ BRIEF SCOPE OF WORK/ JOB	Design, Engineering, Manufacture, Supply, Storage, Civil work, Erection, ~~TPIA inspection~~, CEA approval, Testing, Commissioning and Handing over, Operation and maintenance of High Voltage Shorepower Connection (HVSC) System of 6MVA capacity for the ships calling at the Q8 and Q9 berths of International Cruise Terminal at Ernakulam Wharf of Cochin Port Authority at Willingdon Island, Cochin, Kerala
D	Tender e-publication date	01/03/2023
E	TYPE OF BIDDING SYSTEM	E-TENDER through GeM portal (**https://gem.gov.in/**)
F	TYPE OF TENDER	Single stage 2 cover system with EMD
G	Language of Tender and all correspondences	*English*
H	Download period of tender documents	*As per tender in GeM portal*
I	COMPLETION/ CONTRACT PERIOD	**12 months**
J	Estimated amount put to tender	**Rs.18,05,50,000/- (Rupees Eighteen Crore Five lakh fifty thousand only) excluding GST**
K	BID PROCESSING FEE (NON-REFUNDABLE)	Not applicable since bidding is through GeM
L	Bid Bond / EARNEST MONEY DEPOSIT (EMD)	**Rs.18,05,500**/- (Rupees Eighteen lakh five thousand five hundred only**)** (EMD shall be furnished in the form of Account Payee Demand Draft, Banker's Cheque or payment online to the designated bank account of CoPA in an acceptable form safeguarding the purchaser's interest in all respects). No BG will be accepted for EMD. Exemption shall be granted on submission of NSIC/ MSME/ UAM certificates.
M	PERFORMANCE BANK GUARANTEE (Security Deposit)	As per Tender Document (Security deposit shall be *[for an amount equivalent to 3% of the Award Price/ Contract Price till 31/03/2023 and 10% thereafter]* furnished in the form of Account Payee Demand Draft, Banker's cheque, Bank Guarantee from a Nationalized bank/ Indian Scheduled Commercial bank *[in favour of FA&CAO, Cochin Port Authority, payable at Cochin]* or online payment to the designated bank account of CoPA in an acceptable form safeguarding the Purchaser's interests in all respects.

N	DATE, TIME & VENUE OF PRE-BID MEETING	As per tender document on GEM portal there shall be a **PRE-PLANNED SITE VISIT** on the date mentioned starting from **10.00 Hours.** Interested and eligible candidates shall be required to report at the Office of the Chief Mechanical Engineer, Ist Floor, New Administrative Building, Cochin Port Authority. All bidders shall be required to sign an attendance register as evidence of having participated in the site visit. Pre-bid meeting will be held in the CME's office of CoPA on the date notified in the NIT, through Video Conference to answer clarifications, if any, on the bid document and the link will be shared to the bidders on their request. The minutes of the pre-bid meeting will be uploaded within 5 (Five) *days.* **NON – ATTENDANCE OF THE PRE-PLANNED SITE VISIT MAY LEAD TO DISQUALIFICATION**.
O	ONLINE BID-SUBMISSION DEADLINE DATE	As per tender document on GEM portal The extension of the deadline for submission of Tenders shall be made *normally not more than seven days* before the expiry of the original deadline.
P	TECHNO- COMMERCIAL BID OPENING	As per tender document on GEM portal, at the Office of the Chief Mechanical Engineer, 1st Floor, New Administrative Building, Cochin Port Authority, Cochin 9. **After the deadline for submission of tenders, only technical submission will be opened on the due date of tender opening.** **Only tenders that are responsive to the mandatory requirements in the technical evaluation shall have their financial submission opened.**
Q	PRICE BID OPENING	Date and time will be informed later to the eligible bidders. The price shall be fixed. The currency in which the prices shall be quoted shall be: Indian Rupees (INR) Prices quoted shall be net **inclusive of all taxes** (excluding GST) and shall remain valid for a period of 180 days from the date of Tender opening.
R	VALIDITY OF TENDER	180 days
S	CONTACT DETAILS OF GEM	Mail at: helpdesk-gem@gov.in
T	NAME, DESIGNATION, ADDRESS AND OTHER DETAILS (FOR SUBMISSION OF TENDER))	The Chief Mechanical Engineer, Cochin Port Authority, 1st floor, New Administrative Building, Willingdon Island, Kochi-682 009 Tel. 0484-2666639, 2582300, 2582305 Fax:- 0484-2666639 Email : cme@cochinport.gov.in
U	DETAILS OF PERSONS TO BE CONTACTED IN CASE OF ANY ASSISTANCE REQUIRED	1. Shri. V. Thuraipandian, CME Ph: 0484-2666639, 2582300 2. Smt. Ajithkumar D., EE (Ele)P Ph: 0484-2582320 3. Sri. Ajayakumar R.S., EE(Ele.) Ph: 0484-2582305/ 07

1) The project development shall be carried out on Turnkey mode and the operation and maintenance shall be carried out by OEM during guarantee period and after award of AMC contract on completion of guarantee period.
2) The installations under Onshore Power Supply will be the property of Cochin Port. Complete maintenance will be carried out by awarding AMC to the OEM after completion of guarantee period.
3) TPIA will be appointed by Cochin Port through separate tender for the design checking and inspection of the entire project.

CHIEF MECHANICAL ENGINEER
COCHIN PORT AUTHORITY

SECTION I

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

2 INSTRUCTIONS TO TENDERERS

1. INTRODUCTION

1.1 Scope of Bid

1.1.1 The Chief Mechanical Engineer, Cochin Port Authority, invites Bids by Tendering for the Project "Providing high voltage shore power connection (HVSC) to vessels calling at Q8 and Q9 berths of International Cruise Terminal at Ernakulam wharf of Cochin Port Authority" as detailed in the Notice Inviting Tender. The Bidders may submit on-line Bids for the Project detailed in the table given in NIT.

1.1.2 The proposed Project involves development of onshore facilities at the Q8 and Q9 berths at Ernakulam Wharf of Cochin Port Authority.

1.1.3 Throughout these tender documents, the terms *bid* and *tender* and their derivatives (*bidder/tenderer, bid/tendered, bidding/tendering,*) etc., are synonymous, and day means calendar day.

1.1.4 The successful Bidder will be expected to complete the Project by the Intended Completion Date specified in the Contract Data.

1.1.5 The Cochin Port Authority will release the LoA to the successful Bidder after obtaining the consent from the Kerala State Electricity Board and Permission and Tariff Approval from the Kerala State Electricity Regulatory Commission for operation of the Project. The Bidders are requested to take note of it before submitting the Tender.

1.2 Location of the Works

1.2.1 The project location is at the Q8 and Q9 berths at the Ernakulam Wharf of Cochin Port Authority located in Willingdon Island on the left bank of the Ernakulum Channel.

1.2.2 As per NIT on GEM portal there shall be a **PRE-PLANNED SITE VISIT** on the date mentioned starting from **10.00 Hours.** Interested and eligible candidates shall be required to report at the Office of the Chief Mechanical Engineer, Ist Floor, New Administrative Building, Cochin Port Authority. All bidders shall be required to sign an attendance register as evidence of having participated in the site visit.

The minutes of the pre-bid meeting will be uploaded within 5 (Five)*days.*

NON–ATTENDANCE OF THE PRE-PLANNED SITE VISIT MAY LEAD TO DISQUALIFICATION.

2. General Instructions

2.1 The work is to be executed as described in the Bid document and in particular in the Technical specifications, Special Conditions, Schedule of Quantities and drawings and in general includes, but is not limited to supplying all including consumables and equipment necessary to execute the work as described in the Bid Document.

2.2 Before submitting the bid, the bidder shall examine carefully all conditions of contract, specifications, drawings etc. supplied herewith. The bidders shall inspect the site of work with prior appointment with the Engineer of the work to get himself acquainted with the site conditions and to assess and satisfy himself of the difficulties and constraints which may be involved in executing the work in the location. It will be deemed that prior to the submission of tender, the tenderer has visited the site and has satisfied himself as to the

nature and location of the work, general and local conditions, particularly those pertaining to transportation, handling and availability and storage of materials, availability of labour, weather conditions, tidal variations at site, working conditions, ground level, nature of soil etc. and that the tenderer has estimated his cost accordingly and the Port will be in no way responsible for the lack of such knowledge and also consequences thereof to the tenderer. Failure to visit the site will in no way relieve the successful bidder of any of the obligations in performing the work in accordance with this Bid Document including addendum/corrigendum, within the quoted price.

2.3 A bidder shall be deemed to have full knowledge of all documents, site conditions etc. whether he has inspected them or not. The submission of a bid by the bidder implies that he has read the notice and conditions of contract and has made himself aware of the scope and specifications and other factors bearing on the bid and that they are binding on him.

2.4 The bidders may please note that the EMPLOYER will not entertain any correspondence or query on the status of the offers received against this Bid. Bidders are also requested not to depute any of their personnel or agents to visit the Employer's offices for making such enquiries till finalization of the bid. Should the EMPLOYER find it necessary to seek any clarification, technical or otherwise the concerned bidder will be duly contacted by the EMPLOYER.

2.5 Canvassing in any form by the bidder or by any other agency acting on behalf of the bidder after submission of the bid may disqualify the said bidder. The Employer's decision in this regard shall be final and binding on the bidder.

2.6 EMPLOYER will not be liable for any financial obligation in connection with the work until such time the EMPLOYER has communicated to the successful bidder in writing his decision to entrust the Work (covered by the bid document issued to him).

2.7 Telex/E-mail offers will not be considered. Bidders should prepare their bid themselves. Bids submitted by agents will not be recognized.

2.8 In case of an unscheduled holiday on the prescribed closing/opening day of the bid, the next working day will be treated as the scheduled prescribed day of closing/opening of the bid.

2.9 While evaluating the document, regard would be paid to National security considerations, at the discretion of the Cochin Port Authority. Bid received from any bidder may be summarily rejected on National security consideration without any intimation thereof to the bidder.

2.10 If there are varying or conflicting provisions made in any document forming part of the contract, the Chief Mechanical Engineer, Cochin Port Authority, Cochin – 682009 shall be the deciding authority with regard to the intention of the document which will be binding on the Bidder.

2.11 In case the department desires to inspect the equipments/ machinery for confirmation of its availability and capacity etc., necessary arrangements shall be made by the contractor for such inspection at his own cost.

2.12 Any error in description, any omissions there from shall not vitiate the contract or release the contractors from the execution of whole or any part of the works comprised therein according to drawing and specifications or from any of his obligations under the contract

2.13 All the Bank Guarantees (BGs) to be furnished by the contractors in connection with the tender shall be sent to the Chief Mechanical Engineer, Cochin Port Authority directly by the issuing bank under registered post with AD. The contractor shall take the responsibility of sending BGs directly to the Port by the issuing bank.

2.14 The contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, 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.

2.15 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. Work Order shall be issued only to the contractors who are registered under EPF organization and ESI Corporation. The contractors shall regularly remit the employer and employee contribution to the authorities. If not, the Department would remit the same and the amount so remitted shall be deducted from the part/final bill of contractors.

2.16 The contractor shall be registered under GST and shall furnish documentary evidence in support of valid GST registration.

3. Invitation for Bids:

The Invitation for Bids is open to all eligible bidders meeting the eligibility criteria.

4. Purchase of Tender Documents:

The complete Tender Documents 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 shall download the Tender Documents from these portals as per the provisions available therein. Tenders attaching all required documents shall be submitted through GeM portal strictly in accordance with the instructions to bidders (ITB), terms and conditions of the tender document, before the tender submission time mentioned in the tender.

5. One Bid per Bidder:

Each bidder shall submit only one bid. A bidder who submits or participates in more than one Bid will cause all the proposals with the Bidder's participation to be disqualified.

6. The Bidder

The Bidder shall be a single entity / Consortium.

7. Cost of Bidding:

The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

8. Site visit:

The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the work site and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for execution of the Works. The costs of visiting the site shall be at the Bidders' own expense.

9. Clarification of the Bidding Documents:

9.1 The Tenderers are advised to examine the Tender Document carefully and if there be or appear to be any ambiguity or discrepancy in the documents, or any clarifications needed on the Tender Documents; these shall be referred to the Chief Mechanical Engineer in writing at the following address, so as to reach them at one day before the date fixed for the pre-bid meeting. It is to be noted that no queries, clarifications will be answered after the pre-bid conference.

THE CHIEF MECHANICAL ENGINEER,
CHIEF MECHANICAL ENGINEER'S OFFICE,
COCHIN PORT AUTHORITY, WILLINGDON ISLAND,
KOCHI-9, KERALA, INDIA.
Ph:- 91-0484-26666394/2582300. Fax:-91-0484-2666639.
Email: cme@cochinport.gov.in

9.2 Pre-Bid Meeting:

A pre-bid conference will be held in the CME's office of Cochin Port Authority, to answer clarifications, if any, on the bid document. The Pre-Bid meeting will be held on the date notified in the Notice Inviting Tender, through Video Conference and the link will be shared to the bidders on their request. A prospective tenderer requiring any clarification of the tender shall submit their queries to the Chief Mechanical Engineer in writing/e-mail well in advance before the pre-bid meeting. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be published in e-tender portal as well as in Cochin Port Authority official website as Addendum/corrigendum. Any modification of the bid documents as a result of the pre-bid meeting shall be made exclusively through the issue of an Addendum/ corrigendum.

10. Amendment of Bidding Documents:

The Chief Mechanical Engineer, Cochin Port Authority shall have the right to omit or suspend certain items of work or revise or amend the Bid documents prior to the due date of submission of the Bid by issuance of addendum/corrigendum. Any addendum /corrigendum thus issued shall be part of the tender documents. The addendum/corrigendum, if any, shall only be hosted in the e-tender portal as well as in the website of the Cochin Port. It is the responsibility of the Bidders to download such addendum/ corrigendum hosted in the website and to submit the same duly signed along with the Bid. In order to afford the Bidders with reasonable time to take addendum into account, or for any other reason, the Port may, at its discretion, extend the due date for submission of Bid and bid extension notice shall be hosted in the website.

11. Preparation of bids:

All documents relating to the bid shall be in the English language.

12. Minimum Eligibility Criteria

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

(1) <u>Experience</u>

The tenderer should have executed similar HT Electrical Works of value as detailed below during the last 7 (seven) years ending on 28/02/2023.

a) One contract work costing not less than **Rs.14.44 Crore OR**

b) Two contract works, each costing not less than **Rs.9.03 Crore OR**

c) Three contract works, each costing not less than **Rs.7.22 Crore**

i) "Similar work" means "Design, supply, installation, testing and commissioning of any HT works of 6MVA and above".

ii) The experience may be furnished in the Proforma in 'Annexure-4' of the tender document. Please submit copy of Purchase Order/ Work order and Completion Certificate with work order number and value of the contract, issued by the Client/ Owners showing satisfactory performance/ completion of the work, as proof of having satisfactorily carried out those previous experiences mentioned in 'Annexure-4'. The previous experience carried out by the tenderer as subcontract to the main contractor will also be accepted.

iii) Experience certificates of works executed in private sectors/ organizations shall be considered for qualification, only on submission of Form 26AS from TRACES Site C along with work order and completion certificate.

Note: In the case of the contractor who do not have experience in executing the same or similar work of on shore power supply, may have a tie up with the technology partner capable of erecting

/installing the onshore power supply/retrofitting arrangements on board the ship for availing shorepower.

(2) Financial Turnover

The Bidder should satisfy the following financial requirement as per their latest audited Financial Statements/ Balance Sheets:

Average annual financial turnover should be at least **Rs.5.42 Crore** during the last three (3) years, ending 31st March 2022[2019-'20, 2020-'21, 2021-22]. This may be furnished in the Proforma in 'Annexure-5' of the tender document.

As proof of this, a statement duly certified by the Chartered Accountant showing the average annual Financial Turnover over the last three financial years and audited financial statements for the last three years ending 2021-22 shall be submitted.

(3) License

The bidder should possess valid 'A Class' Electrical Contractor's License issued by any State/ Central licensing authority and Copy of the valid License shall be furnished. OR the bidder should carry out the electrical works through a licensed A Class contractor, an undertaking to this effect shall be submitted in a stamp paper of Rs. 200/- while submitting the bid.

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 [2021]	1.07
Two years [2020]	1.14
Three years [2019]	1.21
Four years [2018]	1.28
Five years [2017]	1.35
Six years [2016]	1.42
Seven years [2015]	1.49

Note 2: Satisfactory Client / Owners' certificate or documentary proof shall be submitted in support of the assignments/ works performed and claimed by the tenderer to fulfill the eligibility criteria for qualification.

Note 3: In the case of ongoing Multiyear Contract, the experience of completed years will be considered proportionately, subject to the submission of completion certificate from the client certifying that the bidder has completed the part of the contract satisfactorily. No partial completion for a period of less than one year will be considered.

Note 4:- In case of bid submitted by JV/ Consortium, the Minimum Eligibility Criteria EXCEPT Financial Turnover can be fulfilled collectively by the Partners of the JV/ Consortium.

Note 5:- In the case of bid submitted by JV/ Consortium, the lead partner of the JV shall meet the Minimum Eligibility Criteria of Financial Turnover.

12.2 Eventhough the tenderers meet the above qualifying criteria, they are subjected to be disqualified if they have:

(i) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/ or

(ii) Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.

13. Bid Prices:

a. The Contract shall be for the whole Works, as described in sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.

b. The Tenderer shall fill in rates and prices for all Items of the Works described in the Bill of Quantities including the preliminary items as per the design. The Bill of Quantities enclosed in the tender document is only nominal. In the bid the Contractor shall design and submit a completed and/or updated version of this Bill of Quantities, showing the numbers and quantities that are included in his scope of work and delivery.

c. The rate quoted by the Tenderer shall be inclusive of the cost of provision of plant and equipment, materials, labour, execution, supervision, maintenance, overheads and profits and every incidental and contingent cost and charges whatsoever **excluding Goods and Service Tax (GST).** GST as may be applicable from time to time shall be shown separately in the invoice.

d. All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates, prices and total Tender price submitted by the Bidder.

e. The Bidder should ensure that his tendered Price is not mentioned anywhere in any other documents in Technical bid submission, directly or indirectly. If any such mention is made, the tender will become invalid and shall become liable for rejection.

14. Currencies of Bid and Payment:

The unit rates and the prices shall be quoted by the bidder entirely in Indian National Rupees (INR).

15. Bid Validity:

a. Bids shall remain valid for a period not less than **180days** (One hundred and eighty) after the deadline date for bid submission. A bid valid for a shorter period shall be rejected by the Employer as non-responsive. Should any tenderer withdraw his tender before these periods, or make any modification in the terms and conditions of the tender which are not acceptable to the department, the earnest money deposited by the tenderer shall be forfeited.

b. In exceptional circumstances, prior to the expiration of the Tender validity period, the Employer may request Tenderers to extend the period of validity of their Tenders. The request and the Tenderer's responses shall be made in writing. The Tender Security shall also be extended accordingly beyond the deadline of the extended Tender validity period. A Tenderer may refuse the request without forfeiting its Tender Security and, subsequently, his Tender will be considered as a "WITHDRAWAL". A Tenderer accepting the request shall not be required or permitted to modify its Tender.

16. Bid Security /EMD:

a. Each tender should be accompanied by an Earnest Money amounting to **Rs.18,05,500**/- (Rupees Eighteen lakh five thousand five hundred only). The EMD shall be furnished in the form of Account Payee Demand Draft, Banker's Cheque, or payment online to the designated bank account of CoPA in an acceptable form safeguarding the purchaser's interest in all respects). No BG will be accepted for EMD. The Earnest Money deposit will not carry any interest. Any bid not accompanied by an acceptable Bid Security shall be treated as Non- responsive and shall be rejected by the Employer. In the case of JV, Bid Security as required can be furnished by any partner but it shall be in the name of Joint venture.

b. Exemption from the payment of EMD shall be given to Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization or

the concerned Ministry or Department as provided in GFR 2017. In this regard the firm should submit valid certificate. The acceptance of price bid/ commercial bid shall be subjected to acceptance of bid security or submission of relevant certificate (NSIC/ MSME/ UAM certificates) for exemption of EMD.

c. Forfeiture of Bid security /EMD

Bid Security/EMD will be forfeited in the following cases:

(a) If a Bidder withdraws his bid during the period of bid validity.

(b) The Bidder does not accept the correction of the Bid Price pursuant to any arithmetical errors.

(c) In case of a successful bidder fails

(i) to commence the work, within the specified time limit

(ii) to sign the Agreement or furnish the required Performance Security within the specified time limit

17. No Alternative Proposals by Bidders:

(i) Bidders shall submit offers that comply with the requirements of the bidding documents.

(ii) Tenderers wishing to offer technical alternatives to the requirements of the Tendering documents must also submit a Tender that complies with the requirements of the Tendering documents, including the basic technical design as indicated in the specifications. In addition to submitting the basic Tender, the Tenderer shall provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including technical specifications, breakdown of prices, and other relevant details. Only the technical alternatives, if any, of the winning evaluated tenderer conforming to the basic technical requirements shall be considered by the Procuring Entity. Acceptance of the alternatives shall be as per the discretion of CoPA.

18. Bid Submission:

Bid shall be submitted in prescribed form in two parts: Technical Bid and Financial Bid.

19. Information Required In The Bid

19.1 Part I -Technical Bid shall contain the following:

(The Bidder shall complete the following documents as per formats, without any alterations to the text given in this Tender, failing which his offer shall be summarily rejected)

a) Bid security/EMD or relevant NSIC/ MSME/ UAM certificate for exemption of EMD.

b) Financial documents in support of MQC– A statement showing Average Annual Financial turnover of the tenderer over the last three (3) financial years [2019-'20, 2020-'21 & 2021-'22] (vide **Annexure-5**) supported by Audited Financial statements (balance sheets/profit & loss account) for the last three years duly certified by Chartered Accountant.

c) Integrity Pact, duly signed (vide **Annexure-11)**

d) Check list as per **Schedule I**

e) Letter of Submission (vide**Annexure-1**)

f) Power of Attorney (in original) in favour of signatory/s to the Tender, duly authenticated by Notary Public. (vide**Annexure-2**). Companies/Contractors may jointly undertake Contract/Contracts. Each entity shall be jointly and severally responsible for completing the task as per the Contract; however, one of the partners shall be nominated as the Lead Partner by all the constituent firms. The JV partners should have 26% equity and above**.** Power of Attorney for Lead Member of Joint Venture / Consortium, if applicable.

g) Organization Details (vide**Annexure-3**)

h) Details of experience as per the format at Annexure-4 and Certificates in proof of experience in similar works as detailed under Clause 12 of Instruction to bidders.

Explanatory notes:

(1) Original or notary certified copy of completion certificates with number and date, for each work issued by the owner/ the responsible officers of the owner under whom he has executed such contracts and the work order shall be submitted. The completion certificate shall invariably contain the following among other things.

a) Work order no. and date and details specifying the nature of work involved

b) The completion cost of the work and

c) Date of commencement ;and

d) Date of completion of the work.

(2) In case a particular project / contract has been jointly executed by the Bidder (as part of a Consortium), it should further support its claim for the share in work done for that particular project / contract by producing a certificate from its Statutory Auditor or the Client. Also, notary attested copy of joint venture agreement in this respect shall be attached.

(3) **Scanned copy of original Form 26AS as per he TRACES site C should be furnished if the Work Completion Certificate from any Private Organization is submitted towards fulfillment of qualifying criteria.**

(4) The works indicated in **Annexure-4** will only be considered for evaluation. Mere submission of work completion certificate will not be considered as Eligible Assignments.

i) Bid document including all addendum/corrigendum.

j) Partnership deed or Memorandum and Articles of Association of the company and Registration certificate of the company as the case may be. JV/Consortium Agreement as per Annexure, if applicable.

k) Copies of PAN, GST, EPF and ESI registration

l) "A" grade Electrical Contractor's license or undertaking

m) A detailed method statement (Technical Note) for carrying out of the works, along with implementation schedule showing sequence of operation and the time frame for various segments of temporary and permanent works.(vide **Annexure-6**). The information provided will form part of the work methodology and the same shall be in line with the Specifications and Bill of quantities.

n) A list of Plant and equipment proposed to be engaged for work. (vide **Annexure-7**) The equipment indicated in the **Annexure -7** will form part of contract agreement and as such the bidders are requested to indicate the availability of the equipment at site at what stage of the construction period the equipment would made available.

o) A declaration to the effect that (vide **Annexure-8**):-

1) All details regarding construction plant and machinery, temporary work and personnel for site organization considered necessary and sufficient for the work have been furnished in the **Annexure 7** and that such plant, temporary works and personnel for site organization will be available at appropriate time of relevant works for which the equipment have been proposed at site till the completion of the respective work.

2) No conditions are incorporated in the financial bid. In case any conditions are specified in the financial bid, the tender will be rejected summarily without making any further reference to the bidder.

3) We have not made any payment or illegal gratification to any persons/ authority connected with the bid process so as to influence the bid process and have not committed any offence under PC Act in connection with the bid.

4) We disclose with that we have made / not made payments or propose to be made to any intermediaries (agents) etc in connection with the bid.
5) We do hereby confirm that no changes have been made in the tender document downloaded and submitted by us for the above bid. Port Tender document will be treated as authentic tender and if any discrepancy is noticed at any stage between the Port's tender document and the one submitted by the tenderer, the Port's document shall prevail.

p) Bank information for e- Payment system as per**Annexure-10.**

q) Copy of Professional Indemnity Insurance Policy (PI) for minimum amount equal to the estimated project cost. The policy shall be effective till the completion of 1 ½ years (18 months) after issue of Taking Over Certificate by the Employer.

r) Information regarding Financial Situation and Current Contract Commitments supported bya certificate from its Statutory Auditor

s) The proposed methodology and program of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion

t) List of major items of construction equipments proposed to carry out the Contract

u) Personnel / Staff proposed for the Project

v) Proposed Site Organization

w) Historical Contract Non-Performance Pending Litigation and Litigation History

x) Proforma Letter of Authority

y) Details of Tenderer for refund of EMD through E-Payment, if applicable

19.2 Part II :"**Price Bid**" - Tenderers shall submit the BoQ / Price Bid in GeM portal. Evaluation of the price bid will be based on the combined cost of the Project and cost for Operation and AMC of the entire system for 5 years after the 2-year guarantee period.

19.2.1 Tenderers shall quote for the whole of the Works/Project on a single responsibility basis such that the total Tender Price covers all the Contractor's obligations mentioned in the Tender Documents in respect of the design, manufacture, including procurement and subcontracting (if any), transportation, packing, forwarding, delivery, construction, installation and completion of the Works/Project. This includes all requirements under the Contractor's Responsibilities for design, design vetting by third party agencies (i.e. IIT/any other national/International) of repute, testing, test on completion, pre-commissioning, commissioning, test after completion, submission of warranty & guarantee certificates and defects rectification and, where so required by the Tender Documents, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as may be specified in the Tender Documents, all in accordance with the requirements of the Conditions of Contract.

19.2.2 The Bidder shall fill in the rates and prices for all items of the works in the completed/ updated version of Bill of Quantities (BOQ) as per his design. Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for all other items in the Bill of Quantities and will not be paid separately by the Employer. The Bill of Quantities enclosed in the tender document is only nominal. The bidder shall submit the detailed BoQ if requested by CoPA.

19.2.3 Tenderers shall provide price in the manner and detail called for Bid (Financial Proposal). The prices shall only be mentioned in the BOQ uploaded **in e-Tender portal** (in the GeM portal) and the quoted price shall be inclusive of all taxes and duties excluding GST).

20. Deadline for Submission of the Bids:

a. Tenders attaching all documents shall be submitted through GeM portal strictly in accordance with the instructions to the tenderers, terms and conditions of tender document before **the time and the day notified** in NIT.

b. A Tenderer may modify or substitute or withdraw its Tender after it has been submitted, provided that modification, including substitution or withdrawal of the Tender, is materialized prior to the deadline prescribed for submission of Tenders notified in the NIT.

c. No Tender may be withdrawn, replaced or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity. Withdrawal of a Tender between the deadline for submission of Tenders and the expiration of the period of Tender validity specified in the **Tender** shall result in the forfeiture of Bid Security/EMD, pursuant to the ITT sub-Clause:16.3.

d. Tenderers may only offer discounts to, or otherwise modify the prices of their Tenders by submitting Tender modifications in accordance with this Clause, or included in the original Tender submission.

21. Bid Opening

The Officer inviting the tender or his duly authorized assistant will open the tenders in the presence of intending tenderers who may be present at the time in person or through their authorized representative. In the case of the tenders invited under Two Cover System, the technical bids of the tenders received will be opened first.

Technical Bid: Technical Bid shall be opened in the office of the **Chief Mechanical Engineer, Cochin Port Authority** at the time specified on the last date fixed for receiving the Tenders. Submission of EMD or NSIC/ MSME/ UAM certificate is verified initially. In case the earnest money / NSIC/ MSME/ UAM certificate is not furnished or is not in order, the Bid will not be opened further.

If all Bidders have submitted unconditional Bids together with requisite Bid security, then all Bidders will be so informed then and there. If any Bid contains any deviation from the Bids documents and /or if the same does not contain Bid security in the manner prescribed in the Bid documents, then that Bid will be rejected and the Bidder will be informed accordingly. The Price Bid submitted in e- mode will not be opened.

In the event of a tender being rejected, the earnest money paid with such unaccepted tender shall be refunded to the tenderer.

22. Bid Opening – Price Bid:

Price Bid of those tenderers found responsive in the evaluation of Technical bid, will be opened later. Short listed bidders will be communicated about the date and time of opening of the price bid. The Bidder's name, the Bid prices, the total amount of each Bid, any discounts, Bid modifications and withdrawals, and such other details as the Employer may consider appropriate, will be announced by the Employer at the time of opening.

23. Clarification of Bids:

To assist in the examination and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdown of unit rates. The request for clarification and the response shall be in writing, but no change in the price or substance of the Bid shall be sought, offered, or permitted.

No Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, he should do so in writing.

Any effort by the Bidder to influence the Employer's bid evaluation, bid comparison or contract award decisions, may result in the rejection of his bid.

24. Examination of Bids and Determination of Responsiveness:

Prior to detailed evaluation of Bids, Cochin Port Authority will determine whether reach Bid

(a) Meets the minimum eligibility criteria defined in Clause12.

(b) Has been properly signed by an authorized signatory (accredited representative) holding Power of Attorney in his favour. The Power of Attorney shall interalia include a provision to bind the Bidder to settlement of disputes clause;

(c) Is accompanied by the required Bid security and;

(d) Is responsive to the requirements of the Bidding documents.

(e) A responsive Bid is one which conforms to all the terms, conditions and specification of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one which affects in any substantial way the scope, quality or performance of the Works;

(f) which limits in any substantial way, the Employer's rights or the Bidder's obligations under the Contractor

(g) Whose rectification would affect unfairly the competitive position of other Bidders presenting responsive Bids.

(h) Undertakes in the Technical Bid that he has not incorporated any conditions in the Financial Bid.

If a Bid is not substantially responsive, it shall be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non- conforming deviation or reservation.

25. Correction of Errors:

Bids determined to be responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

(a) Where there is a discrepancy between the quoted price in figures and in words, the percentage in words will govern;

(b) The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the bidder. If the Bidder does not accept the corrected amount, the Bid shall be rejected and the Bid security shall be forfeited in accordance with Clause16.2.

26. Evaluation and Comparison of Bids:

The Employer will evaluate and compare only the Bids determined to be responsive in accordance with Clause 24. In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:

(a) Making any correction for errors pursuant to Clause2;

(b) Making appropriate adjustments to reflect discounts or other price modifications offered.

Evaluation of the price bid will be based on the combined cost of the Project and cost for Operation and AMC of the entire system for 5 years after the 2-year guarantee period.

27. Alteration of tender documents:

No alteration shall be made in any of the tender documents or in the Bill of Quantities and the tender shall comply strictly with the terms and conditions of the tender document. The Employer may however ask any tenderer for clarifications of his tender if required. Nevertheless, no tenderer will be permitted to alter his tender price after opening of the tender.

28. Alternative conditions and Proposal:

The Tenderer shall note that alternative or qualifying tender conditions, or alternative design

proposal for whole or part of the work will not be acceptable. Tenders containing any qualifying conditions or even Tenderer's clarifications in any form will be treated as non-responsive and will run the risk of rejection. Price Bid of such Tenderer's will not be opened.

29. Award of Contract:

The Employer will award the Contract to the bidder whose bid has been determined to be responsive to the bidding documents and who has offered the lowest evaluated bid price, provided that such bidder has been determined to be

(a) Eligible in accordance with the provisions of Clause 12,and

(b) Qualified in accordance with the provisions of Clause12.

Letter of Award ("LoA)

Prior to expiry of the validity or extended validity period of the Tender, the Employer will notify the Successful Bidder through e-mail confirmed by registered letter that its Tender has been accepted. This Letter (hereinafter and in the Contract Conditions referred to as the "Letter of Award" (of the Tender) or "LoA") shall specify the sum which the Employer will pay the Contractor (hereinafter and in the Contract Conditions referred to as the "Contract Price") in consideration of the execution and completion of the Works for the Project and the remedying of any defects therein by the Contractor in terms of the Contract.

30. Release of Bid Security /EMD:

The Bid Security/EMD of unsuccessful bidder other than L1 and L2 will be refunded immediately after ranking of the Bids. The bid security of L2 bidder shall be refunded immediately after entering into agreement with L1 bidder and acceptance of the Performance Security. The Bid Security of the successful bidder will be discharged after he has signed the Agreement and furnished the required Performance Security

31. Performance Security (Security Deposit):

Within not later than 21 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security/ Security deposit *for an amount equivalent to 3% of the Award Price/ Contract Price for the entire project including operation and AMC for 5 years after 2-year guarantee period till 31/03/2023 and 10% thereafter*, rounded off to the nearest Rs. 1,000/-, furnished in the form of Account Payee Demand Draft, Banker's cheque, Bank Guarantee from a Nationalized bank/ Indian Scheduled Commercial bank *[in favour of FA&CAO, Cochin Port Authority, payable at Cochin]* or online payment to the designated bank account of CoPA in an acceptable form safeguarding the Purchaser's interests in all respects.

If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued by a Nationalized bank/ Indian Scheduled Commercial bank having its branch at Cochin acceptable by **Cochin Port Authority.** The BG shall be issued in favor of **Cochin Port Authority** in the Format enclosed in **Annexure-A of GCC.**

In the event of the tenderer, after the issue of the communication of acceptance of offer by the Board, failing /refusing to execute the agreement as hereinafter provided, the tenderer shall be deemed to have abandoned the contract and such an act shall amount to and be construed as the contractor's calculated and the willful breach of the contract, the cost and consequence of which shall be to the sole account of the tenderer and upon such an event the Board shall have full right to claim damages therefore either together with or in addition to the forfeiture of Earnest Money Deposit.

32. Signing of Agreement

The successful tenderer will be required to execute an Agreement at his expense within 28 (twenty eight) days from the date of work order, on proper value Kerala State Stamp Paper in the prescribed form**.** The agreement as finally executed will include the Employer's Bid

Documents and the Bidder's offer as finally accepted by the EMPLOYER together with addendum/corrigendum, bid clarification and all correspondences exchanged between EMPLOYER and the bidder, if any. Till the formal agreement is executed, the Letter of Acceptance together with the offer as finally accepted along with correspondences shall form a binding contract between the two parties.

33. Fraud and Corrupt Practices:

The bidder and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Selection Process. Notwithstanding anything to the contrary contained in this document, the Port shall reject the tender without being liable in any manner whatsoever to the bidder, if it determines that the bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. In such an event, the Port shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre- estimated compensation and damages payable to the Port for, inter alia, time, cost and effort of the Authority, in regard to the Tender, including consideration and evaluation of such Bidder's Proposal. Such Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder is found by the Authority to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case maybe.

33.1 For the purposes of this Clause, the following terms shall have the meaning hereinafter respectively assigned to them:

33.1.1 "corrupt practice" means

(i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly with the Selection Process or the LOA or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Selection Processor

(ii) engaging in any manner whatsoever, whether during the Selection Process or after the issue of the LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or technical consultant/ adviser of the Authority in relation to any matter concerning the Project;

33.1.2 "fraudulent practice" means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the Selection Process;

33.1.3 "coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person's participation or action in the Selection Process;

33.1.4 "undesirable practice" means

(i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or

(ii) having a Conflict of Interest and "restrictive practice" means forming a cartel or arriving

at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Selection Process.

34. **Rejection of Tender**:

Any Tender not conforming to the foregoing instructions will not be considered. The Employer does not bind himself to accept the lowest or any tender and has the right to reject any tender without assigning any reason thereof. No representation whatsoever will be entertained on this account.

35. Conditions for bid submission by JV

a. Lead Member of the Consortium / Joint Venture :

Lead Member shall mean the Member which fulfills the Financial Eligibility Criteria and submits the Bids and so designated by other Member(s) of the Bidding Consortium Agreement executed by all the Members of the Consortium.

Or

a. Lead Member shall mean the Member which fulfills the Financial Eligibility Criteria and commits at least 51% equity stake in the project company and so designated by other Member(s) of the Bidding Consortium Agreement executed by all the Members of the Consortium.

Or

a. Lead Member shall mean the member which fulfills the Financial Eligibility Criteria and commits at least 26% equity stake in the project company and so designated by other Member(s) of the Bidding Consortium Agreement executed by all the Members of the Consortium.

b. Bid submitted by an unincorporated Joint Venture of companies (JV) /Consortium of companies (Consortium), shall comply with the following requirements:

i. There shall be a Joint Venture Agreement between the constituent firms specific for the contract package for which the bids are submitted. The JV Agreement shall include among other things, the joint venture's objectives, the proposed management structures, the proposed distribution of responsibilities both financial as well as technical for execution of the work, the contribution of each partner to joint venture operation, the commitment of all partners to jointly and severally liable for due performance, recourse/ sanctions within the joint venture in the event of default or withdrawal of any partner and arrangements for providing the required indemnities.

ii. The bid and in the case of the successful bidder, the Agreement, shall be signed and / or executed in such a manner for making it legally binding on all partners (including operative parts of the ensuing Contract in respect of Agreement of Arbitration, etc.). The Contract shall be signed by legally authorized signatories of all partners.

iii. The Lead Partner shall be authorized to incur liabilities and to receive instructions for and on behalf of the partners of the Joint venture and entire execution of the Contract including payment shall be carried out exclusively through the Lead Partner. A Statement to this effect should be included in the Joint Venture / Consortium Agreement.

iv. All partners of the Joint Venture / Consortium shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a Statement to this effect should be included in the Joint Venture Agreement.

v. Bid Security as required can be furnished by any partner but it shall be in the name of Joint venture.

vi. Performance Guarantee, as required, will be furnished by all partner(s), out of their accounts, in proportion of their participation in joint venture.

vii. Joint Venture Agreement shall contain a clause to the effect that there shall be a separate JV Bank Account (distinct from the Bank Account of the individual partners) to which the individual partners shall contribute their share capital and/or working capital.

viii. Joint Venture Agreement shall also contain a clause to the effect that the financial obligation of the JV shall be discharged through the said JV Bank Account only and also all payment received by JV from the Employer shall be through that account only.

ix. Participation by a firm in more than one JV /Consortium is not permissible. A firm who submits bid on individual capacity is not eligible to be a partner of a JV /Consortium. In case a firm's name appears in more than one bid then both application may be rejected.

x. Each partner shall submit the complete documentation, or portions applicable thereto, required qualifying the firm forbidding.

xi. All the partners of the JV/Consortium shall be jointly and severally liable for due performance, recourse/sanctions within the joint venture in the event of default of any partner and arrangements for providing the required indemnities.

xii. Notwithstanding demarcation or allotment of work among the partners, each partner shall be liable for non-performance of the whole contract irrespective of their demarcation or share of work.

xiii. The Lead Partner shall be authorized to act on behalf of the JV/Consortium.

xiv. All the correspondences between the Employer and the contractor shall be routed through the Lead Partner.

xv. In the event of default by the Lead Partner, it shall be construed as default of the Contractor; and Employer will take action under relevant clause(s) of the Bid Document and/or General Terms and Conditions of Contract.

xvi. A legally binding Joint Venture/Consortium Agreement signed by authorized signatories of all the partners of the JV/Consortium, as per the Proforma at **Annexure-13** shall be enclosed with the bid.

xvii. Incase, the JointVenture/ConsortiumAgreementenclosedwiththebidisnotacceptable to the Employer, the JV /Consortium will modify the agreement so as to be acceptable to the Employer.

xviii. Power of attorney duly executed and signed by legally authorized signatories of all the partners, authorizing the Lead Partner (a) to submit bid, negotiate and conclude contract and incur all liabilities therewith on behalf of the partner(s) of the JV /Consortium during the bidding process; and (b) in the event of a successful bid, to incur liabilities and receive instructions for and on behalf of the partner(s) of the JV /Consortium and to carry out the entire execution of the contract including payment, exclusively through Lead Partner, as per the Proforma at **Annexure-14**, which shall be duly authenticated by a notary public or equivalent certifying authority, shall be enclosed with the bid.

xix. Incase, the JointVenture/ConsortiumAgreementenclosedwiththebidisnotacceptable to the Employer, the JV /Consortium will modify the agreement so as to be acceptable to the Employer.

xx. Power of attorney duly executed and signed by legally authorized signatories of all the partners, authorizing the Lead Partner (a) to submit bid, negotiate and conclude contract and incur all liabilities therewith on behalf of the partner(s) of the JV /Consortium during the bidding process; and (b) in the event of a successful bid, to incur liabilities and receive instructions for and on behalf of the partner(s) of the JV /Consortium and to carry out the entire execution of the contract including payment, exclusively through Lead Partner, as per the Proforma at **Annexure-14**, which shall be duly authenticated by a notary public or equivalent certifying authority, shall be enclosed with the bid.

xxi. An undertaking that all the partners are jointly and severally liable to the Employer for the performance of the contract shall been closed with the bid.

xxii. In the event of any partner leaving the JV, it shall be intimated to the Employer within 30 days by other partner(s). Failure to do so shall be construed as default of the contractor and the Employer may take action under relevant clause(s) of the Bid Document and/or General Terms and Conditions of Contract

xxiii. The contractor shall not alter its composition or legal status without the prior written permission of the Employer. Failure to do so shall be construed as default of the contractor and the Employer may take action under relevant clause(s) of the Bid Document and/or General Terms and Conditions of Contract.

xxiv. One of the partners of JV/Consortium should have downloaded the bid documents.

xxv. Number of partners in JV/Consortium shall be limited to maximum of three.

SIGNATURE OF BIDDER

SECTION I

3. FORM OFBID

To

The Board of Trustees,
Cochin Port Authority
Through
The Chief Mechanical Engineer
Cochin Port Authority, Cochin -9

Tender for the work of "**Provision of High Voltage Shore power Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"**

I/We have read and examined the Notice inviting tenders, Instructions to tenderers, Form of Agreement, Contract Data, General Conditions of Contract, General description of work, Special conditions of Contract, Technical Specifications, Drawings, Preamble, Bill of Quantities, & other documents and rules referred to in the General Conditions of Contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified in the under written memorandum within the time specified in such memorandum at the rates specified in the schedule attached hereto and in accordance in all respects with the specifications designs, drawings and instructions in writing referred to in clause 16 of the General Conditions of Contract and with such materials as are provided for, by and in all other respects in accordance with such conditions so far as applicable.

M E M O R A N D U M

a)	General description of work	**:**	**Provision of High Voltage Shore power Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority" on Engineering, Procurement and Construction (EPC) contract basis**
b)	Estimated cost	**:**	**Rs.18,05,50,000/-** (Rupees Eighteen crore five lakh fifty thousand only) excluding GST
c)	Earnest Money	**:**	**Rs.18,05,500/-(Rupees Eighteen lakh five thousand five hundred only**)
d)	Security Deposit	**:**	**3**% of the value of the contract awarded or the value of the work done whichever is higher upto 31/03/2023 and 10% thereafter.

e)	Percentage, if any, to be deducted from the bills	**:**
f)	Time allowed for commencement of work from the date of `receipt of work order	**: 7days**
g)	Time allowed for the work from the date of commencement ofwork.	**: 12** Months from date of issue of LoA**.**
h)	Schedule, specifications, conditions, drawings etc. as per contents sheet attached.	**:** As per "Contents" sheet attached.

I/ We agree to keep the tender open for 180 days from the due date of submission and not to make any modifications in its terms and conditions

Should this tender be accepted, I/We hereby agree to abide by and fulfill all the terms and provisions of the said conditions of contract annexed here to so far as applicable or in default thereof forfeit and pay to the Board the sum of money mentioned in the said conditions and to execute an agreement with the Board in the prescribed form or in default thereof to forfeit the earnest money deposited by me/us.

The sum of Rs..... is hereby forwarded in Port chalan receipt / Bankers cheque or demand Draft of a scheduled bank / Bank Guarantee issued by a Scheduled bank drawn in favour of Financial Adviser and Chief Accounts Officer of the Port Trust as earnest money (a) the full value of which is to be absolutely forfeited to the Board in office without prejudice to any other rights or remedies of the said Board in office should I/We fail to commence the work specified in the Contract data or should I/We not deposit the full amount of Performance Security specified in the above Memorandum in accordance with clause 52 of the said conditions of contract otherwise the said sum of Rs. ..... shall be retained by the Board as on account of such security deposit as aforesaid or (b) the full value of which shall be retained by the Board on account of the security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, upto maximum of the percentage mentioned in General Conditions of Contract and those in excess of that limit at the rates to be determined in accordance with the provision contained in the General Conditions of Contract.

Dated the .....……..... day of …… 2023.

Signature of the Tenderer

Address :

Witness :

Address :

Occupation :

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Board of Trustees for a sum of Rs……
…… (Rupees ……)

The letters referred to below shall form part of this contract Agreement

a) ..
b) ..
c)
d)

Dated……

Chief Mechanical Engineer
Cochin Port Authority

SECTION I

4. FORM OF AGREEMENT

AGREEMENT No. …of 2023

AGREEMENT FOR THE WORK OF "**Provision of High Voltage Shore power Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"**

THIS agreement is made at Cochin on ……. day of ……..Two thousand and Twenty three (….. - ..……-2023) *between* THE BOARD OF MAJOR PORT AUTHORITY FOR COCHIN PORT commonly known as COCHIN PORT AUTHORITY, a Body Corporate under the Major Port Authorities Act, 2021, with its Administrative Office at Willingdon Island, Cochin-682009, having PAN Card No. AAALC1134F, represented by its Chief Mechanical Engineer, Sri. ----------, S/o Sri.----------, aged -- years residing at ---------- (hereinafter referred to as "The Employer" which expression shall include their successors, assignees and administrators in the office) of the one part AND M/s. ……. represented by Sri/Smt.. ---------- aged ----------years, son/daughter of Sri. ---------- residing at ---------- (House name and No.) ---------- District ---------- State ---------- (hereinafter referred to as "The Contractor" which expression shall include their successors, assignees and administrators) of the other part.

WHEREAS the Employer invited tenders for …… vide Tender Notice ……. Date…… and the Contractor submitted a tender for the same giving rates subject to the terms and conditions etc. of the tender document.

AND WHEREAS the said tender submitted by the Contractor has been accepted by the Employer vide work order No ……..…… dated ……., issued to the Contractor while accepting theirtender.

NOW THESE PRESENTS WITNESSETH and the parties hereby agree as follows.

1. The tender submitted by the Contractor for execution for the Board, of the work specified in the underwritten memorandum within the time specified in such memorandum at the rates specified in the schedule attached hereto and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Clause 16 of the "General Conditions of Contract" and with such materials as are provided for, by and in all other respects in accordance with such conditions is accepted.
2. It is mutually understood and agreed that, notwithstanding that the works has been sectioned, every part of it shall be deemed to be supplementary to and complementary of every other part and shall be read with it or in to it.
3. The Contractor agreed to abide by and fulfill all the terms and provisions of the said Conditions of Contract or in default thereof forfeit and pay to the Board the sum of money mentioned in the said conditions.
4. The sum of Rs……../- [Rupees……..only) has been deposited by the Contractor with Financial Adviser and Chief Accounts Officer of the Port Trust as Performance Security (a) the full value of which is to be absolutely forfeited to the

Board in office without prejudice to any other rights or remedies of the said Board in office should the Contractor fail to commence the work specified in under written memorandum or should the Contractor not deposit the full amount of security deposit specified in under written memorandum otherwise the said sum of Rs……../- shall be retained by the Board as on account of such security deposit as aforesaid or (b) the full value of which shall be retained by the Board on account of the security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, upto maximum of the percentage mentioned in Clause 40.1 of the Conditions of Contract and those in excess of that limit at the rates to be determined in accordance with the provisions contained in Clause 40.3 of the Conditions of Contract.

5. It is mutually agreed that the tender submitted in its entirety shall form part of this agreement. Apart from the tender the following shall also form part of the agreement

   a) The Letter of Acceptance;
   b) Bill of Quantities and
   c) Letters exchanged between the Employer and the Tenderer upto the issue of Letter of Acceptance as separately listed and annexed hereto.
   d) Replies to Pre bid queries and amendments issued, if any.

M E M O R A N D U M

a)	General description of work	**:**	**Provision of High Voltage Shore power Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority" on Engineering, Procurement and Construction (EPC) contract basis**
b)	Estimated cost	**:**	**Rs.18,05,50,000/-** (Rupees Eighteen crore five lakh fifty thousand only) excluding GST
c)	Tendered cost	**:**	Same as above
d)	Earnest Money	**:**	**Rs.18,05,500/-** (**Rupees Eighteen lakh five thousand five hundred only**)
a)	Security Deposit	**:**	**3**% of the value of the contract awarded or the value of the work done whichever is higher, upto 31/03/2023 and **10% thereafter**.
b)	Percentage, if any, to be deducted from the bills	**:**	
c)	Time allowed for commencement of work from the date of receipt of LoA	:	7 days

d) Time allowed for the work from the date of commencement of work. **: 12** Months from date of issue of LoA.

e) Schedule, specifications, conditions, **:**drawings etc. as per contents sheet attached.

IN WITNESS WHEREOF THE CONTRACTOR hereunto set his hand and seal on behalf of M/s…… and on behalf of the Board of Trustees of COCHIN PORT AUTHORITY, the CHIEF MECHANICAL ENGINEER has set his hand and seal and common seal of Trustees has been hereunto affixed the day and year first written above.

CONTRACTOR

Signed, sealed and delivered By
Shri…….
Of M/s…… (COMMON
SEAL OF THE FIRM)

Signed and affixed seal in the presence of :

1) Signature with address :

2) Signature with address :

Signed, sealed and delivered by the

CHIEF MECHANICAL ENGINEER
Cochin Port Authority
on behalf of Board of Trustees of Port of Cochin.

EMPLOYER

Signed and affixed the common seal of Board of Trustees of the Port of Cochin In the presence of

1)

2)

SECTION I

5. CONTRACT DATA

[**To be filled up before issuing tender document as applicable for each tender]**

Items marked "N/A" do not apply in this Contract.

<table>
<tr><th>Sl. No.</th><th>Description</th><th>Reference Clause .No. in GCC</th></tr>
<tr><td>1</td><td>The following documents are also part of the Contract</td><td></td></tr>
<tr><td></td><td>The Schedule of other Contractors

(Will be informed in due course)</td><td>(8.2)</td></tr>
<tr><td></td><td>The Schedule of Key personnel</td><td>(9)</td></tr>
<tr><td></td><td>
<table>
<tr><th>Qualification of Staff</th><th>No.</th><th>Min. Experience (Years)</th><th>Rate of recovery in case of non compliance</th></tr>
<tr><td>i) Project Manager (Principal Technical Representative) with Electrical Engg: Degree</td><td>1</td><td>10</td><td>Rs.30,000/- p.m.</td></tr>
<tr><td>ii) Technical Representative with Electrical Engg. degree</td><td>1</td><td>5</td><td>Rs.25,000/- p.m.</td></tr>
<tr><td>iii) Project/ Site Engineer
Graduate Engineer
or
Diploma Engineer</td><td>2</td><td>

2

5</td><td>Rs.15,000/- p.m.</td></tr>
</table>
</td><td></td></tr>
<tr><td>2</td><td>The Employer is</td><td>(1)</td></tr>
<tr><td></td><td>The Board of Major Port Authority for Cochin Port (Cochin Port Authority) , Cochin -9</td><td></td></tr>
<tr><td></td><td>Name of Authorized Representative:</td><td></td></tr>
<tr><td></td><td>Name: Dr.(Smt.) M. Beena, IAS
Chairman,
Cochin Port Authority
Cochin -9</td><td></td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Description</th><th>Reference Clause .No. in GCC</th></tr>
<tr><td>3</td><td>The Engineer is</td><td></td></tr>
<tr><td></td><td>Name: Shri. V. Thuraipandian
Chief Mechanical Engineer
Cochin Port Authority,
Cochin-9</td><td></td></tr>
<tr><td></td><td>Name of Nominee is :Will be notified in LoA/ LoI</td><td></td></tr>
<tr><td></td><td>Name: Shri……..
Cochin Port Authority
Cochin-9</td><td></td></tr>
<tr><td>4</td><td>Name of Contract :-“Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority”on Engineering, Procurement and Construction (EPC) contract basis”</td><td>(1)</td></tr>
<tr><td>5</td><td>6 copies of Contract Agreement shall be furnished by the Contractor</td><td>[7.1]</td></tr>
<tr><td>6</td><td>Tender document and other data are available at :
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</td><td>(7.2)</td></tr>
<tr><td>7</td><td>The Intended Completion Date for the whole of the Work is 12 Months from date of issue of LoA with the following milestones:</td><td></td></tr>
<tr><td>8</td><td>Milestone dates:
<table>
<tr><th>Physical works to be completed</th><th>Period from the date of Issue of LoA</th></tr>
<tr><td>Commissioning of entire installation and handing over the site</td><td>12 months from date of issue of LoI</td></tr>
</table></td><td></td></tr>
<tr><td>9</td><td>The following shall form part of the Contract Document:
(1) Agreement
(2) Letter of Acceptance
(3) Bill of quantities
(4) Contractor’s Bid
(5) Correspondence exchanged after the opening of the Bid</td><td>(2.3)</td></tr>
</table>

Sl. No.	Description	Reference Clause .No. in GCC
	and before the issue of Letter of Acceptance by which the Condition of Contract are amended, varied or modified in any way by mutual consent (to be enumerated). (6) Contract Data (7) Conditions of Contract (8) General Description and Special Conditions of Contract (9) Technical Specifications (10) Drawings and (11) Any other documents listed in the Contract Data as forming part of the Contract.	
10	The Contractor shall submit a Program for the Works within **7 days** of date of the LO A	(27)
11	**The site possession date** The site will be handed over within 7**days** after issue of LoA/ LoI and the site is free from encumbrances.	(21)
12	The start date shallbe**7days f**rom the date of receipt of the Letter of Acceptance (LoA)/ LoI by the Contractor.	(1)
13	The site is located at Willingdon Island.	
14	The Defects Liability Period is Two years **from the date of completion of the work.**	(35)
15	The minimum insurance cover for physical property, injury and death is **Rs.15 lakhs (Rupees Fifteen Lakhs)** per occurrence with the number of occurrences unlimited. After each occurrence, Contractor will pay additional premium necessary to make insurance valid always.	**(13)**
16	The following events shall also be Compensation Events: **(Add the events as applicable to the Contractor)** 1. (Nil)	(44)
17	The period between Programme updates shall be **30** days.	(27)
18	The amount to be withheld for late submission of an updated Programme shall be **Rs.10,000/-.**	(27)
19	The language of the Contract documents is **English.**	(3)
20	The law, which applies to the Contract, is the law of Union of India.	(3)
21	The currency of the Contract is **Indian Rupees.**	(46)
22	The maximum amount of liquidated damages for the whole of the works is **10%** of the contract price.	[20]
23	The amounts of the advance payments : Nil	[51]

Sl. No.	Description			Reference Clause .No. in GCC
24	The advance payments as applicable to the contract are:			
	Nature of advance	**Amount (Rs)**	**Conditions to be fulfilled**	
	1. Mobilization	Nil.	NA.	
	2.Equipment (Plant and Machinery)	Nil	Nil	
25	The date by which "as-built" drawings are required is within 60days of issue of certificate of completion of whole or section of the work, as the case may be.			(58)
26	The amount to be withheld for failing to supply "as built" drawings and/or operating and maintenance manuals by thedaterequired is Rs.10,000/-			(58)
27	Schedule of Rates Applicable : **DSR 2014 + 44.76%**			
28	Base Rate for materials to be considered for price variation : Nil			**(47)**
	(i)			
	(ii)			
	(iii)			
	(iv)			

Annexure-1

LETTER OF SUBMISSION- COVERING LETTER
(ON THE LETTER HEAD OF THE BIDDER)

Date:

To

The Chief Mechanical Engineer,
Cochin Port Authority.

Sir,

Sub: Tenderfor **Provision of High Voltage Shore power Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority" on Engineering, Procurement and Construction (EPC) contract basis**

Being duly authorized to represent and act on behalf of …… (Hereinafter referred to as "the Bidder") and having reviewed and fully understood all of the requirements of the bid document and information provided, the undersigned hereby apply for the project referred above.

We are submitting our Bid enclosing the following, with the details as per the requirements of the Bid Document, for your evaluation.

1. EMD/ NSIC/ MSME/ UAM certificate
2. Power of attorney
3. Integrity Pact

Signature
(Authorised Signatory)

Annexure- 2

PROFORMA OF POWER- OF-ATTORNEY/ LETTER OF AUTHORITY
(To be submitted on Non-judicial Stamp Paper of appropriate value)

To

The Chief Mechanical Engineer,
Cochin Port Authority,
Cochin 682009.
Kerala, India.

Dear Sir,

We_____ do hereby confirm that Mr./Ms./Messrs_____ [**INSERT NAME AND ADDRESS]**, whose signature is given below, is/are authorized to represent us to bid, negotiate and conclude the agreement on our behalf with you against Tender for **Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority" on Engineering, Procurement and Construction (EPC) contract basis (Tender No.).**

We confirm that we shall be bound by all and whatsoever our said agents shall commit.

Signature of the authorized person:

Name & Designation :

Yours faithfully,

Signature, name and seal of the certifying authority

Annexure - 3

ORGANIZATION DETAILS

CONTRACT No.:

NAME OF APPLICANT:

1. Name of the Owner:
2. Address:
   Telephone
   No.:
   e-mail address:
3. Description of Applicant
   (for e.g. A or B grade electrical contractor etc.)

4. Registration and Classification of Contractors

5. Name and address of bankers

6. Number of years of experience as a contractor:-

   In own Country:

   Internationally:

7. Name and Address of partners or associated companies to be involved in the project and whether Parent/ Subsidiary/other

8. Name and address of any associates knowledgeable in the procedures
   of customs, immigration and local experience in various aspect of the project etc..

9. Name and address of the companies/ Sub-contractors who will be involved in the execution of works, namely:

10. Name and address of companies who will be involved in the supply of bought out items

12. Attach organization chart showing the structure of the company including names of Directors/ Key Personnel at Head Office who would be responsible for the project and a separate chart showing proposed Site Construction Organisation.

.

Signature

(Authorized Signatory)

Annexure – 4a

ELIGIBLE ASSIGNMENT DETAILS FOR MQC

Tenderer shall furnish Details of "eligibility works experience" as per Clause 12 of Minimum Eligible Criteria (MEC) of Instruction to Tenderer and certificates in the following format (Certificates/work completion certificates or any other documentary evidences with respect to the eligibility work)

Assignment Number :

Description	Bidder to fill up the details here
Name and Address of the Client	
Title of the Eligible Assignment	
Date of completion of the Eligible Assignment	
Project Completion Cost	
Reference No. of the enclosed Client Completion Certificate/ Documentary Evidence for having successfully completed the Eligible assignment	
Name, telephone no, tele fax no and email address of the client's representative	
Description and Scope of Work	

Instructions:

i) Bidders are expected to provide information in respect of Eligible Assignments in this Section. The assignments cited must comply with the criteria specified Clause No. 12(a) Minimum eligibility of the Instructions to Tenderers".

ii) A separate sheet should be filled for each of the eligible assignments.

iii) The details are to be supplemented by documentary proof from the respective client /owner for having carried out such assignment duly certified by clients/ owner.

iv) The works indicated in this Annexure- 4 will be only being considered for evaluation. Mere submission of work completion certificate will not be considered as Eligible Assignments

v) Original or notary certified copy of completion certificates of each work issued by the owner/ the responsible officers of the owner under whom he has executed such contracts shall be attached. The certificate shall invariably contain the following among other things.

a) Details of work involved specifying the nature of work
b) The completion cost of the work and
c) Date of commencement ;and
d) Date of completion of the work.

vi) If the experience in similar works is as a member of joint venture, notary attested copy of joint venture agreement in this respect shall be attached.

vii) If the experience in similar works is as a subcontractor, notary attested copy(s) of approval issued by the Employer(s) authorizing as a sub-contractor; in proof of the claim of the tenderer as a sub-contractor shall be attached.

viii) If the experience in similar work is in works executed in private sectors/organizations, the Form 26AS as per the TRACES site C along with notary attested copy(s) work order and completion certificate.

ix) The tenderer is also obliged to produce the original of the certified copy(s) on request by the department.

Signature
(Authorised Signatory)

Annexure – 4b

DETAILS OF PAST EXPERIENCE OF CONTRACTORS FOR SIMILARWORKS

Sl. No.	Name & Location of Project	Owner's Complete address including e-mail address with name of contact Person	Value of Contract	Duration of Contract			Details of work including major items of work involved	Reference No. & Date of letter of intent & completion certificate enclosed
				Commen-cement date	Scheduled completion date	Actual completion date		
1	2	3	4	5	6	7	8	9

Note: Bidder to enclose completion certificate issued by owner, certified by a Notary public or equivalent certifying authority.

SIGNATURE OF TENDERER

Annexure- 5

FINANCIAL CAPABLITY

(A) Average Annual Turnover of the Bidder

Turnover (Rs.)			
Year 1 2019-20	**Year 2 2020-21**	**Year 3 2021-22**	**Average**

Instructions:

(i). The Bidder shall provide audited Annual Reports / Audited financial statements such as balance sheets and profit & loss account statements as required under this Bid Document.

(ii). Annual turnover of the bidder shall be submitted duly verified by Charted Accountant.

Certified by Chartered Accountant

Signature
(Authorized Signatory)

Annexure - 6

DETAILS OF PROPOSED APPROACH & METHODOLOGY

Bidder shall furnish a detailed method statement (Technical Note) for carrying out of the works, along with a construction programme [Preferably in MS project / Primavera] showing sequence of operation and the time frame for various segments of temporary and permanent works.

Signature
(Authorized Signatory)

Annexure - 7

PLANT AND EQUIPMENT PROPOSED FOR THE WORK

Signature
(Authorized Signatory)

Annexure - 8

DECLARATION

We M/s (Name & address of the bidder) hereby declare that:-

1. All details regarding construction plant, temporary work and personnel for site organization considered necessary and sufficient for the work have been furnished in the Annexure 7 and that such plant, temporary works and personnel for site organization will be available at the site till the completion of the respective work.

2. No conditions are incorporated in the financial bid. In case any conditions are specified in the financial bid, the tender will be rejected summarily without making any further reference to the bidder.

3. We have not made any payment or illegal gratification to any persons/ authority connected with the bid process so as to influence the bid process and have not committed any offence under PC Act in connection with the bid.

4. We disclose with that we have ***** made / not made payments or propose to be made to any intermediaries (agents) etc in connection with the bid.

5. We do hereby confirm that no changes have been made in the tender document downloaded and submitted by us for the above bid. Port Tender document will be treated as authentic tender and if any discrepancy is noticed at any stage between the Port's tender document and the one submitted by the tenderer, the Port's document shall prevail.

Signature

(Authorized Signatory)

*** Note: Delete whichever is not applicable.**

Annexure-9

DETAILS OF THE PARTY OPTING FOR REFUND OF EMD THROUGH E-PAYMENT SYSTEM

Name of the Party

Bank A/c No.:

Account type : (Savings / Current /

Overdraft) Bank Name :

Branch :

IFSC Code Number : (11 digit code)

Centre (Location) :

FAX No. :

E-Mail ID : (For forwarding information of remittance)

Mobile No :

Signature
(Authorized Signatory)

Annexure- 10

FORMAT FOR FURNISHING BANK INFORMATION FOR e-PAYMENT

1	Name and full address of the beneficiary	
2	Credit Account No. (Should be full 14 digit)	
3	Account Type (SB or CA or OD)	
4	Name of the Bank	
5	Branch (Full address with telephone No.)	
6	MICR code (Should be 9 digit)	
7	Telephone/ Mobile/ Fax No. of the beneficiary	Telephone :
		Mobile :
		Fax :
8	Cancelled Cheque	

Signature with seal
(Authorized Signatory)

Annexure-11

PROFORMA OF PRE CONTRACT INTEGRITY PACT-

(To be signed on Plain Paper)

(To be submitted as part of Technical bid)

Tender No.....; Tender Title: .....

This Agreement (hereinafter called the Integrity Pact) is made on _____ day of the month of _____2023 at _____, India BETWEEN THE BOARD OF MAJOR PORT AUTHORITY FOR COCHIN PORT commonly known as COCHIN PORT AUTHORITY, a Body Corporate under the Major Port Authorities Act, 2021, with its Administrative Office at Willingdon Island, Cochin-682009, represented by its Chief Mechanical Engineer, Sri …..., S/o Sri.…., aged …years residing at ……(address)…….(hereinafter called the "The Principal", which expression shall mean and include unless the context otherwise requires, his successors in office and assigns) of the First Part AND M/s. _____ represented by Shri.....Chief Executive Officer (hereinafter called the "BIDDER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

PREAMBLE

"The Principal" intends to award, under laid down organizational procedures, contract/ s for _____, "The Principal‟ values full compliance with all relevant laws of the land, rules, regulations, economic useof resources and of fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s). In order to achieve these goals, the Principal shall appoint Independent External Monitors (IEMs) who shall monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 -Commitments of the "The Principal"

(1) "The Principal‟ commits itself to take all measures necessary to prevent corruption and to observe the following principles:

a. No employee of the Principal, personally or through family members, shall in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

b. The Principal shall, during the tender process, treat all Bidder(s) with equity and reason. The Principal shall in particular, before and during the tender process, provide to all Bidder(s) the same information and shall not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. The Principal shall exclude from the process all known prejudiced persons.

(2)If the Principal obtains information on the conduct of any of its employees, which is a criminal offence under the IPC/ PC Act, or if there be a substantive suspicion in this regard, the Principal shall inform the Chief Vigilance Officer and in addition, can initiate disciplinary actions.

Section 2 -Commitments of the "Bidder/ Contractor"

(1) The "Bidder/ Contractor" commit themselves to take all measures necessary to prevent corruption. The „Bidder/ Contractor‟ commit themselves to observe the following principles during participation in the tender process and during the contract execution.

a. The "Bidder/ Contractor" shall not, directly or through any other person or firm, offer, promise, or give to any of the Principal's employees involved in the tender process or the execution of the contract, or to any third person any material or other benefit which he is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
b. The 'Bidder/ Contractor' shall not enter with other Bidders info any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the tender process.
c. The 'Bidder/ Contractor' shall not commit any offence under the relevant IPC/ PC Act; further, the 'Bidder/ Contractor' shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals, and business details, including information contained or transmitted electronically.
d. The 'Bidder/ Contractor' of foreign origin shall disclose the name and address of the Agents/ representatives in India if any. Similarly, the Bidder/ Contractors of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder/ Contractor. Further, as mentioned in the Guidelines, all the payments made to the Indian agent/ representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is placed in Appendix to this agreement.
e. The 'Bidder/ Contractor' shall, when presenting their bid, disclose any and all payments made, is committed to, or intends to make to agents, brokers, or any other intermediaries in connection with the award of the contract.
f. Bidder/ Contractor who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

(2) The 'Bidder/ Contractor' shall not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 -Disqualification from tender process and exclusion from future contracts

If the 'Bidder/ Contractor', before award or during execution, has committed a transgression through a violation of Section 2, above or in any other form such as to put their reliability or credibility in question, the Principal is entitled to disqualify the 'Bidder/ Contractor' from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings".

Section 4 -Compensation for Damages

(1) If the Principal has disqualified the „Bidder/ Contractor" from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from „Bidder/ Contractor" the damages equivalent to Earnest Money Deposit/ Bid Security.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 -Previous transgression

(1) Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.

(2) If Bidder makes an incorrect statement on this subject, he can be disqualified from the tender process, or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6 -Equal treatment of all Bidders/ Contractors/ Subcontractors

(1)In the case of Sub-contracting, the Principal Contractor shall take responsibility for the adoption of the Integrity Pact by the Sub-contractor.

(2)The Principal shall enter into agreements with identical conditions as this one with all Bidders and Contractors.

(3)The Principal shall disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 -Criminal charges against violating Bidder(s)/ Contractor(s)/ Subcontractor(s)

If the Principal obtains knowledge of the conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal shall inform the same to the Chief Vigilance Officer.

Section 8 -Independent External Monitor

(1) The BUYER/ EMPLOYER has appointed the following panel of Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission:

1. Shri. M.J. Joseph, ICAS (Retd.)
   37,Da Costa Square, 3rdcross, Cooke Town, Bangalore -560084
   Email: joseph.iem@cochinport.gov.in

4 Shri. Punati Sridhar, IFoS (Retd.)
8C, Block-4, 14-C Cross, MCHS Colony,
HSR6thSector,Bangalore-560 102
E-mail id: sridhar.iem@cochinport.gov.in

The task of the Monitor is to review independently and objectively whether and to what extent the parties comply with the obligations under this agreement.

(2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. The Monitor would have access to all Contract documents whenever required. It shall be obligatory for him/ her to treat the information and documents of the Bidders/ Contractors as confidential. He/ she reports to the Head of the Procuring Organization.

(3) The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal, including that provided by the contractor. The contractor shall also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-contractors project documentation. The same is applicable to Sub-contractors.

(4) The Monitor is under contractual obligation to treat the information and documents of the Bidder/ Contractor(s)/ Sub-contractor(s) with confidentiality. The Monitor has also signed declarations on „Non-Disclosure of Confidential Information" and of „Absence of Conflict of Interest". In case of any conflict of interest arising at a later date, the IEM shall inform the Head of the Procuring Organisation and rescue himself/ herself from that case.

(5) The Principal shall provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the contractor. The parties offer the Monitor the option to participate in such meetings.

(6) As soon as the Monitor notices, or believes to have noticed, a violation of this agreement, he shall so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can, in this regard,

submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action, or tolerate action.

(7) The Monitor shall submit a written report to the Head of the Procuring Organizationwithin 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

(8) If the Monitor has reported to Head of the Procuring Organization, a substantiated suspicion of an offence under relevant IPC/ PC Act, and Head of the Procuring Organizationhas not, within the reasonable time, taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(9) The word 'Monitor' would include both singular and plural.

(10) In the event of any dispute between the Management and the Contractor, incase, both the parties are agreeable, dispute may be settled through mediation before the panel of IEMs in a time bound manner. If required, the organizations may adopt any mediation rules for this purpose.

(11) The fees/ expenses on dispute resolution shall be equally shared by both the parties.

(12) A person signing the IP shall not approach the Courts while representing the matters to IEMs and he/ she will await their decision in the matter.

(13) In case of Joint Ventures all the partners of the joint venture should sign the Integrity Pact. In case of sub-contracting, the Principal contractor shall take the responsibility of the adoption of IP by the sub –contractor. It is to be ensured that all sub-contractors also sign the IP.

Section 9 -Pact Duration

This Pact begins when both parties have legally signed it. It expires for the contractor 12 months after the last payment under the contract and for all other Bidders 6 months after the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings. If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above unless it is discharged/ determined by the Head of the Procuring Organization.

Section 10 -Other provisions

(1) This agreement is subject to Indian Law. The place of performance and jurisdiction is the Registered Office of the Principal, i.e., New Delhi.

(2) Changes and supplements, as well as termination notices, need to be made in writing. Side agreements have not been made.

(3) If the contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

(4) Should one or several provisions of this agreement turnout to be invalid, the remainder of this agreement remains valid. In this case, the parties shall strive to come to an agreement with their original intentions.

(5) Issues like Warranty/ Guarantee etc., shall be outside the purview of IEMs.

(6) In the event of any contradiction between the Integrity Pact and its Appendix, the Clause in the Integrity Pact shall prevail.

For and on behalf of the Principal
(Name of the Officer and Designation)
(Office Seal)

For and on behalf of ‘Bidder/ Contractor’
(Name of the Officer and Designation)
(Office Seal)

For and on behalf of the Principal
Place Date

Witness 1: (Name & Address)

Witness2 : (Name & Address)

Annexure- 13

PROFORMA OF JOINT VENTURE/CONSORTIUM AGREEMENT
(To be submitted on Non-judicial Stamp Paper of appropriate value)

This Joint Venture /Consortium Agreement is made and entered into on this …….. day of ……..2017 by and between (i) M/s. …(**Name of the firm to be filled in**)……., (ii) M/s……(**Name of the firm to be filled in**)….., ……., primarily for the work under the Cochin Port Authority.

All the partners of the Joint Venture /Consortium hereinafter individually referred to as the parties and collectively as the 'Joint Venture/Consortium'.

1.0 Formation of Joint Venture/Consortium

(i) M/s…….(**Name of the firm to be filled in**) is engaged in ……..…….(**Details of the works undertaken by the party**)

(ii) M/s…… (**Name of the firm to be filled in**) is engaged in …….(**Details of the works undertaken by the party**)

(iii) …….

On behalf of Board of Trustees of Port of Cochin (hereinafter referred to as "Employer"), the Chief Mechanical Engineer, Cochin Port Authority has invited bids from the experienced, resourceful and bonafide Developers with proven technical and financial capabilities of executing the work of (herein after referred as "the project").

The parties have been exploring together the ways and means of collaboration for the purpose of an offer to be made for the said project of the Cochin Port Authority and have mutually agreed to enter into a Joint Venture/Consortium Agreement to submit a common bid for the project and to carry out the project works in the event of award of the contract, in association with each other and **(……Name of Partner to be filled in……)** shall be the Lead Partner and (i) (……**Name of Partner to be filled in**……), (ii) (……**Name of Partner to be filled in**……),……. shall be the other partner(s).

NOW THEREFORE IT HAS BEEN AGREED TO BETWEEN THE PARTIES AS FOLLOWS

The Joint Venture/Consortium will be known as…(……**Name of JV to be filled in**……) ……and shall consist of (i) (……**Name of the firm to be filled in**……), (ii) (……**Name of the firm to be filled in**……), ……, parties to the present agreement.

The recitals are true and correct and form an integral part of this agreement and are representations of the parties to which they relate and have been relied upon by the parties to enter into the present agreement.

Notwithstanding the date of signature of this agreement, its effective date will be the date of submission of bid.

All costs incurred by the parties before the date of award of contract will be borne by the parties concerned. All costs in implementation of this Joint Venture/Consortium Agreement after award of contract till the expiry of this agreement will be borne by the parties as hereinafter provided.

The Joint Venture/Consortium will be dissolved and this agreement will cease to have effect on completion of this project, maintenance and fulfillment of all other conditions under the contract, upon receipt of payment of all amounts from the Employer and on settlement of accounts between the parties as hereinafter provided.

The contract, if awarded by the Employer, Letter of Acceptance shall be issued in the name of (….**Name of JV/Consortium to be filled in**…..) and the Contract shall be signed by legally authorized signatories of all the parties.

All the parties of the JV/Consortium shall be jointly and severally liable during the bidding process and the bid document shall be signed by legally authorised signatory of all the parties.

The financial contribution of each partner to the JV/Consortium operation shall be:

(i) M/s…… (**Name of the partner to be filled in)** - **……..**

(ii) M/s……(**Name of the partner to be filled in**) - ……

(iii) …….

All the parties of the JV/Consortium shall be jointly and severally liable for the execution of the project in accordance with the Contract terms, in the event of award of contract. The delineation of duties, responsibilities and scope of work shall be:

a) The Lead Partner, shall provide suitable experienced personnel at site, for general planning, site management and equipment operations, during entire period of contract execution.

b) (……**Name of Partner to be filled in**……) shall carry out the following works

---

c) (……**Name of Partner to be filled in**……) shall carry out the following works

d)……..…

…….

The parties hereto agreed that each of them shall duly and properly perform all the functions and all costs related to their respective works.

The parties hereto shall be at liberty to enter into liaison work/correspondence with statutory and local authorities as the circumstances warrant individually or collectively.

It is hereby agreed and undertaken that, all the parties are jointly and severally liable to the "Board" of Port of Cochin for the performance of the contract.

Notwithstanding demarcation or allotment of work between JV/Consortium partners, JV/Consortium each partner shall be liable for non performance of the whole contract irrespective of their demarcation or share of work.

The Lead Partner shall be authorized to act on behalf of the JV/Consortium.

All the correspondences between the Employer and the JV /Consortium shall be routed through the Lead Partner.

The Lead Partner is authorized: (a) to submit bid, negotiate and conclude contract and incur

all liabilities therewith on behalf of the partner(s) of the JV /Consortium during the bidding process; and (b) in the event of a successful bid, to incur liabilities and receive instructions for and on behalf of the partner(s) of the JV
/Consortium and to carry out the entire execution of the contract including payment, exclusively through Lead Partner.

In the event of default of the Lead Partner, it shall be construed as default of the Developer/Contractor; and Employer shall be entitled to take action under relevant clause(s) of the Department Bid Document and/or Conditions of Contract.

All the parties of the JV/Consortium shall be jointly and severally liable for due performance, recourse/sanctions within the joint venture in the event of default of any partner and arrangements for providing the required indemnities.

The JV/ Consortium shall have a separate JV/Consortium Bank account (distinct from the Bank account of the individual partners) to which individual partners shall contribute their share capital / or working capital. The financial obligation of the consortium shall be discharged through the said JV/ Consortium Bank account only and also all payment received by consortium from the Cochin Port Authority shall be through that account only.

The parties hereto have mutually agreed to the terms and conditions set forth herein above and have assured each other to duly perform the reciprocal promises and obligations on either side for effective implementation of the JV/Consortium for proper and due completion of the works envisaged, in the event of award of contract to the JV/Consortium and have affixed their signature in this indenture on this the
…….day of …….20...

(i) Signature
Name
Designation seal
&
Common seal of the firm

(ii) Signature
Name
Designation seal
&
Common seal of the firm

Witness 1

Witness 2

Annexure- 14

PROFORMA OF POWER- OF-ATTORNEY FOR LEAD MEMBER OF JV/ CONSORTIUM

((To be submitted on Non-judicial Stamp Paper of appropriate value)

By this Power- of-Attorney executed on this **….**day of …..(month) of 2023, we,

(i) (…….Name of legally authorized signatory of first partner to be filled in……), (ii) (……..Name of legally authorized signatory of second partner to be filled in……), …… hereby jointly authorize and agree the Lead Partner, M/s (……Name of the lead partner to be filled in……), (a) to submit bid, negotiate and conclude contract and incur all liabilities therewith on behalf of the partner(s) of the JV /Consortium during the bidding process; and (b) in the event of a successful bid, to incur liabilities and receive instructions for and on behalf of the partner(s) of the JV /Consortium and to carry out the entire execution of the contract including payment for the work of " exclusively through Lead Partner.

(i) Signature
Name
Designation seal
&
Common seal of the firm

(ii) Signature
Name
Designation seal
&
Common seal of the firm

……

……

Signature, name and seal of the certifying authority/Notary Public

Annexure-15

PROFORMA OF IRREVOCABLE BANK GUARANTEE FOR PERFORMANCE OF GUARANTEE

(To be submitted on Non-judicial Stamp Paper of appropriate value)

Ref: Bank Guarantee No_____

Date_____

To

Cochin Port Authority
W/Island, Cochin 682009.

Dear Sirs,

In consideration of THE BOARD OF MAJOR PORT AUTHORITY FOR COCHIN PORT commonly known as COCHIN PORT AUTHORITY, a Body Corporate under the Major Port Authorities Act, 2021, with its Administrative Office at Willingdon Island, Cochin-682009, having PAN Card No. AAALC1134F, which expression shall include their successors and assignees) having accepted the tender (hereinafter referred to as the 'Cochin Port' which expression unless repugnant to the context or meaning thereof includes its successors, administrators and assigns) having awarded to M/s_____ with its Registered / Head Office at_____(hereinafter referred to as the "CONTRACTOR" which expression shall unless repugnant to the context or meaning thereof, include its successor, administrators, executors and assigns), a "CONTRACT" by issue of Port Trust's work order dated_____ the same having been unequivocally accepted by the Contractor resulting in a "CONTRACT" bearing No. __dated _____value_____ at _____for_____and the CONTRACTOR having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to_____, to Port Trust under the terms and conditions of an agreement between Board of Trustees of Port of Cochin and ……. For the execution of the work (hereinafter called "the said agreement") .

5 We_____having its Head office at_____(hereinafter referred to as the "Bank", which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertaketopaythePortTrustondemandanyandallmoneypayablebytheContractorto the extent of _____ as aforesaid at any time upto__ without any demur, reservation, contest, recourse or protest and/or without any reference to the CONTRACTOR. Any such demand made by the Port Trust on the Bank shall be conclusive and binding notwithstanding any difference between Port Trust and CONTRACTOR. We,

_____Bank Ltd., do hereby undertake to pay to the Cochin Port any money without demur so demanded notwithstanding any dispute or disputes

raisedby the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

4. We,_____Bank Ltd., further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Port Trust under or by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till Engineer-in-charge on behalf of the Cochin Port certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges this guarantee.

5. We,_____Bank Ltd., further agrees with the Cochin Port that the Cochin Port shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Cochin Port against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from ours liability by reason of any such variation, or extension being granted to the said contractor(s) or by any such matter or things whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. We, __Bank Ltd., lastly undertake not to revoke this guarantee except with the previous consent of the Cochin Port in writing and further agrees that the guarantee herein contained shall continue to be in endorsable till the Cochin Port discharges its guarantee.

8. We,_____ Bank Ltd. also agrees that Cochin Port at its option shall be entitled to enforce this Guarantee against the Bank as principal debtor, in the first instance without proceeding against CONTRACTOR and notwithstanding any security or other guarantee that Cochin Port may have in relation to the CONTRACTOR's liabilities.

9.This guarantee shall be valid upto_____unless extended on demand by Cochin Port. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs_____(Rupees_____only) and unless a claim in writing is lodged with us within six months of the date of expiry of or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the ……day of……20

WITNESSES

_____ _____

(Signature) (Signature)

_____(Name)_____ _____(Name)_____

Bank's Rubber Stamp

_____

_____

(Name) (Name)

_____

(Official address) (Designation with Bank Stamp)

Attorney as per Power of Attorney No.

_____

Dated_____

SECTION -II

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority on Engineering, Procurement and Construction (EPC) contract basis"

1. GENERAL CONDITIONS OF CONTRACT (GCC)

1. **Definitions:** In the Contract (as hereinafter defined) the definition of the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
   a) "**Approved**" or "**Approval**" shall mean approval in writing.
   b) "**Contractor/Supplier**" means the person or persons, firm, corporation or company whose tender to perform the Contract has been accepted by the Employer and is named as such in the Contract Agreement and includes his servants, agents and workers, personal representatives, successors and permitted assigns.
   c) "**Contract**" means the Contract Agreement entered into between the Employer and the Contractor, together with Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
   d) "**Contract Documents**" means the documents listed in the contract agreement, including any amendments thereto.
   e) "**Contract Price**" means the total sum of money to be paid by the Employer to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.
   f) "**Completion**" means the fulfilment of the supply of Equipments and Related Services by the supplier in accordance with the terms and conditions set forth in the contract.
   g) "**Commercial Use**" means use of Goods which the contractor contemplates or of which it is commercially capable after enacting at project site.
   h) "**Chief Mechanical Engineer**" shall mean the Chief Mechanical Engineer of Cochin Port Authority and includes any officer who is authorized on his behalf for the purpose of this contract.
   i) "**Day**" shall mean English Calendar Day.
   j) The "**Drawings**" shall mean the drawings, issued with the specification which will ordinarily be identified by being signed by the Chief Mechanical Engineer and any further drawing submitted by the supplier with his tender and duly signed by him and accepted or approved by the Chief Mechanical Engineer and all other drawings supplied or furnished by the suppliers or by the Chief Mechanical Engineer in accordance with these contract conditions.
   k) "**Employer/Cochin Port Authority/ CoPA**" means The Board of Major Port Authority for Cochin Port commonly known as Cochin Port Authority, a Body Corporate under the Major Port Authorities Act, 2021, by notification issued by the Government of India, acting through its Chairman, Dy. Chairman or Chief Mechanical Engineer or any other officers so nominated by the Board.
   l) "**Employer's Country**" is INDIA.
   m) "**Equipment/Goods**", means all of the commodities, raw materials, machinery and equipment, and/or other materials that the Contractor is required to supply to the Employer under the contract.

n) "**GCC**" means the General Conditions of Contract.
o) "**Month**" shall mean English Calendar Month.
p) "**Engineer**"/ "**Officer in-Charge**" means Employee of Employer or any other person, nominated by the Employer.
q) **"Specifications"** means the specification referred to in the tender documents and any modifications thereof or additions thereto or amendments thereto as may be from time to time be furnished or approved in writing by the Employer .
r) The "**Schedule**" shall mean the schedule or Schedules attached to the specifications.

2. **Contract Documents:** Subject to the order precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, India. Any suit or other proceedings relating to this contract shall be filed, taken by the contractor in a Court of Law only in Cochin.

2.1. Dock Safety : For the work carried out within dock area in the vicinity of any wharf or quay the Contractor shall abide by all the provisions of the Dock workers (Safety, Health &Welfare) Regulation 1990 or as amended from time to time.

2.2. Workmen Compensation: The contractor shall indemnify the Employer in the event of the Trustees being held liable to pay compensations for injury to any of the contractor's servants or workmen under the Indian Workmen's Compensation Act, 1923 as amended from time to time and shall take out an Insurance Policy covering all risks under the Act and shall keep the same renewed from time to time as necessary for the duration of the contract and produce the same to the Employer on demand whenever so required.

3. **Disputes**

3.1 If the Contractor believes that a decision taken by the Engineer or his nominee was either outside the authority given to the Engineer or his nominee by the Contract or that the decision was wrongly taken, the decision shall be referred to the Employer within 28 days of the notification of the Engineer or his nominee's decision.

4. **Settlement of Disputes & Arbitration**

4.1. General

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:-

If the Contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer on any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable, he shall promptly within 15 days request the Engineer in writing for written instruction or decision. Thereupon, the Engineer shall give his written instructions or decision within a period of one month from the receipt of the Contractor's letter.

If the Engineer fails to give his instructions or decision in writing within the aforesaid period or if the Contractor is dissatisfied with the instructions or decision of the Engineer, the Contractor may, within 15 days of the receipt of Engineer's decision, appeal to the Chairman who shall afford an opportunity to the Contractor to be heard, if the latter so desires, and to offer evidence in support of his appeal. The Chairman shall give his decision within 30 days of receipt of Contractor's appeal. If the Contractor is dissatisfied with this decision then:

a) The Dispute in respect of contract of value upto Rs. 1crore shall not be referred for adjudication through Arbitration and

b) If the value of the contract is exceeding Rs. 1 crore and upto Rs.5 crores, the Dispute shall be resolved through arbitration as follows;

(i) The Parties together shall appoint a Sole Arbitrator by mutual consent to resolve the dispute as per the provisions of the Arbitration and Conciliation Act, 1996. The award of the Arbitrator so appointed shall be final and conclusive and binding on all the Parties to the Agreement subject to as amended from time to time or any statutory re-enactment thereof for the time being in force. The Arbitrator may, with the consent of the Parties extend the time, from time to time, to make and publish award as the case may be.

(ii) If the Arbitrator so appointed is unwilling to act or resigns the appointment or vacates his office due to any reason whatsoever, another Sole Arbitrator shall be appointed in the manner aforesaid. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

c) If the value of the Contract is above Rs. 5 crores, the Contractor shall within 30 days of receipt of the decision of the Chairman, appoint an arbitrator and give notice to the Chairman and the dispute shall be resolved through Arbitral Tribunal as detailed below:

The Arbitral Tribunal shall be a panel of three arbitrators, one to be appointed by each Party and the third to be appointed by the two Arbitrators appointed by the Parties. A Party requiring Arbitration shall appoint an Arbitrator in writing, inform the other Party about such appointment and call upon the other Party to appoint its Arbitrator. If the other Party fails to appoint its Arbitrator, the Party appointing Arbitrator shall take steps in accordance with Arbitration and Conciliation Act, 1996 or any statutory modifications or reenactment thereof.

d) In case of the dispute or difference is relating to interpretation and application of the provisions of commercial contract between Central Public Sector Enterprises (CPSE), Port Authority inter se or CPSE and Government Department shall be referred by either party for arbitration to the Permanent Machinery of Arbitrators in the Department of Public Enterprises through the Secretary to the Government of Public Enterprises as per the guidelines issued by Department of Public Enterprises OM No.4 (1) 2011- DPE (PMA) – GL dtd. 12.06.2013 or any statutory amendment thereof.

4.2. It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each such dispute along with the notice for appointment of arbitrator and giving reference to the rejection by the Chairman of the appeal.

4.3. It is also a term of this contract that no person other than person / persons appointed as aforesaid should act as arbitrator / arbitrators and if for any reason that is not possible, the matter shall not be referred to arbitration at all.

4.4. It is also a term of this contract that if the Contractor does not make any demand for appointment of arbitrator in respect of any claims in writing as aforesaid within 120 days of receiving the intimation from the Engineer that the final bill is ready for payment, the claim of the Contractor shall be deemed to have been waived and absolutely barred and the Employer or his authorized representative shall be discharged and released of all liabilities under the contract in respect of these claims.

4.5. The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 (26 of 1996) or any statutory modifications or reenactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

4.6. It is also a term of this contract that the Arbitrator / Arbitral Tribunal shall adjudicate only on such disputes as are referred to him/them and give separate award against each dispute and claim referred and in all cases where the total amount of the claims by any party exceeds Rs. 1,00,000/- the arbitrator shall give reasons for the award.

4.7. It is also a term of the contract that if any fees are payable to the arbitrator these shall be paid equally by both the parties.

4.8. It is also a term of the contract that the arbitrator/arbitrators shall be deemed to have entered on the reference on the date he / they issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be at Cochin. The fees, if any, of the arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any, of the arbitrator) shall be in the discretion of the arbitrator who may direct to any party by whom and in what manner, such costs or any part thereof shall be paid and fix or settle the amount of costs to be so paid.".

4.9. **Conciliation and Settlement Committee (CSC)**

In the event of any dispute or differences between the Port Authorities and the Contractor, which could not be resolved amicably by mutual consultations / Arbitration, then the Chairman of Cochin Port Authority may refer such unresolved disputes or differences to the Conciliation and Settlement Committee comprising of independent subject experts, constituted by the IPA and adopted by the Board of Major Port Authority for Cochin Port in its meeting dated 02.03.2022, to enable speedy disposal of pending / new cases.

Either the Port or the contractor may send a reference about the dispute to the other party. The party initiating conciliation shall send to the other party a written invitation to settle or conciliate under this Part, briefly identifying the subject of the dispute. The concerned Technical Division in the Port shall send a request or response within 7 working days if a reference is received from the contractor thereby inviting the Contractor to depute a team of their representatives to interact with the Contract Management Division (CMD) constituted by each Port.

The procedure for referring disputes to the CSC will be as per the guidelines issued by IPA dated 05.10.2021 and subsequent amendment dated 21.03.2022. Recourse to such conciliation shall be open before, during or after the arbitration proceedings. The award of the Conciliation Committee / Council, if agreed by both the parties, shall then be placed for consideration of the Board of Major Port Authority for subject to the delegation of powers.

5. **Scope of Work:** The Goods and Related Services to be supplied shall be as specified in Scope of Work and Technical Specifications and in accordance with Schedule of Requirements.

6. **Delivery and Completion:** Subject to GCC Clause 23 (Change Orders and Contract Amendments) the delivery of the Goods and completion of the Related Services shall be done within 60 days from the date of receipt of Letter of Acceptance of Employer. The details of shipping and other documents to be furnished by the Contractor are specified in the GCC Clause 8 (Payments Terms).

7. **Contractor's Responsibilities:**

7.1. The Contractor shall supply all the Goods and Related Services included in the Scope of Work in accordance with GCC Clause 4 and as per GCC Clause 5.

7.2. Phasing of Work: The contractor will be required to furnish a phased programme of the works as to how he intends to complete the work to the Employer within 7 days from the date of receipt of the Work Order/Letter of Acceptance from the Employer. The contractor shall indicate separate definite times for completion of various parts of the work. He will be required to adhere to such programme so as to complete the entire work within the stipulated completion period. The Contractor shall furnish progress report to the Employer on fortnightly basis for monitoring by the Employer.

7.3. Procurement of materials: The Contractor must make his own arrangements for timely procurement of all materials, machinery, equipment etc. of specified and or approved quality required by him for the efficient and regular execution of the works comprised in this contract from the manufacturers

and suppliers concerned. Delay in supply of any of these materials, machinery, equipment etc. will not be taken as an excuse for not completing the contract within the stipulated period.

7.4. Compliance of regulations: The contractor warrants that all Goods/Materials covered by the contract have been produced, sold, dispatched, delivered and furnished in strict compliance with all applicable laws, regulations, labour agreement, working condition and technical codes and statutory requirements as applicable from time to time. The Supplier shall ensure compliance with the above and shall indemnify Employer against any actions, damages, costs and expenses of any failure to comply as aforesaid.

8. **Contract Price:**

8.1. Prices charged by the Contractor for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Contractor in its Tender, with the exception of any price adjustments authorized by the Employer by issuing Change orders and Contract Amendment, if any.

9. **Terms of Payment:**

9.1 Payment shall be regulated as detailed below:

The Contractor shall be entitled upon certificates of the Engineer or his nominee to payments in accordance with the following provisions against BG for equal amount:

1) **For supply portion:** 75% of the value, as certified by the Engineer or his nominee, of the materials from time to time delivered on the site.

   Balance 25% after completing the work in all respects, commissioning and handing over the installation to the Employer to the satisfaction of the Engineer and his nominee and his certification.

Note: The bidder shall furnish the break- up price of each and every component of the items to be supplied for the successful commissioning of the project as per the technical specification and scope of work, immediately after the receipt of LoA for the Chief Mechanical Engineer's approval with relevant documents to ensure that the cost of supply of items are not exceeding the total price quoted by the bidder.

2) **For erection portion :**

   i) 85% of the value as certified by the Engineer or his nominee, of the installation portion on completion of the erection work under contract, for which payments are claimed.

   ii) Balance 15% along with other payments if any, after completing the work in all respects, commissioning and taking over the installation by the Employer to the satisfaction of the Engineer and his nominee and his certification.

9.2 All the interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer or his nominee relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer- or his nominee-charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

9.3 Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided, without prejudice to the right of the department to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

9.4 No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished.

9.5 If an amount certified is increased in a later certificate as a result of an award by the Arbitrator,

the Contractor shall be paid interest upon the delayed payment as set out in the award. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

9.6 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

9.7 All payments to the Contractor under the contract shall unless otherwise stated elsewhere be made to the Contractor in Indian currency through e- payments through designated Bank

10. **Taxes and Duties:**

10.1. The contract shall be treated as a works contract. The Contractor shall be responsible for remittance of all taxes, duties, license fees etc. incurred for the Supply, Installation, Testing and Commissioning of the items as per Bill of Quantities. GST shall be paid by the Employer to the Contractor.

10.2. Income Tax Deduction: Deduction of Income Tax shall be made from any amount payable to the Contractor as per the relevant provisions of the Income Tax Act.

10.3. TDS under GST Law: As per GST Notification No. 50/2018 dated 13.09.2018, TDS @ 2% will be deducted from any amount payable to the Contractor, where the total value of contract is more than Rs. 2.5 lakhs.

11. **Performance Security/ Security Deposit:**

11.1. The successful bidder is required to furnish Security Deposit within 21 days from the date of receipt of Letter of Acceptance (LoA), to guarantee fulfillment of performance and the obligations of the contract, in any one of the following forms:

i) Account Payee Demand Draft/ Banker's cheque from a Commercial Bank in favour of FA&CAO, Cochin Port Authority;

ii) An irrevocable and unconditional Bank Guarantee as per the Format enclosed in Annexure A of tender document, from a Nationalized Bank/ Indian Scheduled Commercial Bank only;

iii) On-line payment to the Bank Account of Cochin Port indicated in Clause 8 of Notice Inviting Tender.

11.2. The value of Security Deposit shall be equivalent to 3% of the total contract value excluding GST and duties, upto 31/03/2023 and 10% thereafter.

11.3. In case the Security Deposit is furnished in the form of Bank Guarantee, the same should remain valid for a period of 60 days beyond the completion of guarantee period.

11.4. Cochin Port Trust is not bound to pay interest on the Security Deposit furnished by the successful bidder.

11.5. In the event of the Contractor failing to honour any of the commitments entered into under this Contract, Cochin Port Trust shall have unconditional option to encash the Security Deposit. The bank shall be obliged to make payment to Cochin Port Trust upon demand.

11.6. In the event of the tenderer, after the issue of the communication of acceptance of offer by the Board, failing /refusing to execute the agreement as hereinafter provided, the tenderer shall be deemed to have abandoned the contract and such an act shall amount to and be construed as the Contractor's calculated and the willful breach of the contract, the cost and consequence of which shall be to the sole account of the tenderer and upon such an event the Board shall have full right to claim damages therefore either together with or in addition to suspension of the bidder from participating in the Tenders invited by Cochin Port Trust, for a period of two years from the date of such suspension.

11.7. The Performance Security shall be discharged by the Employer and returned to the Contractor not later than Fourteen (14) days following the date of Completion of the Contractor's performance obligations under the Contract, including any warranty obligations.

12. **Subcontracting:**

12.1. The Supplier shall notify the Employer in writing of all subcontracts awarded under the contract if not already specified in the tender. Such notification, in the original Tender or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the contract.

12.2. Subcontracts shall comply with the provisions of Instructions to Tenderers Clause 27, Instruction to Tenderers (Fraud and corrupt practices).

13. **Specification and Standards:**

13.1. Technical specification and drawings:

(a) The Goods and Related Services supplied under this contract shall conform to the Technical Specifications and Standards mentioned in Section V, Scope of Work and Technical Specifications and when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate.

(b) The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Employer, by giving a notice of such disclaimer to the Employer.

(c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Employer and shall be treated in accordance with GCC Clause24 (Change Orders and Contract Amendments).

14. **Packing:**

14.1. Contractor shall provide adequate packing of Equipments to prevent the damage or deterioration during transit to their final destination. The contractor shall be held responsible for all damages or breakages to the goods due to the defective or insufficient packing as well as for corrosion due to insufficient protection. Packing shall withstand hazards normally encountered with the means of transport including loading/unloading operations and shall be done in such a manner to reduce volume as much as possible.

14.2. The packing specification incorporated herein are supplementary to the internal and external packing methods and standards as per current general rules of J.R.A. Good Tariff Part-I.

14.3. Fragile articles should be packed with special packing materials depending on the type of Materials and the packing shall bear the words "HANDLE WITH CARE GLASS FRAGILE, DON'T ROLL THIS END UP. THIS END DOWN," to be indicated by arrow.

14.4. The hazardous materials shall be packed in accordance with the applicable rules, regulations and tariff of all cognizant Government Authorities and other Governing bodies. It shall be the responsibility of the seller of hazardous materials to designate the material as hazardous and to identify each material by its proper commodity name and its hazardous material class code.

14.5. All packages requiring handling by crane should have sufficient space at appropriate place to put sling of suitable diameter (strength). Iron/Steel angle should be provided at the place where sling marking are made to avoid damage to package/ equipment while lifting.

14.6. Item shipped in bundles must be securely tied with steel wire or strapping. Steel reinforcing rods, bars, pipes, structural members etc. shall be bundled in uniform lengths and the weight shall be within the breaking strength of the securing wire or strapping. In the case of imports, for bundles the shipping marks shall be embossed on metal or similar tag and wired securely on each end.

14.7. All delicate surfaces on equipment/materials should be carefully protected with protective paint/compound and wrapped to prevent rusting and damage.

14.8. All mechanical and electrical equipment and other heavy articles shall be securely fastened to the case bottom and shall be blocked and braced to avoid any displacement/ shifting during transit.

14.9. Attachments and spare parts of equipment and all small pieces shall be packed separately in wooden cases with adequate protection inside the case and wherever possible should be sent along with the main equipment. Each item shall be suitably tagged with identification of main equipment, item denomination and reference number of respective assembly drawing. A copy of the packing list shall accompany the materials in each package.

14.10. All protrusions shall be suitably protected by providing a cover comprising of tightly bolted wooden disc on the flanges. All nozzles, holes and openings and also all delicate surfaces shall be carefully protected against damage and bad weather. All manufactured surfaces shall be painted with rust proof paint.

14.11. In the case of imports, for bulk uniform material when packed in several cases, progressive serial numbers shall be indicated on each case.

14.12. Wherever required, equipment/materials instruments shall be enveloped in polythene bags containing silica gel or similar dehydrating compound.

14.13. Detailed packing list in waterproof envelope shall be inserted in the package together with equipment/materials. One copy of the detailed packing list shall be fastened outside of the package in waterproof envelope and covered by metal cover.

14.14. Packaged equipment or materials showing damage defects or shortages resulting from improper packaging materials or packing procedures or having concealed damages or shortages, at the time of unpacking shall be to the supplier's account.

14.15. All packages which require special handling and transport should have their Centre of Gravity and the points at which they may be slung or gripped clearly indicated and marked "ATTENTION SPECIAL LOAD HANDLE WITH CARE" in English Language.

14.16. Along with the packed material, supplier should attach material list, manuals/ instructions and also the Inspection certificate/release note, wherever applicable.

15. **Marking:**

The following details to be written on the side face of packing:

a) Purchase Order Number.
b) Supplier's Name.
c) Batch No. with Manufacturing Date.

16. **Insurance:**

16.1. The Goods supplied under the Contract shall be insured by the Supplier at his cost, for the full value as specified in the Employer's supply order against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery from the works until they are delivered at Employer's premises and accepted by the Employer. Such insurance policy shall be in the name of Contractor and that of the Employer against destruction or damage by accident, fire, flood and tempests. The Contractor shall from time to time, when so, required by the Employer produce the Policy and the receipt for the premium. All money received under any such policies shall be applied in or towards the reconstruction or preparation of the materials, plant and things destroyed or damaged, but this provision shall not affect the contractor's liabilities under contract.

16.2. The supplier shall be responsible for insurance of all his employees/representatives who are deputed for operational demonstration of equipment at Cochin, against any accidents and shall indemnify the Employer.

17. **Transportation:**

The Supplier is responsible for transportation of Goods/Equipments from Supplier's premises to the Employer's site at the cost and risk of the Supplier.

18. **Consignee of Equipment:**

The consignee of all materials sent to Cochin Port Trust is Deputy Materials Manager, Cochin Port Trust, Cochin, 682009.The way bills, invoices etc. shall be addressed to him under intimation to Chief Mechanical Engineer, Cochin Port Trust.

19. **Inspection and Testing:**

19.1. The Inspection and Tests shall be conducted at Contractor's premises and the cost of all such tests shall be borne by the Contractor apart from making arrangements for conduct of such tests. Employer shall not be liable to make any additional payments for conduct tests or for change of location of Test. All cost for fulfillment of obligation on the part of Contractor shall be deemed to have been included in the total contract price offered by him on which the Contract has been awarded to him. However, in case of Additional Tests if any are requested by the Employer shall be at the cost and time of Employer in which case also the Contractor shall make all arrangements required for conduct of such tests in the manner prescribed to do so by the Employer or TPI.

19.2. The Employer reserves the right to witness the Pre-delivery Inspection at the Contractor's premises or any place the work demands, along with TPI. The inspections and tests are to be conducted to the entire satisfaction of TPI/Employer. The details of inspections and tests to be carried out are specified under Section V, Scope of Supply and Technical Specifications.

20. **Liquidated Damages /Late Delivery Charges:**

20.1. Except as provided under GCC Clause 23 (Force Majeure) and GCC Clause 25 (Extension of Time), if the Contractor fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Service within the period specified in the Contract, the Employer may without prejudice to all its other remedies under the Contract, deduct from the Contract price, as liquidated damages, a sum equivalent to ½ % of the Contract price of the respective item for which delay in delivery is occurred, per week of such delay or part thereof. The maximum amount of Liquidated Damages shall be 10% of total Contract Price of the respective item.

20.2. The liquidated damages fixed as above shall be considered as reasonable compensation without any actual proof of loss or damage. No variation made in the scope of contract shall be of any excuse for delay in delivery of Goods and Related Services nor prevent the recovery of the said liquidated damages, unless an Extension of date of commencement of contract shall have been granted by the Employer in writing in respect of such variation. The liquidated damages paid/ recovered as above shall not relieve the Contractor from its other obligations and liabilities under the contract. In such events as when the Contractor is unable to complete the delivery of Goods and Related Services, for the reasons not attributable to him, he shall apply for grant of extension of date for completion of contract immediately not later than 48 hours of such occurrence of event and the Employer shall examine the merit of the case and accordingly extension with or without levy of LD shall be given by Cochin Port Authority.

21. **Warranty:**

21.1. The Contractor warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

21.2. The Contractor further warrants that the Goods shall be free from defects arising from any act or omission of the Contractor or arising from design, materials, and workmanship, under normal use in the conditions prevailing in INDIA.

21.3. The Employer shall give notice to the Contractor stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Employer shall afford all reasonable opportunity for the Contractor to inspect such defects.

21.4. Upon receipts of such notice, the Contractor shall, within the period of seven days, repair or replace the defective Goods or parts thereof, at no cost to the Employer.

21.5. If having been notified, the Contractor fails to remedy the defect within seven days, the Employer may proceed to take within a reasonable period such remedial action as may be necessary, at the Contractor 's risk and expense and without prejudice to any other rights which the Employer may have against the Contractor under the Contract.

21.6. The guarantee period will be effective for a period of twelve (12) months and it will be in force from the date of final acceptance of the Goods/Equipment under the contract by the Employer and

the contractor shall be responsible for any defects that may develop under proper use arising from faulty materials, designs, workmanship in the work but not otherwise and shall at his own cost remedy such defects when called upon to do so by the Officer In-charge who shall state in writing in what respect any portion is faulty.

21.7. If it becomes necessary for the contractor to replace or renew or repair any defective portions of the Supply of the items under this clause, the provisions of this clause shall apply to the portions of the Supply so replaced or renewed or repaired until the expiry of six months from the date of such replacement/ renewal/repair or until the above mentioned period of two years, whichever may be later. If any defects are not remedied within a reasonable time, the Employer may proceed to do the work at the Contractor's risk and expenses but without prejudice to any other rights which the Employer may have against the contractor in respect of such defects.

21.8. If the replacement or renewals are of such a character as may affect the efficiency of the items Supplied, the Employer and/or the Engineer shall have the right to give to the contractor within one month of such replacement or renewal notice in writing the 'Test on Completion' be made in which case test shall be carried out as provided in accordance with the relevant clauses under Scope of Supply and Technical Specification thereof. Should such guarantee not be sustained the cost of the test shall be borne by the Contractor.

21.9. All inspection, adjustments, replacement or renewal carried out by the contractor during the period referred to in this clause shall be subject to the conditions of this contract which shall be binding on the contractor in all respects during the guarantee and the additional warrantee period.

22. **Patent indemnity:**

22.1. The contractor shall, subject to the Employer's compliance with the GCC Clause 22.2, indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility, model, registered design, trademark, copyright , or other intellectual property right registered or otherwise existing at the date of the Contract by reason of (a) The installation of the Goods by the Contractor or the use of the Goods in the Country where the site is located; and (b)The sale in any country of the products produced by the Goods. Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any Part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Contractor, pursuant to the Contract.

22.2. If any proceedings are brought or claims is made against the Employer arising Out of the matters referred to in GCC Clause 22.1, the Employer shall promptly give the Contractor a notice thereof, and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

22.3. If the Contractor, fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf.

22.4. The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

23. **Force Majeure:**

23.1. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed under this contract, the relative obligation of the party affected by such Force Majeure shall upon notification to the other party be suspended for the period during which such cause lasts. No payments may be made for force majeure period.

23.2. For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Party claiming to be affected thereby, (the "Affected Party"), which is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the affected party. Such events may include, but not be limited to, acts of the Employer in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

23.3. Upon the occurrence of such cause and upon its termination the Affected Party, shall notify the other party in writing immediately not later than 48 hours of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of its claim. Failure to do so may liable the party being denied of the shelter of the clause.

23.4. Employer shall examine the merit of the case and accordingly Time for performance of the relative obligation suspended by the Force Majeure shall then stand extended by the period for which such cause lasts. The decision of the Employer shall be final and binding in this regard.

23.5. However, should such a delay even if due to reason of Force Majeure be protracted for more than three 3 (months), the Employer may cancel the contract, subject to the consent of the Contractor, at no charge to the Employer in Contractor's favour.

23.6. The Contractor shall not be liable for forfeiture of its Performance Security, Liquidated damages, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

24. **Change Orders and Contract Amendments:**

24.1. The Employer may at any time order the Contractor through notice to make changes within the general scope of the Contract in any one or more of the following:

(a) drawing, designs, or specification, where Goods to be furnished under the Employer;
(b) the method of shipment or packing;
(c) the place of delivery; and
(d) the Related Service to be provided by the Contractor

24.2. If any such change causes increase or decrease in the cost of, or the time required for Contractor's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Contractor for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Contractor's receipt of the Employer's change order.

24.3. Prices to be charged by the Contractor for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Contractor for similar services.

24.4. Subject to the above no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties. No extras shall be allowed for unless ordered as such in writing by the EMPLOYER and such extras will be paid for at rates and prices to be agreed upon mutually and upon the certification by the Employer or his Representative. Any extra expenses in addition to the amount specified in the Price Schedule which may be Incurred by The Employer in the performance of the work required owing to the neglect or omission on the part of the contractor/contractors his/their workmen in any of the cases mentioned in this contract shall be deducted from any sums due of which may therefore, become due to the contractor/contractors by the Employer or he/they may be called upon to pay the amount of such extra expenses to such person or persons as the Employer may appoint to receive the same and in the event of the contractor/contractors failing to make such payment, the said amount shall be recoverable from him/them in such manner as the Employer may determine.

24.5. The quantities indicted in the Price Schedule are estimated only and are liable to be altered or omitted.

25. **Extension of Time:**

25.1. If at any time during performance of the contract, the contractor or its Sub-contractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services, pursuant to GCC Clause 6, the contractor shall promptly notify the Employer in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the contractor's notice, the Employer shall evaluate the situation and may at its discretion extend the contractor's time for performance, in which case the extension shall be ratified by the parties by amendment of the contract.

25.2. Except in case of Force Majeure, as provided under GCC Clause 23, a delay by the Contractor in the performance of its Delivery and Completion obligations shall render the Contractor liable to the imposition of liquidated damages pursuant to GCC Clause 20 (Liquidated Damages), unless an extension of time is agreed upon, pursuant to GCC Clause 25.1.

26. **Termination:**

26.1. Termination for Default:

26.1.1. The Employer, without prejudice to any other remedy for the breach of Contract, by written notice of default sent to the Contractor, may terminate the contract in the whole or in part:

(i) If the contractor fails to deliver any or all of the Goods within the period specified in the Contract, or within the extensions granted by the Employer pursuant to GCC Clause 25.

(ii) If the contractor fails to perform any other obligation under the contract or

(iii)If the contractor, in the judgment of the Employer has engaged in fraud and corruption as defined in Clause 27 under Instruction to Tenderers, in competing for or in executing the contract.

26.1.2. In the event the Employer terminates the contract in whole or in part, pursuant to GCC Clause 26.1.1, the Employer reserves its right to take any one or more of the following actions:-

(i) The Performance Security is to be forfeited;

(ii) The Employer may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Contractor shall be liable to the Employer for any additional costs for such similar Goods or Related Services. However, the Contractor shall continue performance of the Contract to the extent not terminated.

26.2. Termination for Insolvency:

The Employer may at any time terminate the Contract by giving notice to the Contractor if the Contractor becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Contractor, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Employer.

26.3. Termination for Convenience:

(a) The Employer, by notice sent to the Contractor, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Employer's convenience, the extent to which performance of the Contractor under the Contract is terminated, and the date upon which such termination becomes effective.

(b) If the contract is terminated for convenience of the Employer as stated in GCC Clause 26.3 (a), the Goods that are complete and ready for shipment within twenty-eight (28) days after the Contractor's receipt of notice of termination shall be accepted by the Employer at the Contract terms and prices. For the remaining Goods, the Employer may elect:-

(i) To have any portion completed and delivered at the Contract terms and prices; and/or

(ii) To cancel the remainder and pay to the Contractor an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Contractor.

27. **Execution of Agreement:**

27.1. Upon the receipt of letter intimating award of the Contract (LoA), the Contractor shall prepare two sets (one original and one duplicate) of the Agreement as per the format attached at Annexure-C in the Tender Document, after taking into account any changes thereafter agreed by both the parties, at the earliest without any delay and complete all the formalities and submit the same to the Cochin Port Authority duly executed on Kerala stamp paper of appropriate value within 21 days from the date of receipt of LoA. Original of the agreement will be retained by the Cochin Port Authority and the duplicate will be returned to the Contractor after the signature of the Chief Mechanical Engineer.

28. **Sum payable by way of compensation to be considered as reasonable compensation without reference to actual loss:**

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of the Board without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

29. **Changes in constitution of firm:**

In the case of a tender by partners, any change in the constitutions of the firm shall be forthwith notified by the Contractor to the Chief Mechanical Engineer for his information.

30. **Employees of the Board not individually liable :**

No official or employee of the Board shall in any way be personally bound or liable for acts or obligation under the contract or answerable for any default or omission in the observance or performance of any of the acts, matters or things which are herein contained.

31. **No Claim Certificate:**

No dispute or difference on any matter whatsoever, pertaining to the contract can be raised by the contractor after submission of 'No Claim Certificate' in the form as per the format enclosed as Annexure-D.

32. **Reporting of Accidents**

The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the local police authorities immediately by the available means.

33. **Observance by Sub-Contractors**

The Contractor shall be responsible for observance by his sub-Contractors of the foregoing provisions.

34. **Port Entry Permission**

The Contractor shall submit prior application for Port entry passes to the concerned Port authority for his labours and the staffs engaged in the works.

The Contractor shall retain the original passes obtained by them in respect of their labour and staff engaged in the Works and produce the same to the Engineer as and when called for. It should not be either destroyed or allowed to be taken by the labour/staff after its use.

35. **Defect Liability**

35.1 The Engineer or his nominee shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice of a Defect is given, the Contractor shall correct the notified defect within the length of time specified by the Engineer or his nominee's notice. To the intent that the works shall, at or as soon as practicable after the expiration of the Defects Liability Period, be delivered to the Employer in the condition required by the Contract, fair wear and tear excepted, to the satisfaction of the Engineer, the Contractor shall :

(a) Complete the work, if any, outstanding on the date stated in the Taking-Over Certificate within the date to be intimated by the Engineer and

(b) Execute all such work of amendment, reconstruction, and remedying defects, shrinkages or other

faults as the Engineer may, during the Defects Liability Period or within 14 days after its expiration, as a result of an inspection made by or on behalf of the Engineer prior to its expiration, instruct the Contractor to execute.

35.3 **Cost of Remedying Defects**

All work referred to in Sub-Clause 35.2 shall be executed by the Contractor at his own cost if the necessity thereof is, in the opinion of the Engineer, due to:

(a) The use of materials, Plant or workmanship not in accordance with the Contract, or

(b) Where the Contractor is responsible for the design of part of the Permanent Works, any fault in such design, or the neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

35.4 **Defects Liability Certificate**

The Contract shall not be considered as completed until a Defects Liability Certificate shall have been signed by the Engineer and delivered to the Employer, with a copy to the Contractor, stating the date on which the Contractor shall have completed his obligations to execute and complete the Works and remedy any defects therein to the Engineer's satisfaction. The Defects Liability Certificate shall be given by the Engineer within 28 days after the expiration of the Defects Liability Period, or, if different defects liability periods shall become applicable to different Sections or parts of the Permanent Works, the expiration of the latest such period, or as soon thereafter as any works instructed, pursuant to Clauses 36, have been completed to the satisfaction of the Engineer.

35.5 **Uncorrected Defects**.

If the Contractor has not corrected a Defect within the time specified in the Engineer’s or his nominee’s notice the Engineer or his nominee will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

SECTION -II

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

2. FORM OF SECURITIES (ANNEXURE A & B)

Annexure –A

PROFORMA OF BANK GUARANTEE FOR PERFORMANCE GUARANTEE/ SECURITY DEPOSIT

(To be executed on non-judicial Stamp Paper of appropriate value)

[The bank, as requested by the successful Tenderer, shall fill in this form in accordance with the instructions indicated]

1. In consideration of the Board of Major Port Authority of the Port of C**ochin]** incorporated by the Major Port Trusts Act, 1963 as amended by Major Port Trust (Amendment) Act 1974 (hereinafter called "The Board" which expression shall unless excluded by or repugnant to the context or meaning thereof be deemed to include the Board of Trustees of the Port of **[insert name of Port]**, its successors and assigns) having agreed to exempt_ (hereinafter called the "Contractor")' -----(Name of the Contractor/s)------ from the demand under the terms and conditions of the Contract, vide _____'s letter No. …… (Name of the Department) date_____made under Tender No._____ dated _____ (hereinafter between the Contractors and the Board for execution of __ covered called "the said contract") for the payment of Security Deposit in cash or Lodgment of Government Promissory Loan Notes for the due fulfilment by the said Contractors of the terms and conditions of the said Contract, on production of a Bank Guarantee for Rs._____(Rupees_____) only we, the (Name of the Bank and Address)_____ __ (hereinafter referred to as "the Bank") at the request of the Contractors do hereby undertake to pay to the Board an amount not exceeding Rs._____ (Rupees __) only against any loss or damage caused to or suffered or which would be caused to or suffered by the Board by reason of any breach by the Contractors of any of the terms and conditions of the said contract.

2. We,_____,_____, do hereby (Name of Bank) (Name of Branch) undertake to pay the amounts due and payable under this guarantee without any demur merely on a demand from the Board stating that the amount claimed is due by way of loss or damage caused to or which would be caused to or suffered by the Board by reason of any breach by the Contractors of any of the terms and conditions of the said contract or by reason of the Contractors failure to perform the said contract. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to any amount not exceeding Rs._____ (Rupees_____)only.
3. We,_____(Name of Bank and Branch)_____, undertake to pay to the Board any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.
4. We,_____(Name of Bank and Branch) further agree with the Board that the guarantee herein contained shall remain in full force and effect during the period that would be taken for performance of the said contract and that it shall continue to be enforceable till all the dues of the Board under or by virtue of the said contract have been fully paid and its claims satisfied or discharged or till the

___

(Name of the user department)

of the said certifies that the terms and conditions of the said contract have been fully and properly carried out by the said Contractors and accordingly discharge this guarantee. PROVIDED HOWEVER that the Bank shall be the request of the Board but at the cost of the Contractors, renew or extend this guarantee for such further period or periods as the Board may require from time to time.

5. We,_____further agree with the Board (Name of Bank and Branch)

that the Board shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend the time of performance by the said contract or to extend the time of performance by the said Contractors from time to time or to postpone for any time or from time to time any of the powers exercisable by the Board against the said Contractors and to forebear or enforce any of the terms and conditions relating to the said contract and we shall not be relieved from our liability by reason of any such variation or extensions being granted to be Contractors or for any forbearance, act or omission on the part of the Board or any indulgence shown by the Board to the Contractors or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. It is also hereby agreed that the Courts in **[insert city]** would have exclusive jurisdiction in respect of claims, if any, under this Guarantee.
8. We,_____ Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Board in writing.

9. Notwithstanding anything contained herein:

a) Our liability under this Bank Guarantee shall not exceed Rs._____(Rupees_____ only);

b) this Bank Guarantee shall be valid upto _*_____;and

c) we are liable to pay the guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before __ (date of expiry of Guarantee)." Date_____day of_____2023.

For (Name of Bank)

(Name)

Signature

* The date will be thirty (30)days after the end of the period of Defect Liability as specified in the Contract.

Annexure - B

PROFORMA OF BANK GUARANTEE FOR ADVANCE

(To be submitted on Non-Judicial Stamp Paper of appropriate value)

Bank Guarantee No_____ Amount of Guarantee Rs._____

Guarantee cover from _____to_____ Last date of lodgment of claim

In consideration of Board of Trustees of Cochin Port Authority (hereinafter called "Port Trust") which expression shall include all their successors and assignees having agreed to pay advance of Rs._____(Rupees_____ only) repayable with interest @_____% per annum to_____(Name & Address of contractor) (hereinafter called the "CONTRACTOR") which expression shall include their successors and assignees for the contract for the work of_____(Name of work) evidenced by the offer of the Contractor dated…….. and accepted by the Port Trust forming the contract and the work order No…….. dated,……. for the work of (name of work) issued by the Port Trust and the formal stamped agreement to be entered into between parties in the above, the said amount and interest being recoverable from the running bills of the contractor on pro-rata basis as per terms of agreement, we (Name of Bank) having our Head office at …….. (hereinafter referred to as "the Bank") do hereby undertake to pay The Cochin Port Authority an amount of Rs……(Rupees……..only) with interest against any loss or damage caused to or would be caused to or suffered by the Port Trust by reason of any breach by the said contractor of any of the terms or conditions contained in the said agreement, making it impossible or difficult to recover the said mobilization advance of Rs……(Rupees……..only) or part thereof or interest thereon we (Name of the Bank)do hereby undertake to pay the amounts due and payable under the guarantee without any demur, merely on demand of The Cochin Port Authority by reason of any breach by the said contractor of any of the terms and conditions contained in the said agreement or by the reason of contractor's failure to perform the said agreement. Any such demand made on the Bank shall be conclusive not only as regards to contractor's failure but also as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee will be restricted to an amount of Rs…….(Rupees…….. only) with interest as per the agreement.

We, (Name of the Bank) further agree the guarantee herein contained will remain in full force and affect during the period that would be taken for the recovery of the loan and that it shall continue to be live and enforceable till all the amounts due with interest thereon have been fully recovered and its claims satisfied or discharged or till The Cochin Port Trust certifies that the amount outstanding under the advance has been fully recovered from the contractor and accordingly discharged the guarantees. Unless a demand or claim under this guarantee is made on us in writing on or before (date of the expiry) we shall be discharged from all liability under this guarantee thereafter.

We, (Name of the Bank) further agree with the Port Trust that the Port Trust shall have the fullest liberty without or consent and without affecting in any manner or obligation hereunder to vary any of the terms and conditions regarding the recovery or repayment and we shall not relieved from our liability by reason of any such variation or extension being granted to the said contractor or any forbearance, act or omission on the part of Cochin Port Authority or any indulgence by the Port Trust to the contractor or in such matter or things whatsoever which under the law relating to sureties would but for this provision have the effect of so relieving us.

Notwithstanding anything contained herein:

(i) Our liability under this bank guarantee shall not exceed Rs…….(Rupees……)

(ii) This bank guarantee shall be valid upto……

(iii) Our liability to make payment shall arise and we are liable to pay the guaranteed amount or any part thereof under this guarantee, only if you serve upon us a written claim or demand in terms of this guarantee on or before…….

We, (Name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Port Trust in writing.

Dated this the……day of……..(year)

For (Name of Bank)

(Signature)

SECTION –III

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

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SECTION -III
COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

1. GENERAL DESCRIPTION OFWORK

1. General

Where it is mentioned in the Specifications that the Contractor shall perform certain Work or provide certain facilities, it is understood that the Contractor shall do so at his own Cost.

The materials, design and workmanship shall satisfy the relevant Indian Standard, the Specification and conditions herein referred to. Where the Specifications stipulate requirement in addition to those contained in the Standard codes and Specifications, these additional requirements shall also be satisfied.

2. Scope of work

The scope of work includes design and development of **6 MVA Shore power Supply to the vessels calling at the International Cruise Terminal at Cochin Port Authority, including** the following works:

(a) 11KV Bay extension at 110kV main receiving station for taking main 11KV supply for shore supply facility proposed. The 11KV panels shall be compactable with existing Siemens make panels and shall integrate to the existing communication systems as required. The panels shall be fitted with existing compactable Smart TOD meter type with required CT/ PT etc. including supply of SIM and commissioning the same by coordinating with Existing Smart meter service provider.

(b) Approxi. 4.5 kM length of 11kV grade Power cable of 3 Runs, 400 sqmm from Port's receiving 110 kV Main substation to the proposed substation for shore power at Ernakulam Wharf. The HT cable has to be laid through HDD, New RCC trench , Open trench, existing trench, through HDPE pipe with C- channel supports clamps etc. as per requirements.

(c) 2 nos. Step down transformers of 4000kVA capacity for feeding to Frequency Converters to meet the requirement of IEC/ISO/IEEE 80005-1 standard for high voltage shore connection

(d) Parallel combination of 3nos. of AFE Frequency Converters, each having capacity of 1MVA, for a total stack capacity of 3MVA with necessary line filters, interlocks, communication systems etc. **2 sets**, to convert the standard 50Hz power to 60Hz as required by vessels and for synchronization, comply with IEC/ISO/IEEE 80005-1 standard for high voltage shore connection

(e) Isolation Transformers of 4000kVA capacity each, for step up and for required isolation of power to meet the requirement of IEC/ISO/IEEE 80005-1 standard for high voltage shore connection and as per diagram.

(f) Providing LT supply for functioning of the system with LT panels etc. as per requirements

(g) Station transformer for station power supply.

(h) HT panels, 11kV Ring Main Units, Earthing resistors, earthing switches, Circuit breakers, Change over switches etc. & metering units for switching operations in

substation and metering the energy to raise the bill corresponding to the consumption of power by the vessels.

(i) Cable management system comply with IEC/ISO/IEEE 80005-1 standard for high voltage shore connection with easy to move, connect and manage connection to the vessels as per requirements.

(j) Earthing &commissioning the entire installation.

(k) Supply of safety arrangements

(l) Constructing substation building to house the equipments near to the berth.

(m) It is contractor's responsibility to make good the areas/locations etc. to the original/ standard condition after the work has been carried out in connection with project work proposed, by own cost and risk.

(n) The diagrams, specifications, standards, documents etc. given in tender are for reference only and successful bidder has to Design, Engineering, Installation and Commissioning has to done as per the requirements and recommendations of TPIA appointed by CoPA.

(o) Preparation of drawings, SL diagrams, earthing layout etc. and submitting the scheme to CEA for approval & arranging inspection, rectification of defects

(p) The project development shall be carried out on Turnkey mode and the Operation and Maintenance shall be carried out by OEM during guarantee period and thereafter on award of AMC contract.

3. Site conditions

Location

The project area at the Q8 and Q9 berths at Ernakulam Wharf of Cochin Port Authority at Willingdon Island. The Tenderer is advised to examine the Site(s) where the substation is to be constructed, its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Tender and entering into a Contract for the Works/Project. The costs of visiting the Site shall be at the Tenderer's own expense. The Tenderer's designated representative is invited to attend a Pre-Tender Meeting, as provided for in the Tender data sheet. The purpose of the meeting will be to clarify issues and to answer questions on any matter related to the Tender that may be raised at that stage

All clarifications to Tender queries and modifications to the Tender Documents that may become necessary will be made by the Employer exclusively through Clarifications/Corrigendum to the Tender documents which shall be uploaded in E-Tender and CoPA portal pursuant to ITT.

4. Tide and Flood Levels

The various tidal levels in the area as per Naval Hydrographic Chart No.2004 are as indicated below for the general guidance to the tenderer.

Tide		Levels with reference to Port Chart datum (in metres)
Highest High Water Level	:	+1.20m
Mean High Water Spring(MHWS)	:	+0.92m
Mean Low Water Spring(MLWS)	:	+0.80m
Mean Sea Level (MSL)	:	+0.582m
Mean High Water Neap(MHWN)	:	+0.60m
Mean Low Water Neap(MLWN)	:	+0.30m
Lowest Low Water Level	:	+0.20m

Waves

The work site is in the inner harbour area where generally calm conditions prevail throughout the year

Wind

Wind at Cochin is highly influenced by the land and sea breezes. Wind direction changes from north-east during morning hours to west during evening for the period of October to May. During peak of south-west monsoon, especially from June to September, predominant wind direction remains south-west both during morning and evening hours. Due to strong monsoon winds, effect of land winds is not dominant during south-west monsoon. During the non-monsoon periods, the predominant wind direction is from north east during the morning and west during the evening which shows influence of land breeze.

Rainfall

The climate is characterized by dry and wet seasons. The wet seasons starts in late May and ends in November. During this period, two monsoons pass by one after another. The major monsoon is south-west monsoon which lasts from June to September. This is followed by north-east monsoon during October and November. The average annual rainfall is about 3000mm; and the major portion is during south-west monsoon.

Temperature

Cochin experiences moderate temperatures throughout the year. The temperature varies from 22□ C to 34□ C. The low temperature occurs during the southwest monsoon, December and January. Daytime temperature goes upto 30□ C even during this period. The hot months are from March to May.

5. Drawings

The drawings enclosed with the tender document are to provide some idea of the job only and are preliminary and for tender purpose and are by no means complete and final and do not show the full range of the work under the scope of the contract. Work shall be carried out only on the basis of drawings marked "Issued for Construction" with addition, alteration, modifications, if any made to aforesaid drawings as required from time to time and also according to other drawings that would be supplied to the contractor from time to time.

6. Time Schedule and monitoring of progress

Tenderer shall prepare and attach with the tender a detailed work schedule [preferably in MS Project / Primavera] indicating key activities and critical items for completing the work within the stipulated contract period. This time schedule forms the basis for monitoring the progress of work. Issue of working drawings by the department will be regulated as per the time schedule approved by the department.

The contractor shall furnish to the Engineer monthly progress reports of the work during execution in the approved proforma indicating delay, if any, its reason and proposal to cover up the delay.

7. Facilities to be provided by the Port

Contractor's work area:

An area -- will be made available to the Contractor for project purpose free of rent for setting up of site office, store, etc.

Power

Electric power required for the work can be supplied by the department from the nearest existing line of the Port Trust at prevailing rates. The cost of drawing temporary lines/ cables/ providing switches and making connection and metering arrangements etc, shall be borne by

the Contractor. If there is any disruption in the power supply due to supply failure/ restrictions imposed by the Kerala State Electricity Board, the department shall not be held responsible and the Contractor has to make suitable alternative arrangements at their cost.

8. Contractor's responsibility

1) All materials for use on the works shall be supplied and provided by the contractor at his own cost and shall conform to relevant BIS Specification unless otherwise specified.

2) Samples of all materials including fixtures, if any, to be incorporated in the work shall be got approved by the Engineer-in-Charge before procurement.

3) The contractor shall thoroughly study the specifications and drawings and errors/omissions/modifications if any shall be brought to the notice of the Engineer-in-Charge well in advance so that a final decision in the matter could be given in time.

4) All labour, skilled or unskilled shall be provided by the contractor. Settling any dispute with the labour will be contractor's responsibility.

5) The contractor shall be solely responsible for any damage or injury to the persons or things caused or suffered during the execution of the work and these shall be made good or compensated at his risk &cost.

6) The contractor shall take all care and precautionary measures for avoiding any kind of damage/accident in the work site on any account. The department shall not entertain any claim from the contractor whatsoever towards compensation for any damage/accidents at the site due to negligence from his part, during the execution of work.

7) The contractor shall prior to commencement of the work insure in the joint names of the Employer and the contractor against all loss or damage from whatever cause arising for which he is responsible under the terms of contract.

8) The work shall be arranged by the contractor without causing any damage to Port's/ any other equipment/ installations/ structures. Any damage caused by the contractor's operation shall be compensated/ made good at contractor's risk and cost to the satisfaction of the Engineer-in-Charge of the works, failing which department will do the rectification work and the cost incurred will be recovered from any sum due to him from the Port.

9) All plants and equipments and consumables required for the whole work shall be provided by the contractor at his own cost.

10) The contractor shall not construct any structure, even of temporary nature, for any purpose at site, except with the written permission of the Engineer-in-Charge of the work and any construction so put up shall be removed by the contractor whenever the Engineer-in-Charge calls upon the contractor to do so.

11) Qualified Engineers with sufficient experience in works of similar nature shall be available at site throughout the contract period during working hours in order to receive instructions from department and to implement them properly and in time.

12) The contractor shall take all care and precautionary measures for avoiding damage or accidents to the work from ship or other water crafts movements or other operations in the area. The department will not entertain any claim from the contractor whatsoever, towards compensation for any such damage or accident occurring during the execution of the contract.

13) The contractor shall observe all safety regulations during the execution of the work. Safety measures, precautions, warning signals etc. shall be done at the contractor's cost as directed by the Engineer-in-charge of the work. The contractor shall provide all necessary personnel protection equipments such as helmet, lifeguard, goggles, boots etc. to the workmen at his own risk and cost.

14) The work shall be arranged by the contractor without causing any hindrance to the ship and other water craft operating in the area. No damage shall be caused to the structures in the area, water crafts operating in the area or otherwise by the contractor's operations. Any damage or accident caused by the contractor's operations shall be compensated/made good at the contractor's risk and cost.
15) The contractor shall supply at his own cost monthly or at intervals as directed by the Engineer-in-charge, well executed photographs in standard size (approximately 24x18 cm) showing the progress of the work and also such other particular item of the work.
16) No information or photograph concerning the works shall be published without the prior permission of the Chief Mechanical Engineer and drafts of all such proposal/ publication shall be submitted for approval.
17) The information and data shown in the drawing and detailed elsewhere in the tender document are furnished for general information and guidance only and the Port Trust in no case will be held responsible for the strict accuracy thereof or any deduction, interpretation or conclusion drawn by the tenderer.
18) The contractor shall observe the conservancy rules relating to the Port and shall always take necessary steps to keep the Port water free of noxious or unhygienic matter due to the work, as are required by the Engineer-in-Charge. Under no circumstances, inflammable materials be allowed to spill into Port area.
19) The Cochin Port is an International Ship & Port Facility Security (ISPS) code compliant Port and the contractor is obliged to comply with the provisions of the code in force and as amended from time to time. The site for the proposed work is a protected area and hence security rules and regulations including obtaining entry/ exit passes including photo passes if any for vehicles, men and materials etc. for entering the area shall be observed by the contractor at his cost.
20) The contractor shall provide necessary arrangements as desired by the Engineer- in-Charge for inspection of work without any extra cost from commencement till completion of work.
21) The Contractor shall ensure that no labourers with criminal background are engaged for the work.
22) All fossils, coins, articles of value or antiques and structures and other remains or things of geological or archaeological interest discovered in the site of work shall be deemed to be the absolute property of the Port Trust and the contractor shall take responsible precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal, acquaint the departmental officers of such recovery and carry out at the expense of the department, the Engineer-in-Charge's orders as to the disposal of the same.
23) The contractor shall remove any plant (floating or otherwise) belonging to him or to any person employed by him which might have sunk in the course of work or otherwise deal with the same as directed by the Engineer-in-Charge and until the same is raised and removed, the contractor shall set on such buoys and display at night such lights for avoiding any mishaps.

Water required for the construction works including curing work shall be arranged by the contractor on his own cost.

24) The contractor shall take all precautions for not to damage any cables/pipes etc. passing through the area of work.
25) While carrying out hot works such as welding, cutting, chipping the concrete etc. the following conditions shall be strictly observed by the contractor:
    (i) Hot work shall be carried out with the approval of the Dy. Conservator's department and the work shall be done as per the instruction of the fire service personnel.

(ii) Welding /gas cutting work shall be carried out only with the prior permission of the Marine Dept. and only when vessel carrying inflammable materials is not berthed at the existing berths near to it.

26) The contractor shall remove all materials brought to work site / stacked at the work site or anywhere else within the Port area and clear the site at his cost to the full satisfaction of the Engineer-in-Charge before the site is returned to the Port Trust. All such materials including debris, tools & plants etc. shall be disposed off to any place as pointed out by the Engineer-in-Charge or be taken away from the location and shall be cleared in every respect and to reinstate to its original condition at no extra cost to the Port Trust immediately after completion of the work. In case, any such material is found left in the work site or anywhere in the Port area, rent for the storage space occupied by the contractor, either for stacking the materials /debris or for areas used for such purpose but not cleared thereafter, will be recovered as per the prevailing Scale of Rate of Cochin Port Authority, for the rent applicable for open storage space for commercial purpose, for the period for which the area had been occupied by the contractor. In addition to the above, in case the Port requires the area immediately for its use, Port will repossess the land after restoring it to its original condition, material will be confiscated and disposed off at the risk and cost of the contractor, after issuing two notices giving 15 days' time each for removing the material. All expenses incurred on this shall be recovered by disposing off the material if any confiscated. If any balance amount still remains to be realized that will be recovered from the contractor by appropriate means.

The contractor shall extend all the facilitations and cooperation for other contractors for simultaneous execution of other works in the area entrusted by Cochin Port Authority.

27) The contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, 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."

28) 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. Work Order shall be issued only to the contractors who are registered under EPF organization and ESI Corporation. The contractors shall regularly remit the employer and employee contribution to the authorities. If not, the Department would remit the same and the amount so remitted shall be deducted from the part/final bill of contractors.

29) The contractor shall provide, at every work place, at which 20 or more women workers are ordinarily employed, crèches of reasonable size and with adequate facility for the use of their children under at the age of six years at his risk and cost.

9. Workmanship

All the works shall be done strictly according to relevant B.I.S. Specifications unless otherwise specified. The whole work shall be completed in a diligent manner within the contract period and defect or imperfection if any, observed during the defect liability period/ guarantee period, shall be rectified at contractor's cost to the full satisfaction of the Engineer-in-Charge within the time allowed.

The work shall be arranged in the order of preference as directed by the Engineer-in-Charge of work. In addition to above, contractor shall submit a Quality Assurance Plan (QAP) for the work and it shall be approved by the Engineer-in-Charge before commencing the work and shall be ensured strict compliance of the same. The QAP shall contain the details of tests to be conducted for each material to be used in the work and work.

10. Temporary works

All scaffolding, staging, bracing and other temporary works required for proper execution of the works, shall be provided by the contractor at his own cost, unless stated otherwise and that should be inclusive of all materials, labour, supervision and other facilities. The layout and details of such temporary works shall have prior approval of the Engineer-in-Charge, but the contractor shall be responsible for proper strength and safety of the same. All temporary works shall be so constructed as not to interfere with any permanent work or with the work of other agencies. If it is necessary to remove any of the temporary works at any time to facilitate execution of works or work by other agencies, such removal and re erection, if required, shall be carried out by the Contractor at the direction of Engineer-in-Charge without any delay and any extra cost on this account shall be borne by the contractor.

On completion of the works, temporary works if any provided by the contractor shall be removed from the site and the area shall be reinstated to the original condition at his own risk and cost.

11. Time For Completion

The time allowed for carrying out the work as mentioned in the memorandum shall be strictly observed by the contractor. The work shall throughout the time period be proceeded with diligence, time being deemed to be the essence of the contract.

The completion of work may entail working in monsoon period/rainy season without any extra cost. The contractor shall take such an eventuality into consideration while quoting for the work. Normally, no extension of time will be admissible for work in monsoon.

The whole work shall be completed in the stipulated time, accordance with the provisions under Memorandum included under "Form of Tender" or such extended time as may be allowed under clause 29 of Conditions of Contract included in the GCC.

12. Working time

The normal working time of the Port Trust is from 8 a.m. to 4.00 p.m. on all working days with no interval in between. If the Contractor wishes to carry outthework beyond normal working hours and or on holidays, he should get specific approval from the Engineer-in-Charge for the same. Necessary supervision will be arranged by the department and the expenditure to be incurred in this connection will be borne by the department.

13. Method of Execution

The contractor shall clearly indicate in their tender the method proposed by them for executing the various items of works. During the actual execution of the works if modifications or changes in the method of execution of work is found necessary the contractor shall obtain approval from the Engineer-in-charge of work for such modifications or changes in the method. No claim from the contractor for additional payment shall be entertained by the department on the above account.

The detailed list of equipment/machineries/tools & plants proposed to be mobilized for the deployment in the work as furnished as per **Annexure-7** of Section- I and method of execution furnished under clause above, are considered only for the technical appreciation of the proposal of the contractors and it shall not relieve the contractor of his responsibility of executing the work with the quality specified in the tender and any discrepancy occurs, the construction procedures detailed/specified in the tender will prevail. In case, any additional equipment are required to be mobilized than those listed in the tender for deployment in the work, it shall be arranged and the work executed as per the tender specifications without any extra cost to the Department

14. Alterations and Additions

The Employer shall have power and authority from time to time and at all times to make amendments or additions or alternations or changes in the scope of the work, and specifications,

drawings and bill of quantities and give such further instructions and directions as may appear to the Employer necessary and proper for the guidance of the Contractor and the good and efficient execution of the works and the contractor shall receive, obey and be bound by the same according to the true intent and meaning thereof as if the same had been mentioned or referred to in the scope of the work, specifications, Bill of Quantities and Schedules and drawings. The Employer may also vary or alter the lines, levels or positions of any of the works contemplated or may order any of the works contemplated thereby to be omitted, with or without the substitution of any other works in lieu thereof, or may order any work or any portion of works executed or partially executed to be removed, changed or altered, if required, and may order that other work shall be substituted in lieu thereof and any difference in the cost occasioned by any such diminution or alteration so ordered and directed shall be added to or deducted from the Contract Price based on rates available in the contract or where the rates are not specified a suitable rate backed up by rate analysis shall be submitted by the contractor and agreed upon between the contractor and the Employer. In the event of disagreement, the Employer shall fix such rates or prices as shall in their opinion, be reasonable and proper having regard to the circumstances. The contractor shall give to the Employer before the tenth day of every month, a statement in writing of any extra work which he may have performed during the preceding month, failing which any claim for which he may afterwards make for payment on account of any such extra work will not be allowed.

SECTION -III

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

2. SPECIAL CONDITIONS OF CONTRACT (SCC)

1. Special Conditions shall be read in conjunction with the General Conditions of Contract, Specifications, Drawings and any other document forming part of this Contract wherever the context so requires.

Notwithstanding the Sub-division of the documents into these separate section and volume every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the Contract so far as it may be practicable to do so.

Where any portion of the General Conditions of Contract is repugnant to or at variance with any provision of the Special Conditions, the provisions of the Special Conditions shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy of variations, prevail.

2. Measurements of Work Done:

In addition to the Clause-26 of GCC- 'Computerized Measurement Book', measurement of the work can also be done as detailed below.

2.1. Executive Engineer (hereinafter called the Engineer's Nominee) shall, except as otherwise provided, ascertain and determine by measurement the value in accordance with the Contract of work done.

2.2. All measurement of all items having financial value shall be entered in Measurement Book and/or level field book so that a complete record is obtained of all works performed under the Contract.

2.3. All measurements and levels shall be taken jointly by the Engineer's Nominee or his authorised representative and by the Contractor or his authorized representative from time to time during the progress of the work and such measurements shall be signed and dated by the Engineer's Nominee and the Contractor or their representatives in token of their acceptance. If the Contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties.

2.4. Department shall not entertain any claim from Contractor for any loss or damages on this account. If the Contractor or his authorized representative does not remain present at the time of such measurements after the Contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer's Nominee or his representative shall be deemed to be accepted by the Contractor.

2.5. The Contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for measurements and recording levels.

2.6. Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by

specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.

2.7. The Contractor shall give not less than seven days' notice to the Engineer's Nominee or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer's Nominee or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer's Nominee's consent being obtained in writing the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

2.8. Engineer's Nominee or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

2.9. It is also a term of this Contract that recording of measurements of any item of work in the measurement book and/or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the Contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

3. PHASING OF WORKS

The work has to be carried out in phases as approved by Employer from time to time so that the total project work can progress smoothly with least obstruction to the operations and also works of other Contractors/ agencies.

4. STRUCTURAL ALTERATIONS TO BUILDINGS

1.1 No structural member in the building shall be damaged/ altered, without prior approval from Employer.

1.2 Structural provisions like openings, pipes if any, provided by EMPLOYER for the work, shall be used. Where these require modifications, such contingent or works shall be carried out by the contractor, at his cost after the prior approval of EMPLOYER.

1.3 All cut out openings in floors provided by EMPLOYER shall be closed, after installing the cables/pipes/ducts in accordance with the item therefore in the schedule of work.

1.4 All cuttings made by the contractor in connection with the works shall be filled by him at his cost to the original finish.

5. SAMPLES

The Contractor shall require to provide to EMPLOYER samples of all the materials sufficiently in advance free of cost to obtain approval of EMPLOYER. Approved samples shall be retained by EMPLOYER until the completion of the work and all materials and workmanship incorporated in the work are to conform to the approved samples in all respects. Rejected materials shall be removed from the site immediately under the supervision of EMPLOYER.

6. SCHEDULE OF QUANTITIES (SOQ)/ BILL OF QUANTITIES ()

The quantities given in the tender BoQ (Appendix-1) are tentative and shall vary as per the design requirements. Only required items & quantities are to be supplied/ installed.

Contractor shall take detailed site measurements, for all the HT and LT equipments, cables, Earth strips, piping, ducting etc., before placing purchase order / taking procurement action. The BoQ shall be considered in conjunction with the Scope of works, Specification and all the project documentation.

Contractor shall monitor the requirements of various items and shall report to EMPLOYER Engineer in charge with regard to deviations in the existing items and requirement of additional / extra items, if any, for taking necessary action.

7. GENERAL REQUIREMENTS OF COMPONENTS

1. Quality of materials

   All materials and equipments supplied by the contractor shall be new. They shall be of such design, size and material as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

2. Inspection of material and Equipments

   Materials to be used in the work shall be inspected by the engineer-in-charge. Such inspection will be of the following categories.

   a) Inspection of materials/Equipments to be witnessed at the Manufacturer's premises in accordance with relevant BTS/Agreement Inspection Procedure. The contractor has to give inspection call for each item at least three weeks in advance. The inspection call should include (i) Name of the item (ii) Reference number of schedule of quantity (iii) Details of approval of specification/drawings etc (iv) Address of the suppliers/sub suppliers and (v) Tentative date of inspection. No item/equipment should be supplied without giving inspection call. All arrangements for conducting the inspection and testing at the factory shall be responsibility of the contractor. Inspection / despatch clearance issued by Engineer in charge does not absolve the contractor for the responsibility to meet the tender specification. After the receipt of inspection call for an item from the contractor EMPLOYER will depute inspectors to suppliers works. In case the offered item is not ready or inspection could not be carried out due to lack of facilities for testing etc. at supplier's works, the inspector will return and the item has to be re-offered for inspection as per its readiness. In this case all the expenses (boarding, lodging, travelling expenses etc.) of the inspector for the second inspection shall have to be borne by the contractor. In case any defect is noticed at a later stage the contractor has to rectify / replace the entire lot to meet specified standards.

   b) To receive materials at site with manufacturer's Test Certificate(s)

   c) To receive materials after physical inspection at site.

3. Ratings of components

   All current carrying components in an installation shall be of appropriate ratings of voltage, current and frequency as required at the respective sections of the electrical installation in which they are used without their respective ratings being exceeded

8. RESTRICTIONS IN WORKING HOURS

The number of hours working in the area might be restricted due to operational reasons and contractor will not have any claim for extra payment on this account. The contractor's staff working in the operational area will obey the instructions of authorities in clearing the site. Also prior permission has to be obtained before stacking of materials in the premises.

The work shall be done in phases, in close co-ordination with civil/electrical/air conditioning false ceiling works and other works as directed by EMPLOYER.

The contractor shall note that the site for installation will be made available in parts or in phases. It is the responsibility of the contractor to programme his work accordingly. No extra amount will be paid on account of site being made available in phases/parts.

9. LIQUIDATED DAMAGES

For levying LD as per Clause-20 of General Conditions of Contract, the employer is not required to have documentary evidence to quantify or prove the losses suffered by the Employer due to delay in completion of work by the contractor, as per agreement conditions.

10. CONTRACTOR TO SUBMIT PROGRAMME

After the acceptance of his Tender, the Contractor shall, within fifteen days, submit to the Engineer-in-Charge for his approval, a detailed programme taking into account the total time period stipulated in the contract showing the order, the procedure and method in which he proposes to carry out the works.

He shall furnish the particulars in writing of his arrangements of manpower, plant and machinery and all other resources owned and dedicated to this work. Cash flow during the execution of project for procurement of materials and for carrying out of the works including temporary works which the Contractor intends to construct shall also be furnished.

In support of this programme, the Contractor shall submit a work schedule in the form of a CPM/PERT Chart. The Engineer-in-Charge shall if necessary modify the programme submitted by the Contractor and approval shall be given by the Engineer-in-Charge indicating the major milestones. The programme approved by the Engineer-in-Charge shall be final and binding on the Contractor. The approval by the Engineer-in-Charge of such programme, or furnishing of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the contract.

During the progress of work, the Contractor shall be required to furnish the resource mobilization plan as required by Engineer-in-Charge to keep up the target date of completion.

This CPM/PERT programme will be required to be updated every month or more frequently as directed by the Engineer-in-Charge, based on the actual progress, resource mobilisation and other field conditions actually prevailing.

11. PROGRESS REPORTS AND SCHEDULES

The Contractor shall submit to the Engineer-in-Charge by the third day of every fortnight, six (6) copies of a report in a duly approved format showing the progress made in construction of the works, mobilization of resources etc. during the previous fortnight.

The Contractor shall also submit by the end of every month his anticipated progress schedule for all items of work for the following month in six (6) copies in an approved proforma to the Engineer-in-Charge.

An order book of work shall be maintained and the Contractor shall acknowledge the orders given by the Engineer-in-charge and shall carry them out accordingly.

The Contractor shall particularly note that the tender rates of the various items shall be inclusive of all incidental charges, such as bailing, shoring, bunding, barricading and lighting, etc. if found necessary during execution and no extra shall be due therefore on any account to the Contractor.

The Contractor should see that the labour and staff employed by him behave in a proper manner and should dispense with services of such person or persons from the site as directed by the Engineer-in-charge.

12. TAXES & DUTIES

12.1 The Price will be fixed and inclusive of all the duties and taxes including GST. All investments, operating expenses, incidentals, overheads etc. as may be attendant upon execution and completion of works shall also be included in the rates, prices and total Bid price submitted by the bidder.

12.2 The Contractor shall be solely responsible for all taxes that may be levied on the Contractor or on the earnings of any of his employees or personnel engaged by him and shall hold the Owner/Purchaser indemnified and harmless against any claims that may be against the Owner/Purchaser in this behalf. The Owner/Purchaser does not undertake any responsibility whatsoever regarding taxes under Indian Income Tax Act of the Contractor or his personnel. If it is obligatory under the provision under the Indian Income Tax deduction of Income Tax at source shall be done by the Owner/Purchaser

12.3 Cess as per Building and other Construction Workers Welfare Cess Act (Act 28 of 1996) at the rate of one percent or at the rates prevailing in force at the time of payment of bills, of the cost of construction should be borne by the contractor and the same will be deducted from contractor‘s bills while making payment or when crediting amount to contractors account.

12.4 The item wise rate quoted by bidder shall be inclusive of all taxes, duties & levies, including GST. GST will be governed as per the prevailing Rules.

13. AUTHORIZED PERSONAL

The Contractor shall engage an authorized agent experienced and qualified technical personnel for managing and supervising the work and shall see that all of them are always at the work spot during the working hours, personally checking all items of work. He shall take such orders as may be given to him by the Engineer-in-charge from time to time and shall be responsible to carry them out properly. In case contractor fails to provide an agent as per terms given above, EMPLOYER reserves the right to deduct a reasonable amount from the contractor’s bill, subject to a maximum of Rs.25, 000/- per month, for every month of absence.

14. QUALITY PLAN FOR MANUFACTURE OF EQUIPMENT

a) The Quality plan for manufacture is a document, which presents in a tabular form, the Quality Control checks to be exercised by the Contractor during the various stages of manufacture and dispatch in order to meet the requirements of this Contract. This plan shall detail the components manufactured, characteristics being controlled and acceptance norms for this characteristic and the agency responsible for performance and witnessing the checks.

b) After issuance of work order, the contractor shall submit to the Owner, the detailed quality plans to be followed during manufacture of all major equipment’s. These quality plans shall be discussed mutually and updated by the Contractor taking into consideration the requirement of the Owner. The quality plan when approved shall form a part of the contract. This document shall be followed for inspection of the concerned equipment.

c) The details of the quality assurance/ quality checks envisaged by the Contractor during manufacturing of the equipment supplied by him or procured through his subvendors/ sub-contractors shall be detailed out in the quality plans to be submitted by the Contractor. The contractor may also furnish any additional information regarding quality assurance/ quality checks in the additional sheets, if required. Quality plans for major equipment’s manufactured by the Contractor or procured through his subvendors/ sub-contractors shall be submitted during engineering. After approval of the Owner is accorded various quality plans shall be bound as a booklet and shall be submitted to the Owner as soon as possible. The contractor shall ensure that the approved quality plans are followed scrupulously by

him and by his sub-vendors/ sub-contractors and manufacturing of the items covered under the quality plans shall be taken up only after Owner has approved the quality plan.

15. OPERATION AND MAINTENANCE MANUALS

a) For all the equipments supplied by the Contractor, he shall submit to the Owner three sets of the O&M manuals in English language and one soft copy in CD/USB. The manual shall contain the operational features of the equipment, DOs & DON'Ts, trouble shooting, maintenance schedules for preventive maintenance, detail dimensional drawings, cross sectional drawings, method of disassembly and assembly etc. to make the Owner's staff acquainted with the equipment as well as to enable them to operate and maintain the same in prescribed manner. Manuals shall contain all information for ordering of the spares, like part name, part no., Drawing/ material Specifications, address of the supplier with phone no., email& fax no. etc. Contractor shall ensure that these O&M manuals are made available to the Owner well before starting of initial trials of equipment. Electrical system-power, control and communication drawings shall be submitted. Relevant operation software and application software shall be supplied as part of equipment supply by the contractor. If the contractor includes OEMs items, contractor shall ensure to the extent possible usage of open protocols and all required operator and supervisory passwords etc shall be provided to the owner by the contractor at his cost & risk. All required interfacing cable required shall be supplied along with the equipment.

16. TEST REPORTS OF EQUIPMENTS

a) On completion of tests of equipment at manufacturer's works, the Contractor shall furnish four copies of test certificates to the Owner for approval and subsequent dispatch clearance. The test report shall invariably indicate identification data, including model no., sl. no. etc. of the equipment, method of application and duration of test along with test results. Only on approval of these test results by the Owner or Owner's representative, dispatch clearance will be issued for dispatch of material to site. Traceability certificate in original of testing equipment shall be submitted to the owner or his representative attending tests and a copy of the same shall be attached with the reports.

17. LIST OF APPROVED MAKES

It will be deemed that the contractor has priced the respective items on the basis of the approved makes.

List of approved makes applicable for the contract is placed at respective volumes of technical specification.

i) Where makes have not been indicated in the approved make list, such items shall be of ISI marked/reputed brands/UL certified. Reputed brand implies a brand which is supported by nationwide sales & service distributors/ dealers/network/centers. And all such items shall be got approved from Engineer-In-Charge.

ii) Wherever "equivalent" mentioned against makes, suitable evidence shall be produced and get the prior approval of such makes from the Engineer-In-Charge.

18. TESTING AND MEASURING EQUIPMENTS

Equipment for measurement of work and testing the installation shall be procured by the Contractor for their use at their own cost. The same shall also be made available to EMPLOYER without any charges to EMPLOYER.

19. SITE MAINTENANCE DURING CONSTRUCTION

The Contractors shall time to time clear and remove all rubbish and obstructions from the site and the work area shall be kept clear and unobstructed at all times. Nothing extra shall be paid on this account.

20. CONTRACTOR'S STAFF AND LABOUR

a) Workers above 60 years of age and below 18 years of age shall not be deployed by the contractor. All labour, skilled or unskilled shall be provided by the contractor. Settling any

dispute with the labour, labour union, any Outside union, subcontractor will be contractor's responsibility. Loss of day in this regard should not be claimed for any hindrance at site. The workers engaged for works should have sufficient knowledge and experience in the respective fields. This shall be proved to the Engineer. The Owner may at any time request the contractor to remove from the Work/Site contractor's / subcontractor's supervisor or any other authorized representative including any employee of the Contractor or his Sub-contractor(s) or any person(s) deployed by Contractor for professional incompetence or negligence or for being deployed for work for which he is not suited.

b) The Owner may at any time object to and require the Contractor/sub-contractor to remove forthwith from the Site a supervisor or any other authorized representative or employee of the Contractor's /sub-contractor(s) or any person(s), if in the opinion of the Owner, the person in question has misconducted himself or his deployment is otherwise considered undesirable by the Owner, the contractor/sub-contractor shall forthwith remove and shall not again deploy the person in question of the Work Site without the written consent of the Owner.

c) The workmen deployed by the contractor are strictly banned from use of any kind of Narcotics drugs / Alcohol / smoking etc. at site and any illegal activity by the work men should be reported to Engineer without delay and the contractor shall remove such persons from the work site forthwith.

21. STATUTORY APPROVALS

The scope of work also includes obtaining Initial and final approval/ NOC for the system from State Fire Department/ concerned departments /local bodies and liaison works with the department. **All incidental expenses in this regard shall be borne by the contractor. Also, the charges incurred for the statutory approvals shall be borne by the contractor**.

a) All the equipment to be supplied and works to be executed should conform to the Electrical Inspectorate/CEA Standards including all protection and metering accessories.

b) Contractor has to obtain necessary scheme approval (NOC) for various facilities, if any, from the Electrical Inspectorate/CEA immediately after the award of work. Electrical works are included in different packages. However the scheme approval and final approval from KSEI shall be obtained by the electrical contractor having A Grade license issued by KSEI.

c) All testing/calibration, etc. are to be carried out as per the requirements of statutory authorities. The tests/calibration certificates shall be submitted to EMPLOYER

d) On completion of work, the contractor has to obtain necessary safety / energisation certificate from Electrical Inspectorate / CEA by submitting necessary completion certificates, drawings, equipment details, load details, test results, etc. before energisation.

e) The scope of work includes obtaining approvals (NOC) for the fire protection system from local authorities like State Fire Dept (Fire and Rescue Services).

f) The Electrical works shall be carried out as per Central/State Electrical Inspectorate standards/specifications /guidelines and the contractor shall get the approval and safety certificate from the inspectorate after the completion of work and before energisation.

g) The Contractor shall comply with proper and legal orders and directions of local or public authority or municipality and abide by their rules and regulations and pay all fees and incidental charges which may be liable during the contract period.

22. PERFORMANCE TESTING

At Manufacturers works

Before dispatching the equipment to site, the equipment will be inspected at the discretion

of the EMPLOYER and tested for various parameters as detailed in the Technical Specifications, by the officials of EMPLOYER/Consultants at the manufacturer's works and then cleared for shipment. The tenderer shall give adequate notice to enable EMPLOYER to plan their visit for such tests/inspection. The inspection conducted will however, not in any way absolve the contractor of his responsibility for the continued performance of the system/components after erection & commissioning at the designated site during the period of defects liability.

At site

(a) On-site testing shall be conducted to ensure that the machine performance continue to be with the contracted performance parameters for which contractor shall make necessary provisions during installation which will enable testing of the machines.

(b) All the required equipments and measuring instruments for carrying out the testing has to be arranged by the contractor. The instruments used shall be calibrated to test and the valid certificate of calibration should be submitted to the EMPLOYER's Engineer in charge.

23. COMMISSIONING AND HANDING OVER OF EQUIPMENTS

a) **DEFECTIVE WORKS**

If the works or any portion thereof shall be damaged in any way excepting by the acts of the Purchaser, or if defects not readily detected by prior inspection shall develop before the final completion and acceptance of the whole work, the Contractor shall forthwith make good, without compensation, such damage or defects in a manner satisfactory to the Purchaser/Engineer. In no case shall defective or imperfect work be retained.

b) **INITIAL TRIAL**

On completion of works, erection of equipment, each item of the work / equipment as applicable shall be thoroughly cleaned and inspected jointly by the Owner / Consultant and Contractor for correctness and completeness of installation and acceptability for initial trials of the equipment by the Contractor & Owner. During the above joint walk down, the list of equipment deficiency & defects shall be prepared and for such a punch list, action shall be initiated by the Contractor in agreed time frame. The list of tests to be performed prior to initial trials shall be mutually agreed and included in the Field Quality Plan by Contractor. Prior to starting of initial trials all site tests, calibrations and parameter settings as indicated in the technical specification shall be carried out. The purpose of these trials is to ensure integrity of each individual equipment for its operation in the system for initial operation.

c) **INITIAL OPERATION**

After successful completion of works, initial trials of all the individual equipment, all equipment's shall be operated together as a system. The purpose of this initial operation is to ensure integrity of all the sub-systems which compose the total system. Based on the observations made during initial operation, necessary corrections shall be effected in the equipment / systems to ensure proper integrated operation of the system. After satisfactory completion of initial operation for each equipment & sub-system, the complete equipment shall be considered ready for trial operation/performance guarantee testing. The Contractor has also to ensure that he trains Owner's Engineers at site dealing with this system in proper way. During commissioning of major equipment, contractor has to ensure the presence of commissioning Engineers of OEMs wherever required

d) **TRIAL OPERATION / PERFORMANCE GUARANTEE TEST**

The method of trial operation, duration and loading conditions shall be discussed with the Engineer and a plan shall be prepared. During the period of trial operation, all the necessary adjustments in the plant/ equipments shall be made by the Contractor to establish that the complete system as a whole with all subsystems and with all standby equipment is

ready for continuous operation. During these trials, all the standby equipments also shall be run alternatively and continuously to prove their performance.

A trial operation report comprising of dates and duration of trial, observations and recordings of various parameters to be measured shall be prepared by the Contractor and signed jointly by the Engineer and the Contractor. If the trial operation is not satisfactory, then based on the observations during trial operation, necessary modification/repairs to the plant/ equipment shall be carried out by the Contractor and on completion of such works, the trial operation shall be repeated again as per the relevant procedures.

e) FINAL ACCEPTANCE:

Final acceptance of the equipment/system is after obtaining statutory approvals from all statutory authorities as applicable as per Clause 22 of SCC.

24. HANDING OVER / CERTIFIED DATE OF COMPLETION

Up on the satisfactory commissioning of the entire system, the system shall be observed for 15 days. After this satisfactory trial period, the work shall be handed over officially and completion date recorded by Engineer-in-charge with all the prescribed formalities for handing over.

This date shall be reckoned, as the certified date of completion and the defects liability period shall commence form this date.

Until the handing over of the installation, the responsibility lies with the contractor for safety, upkeep etc.

25. COMPLETION CERTIFICATE

For all works completion certificate shall be submitted to EMPLOYER, after completion of work.

It is the responsibility of the contractor to provide and make arrangement of all spares including consumables for carrying out periodical/preventive maintenance during warranty / defect liability period without any cost to EMPLOYER. However, the tenderer should furnish a list of spares, they plan to make available at site, to take care of warranty period. These spares shall be supplied along with the equipment. In case, any spares are required other than the listed spares, contractor will provide the same without any cost to EMPLOYER including customs duty.

26. PAYMENT TERMS

26.1 Bills shall be prepared and submitted by the Contractor. Joint measurements shall be taken continuously and need not be connected with billing stage. System of 4 copies of measurements, one each for Contractor, Employer and Engineer or his nominee, and signed by both Contractor and Engineer or his nominee shall be followed.

26.2 Payment of Bills for civil works shall be regulated as detailed hereunder:

26.2.1 Interim Bills shall be paid within 21 days of date of submission of bills in full shape by the Contractor. 75% of the bill amount shall be paid within 7 days of submission of the bill, if on request by the Contractor. Balance amount of the verified bill shall be paid within 21 days of the submission of the bill.

26.2.2 Final Bill shall be paid within 3 months as detailed below on issue of Taking Over Certificate by the Engineer or his nominee. The Contractor shall submit final Bill within 30 days of issue of Taking Over Certificate. Engineer or his nominee shall check the bill within 30 days after its receipt and return the bill to Contractor for corrections, if any. The Contractor should re-submit the bill with corrections within 15 days of its return by the Engineer or his nominee. The re-submitted bill shall be checked and paid within 30 days of its receipt.

26.3 Payment for Electrical and Mechanical works shall be regulated as detailed below:

26.3.1 The Contractor shall be entitled upon certificates of the Engineer or his nominee to payments in accordance with the following provisions:

1) **For supply portion :** 75% of the value, as certified by the Engineer or his nominee, of the materials from time to time delivered on the site.
   Balance 25% after completing the work in all respects, commissioning and handing over the installation to the Employer to the satisfaction of the Engineer and his nominee and his certification.

Note: The bidder shall furnish the break- up price of each and every component of the items to be supplied for the successful commissioning of the project as per the technical specification and scope of work, immediately after the receipt of LoA, with relevant documents for the Chief Mechanical Engineer's approval to ensure that the cost of supply of items are not exceeding the total price quoted by the bidder

2) For erection portion :

i) 85% of the value as certified by the Engineer or his nominee, of the installation portion on completion of the erection work under contract, for which payments are claimed.

ii) Balance 15% along with other payments if any, after completing the work in all respects, commissioning and taking over the installation by the Employer to the satisfaction of the Engineer and his nominee and his certification.

26.3.2 For HT works, the work shall not be considered as completed until the installation is energized after obtaining approval certificate from Central Electrical Authority(CEA) and upon the issuance of taking over certificate by Engineer or his nominee. The final payment shall be made only after taking over the installation by the Employer.

26.3.3 Running Bills shall be paid as per contract condition within 21 days of date of submission of bills in full shape by the Contractor on the jointly agreed quantities. However 50 % of the bill amount shall be paid within 10 days of submission of the bill, if on request by the Contractor. Balance amount of the verified bill shall be paid within 21 days of the submission of the bill.

26.3.4 For final bill: The Final Bill shall be paid within 2 months on submission of CEA approval for energizing the installation if required, commissioning and taking over the installation. The Contractor shall submit final Bill within 10 days of issue of Taking over Certificate. Engineer or his nominee shall check the bill within 20 days after its receipt and return the bill to Contractor for corrections, if any. The Contractor should re-submit the bill with corrections within 15 days of its return by the Engineer or his nominee. The re-submitted bill shall be checked and paid within 15 days of its receipt.

26.4 All the interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer or his nominee relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer- or his nominee-charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

26.5 Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided, without prejudice to the right of the department to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

26.6 No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished.

26.7 If an amount certified is increased in a later certificate as a result of an award by the Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in the award. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

26.8 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

26.9 All payments to the Contractor under the contract shall unless otherwise stated elsewhere be made to the Contractor in Indian currency through e- payments through designated Bank.

27. MEASUREMENTS

The quantities set out in the Schedule of quantities (Price Bid) are the estimated quantities of the work, but they are not to be taken as the actual and exact quantities of the Work to be executed by the Contractor in fulfillment of his obligations under the Contract. The payment shall be made for actual measured quantity both for supply and installation. In this case the quantity shall be taken after installation, i.e. only installed portion of the work after completing the work would be measured. Scrap and balance materials would not be measured and hence no payment would be made for the same. It may be noted that payment against the supply of items, in any case shall not exceed the final measured quantity. However Electrical works related to mechanical works is treated as a package and the amount is on lump sum basis for the successful completion of the work. Additional payment, if any released during the supply of items more than the final measured quantity, corresponding payment shall be adjusted later, while processing subsequent bills after the final measurement.

28. PARTIAL TAKING OVER

EMPLOYER reserves the right to take over a portion of the work which is completed in all respects before the handing over of the entire work if the remaining portion of the work is getting delayed. The operation of such completed works taken over by EMPLOYER, during the defect liability period, shall be under the scope of the contractor

29. ACCOMMODATION/SITE OFFICE

EMPLOYER will not provide any quarters for the accommodation of contractor's personnel. The contractor shall make his own arrangements at his cost for accommodation/medical aid/treatment for staff and workers engaged by him on this project, and the contractor should ensure water supply, sanitation, access roads, electrification and general cleanliness of his camps, as required by labour laws in force. All arrangements regarding sanitation, water supply, electric supply and cleanliness shall be tidy and workman like and shall be got approved by the Engineer-in-Charge prior to the construction of the camps.

Warehouse, shed, shop and office facilities as required by the contractor shall be provided by him at his own expense, and shall be approved by the EMPLOYER. After the work is over, all these temporary facilities shall be removed by the contractor at his own expense to the satisfaction of Engineer-in-Charge/EMPLOYER within 30 days from the date of completion of work.

30. WATER AND ELECTRIC SUPPLY

Electric power required for the work can be supplied by the department from the nearest existing line of the Port Trust at prevailing rates as per the prevailing term and conditions of Cochin Port which may be amended time to time. If electric power is supplied by the department, the Contractor shall make payment of monthly electricity bills. The cost of drawing temporary lines/ cables/ providing switches and making connection and metering arrangements etc, shall be borne by the Contractor. If there is any disruption in the power supply due to supply failure/ restrictions imposed by the Kerala State Electricity Board, the department shall not be held responsible and the Contractor has to make suitable alternative arrangements at their cost.

The EMPLOYER will not be responsible for the supply of water to the Contractor.

31. PRICES

The rate quoted for all items (Imported and Indigenous) shall be in Indian Rupees only. Price shall be Inclusive of all taxes & duties, labour, tools & plants, packing, freight/ transportation & insurance up to the site, loading, unloading, fee (s) for testing, inspection, documents etc. excluding GST.

EMPLOYER does not give any concessional forms/ certificates/ permits towards any taxes, duties & other levies like road taxes/ permits, etc.

All items shall be fully insured by the contractor**. The cost of Insurance and Freight & handling charges shall be paid by the contractor. The documents in support of insurance policy shall be submitted to EMPLOYER as well as the supplier before shipment.**

The contractor shall send the goods to consignee i.e., EMPLOYER in a fully packed condition as per requirement of component/equipment and fully insured.

The contractor shall be solely responsible to ensure the following:

a) Sound packing of equipment / components.
b) Shipment of the items by the due date as per schedule.
c) Insurance.
d) Forwarding and transhipment of equipment/components up to the destination.
e) Insurance of Inland transhipment.
f) Receipt of equipment at site and safe custody till they are installed, tested and commissioned & taken over by EMPLOYER.
g) Execution, installation, testing and commissioning of the installation as specified in the tender.
h) Handing over of installation to the authorized representative of EMPLOYER.

32. GUARANTEE/ WARRANTY

All the equipment and installations shall be guaranteed against defective workmanship and materials for a period of 2 years from the date of Commissioning.

During this period, the contractor shall without any extra cost, carry out all routine and special maintenance of the works executed by him and attend to the defects and replace the parts that needs replacement in the day to day operation of the system within 24 hrs. of complaint reported by EMPLOYER.

During the Defect Liability period, the availability of HVSC system shall be 99% of total hours per month. (ie. The total breakdown period shall not exceed 7 hours / month). For any shortfall in availability per day, penalty @ Rs.3,75,000/- per day or part thereof will be levied for the non-availability of HVSC system. Routine preventive maintenance with prior approval will not be counted for arriving at the availability percentage.

The Contractor shall guarantee that all material, machinery, Consumables and components, supplied, fabricated, designed and installed by him shall be free from defects due to faulty material and/or workmanship and that the system shall perform satisfactorily, and the efficiency of the system and all the components shall not be less than the values laid down in the specifications and the capacities shall be at least equal to those specified. During the guarantee period any or all components found to be defective shall be replaced or repaired free of charge and shortcoming found in the system as specified shall be removed at no extra cost. The Contractor shall provide the necessary personnel and tools for fulfilling the guarantee. If the defects are not remedied within a reasonable time, EMPLOYER may proceed to get the defects remedied at the Contractor's risk & expenses without prejudices to his right. The Contractor shall without any cost to the Employer carry out during the guarantee period all routine and special maintenance of the system and attend to any defects that may arise in the operation of the system.

The Contractor shall hold himself fully responsible for reinstallation or replace free of cost to EMPLOYER during the defect liability period as stipulated hereunder.

a) Any defective material supplied by the Contractor or defective workmanship of the Contractor.
b) Any material supplied by EMPLOYER which is proved to be damaged or destroyed as a result of defective workmanship by the Contractor.

33. ARRANGEMENT OF MATERIALS

All the materials required for this work should conform to relevant BIS Specifications unless otherwise specified. The copies of Purchase Vouchers & Gate Passes should be produced along with the materials. The test certificates, Routine test certificates and acceptance test certificates are also to be submitted.

34. STORAGE OF MATERIALS

The storage and custody of materials brought to site is the full responsibility of the contractor. Necessary store rooms if necessary should be constructed by the contractor. The land required for stores will be provided by the EMPLOYER free of cost. The store should have double lock arrangement with one key with the EMPLOYER Engineer-in-charge and the other with the Contractor. **All materials supplied by the contractor should be covered under storage insurance.**

35. PROCUREMENT OF MATERIALS

Contractor shall make his own arrangements for the timely procurement of all materials required for the work. Status of procurement of every item required for the project is to be submitted every week. In case materials are not supplied in time, Engineer in charge will arrange for procurement directly from the supplier and the expenses incurred will be deducted from the contractor's bill. Immediately on award of contract, the contractor has to submit the list of makes of item, which he is planning to procure for the project and approval has to be obtained from the engineer in charge. After the make approval, detailed specification/drawings/ test reports etc of every item has to be submitted.

36. BYE-LAWS

a) The contractor shall comply with all bye-laws and regulations of local and statutory authorities having jurisdiction over the works and shall be responsible for obtaining prior approval, if any, and payment of all fees and other charges, giving and receiving of all necessary notices and keeping the Engineer-in-Charge informed of the said compliance with the bye-laws, payments made, notices issued and received.

   The Contractor shall indemnify EMPLOYER against all claims in respect of royalties, patent rights, design trademarks of name or other protected rights in respect of any plant, machine, work or materials used for or in connection with the work or temporary works and from and against all claims, demands proceedings, costs, charges and expenses whatsoever in respect of or in relation thereto. The Contractor shall defend all actions arising from such claims and shall himself pay all royalties, license fees, damages, costs and charges of all and every sort that may be legally incurred in respect thereof.

b) The Electrical works shall be carried out as per the local electrical inspectorate standards/specifications/guide lines and the contractor shall get the approval and safety certificate from the inspectorate after the completion of work and before energisation.

c) The Contractor shall comply with proper and legal orders and directions of the local or public authority or municipality and abide by their rules and regulations and pay all fees and charges which he may be liable.

d) The contractor should liaise with local authorities to ascertain the underground cables, pipes, ducts etc., if any, in the areas of construction site and furnish to the Engineer-in-Charge the information and precautions that are being taken to avoid damages.

e) The work shall be carried out without infringing on any of the local Municipal Bye-Laws.

37. SUBCONTRACTS

The Contractor shall be fully responsible to EMPLOYER for the acts and omissions of his subcontractors and of persons directly or indirectly employed by them, as he is for the acts and omissions of persons employed by him.

Nothing contained in the contractual documents shall create any contractual relation between any subcontractor and the EMPLOYER.

In case of specialized nature of work requiring very high quality stipulations, such works shall not be subcontracted unless:-

a) The subcontractor firm has sufficient expertise, equipment/plant back up and experience in the similar nature of work.
b) The subcontractor firm has sufficient financial background. The firm should have at least 20% of the value of work to be sublet as net assets.
c) The subcontractor firm has a track record of completing the works on time and to the quality stipulations.
d) The subcontractor firm has not run into litigation/ arbitration in the past three years with the Employers.

In no event can any delay or unsatisfactory work conducted by the subcontractor can either be accepted or can be contractor adduce such delay or unsatisfactory work attributable to subletting of work. The main contractor shall be fully responsible for the contract and Management of subcontractors.

38. CONFORMITY TO RULES AND REGULATIONS

1 The work shall be carried out in the best workmanlike manner in conformity with this specification, the relevant specification/codes of practice of the Bureau of Indian Standards or IEC recommendations (Except where specified otherwise) and other relevant Indian/International standards with latest amendments, approved drawings and the instructions issued by the Engineer-in-charge or his authorised representative, from time to time. Equipment meeting any other authoritative standard, which ensures an equal or better quality than the above standards, will also be acceptable.

2 In addition to the standards, all works shall also conform to the requirements of the followings:

a) All Electrical works shall be carried out in accordance with the provisions of Indian Electricity Act- 2003, Indian Electricity Rules 1956 amended upto date (Date of call of tender unless specified otherwise)
b) The works shall also conform to relevant Bureau of Indian Standards' Codes of practice (COP) for the type of work involved.
c) Materials to be used in work shall be ISI marked/UL certified wherever applicable.
d) In all electrical installation works, relevant Safety codes of practices shall be followed.
e) Fire Insurance Regulations.
f) Regulations laid down by the Chief Electrical Inspector of the State Electrical Inspectorate/State Electricity Board/ Central Electrical Authority or any other agencies concerned.
g) Regulations laid down by Fire & Rescue Services and National Building Code.
h) Any other regulations laid down by the local authorities.
i) Installation & operating manuals of original manufacturers of equipment.

39. CONTRACT DOCUMENTS

The Contract document is confidential and must strictly confined to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers, if necessary) and to the purpose of the contract.

40. PLAN OF OPERATION AND CO-ORDINATION

For execution of the work under the contract the contractor shall be required to co-ordinate his work with that of other contractors performing works at the site and also in the same areas. So far as practicable all contractors shall have equal rights to use all roads, ground and facilities made available for the joint use of the contractors. The contractor shall permit such works to be carried out without any hindrance and fully co-ordinate his activities with other agencies. No compensation or claim for such contingencies shall be entertained.

41. SAFETY

The contractor shall take necessary precautions to ensure safety of his crew, materials, equipment and the works during the period of the contract. No claim from the contractor for loss of or damage to equipment, materials, crew of the works during the course of the work due to natural causes like cyclones, gales, floods, rains or other cause or combination of causes will be entertained by EMPLOYER. The contractor shall be fully liable to compensate EMPLOYER for any loss or damage to works till the time of taking over of the work by EMPLOYER.

42. ASSISTANCE FOR TAKING MEASUREMENTS

The contractor shall provide necessary labour and assistance to the Engineer-in-charge for checking layout, alignments, levels and other survey works connected with the execution of work and also for taking measurement for finalised works at no extra cost.

43. SCHEDULE OF QUANTITIES AND RATES

The schedule of quantities to be read in conjunction with these Particular Specifications, special conditions, general conditions of contract, specifications, drawings documents forming part of this contract. All corrections in the tender schedule shall be duly attested by the dated initials of the tenderer. Corrections which are not attested may entail the rejection of the tender. The tender document should be signed and returned without detaching any part of the document.

Rates shall include labour, materials, tools, plants, appliances, transport, equipment, taxes, duties, water and power supply, metering and consumption charges, temporary plumbing, cost of cistern sheds for materials, contractor's supervision, overheads, profits, general risks or liabilities and all that is necessary for the satisfactory completion of the job. The rates shall be firm and shall not be subject to exchange variations, labour conditions or any conditions whatsoever other than what is approved in the contract.

44. SITE INVESTIGATION

The contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labour, water, electric power, roads and uncertainties of weather, or similar physical conditions of the site, the conformation and conditions of the ground, the character, the quality and quantities of surface and sub-surface materials to be encountered, including the subsoil water levels, the character of equipment facilities needed preliminary to and during the progress of the work, and all other matters upon which information is reasonably obtainable and which can in any way affect the work or his cost thereof under this contract. Any failure of the contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for not estimating properly the difficulty or cost of successfully performing the work. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with drawings and specifications. The contractor shall note that if any clarifications regarding specifications, conditions of contract, schedule of quantities, scope of work, etc. are required, he should contact the Engineer-in-Charge, EMPLOYER. No claim on account of ambiguity in any respect will be entertained.

45. DRAINAGE ARRANGEMENTS

The contractor shall control the grading in the vicinity of the buildings and trenches, so that surface water is prevented from running into excavated areas. The contractor shall also be responsible to see that no area around his works becomes flooded during the rainy season because of his piled up material, etc. and subsequently flood other buildings. At the discretion of the Engineer-in-charge the contractor shall take steps to prevent flooding. It shall be the contractor's responsibility to keep areas around his work dry. The cost of repairing flood damage shall be the sole responsibility of the contractor.

46. TESTING AND MEASURING EQUIPMENTS

Equipment for measurement of work and testing the installation shall be procured by the Contractor for their use at their own cost. The same shall also be made available to the Engineer-in-charge without any charges to EMPLOYER. Equipment for measurement shall be made available at site for use of Engineer-in- Charge and shall be periodically calibrated.

47. SECURITY RULES

The contractor shall follow all Security rules existing in the Port premises and strictly adhered to security norms. The Port security is under CISF and entry to the restricted area will be subject to security checks and other security procedures existing in working Ports. Only selected persons will be permitted to enter to restricted areas under special permission as required for the completion of the project.

The contractor shall also follow at site all Security rules as may be framed by the EMPLOYER from time to time regarding removal of materials from site, issue of identity cards, control of entry of personnel and all similar matters. The contractor and his personnel shall abide by all security measures imposed by the Managing Director or his duly authorised representative from time to time.

The contractor shall take ultimate care while working in a running port and minimize nuisance to the public. All the work sites shall be separated by providing temporary partitions as directed by Engineer-in-charge. Fencing, partitions, signages shall be provided as per directions of Engineer-in-charge.

48. Conditions for maintenance during defect liability period/ AMC

(i) The bidder shall quote for the rates for the Operation and Annual Maintenance Contract (AMC) of the entire system along with the Project cost in the GeM Portal for arriving at the lowest offer (L1). Also, the firm shall furnish the rates for AMC as per the BoQ, for five years initially, which will be commenced as soon as the defect liability period/ Comprehensive guarantee/ Warrantee period of 2 years is successfully completed to the satisfaction of the employer or after the expiry of extended period of guarantee period as decided by the employer. The AMC period will be extendable for further period, as per the discretion of CoPA.

(ii) Separate Letter of Acceptance (LoA) shall be issued for AMC and separate agreement shall be executed for AMC. The LOA for AMC will be released/ placed on the successful bidder two months before the expiry of defect liability period/ guarantee period.

(iii) The AMC period will be 5 years after the guarantee period and the bidder shall quote their rates for each year. The AMC charge shall be quoted in Indian Rupee only. Discounting factor @ 6% per year will be taken to arrive NPV.

(iv) Performance Guarantee: The successful bidder shall have to submit a performance guarantee within 21 (Twenty One) days from the date of issue of Letter of Acceptance (LOA) for AMC in accordance with General Conditions of Contract (GCC). The successful bidder shall submit the performance guarantee @ 10% of AMC charge of 5 years cumulatively in Irrevocable Bank Guarantee valid up to the completion of AMC period with claim period of 2 months from completion date.

(v) The Performance guarantee (PG)/ Security Deposit shall be released only after expiry of the maintenance period and after passing the final bill based on 'No Claim Certificate' from the contractor

(vi) The payment for AMC: The payment for AMC shall be made half yearly on successful completion of each half year, upon certification of Engineer or the authorized representative of the employer.

(vii) Whenever the contract of AMC is rescinded the Security Deposit shall be forfeited and the Bank Guarantee shall be encashed. The balance work shall be got done independent without risk & cost of the failed contractor. The failed contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a JV or a partnership firm, then very member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV/partnership firm.

(viii) During the AMC period, the availability of HVSC system shall be 99% of total hours per month. (ie. The total breakdown period shall not exceed 7 hours / month). For any shortfall in availability per day, penalty @ Rs.3,75,000/- per day or part thereof will be levied for the non-availability of HVSC system. Routine preventive maintenance with prior approval will not be counted for arriving at the availability percentage.

(ix) Scope of AMC work: As provided in the Technical specification of the HVSC system.

SIGNATURE OF TENDERER

SECTION –IV
COCHIN PORT AUTHORITY
Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

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SECTION IV
COCHIN PORT AUTHORITY
Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

I. SCOPE OF WORK

1. General

The Employer has provided concept details in the Tender Document to provide the Contractor with sufficient information so as to clearly understand the Employer's intent, goals and objectives in execution of the works. The Contractor will be required to adopt the general concepts, as provided, and expand and develop the same to produce complete, thorough, comprehensive and high quality designs, working drawings, and specifications for review and approval of the Employer.

(i) While developing the complete and final designs and specifications, the Contractor shall review the concept details, planning and specifications provided by the Employer to become intimately familiar and fully understand the Employer's intent and also to identify betterments or improvements, if any, which may be considered, and incorporated, to better achieve the Employer's goals and objectives in providing highly efficient and functional facilities. These betterments, if any, shall be submitted by the Contractor for review and subsequent approval by the Employer prior to the commencement of final design

(ii) The Contractor's scope of works shall include the detailed design, procurement, manufacturing, delivery on Site, erection, testing, commissioning, Handing over, delivery of tools and spares, training of employer's staff and maintenance of the following installations, systems, buildings, structures, components and materials. It is the responsibility of the contractor to ensure equipment designs are well specified to be able to supply 6 MVA capacity and that the proposed designs meet the IEC/ISO/IEEE 80005-1 Utility connections in port – Part 1: High Voltage Shore Connection (HVSC) Systems – General requirements standards and IEC 62613-1:2011 standards for the general requirements for plugs, sockets-outlets and ship couplers for high-voltage shore connection systems, shore power connection in 440VSystem both in 50 Hz & 60 Hz frequencies with capacity of 1 MVA shall be provided.

(iii) The Contractor shall maintain a copy of the latest editions of the Standards, Laws and Codes applicable to the work to be undertaken on site.

(iv) The work will be under turnkey project with EPC in nature. The minimum requirements are given below but not limited to the same. The Scope of Work includes the following :

2. Scope of Work

The scope of work includes design and development of **6 MVA Shore power Connection system to the ships calling at International Cruise Terminals, complete with required components so as to :**

A. Comply with IEC/ISO/IEEE 80005-1 standard for high voltage shore connection, to meet the requirement of shore power to the vessels in the below mentioned voltage and frequency levels:

2nos. of 3MVA each power connections to the ship with the following selections:

(i) 11kV, 50Hz AC power supply

(ii) 11kV, 60Hz AC power supply

(iii) 6.6kV, 50Hz AC power supply

(iv) 6.6kV, 60Hz AC power supply

B. To meet the requirements of Low Voltage Shore power connections to the vessels in both 50 Hz & 60 Hz frequencies.

3. The complete system shall include the following:-

(i) Main Power System in 110 KV Main Receiving Station

11KV Bay extension in the existing 11kV HT Panels at 110kV main receiving station, Installation of 3 nos. of Circuit breaker Panels and associated cabling in HT including Metering, Monitoring & Protection system integrated to the existing panels and associated Cabling in LT auxiliary and control power supply for taking main 11KV supply for shore supply facility proposed. The 11KV panels shall be compactable with existing Siemens make panels and shall integrate to the existing communication systems as required. The panels shall be fitted with existing compactable Smart TOD meter type with required CT/ PT etc. including supply of SIM and commissioning the same by coordinating with Existing Smart meter service provider.

(ii) Cabling from 110 KV Main Receiving Station to the proposed Substation

SITC of the following:

i) Approx. 4.5kM length of Cabling through open trench/ HDPE Pipe etc.. from 110 KV Main Receiving Station to the proposed Substation near International Cruise Terminal with 3 runs of 3 x 400 sq.mm 11 KV grade (E)XLPE FRLSH UG Cables. The HT cable has to be laid through HDD, New RCC trench , Open trench, existing trench, through HDPE pipe with C- channel supports clamps etc. as per requirements.

ii) Jointing &Terminations at both ends of each cable

(iii) Power Supply Distribution System:

Design and provide Power Supply Distribution System consisting of the following items:

i) Construction of Substation near International Cruise Terminal including all civil works involved.

ii) Installation of Ring Main Units, H.V Circuit breakers, transformers, distribution system, earthing etc.. as per IEC 61936-1,

iii) Providing necessary battery backup for the station control system

(iv) High Voltage Shore Connection System in accordance with the Standard IEC/IEEE 80005, the General requirements IEC/IEEE 80005-1 *'Utility connections in port – Part 1: High voltage shore connection (HVSC) systems'*. Design and Provide

High Voltage Shore Connection System to provide Shore connections to the vessels in 11KV and 6.6KV Voltage levels in both 50 Hz & 60 Hz frequencies as per the standard IEC/ISO/IEEE 80005-1consists of the following items:

i) Installation of Power Transformers.
ii) The Power Convertors (Frequency converter)
iii) Shore- Side Protection Relaying

iv) Shore-side circuit-breaker and earth switch
v) Control system of shore connection
vi) Shore-to-ship connection and interface equipment including Cable Management System and Connectors.
vii) Communication equipments

(v) Providing shore power connection in 440V System both in 50 Hz & 60 Hz frequencies with capacity of 1 MVA

(vi) The Data Communication between shore power system and ship shall be in accordance with IEC/IEEE 80005-2.

(vii) SCADA system connecting shore power substation equipments, shore power system and onboard power equipments for monitoring and control.

(viii) The diagrams, specifications, standards, documents etc. given in tender are for reference only and successful bidder has to Design, Engineering, Installation and Commissioning has to done as per the requirements and recommendations of TPIA appointed by CoPA.It is contractor's responsibility to make good the areas/locations etc. to the original/ standard condition after the work has been carried out in connection with project work proposed, by own cost and risk

(ix) Preparation of drawings, SL diagrams, earthing layout etc. and submitting the scheme to CEA for approval & arranging inspection, rectification of defects

(x) The entire system shall be under guarantee for 2 years from date of taking over of system to COPA.

(xi) **The project development shall be carried out on Turnkey mode and the Operation and Maintenance shall be carried out by OEM during guarantee period and thereafter on award of AMC contract.**

SECTION IV

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

II. TECHNICAL SPECIFICATIONS

A. GENERAL INFORMATION

1. INTRODUCTION

- Cochin Port Authority, Cochin (formerly Cochin Port Trust), a Body Corporate under the Major Port Authorities Act, 2021, (hereinafter called "CoPA") is a Government of India Enterprise under the administrative control of the Ministry of Ports, Shipping and waterways (MoPSW). Cochin Port Authority has to comply with the Ministry's directions in implementing and facilitating Green Port Initiative for development in the country.
- The Cochin Port is the fastest growing maritime gateway to the peninsular India and is strategically located close to the trunk sea routes from Europe to Australia and to Far East and along with Mumbai Port, Cochin attracts majority of the Cruise Ships sailing in this part of the World.
- An increase in number of ships visiting Indian ports can lead to serious dangers to human health, especially in ports located in the vicinity of inhabited urban areas due to air pollution by discharging toxic gases from ships.
- The International Maritime Organization (IMO) has set the global target to reduce Carbon intensity of emissions by 40% by 2030 across international shipping. The GoI also has encouraged introducing Green Port concept all over India to reduce its carbon footprint. The Green Port Policy recommends reduction of carbon emissions through implementing renewable energy initiatives including cold ironing which is an emerging global best-practice, to provide on shore power supply to vessels berthed in port. Cold Ironing is a well-known technology to reduce emissions by ships during their stay in the port. Without a Cold Ironing system in place, each ship will have to generate its own electricity by means of a diesel generator on board. This method of power generation is inefficient and causes harmful emissions in the port area. Cold ironing facilities allow ships to use power from the public electrical power grid during their stay in the port. The on-board generators can be switched off in that case. The Cold Ironing Facility needs to comply with IEC/ISO/IEEE 80005 international standard (Utility Connections in Port- **In 2012 a standardized connection system for Cold Ironing was developed. The standard, which was originally defined by the Port of Los Angeles in the USA, has been laid down in an IEC standard, the IEC 80005-1, entitled "Utility connections in Ports").**
- **Most ships are not yet prepared for the connection to a Cold Ironing system. Power requirements and technical characteristics of ships and their on-board electrical installations can be very different. Therefore cold ironing systems must be designed to provide flexibility as far as required for allowing various types of ships to use the system.**
- In this regard Cochin Port has initiated action plan for the project of providing Onshore Power Supply to the ships calling at the International Cruise Terminal at Q8& Q9 berths at Ernakulam wharf of CoPA. The new International Cruise Passenger Terminal at Ernakulam Wharf of CoPA was commissioned in February 2021, wherein it is proposed that at least 60

numbers of cruise vessels will be calling during a year. The range of harbor load requirements for the vessels calling at Cochin Port is about 6-15 MVA. As part of Green Port Policy, presently it has been decided to install High Voltage Shore Connection (HVSC) systems of capacity 6MVA at the Cochin International Cruise terminal of CoPA.

- **This document focuses on the provision of shore power facilities at Q8 & Q9 berths at Ernakulam Wharf of Cochin Port Authority, mainly for the** visiting **International cruise passenger vessels** when she is at berth. Cruise business is seasonal one restricted to 6-month period in a year; hence t**he proposed shore supply system for cruise vessels can be used for other vessels also.** The proposal is to install the following infrastructure at Q8 & Q9 berths at Ernakulam Wharf:
  a) 2 sets of shore power systems with a maximum power at 3MVA each with 60Hz or 50Hz and voltage ratings of 6.6KV or 11KV.
  b) Mobile Cable management system for taking the supply from shore facilities and giving connection to vessels from the shore supply installations at berth having protection and communications systems as per IEC standards.
- **As part of implementation of the Green Port Policy, Govt. of India has granted** fund from Sagarmala for project implementation towards "Development of Onshore Power Supply at Cochin Port Authority".
- CoPA shall appoint a contractor for third party inspection of the project.
- **Connections from the ship to the shore Cold Ironing (CI) power distribution system are made by means of cable reel system. At the end of each cable shall have a standardized plug, suitable up to 400A/required capacity. Pilot wires within the cables, plugs and sockets are used for interlocking and to make the system fail safe.**
- ***Equipotential bonding*****:** Equipotential bonding between the ship and the shore is to be provided. An interlock is to be provided such that the HV shore connection cannot be established until the equi-potential bonding has been established. The equipotential bonding cable may be integrated into the HV shore power cable. When the equipotential bonding cable is intended to carry the shipboard earth fault current, the cable size is to be sufficient to carry the design maximum earth fault current.
- A major number of Cruise and other vessels visiting in the Port are working in the power supply of 60 Hz frequencies. The system shall be capable of giving 50Hz supply also as per requirements. The public electrical power distribution system in India operates at 50Hz. Power supplies to the cruise ships will therefore require the installation of frequency converters.
- Power supply to the Cold Ironing system will be taken from the existing High Voltage (HV) system that is already operational in the Port. The required power for the input needs to be an HV feeder. Voltage level is not critical, as the frequency converter will be connected via a transformer. This transformer has functions of adjustment of voltage level (Incoming feeder – Frequency converter operating voltage) and smoothening the power waveforms.
- This document proposes AFE frequency converters (active front end drive) to avoid system disturbances. Prevention of higher harmonic influences affecting the power distribution system when the frequency converter are in operation and generating harmonic components shall be effectively blocked by the transformer.

- The frequency conversion shall be done with combinations of Converters units according to the maximum power requirements of each systems. The Convertor units shall be designed in such a way that if any units in stack go off other units shall work with reduced power to maintain the supply without any disturbance during the time of operation. The individual units used in the stack shall of same rating, type and model so that interchangeability is possible between the individual units in the stack. Each frequency converter is based on power electronic components. The incoming voltage is initially rectified (converted into DC voltage) and following stabilization the DC voltage is inverted back into an AC voltage at the required frequency. The output voltage of the frequency converter does not have the shape of a pure sine-wave and is therefore not immediately suitable for power supply to ships. A combination of the output side transformer and other passive electrical components (Chokes and capacitors) are applied to improve the converted voltage waveform into an acceptable sine-waveform Having two converters improves the availability of the shore power system. In case of one converter is stopped, the shore power system can still deliver power with reduced capacity.
- After conversion to the correct voltage and frequency, shore power is distributed to the connection points. Each MV outlet socket in a shore power point will be switched and protected individually. The system needs to be interlocked in such a way that MV outlet sockets cannot be powered without the presence of a plug and that sockets cannot be unplugged while voltage is present. Interlocking will be provided via the pilot contacts in the plug and socket.
- MV switchgear with outgoing feeders for each individual connection points is required to provide protective functions and interlocking for fail safe operation.
- The following assumptions have been made in giving shore power supply to the vessels calling at Cochin Port:

Cold ironing provisions at Berths:	Q8/ Q9 Berth
No. of Cruise vessel/ bulk carrier connected simultaneously:	1
No. of Connection Points:	2
Operating voltage:	6.6KV&11KV/ 60Hz; 6.6KV&11KV/ 50Hz
Maximum total power supply capacity per point:	3 MVA per point

- Each connection point will be equipped with 1 standardized socket with appropriate safety provisions, that is rated for 3MVA.

  Connection Points: It is proposed for 2 No. connection points to be provided for use by the Cruise Vessels/ other ships calling at Ernakulam Wharf of CoPA and the connection points are to be provided at the Q8 & Q9 berths. Each connection point shall provide 400A at 6.6kV/ 11KV.

  Power Distribution: The power supply for the Cold Ironing system for the Cruise Vessels/ other ships shall be provided from the existing 110kV substation of CoPA.
- The following has been assumed:
  1) **6MVA power supply capacity is available additionally in the existing 11 KV Substation of the Main 110 KV Receiving Substation.**

2) **Available space for the extension of 11kV Switchgear (side space) within 11 KV Substation of the Main 110 KV Receiving Substation.**
3) **A new OPS Substation for the Cold Ironing System equipment;**
4) **Available routing for the cables between the new Substation and the Shore connection box.**

Power supply to the Cold Ironing system will be taken from the existing High Voltage (HV) system that is already operational in the Port. The required power for the input needs to be an HV feeder. Voltage level is not critical, as the frequency converter will be connected via a transformer.

- **Proposed Concept:**
  (i) The power supply for the Cold Ironing system of Cruise Vessels/ other ships shall be provided from Port's existing 110kV substation, 11KV distribution system.
  (ii) The project includes a new system with centralized Static Frequency Converter (SFC); The system will contain, in addition to the SFC, the associated equipment for the distribution of the 60Hz power supply to the shore power connection and also the auxiliaries system for the equipment like step down and step up transformers, incoming 50 Hz MV switchboard, downstream 60Hz MV switchboard. The system design shall be compliant with IEC/ISO/IEEE 80005-1. (the Global Standard on shore to ship power supply).
  (iii) It is proposed that the shore power system (OPS) shall contain the Transformers, Static Frequency Converters, HT Switchgear (at 50Hz and 60Hz), LV Distribution Panels, DC battery charger, SFC auxiliaries and control panels, shore to ship control panel, HVAC Panels, Building Services boards, and all safety equipment to complete the substation. It must be tested and validated in the supplier's factory with witnessed functional tests before shipment.

2. GENERAL TECHNICAL SPECIFICATIONS OF ELECTRICAL WORKS

1. GENERAL TECHNICAL PARTICULARS.

i) General specification

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	: 45 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

ii) 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.

iii) General conditions

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

(i) Complete design and engineering of all the systems, sub-systems, equipment, material and services.

(ii) Providing engineering data, drawing and O&M manuals for Employer's review, approval and records.

(iii) Supply, testing, packing transportation and insurance the equipments from the manufacturer's work to the site.

(iv) Receipt, storage, insurance, preservation and conservation of equipment at the site.

(v) Fabrication, pre-assembly (if any), erection, testing and putting into satisfactory operation of all the equipment/ material including statutory clearances & successful commissioning.

(vi) 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.

(vii) 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.

(viii) For individual equipment specifications reference shall be made to the relevant Technical Specification of the equipment as per contract condition

(ix) 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.

(x) 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 & commissioning.

1. PROJECT MANAGEMENT & SITE SUPERVISION

a) 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.

b) **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. Necessary statuary fees if any shall be paid by the User/ Cochin Port.

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.

c) **Safety Codes and Labour Regulations**

In respect of all labour employed directly or indirectly on the work, the tenderer, here in after called the contractor, at his own expense will arrange for the safety provision outlined in safety manual to comply with the statuary regulations, ISI recommendations and other codes.

In case of default, the department shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor.

The contractor shall provide necessary barriers warning signals and other safety measures to avoid accidents. He shall also indemnify CoPT against claims for compensation arising out

of negligence in this respect.

Nothing in these specifications shall be construed to relieve the contractor of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with applicable statutory regulations and safety codes in force from the safety angle.

d) Works To Be Done By The Contractor

In addition to supply, installation, testing and commissioning of all equipments as per schedule of work, the following work shall be deemed to be included within the scope of work, to be executed by the contractor.

(i) All minor building works, such as equipments foundation if required cutting and making good holes, grouting of channels belts as required. Cutting and making good damages etc.

(ii) Provision of supports / clamps for equipments, cables etc. wherever required.

(iii) Small wiring, inter-connection etc. inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.

(iv) Closing of the cable entry points in sub-station/ switching stations against seepage of water, rod ends etc.

(v) Tools and tackles required for handling and installation.

(vi) Necessary testing equipments for commissioning.

(vii) Watch and Ward of materials and/or installation and equipments till their handing over to the department

e) Extent Of Works.

The scope of work shall consist of cost of all materials, labour supervision, installation, calibration, adjustments as required for commissioning of the sub-station. The term complete installation shall mean, not only, major item of the plant and the equipments covered by these specifications, but also, incidental sundry components necessary for complete execution and satisfactory performance of installation with all labour charges, whether or not specifically mentioned in the tender documents, which shall be provided by the contractor at no extra cost.

f) Completeness Of Tender.

All fittings, unit assemblies accessories, hardware foundation bolts, terminals blocks for connections, cable glands and miscellaneous materials and accessories of items of work which are useful and necessary for efficient assembly and working of the equipment shall be deemed to have been included within the scope of the work in the tender and within the overall details for complete item whether they have been specifically mentioned or not

g) Data Manual And Drawings To Be Furnished By The Contractor.

(a) After award of work.

The contractor shall submit the following drawing within a fortnight of the award of the work or as specified in tender document which shall prevail, for approval by the department.

i) General arrangement or location drawing of the equipment complete with dimensions and clearances.

ii) General arrangement drawing of H.V. Panel, M.V. panels, Earthing, Cable route etc. including details of grouting of channels / bolts of various equipments.

iii) All panels' schematics & wiring diagram including control wiring.

iv) Bar chart indicating general programme for supply, installation, testing and commissioning and handing over.

v) Any other drawing or data that may be necessary for the job

(b) Before energizing the installation

The contractor shall also furnish 3 copies of detailed installation, operation and maintenance manuals of manufacturers for all items of equipment together with all relevant data sheet, spare parts catalogues, repairs, assembly and adjustment procedure etc., in triplicate.

h) Final Inspection And Testing

When the installation is complete, the contractor shall arrange for inspection and testing of the installation. Test results obtained shall be recorded. The installation shall not be accepted until it complies with the requirement of these Specifications. The installation shall be got inspected by the contractor from local licensee and/or CEA and their clearance taken before energizing the installation. All the observations/ deficiencies pointed out by the inspecting authorities shall be complied with by the contractor on priority. The final payment shall be released only after the installation is accepted by the engineer in charge after it is approved by the CEA and its successful commissioning and taken over.

i) Date Of Acceptance.

The contractor shall operate the installation for a period of at least 3 days after it is energized. The date of taking over of the installation shall be reckoned after its trouble free operation during the running in period. If the installation is not able to operate or to commission due to the reasons beyond the control of the contractor, the taking over date shall be reckoned as date of approval of the installation by CEA. The guarantee period shall commence from the date of approval of CEA and commissioning the installation.

j) 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 tender 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 or as mentioned in the tender as on the date of bid opening.

k) 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-vendor'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 CoPT's officer. **Any expenditure in connection with deputing CoPT's representative to the manufacturer's work site will be borne by CoPT.**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 CoPT. 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.

2. **Technical Specification- Supply Of Materials**

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

a. Deviation

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.

b. General Technical Specifications - Supply Of Materials

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.

c. **General Technical Specification - Installation Of Equipments**

(iii) Scope

This specification covers the engineering requirements for erection/installation, testing and commissioning of equipment/items and its associated works.

(ii) 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.

(iii) 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.

d. General Conditions For Installation Of Equipments

(i) 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.

(ii) The erection scope shall include supply of all hardwares 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.

(iii) 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.

(iv) 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.

(v) 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.

(vi) 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.

(vii) 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.

(viii) 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.

(ix) 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.

(x) 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.

(xi) 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.

e. Civil and structural works

(i) 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.

(ii) 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.

(iii)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.

3. TECHNICAL SPECIFICATION FOR SUPPLY & INSTALLATION OF ITEMS

1) The HVSC System consists of the hardware components in the Shore Side as Follows:

A. Main Power System in 110 KV Main Receiving Station
   a) Bay Extension in the existing 11kV HT switchgear at the 110kV Receiving station.
   b) Installation of Circuit breakers and associated cabling in HT.
   c) Metering, Monitoring & Protection system and associated Cabling in LT.

B. Cabling from 110 KV Main Receiving Station to the proposed Substation near International Cruise Terminal with 3 runs of 11 KV HT Cables.

C. Shore Supply Distribution System:
   a) Construction of Substation near International Cruise Terminal
   b) Installation of Ring Main Units, H.V Circuit breakers, distribution system etc..
   c) Civil work relative at the New Substation, Existing Substation and Cable duct routing.

D. High Voltage Shore Connection System
   a) Installation of Power Transformers.
   b) The Power Convertors
   c) Shore- Side Protection Relaying
   d) Shore-side circuit-breaker and earth switch
   e) Control system of shore connection
   f) Shore-to-ship connection and interface equipment
   g) Communication equipments

E. Substation equipments and others
   a) Installation of No. 1 (one) 24VDC Battery Charger and Distribution board;
   b) Installation of No. 1 (one) 24VDC Battery Bank with Cabinet;
   c) Installation of No. 1 (one) Transformer 11/.433, 50hz for Substation use
   d) Installation of No. 1 (one) LV Distribution Board for Building services;

F. Fire & Safety equipments

2) System Description and scope of work:

1. The complete system shall include the following:-

a) Main Power System in 110 KV Main Receiving Station

Bay Extension in the existing 11kV HT Panels at the 110kV Receiving station, Installation of 3 nos. of Circuit breaker Panels and associated cabling in HT including Metering, Monitoring & Protection system integrated to the existing panels and associated Cabling in LT auxiliary and control power supply.

b) Cabling from 110 KV Main Receiving Station to the proposed Substation

SITC of the following:

(i) 4.5kM length of Cabling through open trench/ HDPE Pipe etc.. from 110 KV Main Receiving Station to the proposed Substation near International Cruise Terminal with 3 runs of 3 x 400 sq.mm 11 KV grade (E)XLPE UG Cables.

(ii) Jointing &Terminations at both ends of each cable

c) Power Supply Distribution System:

Design and provide Power Supply Distribution System consisting of the following items:

(i) Construction of Substation near International Cruise Terminal including all civil works involved.

(ii) Installation of Ring Main Units, H.V Circuit breakers VCB's, transformers, distribution system, earthing etc.. as per IEC 61936-1 etc.,

(iii) Providing necessary battery backup for the station control system and LT works etc. for the functioning of the system.

d) High Voltage Shore Connection System in accordance with the Standard IEC/IEEE 80005, the General requirements IEC/IEEE 80005-1 *'Utility connections in port – Part 1: High voltage shore connection (HVSC) systems'.* Design and Provide High Voltage Shore Connection System to provide Shore connections to the vessels in 11 KV and 6.6 KV Voltage levels in both 50 Hz & 60 Hz frequencies as per the standard IEC/ISO/IEEE 80005-1consists of the following items:

(i) Installation of HT/LT switchgears.
(ii) Installation of Power Transformers with OLTC.
(iii) The Static Power Convertors (Frequency converter).
(iv) Shore- Side Protection Relaying.
(v) Shore-side circuit-breaker and earth switch.
(vi) Control system of shore connection.
(vii) Shore-to-ship connection and interface equipment including Cable Management System and Connectors.
(viii) Communication equipments.
(ix) Providing shore power connection in 440V System both in 50 Hz & 60 Hz frequencies with capacity of 1 MVA
(x) The Data Communication between shore power system and ship shall be in accordance with IEC/IEEE 80005-2.
(xi) SCADA system connecting shore power substation equipments, shore power system and onboard power equipments for monitoring and control.

A. Main Power System in 110 KV Main Receiving Station

(Main Power System in 110 KV Main Receiving Station

Main 110kV receiving station has 2nos. of Power Transformers of 110kV/11kV, each of 12MVA capacity, feeding to 11kV substation separated with coupler.

- Bay Extension in the existing 11kV HT switchgear at the 110kV Receiving station
  i) On one side of coupler required bay extension to facilitate 2nos. of breaker units and on the other side required bay extension to facilitate one no. of breaker.
  (ii) Installation of 3nos. of HT 11kV Circuit breakers in the extended bays and associated cabling/ trunking, earthing etc..
  (iii) Metering, Monitoring & Protection system and associated Cabling.

B. H.T. Cabling from 110 KV Main Receiving Station

The brief scope of work is as shown below:.

a) Supply, laying, testing and commissioning of 3 Runs of approximately 4.5 Km of 3C x 400 sq.mm, 11KV XLPE cable from 110 KV Main Receiving Station of CoPA to the proposed substation at Ernakulam Wharf by open trench/HDD/through HDPE pipes by clamping/ fixing with GI post supports in the ground , inside the road kerb areas/ through HDPE/ GI pipes below the surface.

b) Supply and providing end termination for HT cables.

c) **Civil works**

Scope of civil works including covered housing for placing the equipments at near the jetty area for the shore supply systems. The Contractor shall design the foundation for the equipments, housing for equipments to prevent the equipments from weather conditions, anti rusting roofing with steel structures, providing Epoxy painting etc. The housing/room shall withstand the weather conditions such as wind speed etc. and same to be designed accordingly to the location. Design for the civil works shall be get approved by the CoPA civil department and TPIA. UPVC door and frames are preferred for the works.

d) 1. XLPE 11KV GRADE CABLE

1.1Application

The 11 KV cable is intended for use on Distribution network, outdoor application for flexibility with connected to RMU and switchgear.

1.2 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 cables shall conform to the requirements of the following standards and codes:

IS: 7089(Part-II) Specification for Cross linked polyethylene insulated PVC sheathed cable :For working voltages from 3.3 KV upto and including 33 KV

IS:3975	Low Carbon Galvanized steel wires, formed wires & tapes for armouring of cable
IS:4905	Methods for random sampling.
IS:5831	PVC insulation and sheath of electrical cables.
IS:8130	Conductors for insulated electrical cables and flexible cords.
IS:10418	Specification for drums for electric cables.
IS:10810	Methods of tests for cables.
IS:1255	Code of Practice for installation and Maintenance of power cable up to an Edition 3.1including 33 KV Rating.
ASTM-D-2843	Standard test method for density of smoke from the burning or decomposition of plastics.
IEC-754(Part-1)	Tests on gases evolved during combustion of electric cables.
IEC-332	Test on electric cables under fire conditions. Part-3: Tests on bunched wires or cables (Category-B).

1.3 Technical requirements

The cables shall be suitable for laying on racks, in ducts, trenches, conduits and underground (buried) installation with chances of flooding by water. Cables shall be designed to withstand all mechanical, electrical and thermal stresses developed under steady state and transient operating conditions as specified elsewhere in this specification. XLPE insulation shall be suitable for continuous conductor temperature of 90 deg. C and short circuit conductor temperature of 250 deg C. The aluminium used for armouring shall be of H4 grade as per IS: 8130 with maximum resistivity of 0.028264 ohm-sq.mm / mtr at 20 deg. C. The gap between armour wires / formed wires shall not exceed one armour wire / formed wire space and there shall be no cross over / over-riding of armour wires / formed wires. The minimum area of coverage of armouring shall be 90%. The breaking load of armour joint shall not be less than 95% of that of armour wire / formed wire. Zinc rich paint shall be applied on armour joint surface of GS wires / formed wires. Outer sheath shall be of PVC black in colour. In addition to meeting all the requirements of Indian standards referred to, outer sheath of all the cables shall have the following FRLS properties:

a) Oxygen index of min. 29 (Test method as per IS 10810 Part-58)
b) Acid gas emission of max. 20% as per IEC – 754(Part-I)
c) Smoke density rating shall not be more than 60% during Smoke Density Test as per ASTMD-2843.

Cores of three core cables shall be identified by colouring of insulation or by providing coloured tapes helically over the cores, with Red, Yellow & Blue colours. In addition to manufacturer's identification on cables as per IS, following marking shall also be provided over outer sheath:

a) Cable size and voltage grade-To be embossed

b) Word 'FRLS' at every 5 meter To be embossed
c) Sequential marking of length of the cable in meters at every one meter To be embossed / printed

The embossing / printing shall be progressive, automatic, in line and marking shall be legible. Allowable tolerances on the overall diameter of the cables shall be +/-2 mm maximum over the declared value in the technical data sheets. In plant repairs to the cables shall not be accepted. Pimples, fish eye, blow holes etc. are not acceptable. The cross-sectional area of the metallic screen strip/tape/wires shall be considered in sizing calculations.

The technical specification of the cable shall satisfy the IS for 11 KV grade 3C x 400 sqmm (E) XLPE Aluminium cable only.

1.4 Constructional features

Cables shall conform to IS 7098 Part-II. These cables shall be multi-stranded, compacted Aluminium conductor, XLPE-insulated, metallic screened suitable for carrying the system earth fault current. The conductor screen and insulation screen shall both be of extruded semiconducting compound and shall be applied along with the XLPE insulation in a single operation of triple extrusion process so as to obtain continuously smooth interfaces. Method of curing for 11 KV Cables shall be "dry curing/ gas curing" For the single core armoured cables; the armouring shall constitute the metallic part of the screening.

1.5 Tests

1.5.1 Type Tests

All Types and sizes of cables being supplied shall be subjected to type tests, routine tests and acceptance tests as specified below and according to relevant standards.

Type Test	**Remarks/Standards Code**
Conductor resistance test	
For Armour Wires/Formed Wires	As per IS 8130 (cl:63)
Measurement of Dimensions	
Tensile Test	
Elongation test	
Torsion test	For round wires only
Wrapping test	
Resistance test	
Mass & uniformity of Zinc	
Coating tests	For GS wires/formed wires only
Adhesion test	For GS wires/formed wires only
Test for thickness	For XLPE insulation & PVC Sheath
Tensile strength and elongation Test	before ageing and after ageing in air oven
Loss of mass test	For PVC Outer sheath only.
Hot deformation test	For PVC Outer sheath only.
Heat shock test	For PVC Outer sheath only.
Shrinkage test	
Thermal stability test	For PVC Outer sheath only.
Hot set test	For XLPE Outer sheath only.
Water absorption test	For XLPE Outer sheath only.
Oxygen index test	For PVC Outer sheath only.

Smoke density test	For PV C Outer sheath only.
Acid gas generation test	For PV C Outer sheath only.
Flammability test as perIEC-332 Part-3 (Category-B)	For completed cable only.

The following type tests shall be carried out on the cable:

Insulation resistance test (Volume Resistivity method)
High Voltage test
Partial discharge test
Bending test
Dielectric power factor test
As a function of voltage
As a function of temperature
Heating cycle test
Impulse withstand test
High voltage test
Partial discharge test
Acceptance Tests

1.5.2 Acceptance tests

Following acceptance tests shall be carried out for each type and size of the cables on the cable drums selected at random as per sampling plan mentioned in is: 7098 part 1

a) For Conductor

Tensile Test
Wrapping Test
Resistance Test
For Armour Wires/Formed Wires (If applicable)
Measurement of Dimensions
Tensile Tests
Elongation Test
Torsion Test — For Round wires only
Wrapping Test
Resistance Test
Mass of Zinc coating test — For G S wires/Formed wires only
Uniformity of Zinc coating — For G S wires/Formed wires only
Adhesion test — For G S wires/Formed wires only
Freedom from defects

b) For XLPE Insulation & PVC Sheath

Test for thickness
Tensile strength & Elongation before ageing
Hot set test (For XLPE insulation)

c) **For completed cables**

Insulation resistance test (Volume resistivity method)
High Voltage test
Partial discharge test(for 6.35/11 KV grade of above rating of cables).
Test certificates for the cable shall be submitted during delivery of the cable.

2. HT, 11 KV,CABLE END TERMINATION & STRAIGHT THROUGH JOINT KITS

2.1 Scope

This specification provides for delivery of 11 KV grade outdoor type End termination, open joint & straight through joint kits suitable for installation in 50Hz 11KV distribution system. All the materials required for doing over head open joints shall be supplied by the Contractor.

2.2 Application

The 11 KV cable end termination & straight through joint kits are intended for use on Distribution net work, outdoor application for terminating / jointing the 11 KV grade Cables for better distribution network.

2.3 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:

2.4 Technical requirements

a) The Kits are to be used for 11KV XLPE type Power Cables.
b) The Kits to be supplied must have manufactured as per latest IS and the reference there of be given with the offer.
c) The literature for the cable jointing kits are to be used by the contractor must be supplied along with delivery of materials.
d) The Kits shall be suitable for storage without deterioration at a temperature up to 45 0 C and unlimited self life.
e) The contractor shall offer one year warranty after commissioning against defective design and for material / terminations and joints and for bad workmanship etc.
f) For carrying out all the joint of the kit tenderer has to depute his representative with man and material without any extra charges.
g) The cable termination shall be class-I termination as defined in IEEE standard 48-1975.
h) The termination kits shall be tested as per IS-13573 with latest amendment from I & II. The test reports are to be submitted.
i) The kits offered should have satisfactory working performance in Indian atmospheric condition.

2.5 General requirements of joints and terminations

The installed joints and terminations must provide the following:

a) Complete external leakage insulation between the high voltage conductor and earth potential using anti-track heat shrink material.
b) Electrical stress control using semi-conducting heat shrinkable tubing over the cores and by the insertion of high di-electric strength insulating material into the crutch of the termination such that electrical discharge activity does not occur in the termination after it has been energised at its rated voltage.
c) Hermetic sealing of the interfaces between heat shrinkable materials and cable surfaces, bushings or cable lugs by use of track resistant hot melt adhesive which can accommodate the creep and relaxations that may occur with recovered heat shrink materials. This sealant shall be pre-coated inside the heat shrinkable components and

activated by the heat applied to shrink the components which shall be in excess of 125 Deg.C.

d) Uniform adhesive flow from the adhered heat shrink component into the adjoining surfaces will be used as an indicator that shrinking is complete, and therefore, the adhesive must be suitable for this purpose.
e) Outdoor terminations shall incorporate a design feature to prevent flexing of the terminated cores under short circuit conditions.
f) Joints and terminations must be insensitive to cable manufacturers tolerances allowed under BSS 6480-1969.
g) The length of core insulation required is 450 mm per phase.
h) Copper braid should be provided to connect the metal shield of XLPE cable and to make electrical contact with the outer screen of the joint for transition joints.

3. **HDPE (HIGH DENSITY POLYETHYLENE) PIPE**

HDPE pipe shall be provided for laying the HT 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.

4. LAYING OF CABLE THROUGH TRENCHES.

4.1. Excavation of Trenches

HT cable shall be laid along the open trench/ pipes/ the excavated trench/clamping through cable tray etc. as per IS. Necessary material such as brick/ 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 100 cm depth from the ground level. The trenches shall be resurfaced and provide the compaction after laying the cable.

4.2. Installation 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.

4.3. Loose soil / earth cushion

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 precast plain RCC slab of size 20 cm x 50 cm. x 5 cm. (W x L x T) with Fe steel rods, The protection slabs 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.

5. LAYING OF CABLE THROUGH HDPE PIPE

For road, entry into buildings and paved areas cables shall be drawn through HDPE pipes. Pipe shall be of 110 mm dia. and wall thickness not less than 5mm . Top of pipe shall be not less than 750 mm from the top surface... All pipes shall be provided with a fish wire. Where cables have been drawn the ends shall be plugged with bituminized tape over the cables for water proofing. For longer distances and at bends draw-pits of adequate size shall be provided to facilitate drawing in of cable, if necessary. The HDPE pipes shall be joined together, if necessary with PVC/ HDPE coupling or through the Butt joint. Supply of the jointing material shall also be borne by the contractor. Laying of cables shall be carried out by skilled and experienced labourers using adequate rollers to minimize stretching of the cable/external damage to cables. Cables shall not be bent below the minimum permissible limit. The permissible limits are as follows :

Type of cable & voltage grade	Minimum bending radius
Power cable	12 D
Control cables	10 D

Where D is overall diameter of cable.

In each cable run some extra length shall be kept at a suitable point to enable one (for LT Cables) or two (for H.T cables) straight through joints to be made, should the cable develop fault at a later date. Metal screen and armour of the cable shall be bonded to the earthing system of the station on the receiving and the sending end. The erection work shall be carried out in a neat workman like manner and the areas of work shall be cleaned of all scrap materials, etc. after the completion of work in each area every day. In case the outer sheath of a cable is damaged during handling/installation, the Contractor shall repair it at his own cost, and to the satisfaction of the Engineer-in-Charge. In case any other part of a cable is damaged, the same shall be replaced by a healthy cable, at no extra cost i.e. the Contractor shall not be paid for installation and removal of the damaged cable. All cable terminations shall be appropriately tightened to ensure secure and reliable connections. The Contractor shall cover the exposed part of all cable lugs with insulating tape, sleeve or paint.

5.1. DRAWING OF CABLE BY HDD

Cable shall be drawn through road crossings / hard surfaced areas by horizontal direct drilling at a minimum depth of not less than 3 m except at both ends. The length of the route for providing HDD shall be minimum possible and shall be finalized after the approval of Engineer in charge.

HDD shall be done with 110 mm HDPE pipe having thickness of not less than 5 mm.

5.1.1. Method of drilling

The pipe shall be pulled through the borehole of sufficient depth & size after successfully reaming the borehole. Once pull back operations have commenced, the operation must continue without interruption until the pipe is completely pulled through the reamed hole.

The Contractor shall take all care and necessary precautions to protect existing structures, utilities and services in planning and execution of the Works for which the contractor shall carry out proper sounding before starting the HDD work. Any damage to adjacent properties that are not part of this work shall be repaired and restored to its original condition at the Contractor's expense. The Contractor shall be responsible for the identification and protection of services where these are crossed by construction activities. Where crossing of roadways and railways are involved, the Contractor shall be required to record and report any ground settlement to the satisfaction of the controlling agencies. Where utilities and pipelines are involved the Contractor shall monitor ground settlement or heave directly above and 3 m before and after the utility or pipeline intersection. The Contractor shall cease operations when monitoring points indicate any surface disruption. Necessary clearances from the concerned authority shall be obtained by the contractor.

5.1.2. Precautions to be taken

All necessary measures must be taken to ensure that excavations are left in a safe condition, including the erection of suitable hard barricades, warning signs and hazard lights. The earthworks shall be set out in accordance with the design drawings. All excavations shall be made to the depth and extent as shown on the Drawings with proper allowance for fill, additional cover (where required) and formwork. The excavations shall be kept free and clear of loose materials, water and rubbish. After satisfactory completing, excavated materials for the HDD operations shall be removed, the Contractor shall prepare the bottom of all pits to the same specification as required for the pipe foundation. The Contractor shall ensure that the terminal sections of pipe that are joined are connected with Central Plastics Electrofusion Couplings or connectors with tensile strength equivalent to that of the pipe being joined.

5.1.3. Safety

The Contractor shall undertake works in accordance with appropriate safety requirements by local & state regulations. Safety measures shall include, but not be limited to, personal protective equipments, operating of machinery within job site, and storage and transportation of materials and equipments.

After the HDD work, the HT cable shall be drawn through the pipe as per the schedule. Due Care shall be taken not to damage the cable while drawing.

5.1.4. 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.

5.2. CABLE ROUTE MARKER

(a) Route markers shall be provided along the runs of cables at locations approved by the Engineer in charge and generally at interval as suggested by Engineer in Charge. Markers shall also be provided to identify change in the direction of the cable route and at locations of underground joints. Route markers shall be fixed firmly with cement concrete.

(b) Route identifiers shall be made out of RCC in 1:2:4 (cement: 2coarse sand: 4graded stone aggregate of 20mm in size) of size 75 cm x 30 cm x 10 cm shall be laid and centered over the cable. The concrete markers, shall project over the surrounding surface so as to make the cable route easily identifiable. The reinforcement shall be with Fe rod.

(c) The words **'CoPA 11 KV CABLE/2023"** as the case may be, shall be engraved / inscribed on the marker.

C. <u>Shore Supply Distribution System</u>

Typical distribution systems inside the proposed substation at Ernakulam wharf, where power is received from the 110kV main receiving station through 3nos. of power cables as specified in item (B) above. The distribution system includes breakers, isolator switches, power interconnections, earth switches etc. as per the requirement of the standard IEC 61936-1.
(Details to be furnished as per the design by the bidder)

D. <u>HV Shore Connection System</u>

The High Voltage Shore Power System Shall be in accordance with the Standard IEC/IEEE 80005. The General requirements are as per IEC/IEEE 80005-1 *'Utility connections in port – Part 1: High voltage shore connection (HVSC) systems'*, describes high-voltage shore connection (HVSC) systems, onboard the ship and on shore, to supply the ship with electrical power from shore. The Standard is applicable to the design, installation and testing of HVSC systems and addresses the following aspects:

- HV shore distribution systems,
- Shore-to-ship connection and interface equipment,
- Transformers/reactors,
- Semiconductor frequency convertors,
- Ship distribution systems, and
- Control, monitoring, interlocking and power management systems.

The typical HVSC System as per the standard IEC/IEEE 80005-1 is described in the Block Diagram attached as **Figure 1**, consisting of the following components:

a. <u>Shore Side Components</u>

i. Shore supply system
ii. Shore-side transformer
iii. Shore-side protection relaying
iv. Shore-side circuit-breaker and earth switch
v. Control shore
vi. Shore-to-ship connection and interface equipment

b. Ship Side Components

i. Control ship
ii. On-board protection relaying
iii. On-board shore connection switchboard
iv.On-board transformer (where applicable)
v. On-board receiving switchboard

The General System Diagram is attached as **Figure -2**.

The Functional Diagram of Cruise Ship HVSC System is attached as **Figure –3**

D.1 Design requirements

i. General

Protection and safety systems shall be designed based on the fail-safe principle, hard wired. Suitable warning notices shall be provided at locations along connection-equipment routes, including connection locations.

Effective means shall be provided to prevent accumulation of moisture and condensation, even if equipment is idle for appreciable periods.

Equipment shall be suitable for the environment conditions in the space(s) where it is expected to operate. Ship equipment shall comply with the applicable requirements of IEC 60092-101 and IEC 60092-503.

HVSC equipment shall be installed in access-controlled spaces.

Personnel safety measures, such as physical barriers to prevent unauthorized personnel from accessing the HVSC equipment or the cable management equipment.

When determining the connection point of the HVSC system, all tidal conditions and ship operations affecting the ship's free board shall be considered.

ii. System study and calculations

The shore-connected electrical system shall be evaluated. The system study and calculations shall determine the following:

a) The electrical load during shore connection;
b) The short circuit current calculations as per IEC 61363-1 shall be performed in order to take into account the prospective contribution of the shore supply and the ship's installations.
   The following ratings shall be defined and used in these calculations:
   1) For shore supply installations, a maximum and minimum prospective short-circuit current for visiting ships;
   2) For ships, a maximum and minimum prospective short-circuit current for visited shore supply installations.
c) The calculations may take into account any arrangements that
   1) Prevent parallel connection of HV shore supplies with ship sources of electrical power, and/or
   2) Restrict the number of ship generators operating during parallel connection to transfer load, and
   3) Restrict load to be connected.

d) System-charging (capacitive) current for shore and ship; this system-charging current calculation shall consider the shore power system and the expected ship power system including the on-line generator(s);
e) Shore power transformer neutral earthing resistor analysis;
f) Transient overvoltage protection analysis;
g) Fail-safe principle for cables/connectors operation.

These calculated values shall be used to select suitably rated shore connection equipment and to

allow the selection and setting of protective devices so that successful discriminatory fault clearance is achieved for the largest on-board load while connected.

The system study shall be made available to all involved parties.

iii.Electrical requirements:

The HVSC system shall be rated for 6 MVA at nominal ship system voltages of 11 kV AC and/or 6,6 kV AC.

Consideration may be given to an HVSC system with a lower rating where only ships with lower power demands will be required to connect.

Measures shall be taken so that ships with power demands higher than the HVSC system rating will reduce their power demand prior to connecting.

Designers may give consideration to rating connection equipment for 6,6 kV AC HVSC systems for 11 kV AC characteristics where inadvertent connection of the ship socket-outletand connection switchboard to an 11 kV AC shore supply is considered to be reasonably foreseeable.

The prospective short-circuit contribution level from the HV shore distribution system shall be limited by the shore-sided system to 25 kA RMS.

The prospective short-circuit contribution level from the onboard running induction motors and the generators in operation shall be limited to a short-circuit current of 25 kA RMS.

iv. Emergency shutdown including emergency-stop facilities

Emergency shutdown facilities shall be provided. When activated, they will instantaneously open shore connection circuit-breakers onshore and onboard ship.

Fail-safe, hard-wired circuits (safety circuits) shall be used for emergency shut-down. This does not preclude emergency shut-down activation commands from programmable electronic equipment, for example programmable protection relays.

The relay contacts of the safety circuit shall be designed in accordance with IEC 60947-5-1and for a rated insulation voltage of Ui = 300 V, AC 5 A, DC 1 A.

Minimum current value in the safety circuits shall be 50 mA.

To address the potential hazard to personnel of access to high-voltage connection cables that have not been discharged, the high-voltage power connections shall be either

a) Automatically earthed so that they are safe to touch immediately following the isolation from ship and shore electrical power supplies, or
b) Arranged for manual earthing and routed and located such that personnel are prevented from access to live connection cables and live connection points by barriers and/or adequate distance(s) under normal operational conditions.

   Barriers and/or adequate distance(s) shall be satisfied with operational procedures established to
c) Restrict un-authorized access to HVSC spaces,
d) Control personnel access to HVSC spaces and areas when the HV connection is live;locking arrangements may be considered, and
e) Arrange for the safe discharge of HV conductors.

The emergency shutdown facilities shall be activated in the event of:

a) Loss of equi-potential bonding, via the equi-potential bond monitoring devices (where utilized)
b) Over tension on the flexible cable (mechanical stress)
c) Remaining cable length is too low
d) Loss of any safety circuit,
e) Activation of any manual emergency-stop,

f) Activation of protection relays provided to detect faults on the HV connection cable or Connectors, and
g) Disengaging of power plugs from socket-outlets while HV connections are live before the necessary degree of protection is no longer achieved.

Emergency-stop push buttons, activating emergency shutdown facilities, shall be provided at each of the following locations:

a) an attended onboard ship control station during HVSC;
b) In the vicinity of the socket-outlet;
c) At active cable management system control locations; and
d) At the shore side and ship circuit-breaker locations.

Additional emergency push buttons may also be provided at other locations, where considered necessary. The means of activation shall be visible and prominent, prevent inadvertent operation and require a manual action to reset.

Opening of safety loop shall cause the automatic opening of ship and shore HVSC circuit breakers in a maximum time of 200 ms.

An alarm to indicate activation of the emergency shutdown shall be provided to adviserelevant duty personnel when connected to HV shore supply.

For reliable operation of safety circuits, the pilot cable length and cross section shall beconsidered.

v. HV shore supply system requirements

i. Voltages and frequencies

HV shore connections shall be provided with a nominal voltage of 6.6 kV AC and/or 11 kV AC galvanically separated from the shore distribution system.

The operating frequencies (Hz) of the ship and shore electrical systems shall match by using frequency convertors.

At the connection point, looking at the socket-outlet/ship connector face, the phase sequence shall be L1-L2-L3 or A-B-C or R-S-T, counter clockwise. A phase sequence indicator shall indicate correct sequence prior to energizing or paralleling HVSC

ii. Quality of HV shore supply

The HV shore supply system shall have a documented voltage supply quality specification. Electrical equipment of ships shall only be connected to shore supplies that will be able to maintain the distribution system voltage, frequency and total harmonic distortion characteristics given below. For compliance, the compatibility assessment referred to in the Standardshall include verification of the following:

a) Voltage and frequency tolerances (continuous):
   1) The frequency shall not exceed the continuous tolerances ±5 % between no-load and nominal rating;
   2) For no-load conditions, the voltage at the supply point shall not exceed a voltage increase of 6 % of nominal voltage;
   3) For rated load conditions, the voltage at the supply point shall not exceed a voltage drop of −3.5 % of nominal voltage.

b) Voltage and frequency transients:
   1) The response of the voltage and frequency at the shore connection when subjected to an appropriate range of step changes in load shall be defined and documented for each HV shore supply installation;
   2) The maximum step change in load expected when connected to a HV shore supplyshall be defined and documented for each ship. The part of the system subjected tothe largest

voltage dip or peak in the event of the maximum step load being connectedor disconnected shall be identified;

3) comparison of 1) and 2) shall be done to verify that the voltage transients limits ofvoltage +20 % and −15 % and the frequency transients limits of ±10 % will not beexceeded.

c) Harmonic distortion: for no-load conditions, voltage harmonic distortion limits shall notexceed 3 % for single harmonics and 5 % for total harmonic distortion. Single Harmonic distortion limits above 25th harmonics are indicated as per the graph diagram **(Figure 4).**

The above parameters shall be measured at the supply point.
The HV shore supply shall include appropriate rated surge arrestors to protect against fast transient overvoltage surges (e.g. spikes caused by lightning strikes or switching surges).

Different voltage and frequency tolerances may be imposed by the authorities responsible for the shore supply system and these shall be considered as part of the compatibility assessment to verify the effect on the connected ship load is acceptable.

Where the possible loading conditions of a ship when connected to a HV shore supply would result in a quality of the supply different from that specified in IEC 60092101: 1994/AMD1:1995, 2.8, due regard shall be given to the effect this may have on the performance of equipment.

Installation Requirements

General

Shore connection equipment and installations shall be in accordance with IEC 61936-1.

The rating of the HVSC system shall be adequate for the required electrical load as calculated as per the System study and calculations sl.no. D1(ii)above.

The shore-side electrical system shall ensure that each connected ship is galvanically isolated from other connected ships and consumers.
The use of HVSC system shall not compromise the electrical protection selectivity of the largest on-board load (as per the definition in IEC 60050-151:2001, 151-15-15) while connected.

D.2. System component requirements

i. Circuit-breaker, disconnector and earthing switch:

In order to have the installation isolated before it is earthed, the circuit-breaker, disconnector and earthing switch shall be interlocked in accordance with IEC 62271200.

The rated making capacity of the circuit breaker and the earthing switch shall not be less than the prospective peak value of the short-circuit current (**I**P) calculated in accordance with IEC 61363-1.

The rated short-circuit breaking capacity of the circuit-breaker shall not be less than the maximum prospective symmetrical short-circuit current (IAC (0.5T)) calculated in accordance with IEC 61363-1.
(*NOTE The short circuit contribution from the shore side can be calculated using IEC 60909*.)
An automatically operated circuit-breaker shall be provided.

ii.**Shore Side Transformer:**

In the event adjustments are required to maintain the HV supply voltage within tolerances

under load, then these adjustments shall be automatically controlled as required in sl.no. V (ii) Quality of HV shore supply

Transformers shall be of the separate winding type for primary and secondary side. The transformer with Dyn type which shall have Delta connected primary winding, star connected secondary winding, with provision to connect to theneutral point.
The temperature of supply-transformer windings shall be monitored.

In the event of over-temperature, an alarm signal shall be transmitted to the ship using thedata-communication link, if such data-communication link is installed. The alarm signal shall activate an alarm onboard to warn relevant duty personnel.
Short-circuit protection for each supply transformer shall be provided by circuit-breakers orfuses in the primary circuit and by a circuit breaker in the secondary. In addition, overloadprotection shall be provided for the primary and secondary circuit.

iii. **Neutral earthing resistor**

The shore-side transformer star point shall be earthed, through a neutral earthing resistor of 540 ohms, and connected only to the ship-side (see Figure 3.1) during ship operation. When a ship is not connected, it shall be connected to earth.

(Note: Typical cruise ship HV distribution systems are earthed via high-resistance earthing resistors that are installed on each of the ship's generators' star point to earth connections. By using this earthing system on eachgenerator, the earth fault current can be limited according to the size of the resistor, while, on the shore, HV earth fault current can range from a minimum value that exceeds the rating of the ship HV installation.)

The neutral earthing resistor rating in amperes shall not be less than 1,25 times theprospective system charging current. The rating shall be minimum 25 A, 5 s.The continuity of the neutral earthing resistor shall be continuously monitored. In the event ofloss of continuity, the shore-side circuit breaker shall be tripped.
An earth fault shall not create a step or touch voltage exceeding 30 V at any location in theshore-to-ship power system.

iv. Equipment-earthing conductor bonding

A system earthing conductor shall connect the neutral earthing resistor's earthing connectionto a nearby system-earthing electrode. An additional system-bonding conductor shall connect the neutral earthing resistor's earthing connection to the earthing bus of the primary shore power switchboard. Bonding shall be in accordance with 8.2.3 of IEC 60204-11:2000.Equipment-earthing conductors terminated at the shore's three-phase socket-outlets shall be connected to the ship and continued to the ship to create an equipotential bond between theshore and ship. This shall require bonding to the ship's switchgear earthing bus and/orbonding to the ship's hull.

V. Shore-to-ship electrical protection system

The HV circuit breaker on the secondary side of the transformer shall open all insulated poles in the event of the following conditions:
a) Over current including short-circuit;
b) Over-voltage/under-voltage;
c) Reverse power;
d) Earth fault;

e) Unbalanced cable protection

To satisfy this requirement, at least the following protective devices, or equivalent protective measures, shall be provided:

a) Synchro check (25) or voltage sensing device (for dead bus verification);
b) Under voltage (27);
c) Reverse power (32);
d) Negative phase sequence over current (46);
e) Instantaneous over current (50);
f) AC inverse time over current (51);
g) Earth fault over current (51G or 51N);
h) Overvoltage (59);
i) AC directional over current (67);

(Numbers in brackets refer to standard device designation numbers as per IEEE Standard C37.2)

Alarms shall be communicated to the ship as common alarm, using the data-communication link, if such data-communication link is installed.

The protection systems shall be provided with battery back-up adequate for at least 30 minutes. Upon failure of the battery charging or activation of the back-up system, an alarm shall be communicated to the ship

vi. **High Voltage interlocking**

Operating personnel shall be protected from electrical hazard by an interlocking arrangement during connection and disconnection of High Voltage connectors. Operational procedures and interlocking to verify that non-fixed high-voltage cables are discharged before disconnection shall be established.

Arrangements shall be provided so that the circuit breakers cannot be closed when any of the following conditions exist:

a) One of the earthing switches is closed (shore-side/ship-side);
b) The safety circuit is not established;
c) Emergency-stop facilities are activated;
d) Ship or shore control, alarm or safety system self-monitoring diagnostics detect an error that would affect safe connection;
e) The data-communication link between shore and ship is not operational,
f) The permission from the ship is not activated;
g) The HV supply is not present;
h) Equipotential bonding is not established (via equipotential bond monitoring devices where utilized, or via manual override).

Arrangements shall be provided so that the disconnector cannot be closed, or the circuit breaker cannot be racked into the service position, when any of the following conditions exist:

a) One of the earthing switches is closed (shore-side/ship-side);
b) The safety circuit is not established;
c) The communication link between shore and ship is not operational, where applicable;
d) Equipotential bonding is not established (via equipotential bond monitoring devices where utilized, or via manual override).

Arrangements shall be provided so that the earthing switches can only be opened when all the conditions in the interlocking of earth switches of ship are fulfilled.

vii. The Converter

Semiconductor convertors for connecting HV shore supplies to a ship electrical distribution system shall be constructed in accordance with IEC 60146-1 (all parts)

The effect of harmonic distortion and power factor shall be considered in the assignment of a required power rating. The use of frequency convertors shall not compromise the electrical protection selectivity of the largest on-board load (as per the definition in IEC 60050-151:2001, 151-15-15) while connected.
The protection for electrical equipment shall be in accordance with IEC 61936-1, as applicable. Where forced or closed-circuit cooling is used, whether by air or with liquid, an alarm shall be initiated when the cooling medium exceeds a predetermined temperature and/or flow limits.

Semiconductor frequency convertor equipment shall be so arranged that it cannot remain loaded unless effective cooling is maintained. Alternatively, the load may be automatically reduced to a level compatible with the cooling available.

The convertor temperatures shall be monitored and an alarm shall be activated to warn relevant duty personnel if the temperature exceeds a predetermined safe value. Liquid-cooled frequency convertor equipment shall be provided with leakage alarms. A suitable means shall be provided to contain any liquid which may leak from the cooling system so that it does not cause an electrical failure of the equipment.

In the event of overload, an alarm signal shall be activated to warn relevant duty personnel. The alarm shall be activated at a lower overload level than that of the circuit-breaker protection.

Alarms from the onshore protection equipment shall be transmitted to the ship using the data communication link

Shore connection and interface equipment

Ship-to-shore connection cable extensions shall not be permitted.

The suitability of connectors with regard to peak short-circuit withstand capability shall be verified during the compatibility assessment.

viii. Ship-to-shore connection cable

(i) General:

Cables shall be at least of a flame-retardant type in accordance with IEC 60332-1-2. The outer sheath shall be oil-resistant and resistant to sea air, sea water, solar radiation (UV) and shall be non-hygroscopic. The temperature class shall be at least 90 °C. Correction factor for ambient air temperatures above 45 °C shall be taken into account according to IEC 60092-201:1994, Table 7. The maximum operating temperature shall not exceed 95 °C, taking into account any heating effects as a result of cable coiling. Due consideration should be given to requirements for smoke emission, acid gas evolution and halogen content for cables installed or stored in accommodation spaces and passenger areas.

The cables should be constituted as follows: power cores with copper conductors, conductor screen, insulation, insulation screen. The power cores should be laid up with earth cores with copper conductor and semi conducting layer. Pilot and fibre-optic elements, if specified in the applicable ship annexes, should be laid up in the interstices of the power cores. A metallic shield shall be installed at least on the power cores or a common shield on pilot wires.

(IEC 60092-350:2008, 4.6, provides further information regarding the use of inner coverings.;IEC 60092-350:2008, 4.7, provides further information regarding the use of inner sheathing).

The neutral cables are constituted as follows: core with copper conductor, insulation and outer sheath.

(ii) Conductors

All conductors should be flexible (class 5 of IEC 60228 or Table 11 of IEEE Std 1580-2010).

The conductors should be plain or metal-coated copper conductors.

(iii) Insulation of power cores and neutral core

The insulating compounds should be extruded cross-linked solid dielectric designated as EPR, HF EPR, HEPR or HF HEPR in IEC 60092-360 or equivalent of EPR, HF EPR, HEPR orHF HEPR in IEEE Std 1580

Electrical and non-electrical characteristics of the insulation system should be as specified in IEC 60092-360 or IEEE Std 1580 for the type of insulating compound used. Insulation thickness should be in accordance with IEC 60092-354, or IEEE Std 1580 for the standard rated voltages. Insulation thickness for the neutral core should be in accordance with IEC 60092-353 for the standard rated voltages.

(iv) Screening

Screening of individual power cores should consist of a conductor screen and an insulation screen. The conductor screen should be non-metallic and should consist of an extruded semiconducting compound or a combination of an extruded semi-conducting compound and a semi-conducting tape. The conductor screen should be firmly bonded to the insulation.

The insulation screen should consist of a non-metallic semi-conducting layer and, if necessary to fulfill the cable test requirements within Annex A, in combination with a metallic layer. The metallic layer, where required, should be applied over the individual cores and should comply with the requirements of 5.5 of IEC 60092-354:2014, or IEEE Std 1580.

(v) Earth conductors

Earth conductors should be flexible copper conductors in accordance with class 5 of IEC 60228 or Table 11 of IEEE Std 1580™-2010 forming together at least 50 % of the power core cross-section.

The conductor screen, when used, should be non-metallic and should consist of an extruded semi-conducting compound, in accordance with IEC 60092-354 or IEEE Std 1580.

The standard rated voltages

The standard rated voltages *U*0/*U* (*U*m) of the cables considered are as follows:

*U*0/*U* (*U*m) = 6/10 (12) kV RMS

The standard rated voltages *U*0/*U* (*U*m) of the neutral cables considered are as follows:

*U*0/*U* (*U*m) = 1,8/3 (3,6) kV RMS

where

*U*0 is the rated voltage between phase conductor and earth or metallic screen for which the cable is designed;

U is the rated frequency voltage between phase conductors for which the cable is designed;
*U*m is the maximum value of the highest system voltage that may be sustained under normal operating conditions at any time and at any point in the system. It excludes transient voltage conditions and rapid disconnection of loads.

(vi) Pilot conductors:

Pilot conductors should be flexible, plain or metal-coated copper conductors in accordance with class 5 of IEC 60228 or Table 11 of IEEE Std 1580™-2010, with a minimum nominal cross-sectional area of 1.5 mm 2.The insulation of pilot conductors should be extruded cross-linked solid dielectric of one of the types indicated in vii.(iii)Electrical and non-electrical characteristics of the insulation system should be as specified in IEC 60092-360 or IEEE Std 1580 for the relevant type of insulating compound used. Thickness of insulation should be in accordance with IEC 60092-376 or IEEE Std 1580 for the relevant insulation type. A wrapped covering with tapes or an extruded covering is permitted over the cores. Screening is optional.

Pilot element with rated voltage *U*0/*U* (*U*m) = 150/250 (300) V

(vii) Optical fibres

Optical fibres shall consist of a minimum number of six 62.5/125 gradient fibres. Optical fibres should be in accordance with IEC 60793-2-10, product specification. There should be no breakage of the optical fibres after conclusion of the mechanical bending test of the cable.

(viii) Cabling

The three power cores, the earth core(s), the pilot element and the optical fibres should be laid up.

(ix) Separator tape

If separator tape is used, it should be wrapped around the assembled cores and should consist of a suitable, non-hygroscopic material.

(x) Outer sheath

The outer sheathing material should have a high level of mechanical properties as per IEC 60092-360 or IEEE Std 1580™. Thermoplastic polyurethane (TPU) in accordance with EN 50363-10-2 is also an acceptable material. For all sheath materials, the minimum tensile strength should be 12,5 N/mm2. Minimum elongation at break should be 300 %. The minimum thickness at any point of the extruded outer sheath should be 6 mm for high-voltage cables and 2,5 mm for separate neutral cable.

Markings

Cable sheaths should be permanently marked repeatedly throughout their length with an indication of origin with the manufacturer's name and/or registered trademark, rated voltage(*U*0/*U*), construction (number of cores and cross-sectional area of power conductors, earth conductors, pilots and fibre type of fibre optics) and the relevant standard.

Durability should be in accordance with IEC 60092-354 (IEC 60092-353, for neutral cable) or IEEE Std 1580. Continuity should be in accordance with IEC 60092-354 (IEC 60092-353, for neutral cable) or IEEE Std 1580.Legibility should be in accordance with IEC 60092-354 (IEC 60092-353, for neutral cable) or IEEE Std 1580.

Tests on complete cables:

For these tests, reference is made to the relevant clauses of IEC 60092-350 or
IEEE Std 1580.

For test methods for insulation and sheaths, reference should be made to the appropriate part of IEC 60811 (all parts).

Routine tests, special tests and type tests should be conducted in accordance with IEC 60092-354 or IEEE Std 1580 with the following additions or modifications.

a) Bending test (see Figure 7):

1) The test should consist of 5 000 cycles of operation.
2) After 2 500 cycles, the cable should be rotated 180 degrees.

b) The diameter of the bending reels should be 10 D with a tolerance of ±5 %;
where:

1) D is the actual external diameter of the cable sample, in millimetres;
2) tensile force should be 15 N/mm2 of power cores;
3) maximum % of broken wires for each conductor and metallic screen, if required, should not exceed 20 %;
4) maximum % of broken optical fibres to be 0 %.

On completion of this test, the sample should be subjected to a partial discharge measurement. The magnitude of discharges at 1,73U0 should not be higher than 10 pC.

c) Sunlight-resistance test on outer sheath (duration of test 720 h):

1) The test should be performed in accordance with ISO 4892-2:2013, Table 3, test method A, cycle no. 1.
2) Maximum permissible change: tensile strength ±40 %, and elongation at break ±40 %.

d) Abrasion test on outer sheath:

1) The test should be performed in accordance with ISO 4649:2010, test method A.
2) Relative volume loss, ΔVrel: max 300 mm3.

e) Flame propagation test:

The test should be performed in accordance with IEC 60332-1-2 and should at least satisfy the recommended requirements of Annex A of this document.

f) Behaviour of completed cable at low temperatures:

The test should be performed in accordance with IEC 60092-350:2008, 8.9.1, 8.9.2, and Annex E, or IEEE Std 1580. The test should be conducted at −40 °C ± 2 °C.

g) Resistance between earth conductor and semi-conductive layer:

The resistance between earth conductor and semi-conductive layer should be maximum 500 ohms before and after bending test.

ix. Control and monitoring cable

Control and monitoring cables shall be at least of a flame-retardant type in accordance with IEC 60332-1-2 and independent of the power cable assembly. The environmental requirements for the sheath shall be the same as described for the ship-to-shore connection cable ~~in 7.5~~.

The control and monitoring cables, if integrated with the power cable assembly, shall be able to withstand internal and external short-circuits.

For details and further guidance, see Annex A.

x. Connectors

General

Connectors shall be in accordance with IEC 62613-1.

Handling of connectors shall be possible only when the associated earthing switch is closed. Connections shall be made in areas where personnel will be protected in the event of an

arcflash as a result of an internal fault in the connectors by barrier and access control measures. These measures shall be supported by access control procedures. Each connector shall be fitted with pilot contacts for continuity verification of the safety circuit.

For single connector connections, a minimum of five pilots is required. If more than one cable is installed, an interlock shall be used so that no cable remains unused.
Contact sequence shall be in the following order for Connection Process
1) Earth contact;
2) Power contacts;
3) Pilot contacts.

Contact sequence shall be in the following order for Disconnection Process:
1) Pilot contacts;
2) Power contacts;
3) Earth contact.
The general arrangement of the ship connector located ashore shall be in accordance with Figure 5.1&2.

Each 3-phase HV connector or inlet shall have

a) Three-phase current carrying contacts, (L1, L2, L3),

b) One earth contact (see Figure 5.1), and

c) One pilot contact for continuity-check monitoring.

The general arrangement of the power connector and inlet shall be in accordance with IEC 62613-2:2016, Figure 5.1. The neutral connector and inlet shall be in accordance with IEC 62613-2:2016
Cruise ships shall utilize two power 3-phase connectors, each rated 500 A and one neutral single pole connector rated 250 A.
The short-circuit withstand current is 25 kA for 1 s and a maximum peak short-circuit current of 63 kA.
In addition, the ship inlets as well as the neutral ship inlet shall be fitted with fail-safe limit switches that are activated only when the connector and inlet are properly mated (see Figure 5.2).
These fail-safe limit switches shall be part of, and activate the emergency shutdown, if the connector is moved from the mated position while live
Support arrangements are required so that the weight of connected cable is not borne by anyplug or ship connector termination or connection.

Pilot contacts
Pilot contact connections shall open before the necessary degree of protection is no longer achieved during the removal of an HV-plug or connector. Pilot contacts are part of the safety circuit.

Earth contact
The current-carrying capacity of the earth contact shall be at least equal to the rated current of the other main contacts.

Fibre-optic connection

An optical fibre socket-outlet, shall be installed on the connector or plug as per Annexure Figure 6. Fibre-optic cable, terminated with a fibre-optic plug, shall be mounted on the stationary side, adjacent to the three-phase inlet or socket outlet. The fibre-optic receptacle shall have 4 optical terminals with 2.5 mm ceramic ferrules and configuration in accordance with Figure 6. Pin 1 will be used for TX transmission and pin 2 for RX transmission.

XI. Cable management system

General:

The cable management system shall:

a) Be capable of moving the ship-to-shore connection cable, enabling the cable to reach between the supply point and the receiving point. The trailing cable used shall be of UV resistant, oil and chemical resistant, flexible, polychloroprene rubber based compound for sheath, insulation HEPR compound. Conductor shall be tinned copper, flexible specially for mobile application.

b) Be capable of maintaining an optimum length of cable which minimizes slack cable, and prevents the tension limits from being exceeded.

c) Be equipped with a device (e.g. limit switches), independent of its control system, to monitor maximum cable tension and maximum cable pay-out.

d) Address the risk of submersion by prevention or through the equipment's design;

e) Be positioned to prevent interference with ship berthing and mooring systems, including the systems of ships that do not connect to shore power while berthed at the facility;

f) Maintain the bending radius of cables above the minimum bending radius recommended by the manufacturer during deployment, in steady-state operation and when stowed;

g) Be capable of supporting the cables over the entire range of ship draughts and tidalranges; and

h) Be capable of retrieving and stowing the cables once operations are complete.

Where the cable management system employs cable reel(s), the HVSC system rated power shall be based on the operating condition with the maximum number of wraps of cable stowed on the reel that is encountered during normal operations. Where applicable, the cable sizing shall include appropriate de-rating factors.

Monitoring of cable mechanical tension

The cable management system shall not permit the cable tension to exceed the permitted design value. A means to detect maximum cable tension shall be provided, or where an active cable management system that limits cable tension is provided, means to detect the shortage of available cable length shall be provided with threshold limits provided in two stages:

Stage 1: alarm;

Stage 2: activation of emergency shutdown facilities.

Monitoring of the cable length

The cable management system shall enable the cables to follow the ships' movements over the entire range of the ships' draughts and tidal ranges, and the maximum range of allowable motion forward, aft or outward from the dock.

Where the cable length may vary, the remaining cable length shall be monitored, and threshold limits are to be arranged in two stages:

Stage 1: alarm;

Stage 2: activation of emergency shutdown facilities.

Consideration may be given to equivalent alternative measures (automatic break-away release, connectors with shear bolts and pilot lines, connection with ship/shore emergency shutdown system, etc.).

Connectors protection

The ship and shore HV circuit-breakers shall be arranged to open all insulated poles in the event of a damaging current unbalance between multiple phase conductors (separate, parallel power cables and connectors).

Protective devices to satisfy this requirement shall be installed ashore to isolate the connection in the event of damaging unbalance detection.

Equipotential bond monitoring

The equipotential bond monitoring device, where utilized, shall be installed either ashore or onboard where the cable management system is installed. Equipotential bond monitoring termination devices, where utilized, shall be installed on the other side.

Slip ring units

Slip ring units shall be tested in accordance with IEC 62271-200 (excluding non-applicable tests) for:

a) HV tests,

b) Impulse-voltage withstand tests,

c) Insulation resistance measurements,

d) Heat run test with nominal currents,

e) Short-circuit withstand tests,

f) Arc test, if accessible under energized conditions, and

g) Ingress protection tests (IP rating).

Other testing standards may be considered.

Interlocking of earthing switches

Interlocking shall be hardwired.

The earthing switches shall remain closed until

a) All connections are made and the pilot contact circuit is closed,

b) No emergency-stop switch is activated,

c) The communication link between shore and ship is operational,

d) Ship or shore control, alarm or safety system self-monitoring properties detects that nofailure would affect the safety of connections

e) The permission from ship and shore is activated.

Data communication

The data-communication link between ship andshore arrangements shall be used for communicating the following information:

a) Shore transformer high-temperature alarm

b) HV shore supply circuit-breaker protection activation

c) Permission to operate HV circuit-breakers for HV ship to shore connection

d) If ship or shore control, alarm or safety system self-monitoring properties detect an errorthat would affect safety of connection

e) Indication of emergency-stop activation

f) Where provided, shore control functions in accordance with Load transfer via automatic synchronization procedure.

g) Indication of emergency disconnection of the shore supply (see 4.9); and

h) Failure of the battery's charging or activation of the back-up system

The communication protocol for communication link between ship and shore shall be in accordance with IEC/IEEE 80005-2.

HVSC system control and monitoring

Ship equipment shall be protected and controlled by the ship's own protection and control systems. If the shore supply fails for any reason, supply by the ship's own generators is permitted, after disconnecting the shore supply. Load transfer shall be provided via blackout or automatic synchronization.

Load transfer via blackout

Interlocking means shall be provided so that the shore supply can only be connected to a dead switchboard. The interlocking means shall be arranged to prevent connection to a live switchboard when operating normally or in the event of a fault, for example a fault in the blackout monitoring circuit.

The simultaneous connection of an HV shore supply and a ship's source of electrical power tothe same dead section of the electrical system shall be prevented (see 8.5.3 and 8.5.4).

Load transfer via automatic synchronization

General

The HV shore supply and the ship's source(s) of electrical power temporarily in parallel shall be in accordance with the following:

a) Load shall be automatically synchronized and transferred between the HV shore supply and the ship's source(s) of electrical power following their connection in parallel;
b) The load transfer shall be completed in the shortest time practical without causing machinery or equipment failure or operation of protective devices, and this time shall be used as the basis for defining the transfer time limit;
c) Any system or function used for paralleling or controlling the shore connection shall have no influence on the ship's electrical system, when there is no shore connection.The transfer time limit shall be defined and made available to the personnel responsible. Where the transfer time limit is adjustable to match the ability of an external source of electrical power to accept and shed load, the procedure for setting this limit shall be addressed in operating instructions. Where operation of only designated or a restricted number of ship source(s) of electrical power is required to permit the safe transfer of load between an HV shore supply and ship source(s) of electrical power, the arrangements shall fulfill this requirement before and during parallel connection.

The instrumentation and protection requirements contained in 8.5.3 and 8.5.4 shall be met for parallel transfer.

Protection

If the defined transfer time limit (see 9.3.1) for transferring of load between HV-shore supply and ship source(s) of electrical power is exceeded, one of the sources shall be disconnected automatically by the ship, and an alarm shall be provided to advise relevant duty personnel.Special care shall be taken not to exceed the maximum permissible load steps of thegenerator sets in accordance with IEC 60092-301.Where load reductions are required to transfer load, this shall not result in loss of essential services for the ship's safety.

Tailor-made Cable Management and CRD System

A customized CRD system is recommended, which is mounted on a trolley arrangement and can be moved across the berth to connect the SFC junction box to the vessel, depending on the positioning of the Vessel at berth.

i. APPROVED MAKES

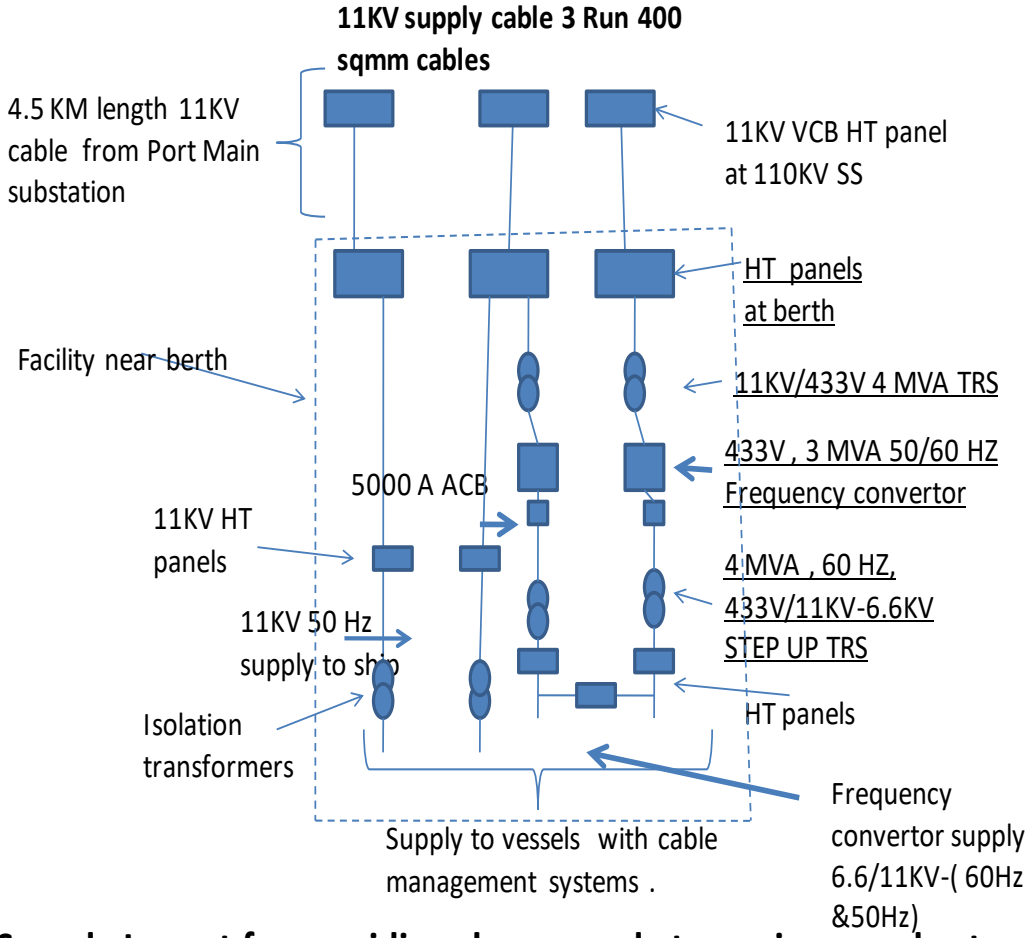
APPROVED MAKES		
1	POWER & DISTRIBUTION TRANSFORMER - OIL & CRT	KEL / TELK / INTRANS/ MEGAWIN/ C&G / RAYCHEM/ SCHNEIDER / TELAWNE/ ABB/ SIEMENS / VOLTAMP/UNIPOWER
2	11 KV VCB	ABB / SCHNEIDER/ SIEMENS /CG / L&T
3	11 KV SF6 LBS/VCB RMU	ABB / SCHNEIDER/ SIEMENS /CG
4	11 KV CMU+LBS (AIR-BREAK)	INTRANS/ MEGAWIN / UNIPOWER /RESITECH
5	CMU PANELS	ABB / SCHNEIDER/ SIEMENS /CG/ INTRANS/MEGAWIN/UNIPOWER
6	UNITISEDSUBSTATION	ABB / SCHNEIDER/ SIEMENS /CG/ INTRANS/MEGAWIN
7	11 KV XLPE CABLE	CCI / INCAB / UNIVERSAL / RPG / NICCO/ TORRENT / POLYCAB / PARAMOUNT / KEI / HAVELLS /PRIMECAB
8	1.1 KV XLPE CABLE	CCI / INCAB/ UNIVERSAL/ RPG/ NICCO/ TORRENT / POLYCAB / PARAMOUNT/ KEI / HAVELLS / FINOLEX / V-GUARD/ L&T / PRIMECAB / RR KABEL / GLOSTER
9	CABLE TERMINATION KIT	RAYCHEM /MAHINDRA / DENSON/3M/CCI / CABSEAL
10	TOD SMART ENERGY METER	L&T/ ENERCON/GENUS
11	ENERGY METER / AMMETER / VOLTMETER	SIMCO / MECO/ L&T/ HPL/ AE / RISHAB / SCHNEIDER / SECURE /SOCOMEC / CONZERVE /SIEMENS/ABB/C&S/ GENUS
12	RELAYS	ABB/ L&T/ SIEMENS / RISHAB / GE /SCHNEIDER / ALSTOM / EASUN REYROLLE / C&S
13	CURRENT / POTENTIAL TRANSFORMER	INTRANS/ KAPPA/ INDUS/ CG/ CYRO/ABB/BHEL/CG/ MEGAWIN/TRANSDELTA / KEL
14	MCCB / MCB / CONTACTOR / TIMER	LEGRAND / MERLIN GERIN / MK / ABB/ INDOASIAN / L &T / SIEMENS /SCHNEIDER / HPL
15	LT ACB	LEGRAND / ABB/ L &T /SIEMENS /SCHNEIDER
16	INDUSTRIAL PLUG WITH MCB	ABB / HAGER / HAVELLS / INDOASIAN / CROMPTON / LEGRAND / SCHNEIDER / L& T / HPL
17	PLUG SOCKETS -IP66	MENNEKES / HENSEL / MERLIN GERIN / L&T / ABB / WALTHER / CAPE
18	STREET LIGHT POLE	BAJAJ / GE / ASTER / CG / PHILIPS / K LITE / UNIQUE POLES

19	LED street / flood light fittings	OSRAM / BAJAJ/ CG/ PHILIPS / WIPRO/ GE
20	LED light fittings	OSRAM / BAJAJ/ CG/ PHILIPS / WIPRO/ GE /POLYCAB / Lighting Technologies
21	BATTERY	EXIDE / AMARON / PRESTOLITE / AMCO / STANDARD FURUKAWA
22	BATTERY CHARGER	WAVES ELECTRONICS / DUBAS / AMAR RAJA / TATA LIEBERT / NUMERIC /SAFE POWER /APC / GE / DELTA / ELNIX / DB POWER
24	PVC CONDUIT PIPES / CASING & CAPPING	BALCO/ ATUL/ GEO/ CLIPSAL/ PRECISION/ AVONPLAST/ KONSEAL
25	HDPE PIPE/ FLEXIBLE HOSE	KONDOOR or any other make with BIS
26	WIRING CABLE	FINOLEX/ QFLEX/ RR KABEL/ RPG CABLES/ LAPP KABEL/ V-GUARD/ HAVELLS/ L&T/ RALLISON
27	INSTRUMENTATION / TELEPHONE CABLES	TRACO / HINDUSTAN CABLES / DELTON / FINOLEX / USHA BELTRON / PRIMECAB / VIDYA
28	MODULAR SWITCHES/ PLUG SOCKETS/ CEILING ROSE	ANCHOR/ MK/ LEADER / CRABTREE/SIEMENS/ FINOLEX/LEGRAND/ABB / INDOASIAN
29	MV PANEL / DISTRIBUTION BOARD	ABB/ INTRANS/ MEGAWIN/HESSEL/ WAVES/POWERCONTORLS/ABB/L&T/ SIEMENS/SCHNEIDER /HENSEL/MENNEKAS/HAGGER/ IMPERIAL/PAS
30	CEILING/ WALL MOUNTED / EXHAUST FAN	CROMPTON / BAJAJ / USHA / KHAITAN / HAVELLS / ORIENT / ALMONARD
31	UPS	DB POWER/ TATA LIEBERT / NUMERIC/ SAFE POWER/ APC/ GE / DELTA/ SOCOMEC / VGUARD / EMERSON
32	AIR-CONDITIONER	VOLTAS / BLUE STAR / CARRIER / LG / HITACHI / DAIKIN
33	DIESEL ENGINE	CUMMINS / ASOK LEYLAND / GREAVES COTTON / CATTER PILLAR / MITSUBISHI/ VOLVO / KIRLOSKAR / MAHINDRA
34	ALTERNATOR	CROMPTON GREAVES / STAMFORD / LEROYSOMER / KIRLOSKAR / KEL / BHEL
35	FRP CABLE TRAY	PUSTRON/ SUMIP/ ERCON OR FIRM HAVING 1SO AND CERTIFICATES AS PER THE TENDER SPECIFICATION .
36	GI CABLE TRAY	PUSTRON/ SUMIP/ ERCON/L&T OR REPUTED MAKE WITH ISO CERTIFICATION.

SECTION V
COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

DRAWINGS



Sample Layout for providing shore supply to cruise vessels at Harbour

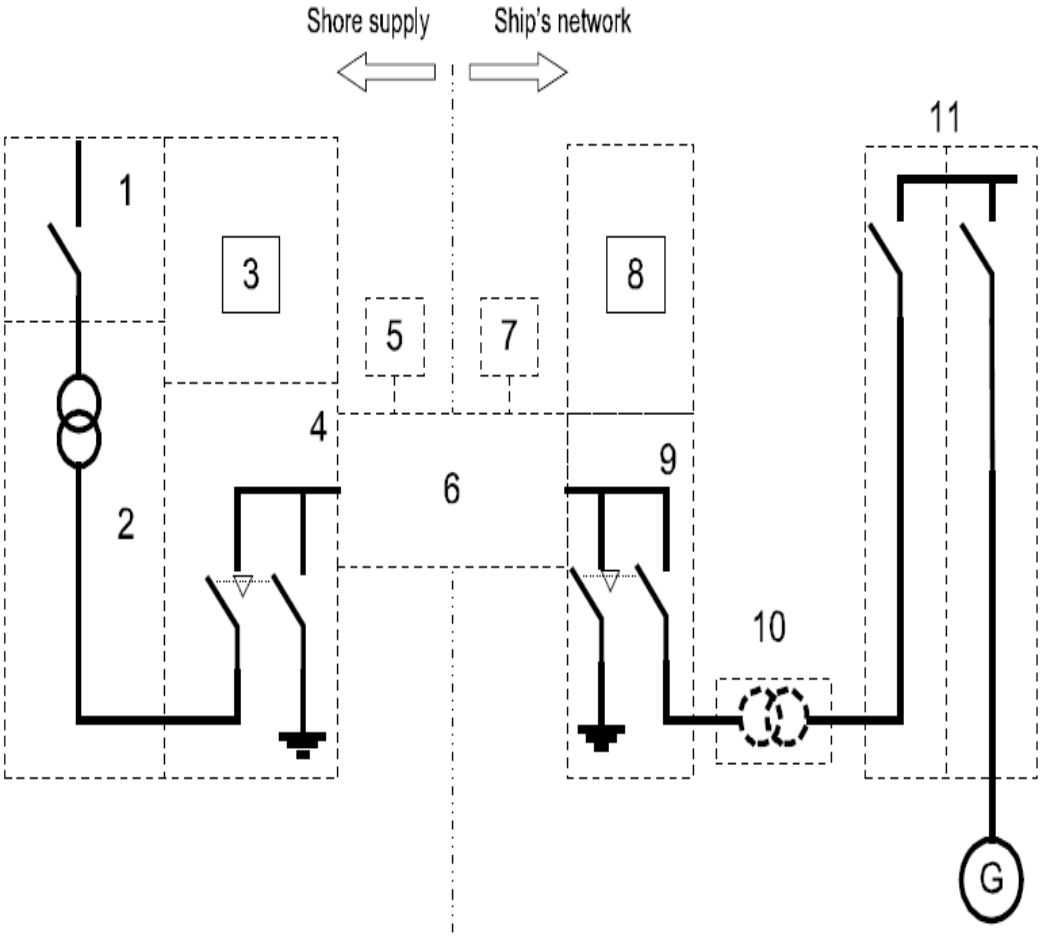


Figure 1 – Block diagram of a typical described HVSC system arrangement

1 Shore supply system
2 Shore-side transformers
3 Shore-side protection relaying
4 Shore-side circuit-breaker and earth switch
5 Control shore
6 Shore-to-ship connection and interface equipment
7 Control ship
8 On-board protection relaying
9 On-board shore connection switchboard
10 On-board transformer (where applicable)
11 On-board receiving switchboard

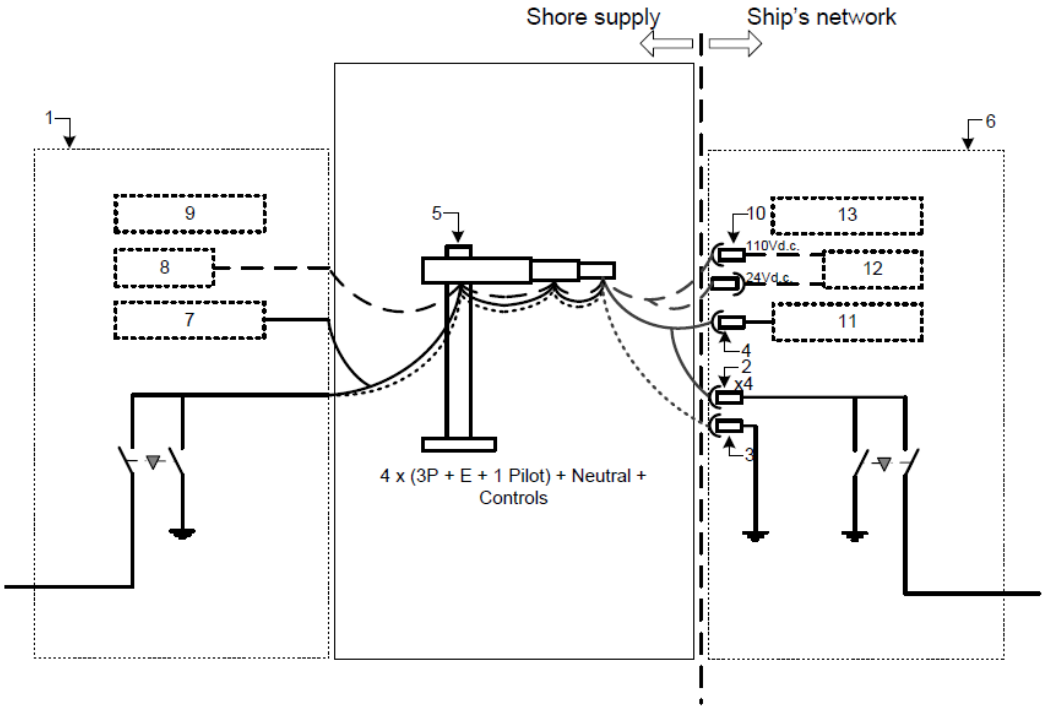


FIGURE 2 – General system diagram

Key

1 Shore supply system
2 Power ship connector (shore-side)
and ship inlet (onboard), four times
3 Neutral ship connector (shore-side)
and ship inlet (onboard)
4 Pilot wires (integrated in connectors and inlets)
5 Cable management system, here shown
as shore-side crane
6 On-board shore connection switchboard
7 Interlocks with pilot wire shore-side
8 Communication for control and monitoring shore-side
9 Protection relaying shore-side
10 Communication and control wires and connector
(110 V DC and 24 V DC)
11 Interlocks with pilot wire on-board
12 Communication for control and monitoring on-board

13 Protection relaying onboard

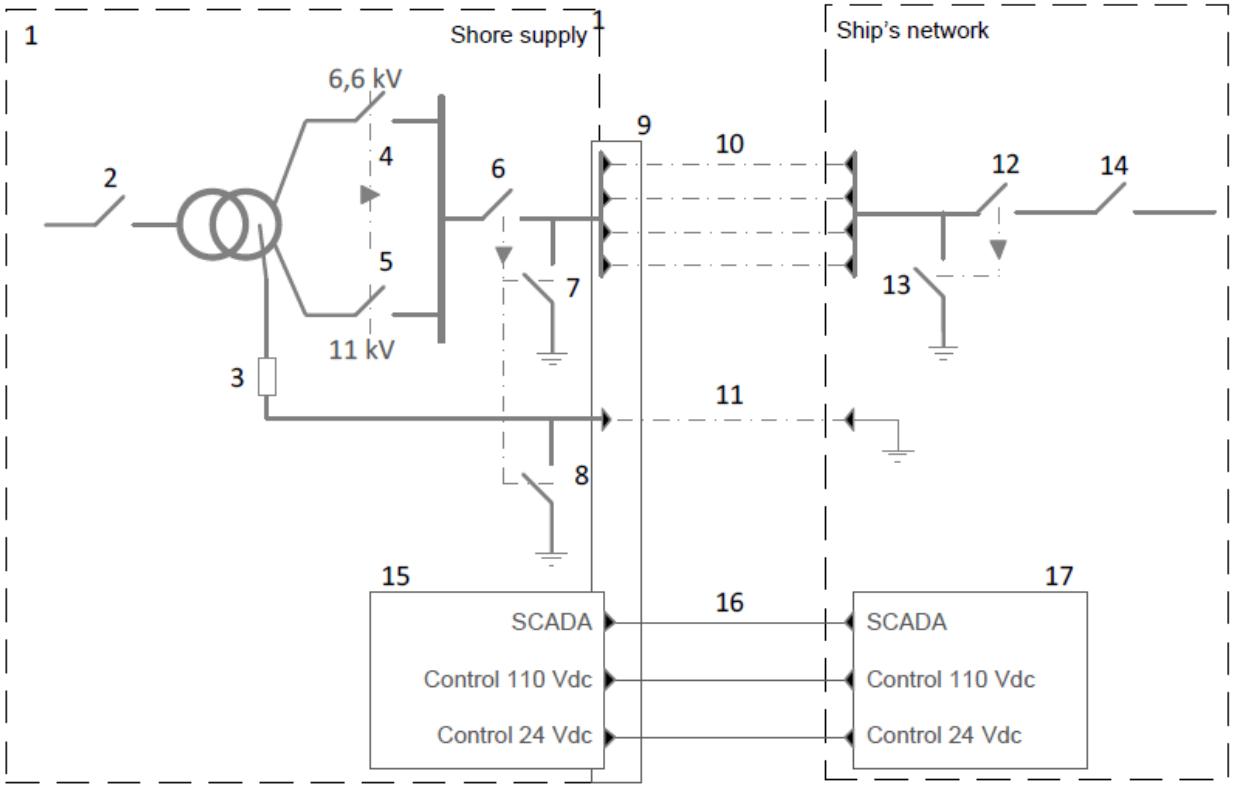


FIGURE 3.1 – Cruise ship HVSC system functional diagram

1 Shore supply system
2 Transformer primary circuit-breaker
3 Neutral earthing resistor
4 6,6 KV shore-side circuit-breaker
5 11 KV shore-side circuit-breaker
6 Shore-side main switch
7 Shore-side earthing-switch
8 Shore-side neutral earthing-switch
9 Cable management system
10 Four power cables
11 Neutral cable
12 Onboard shore connection circuit-breaker
13 Onboard shore connection earthing-switch
14 Onboard receiving circuit-breaker
15 Shore control cubicle
16 Control cables
17 Ship control cubicle

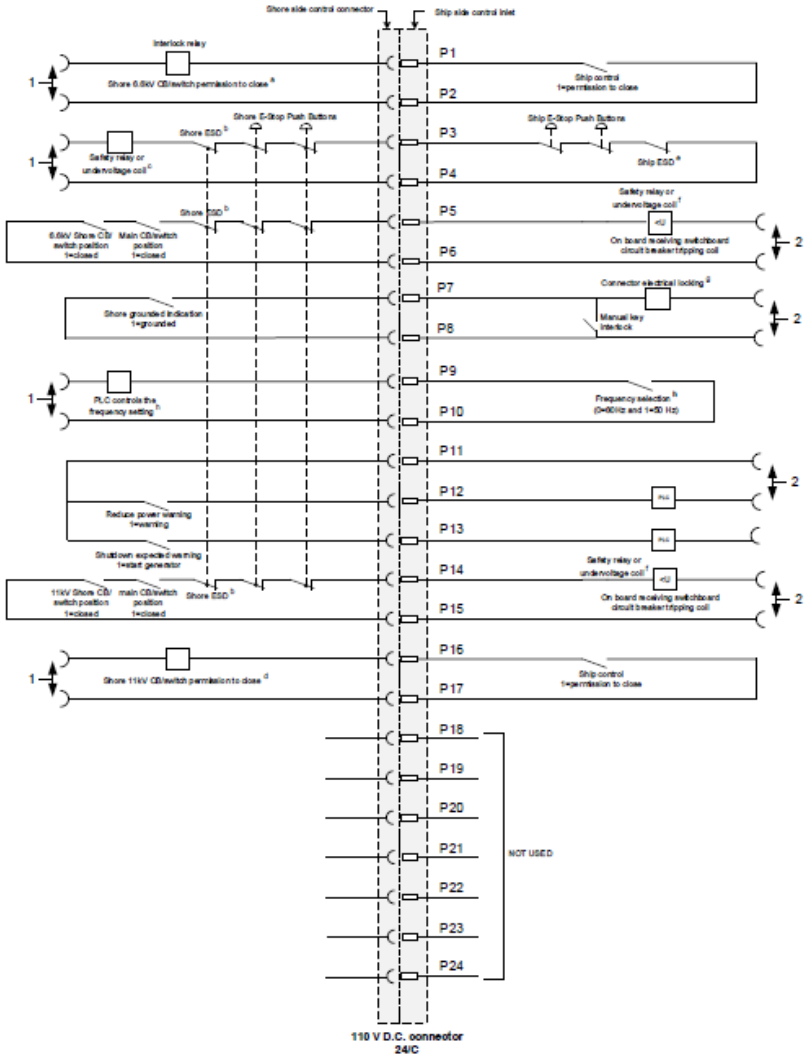


FIGURE 3.2Safety and control circuits – 110V DC circuit

1 Shore control voltage

2 Ship control voltage control switch status: 0 = opened 1 = closed

a) The permission to close is required for closing 6,6 kV CB/switch; the loss of permission to close shall open the6,6 kV CB/switch;

b) Shore ESD contact shall be a summary of at least:

– electrical protection tripping condition;

– ground check trip;

– ground monitoring trip;

– shutdown order from PLC;

– cable over tension alarm (if any)

c) Shore e-stop shall trip: 6,6 kV and 11 kV shore-side CB/switch and shore-side main CB/switch;

d)The permission to close is required for closing 11 kV CB/switch; the loss of permission to close shall open the 11 kV CB/switch;

e) Ship ESD shall be a summary of at least:
– cableovertension alarm (if any);
– socket limit switch.
f)The coil may be directly connected to the circuit or through safety relay (or equivalent); the tripping ashore shall initiate the tripping on the ship;
g)Where applicable, for automatic locking operations, this circuit shall be added to prevent disengaging the power connectors when the system is not earthed on shore side;
h) If this circuit is not existing on ship, the frequency setting on shore side shall be by default 60 Hz.

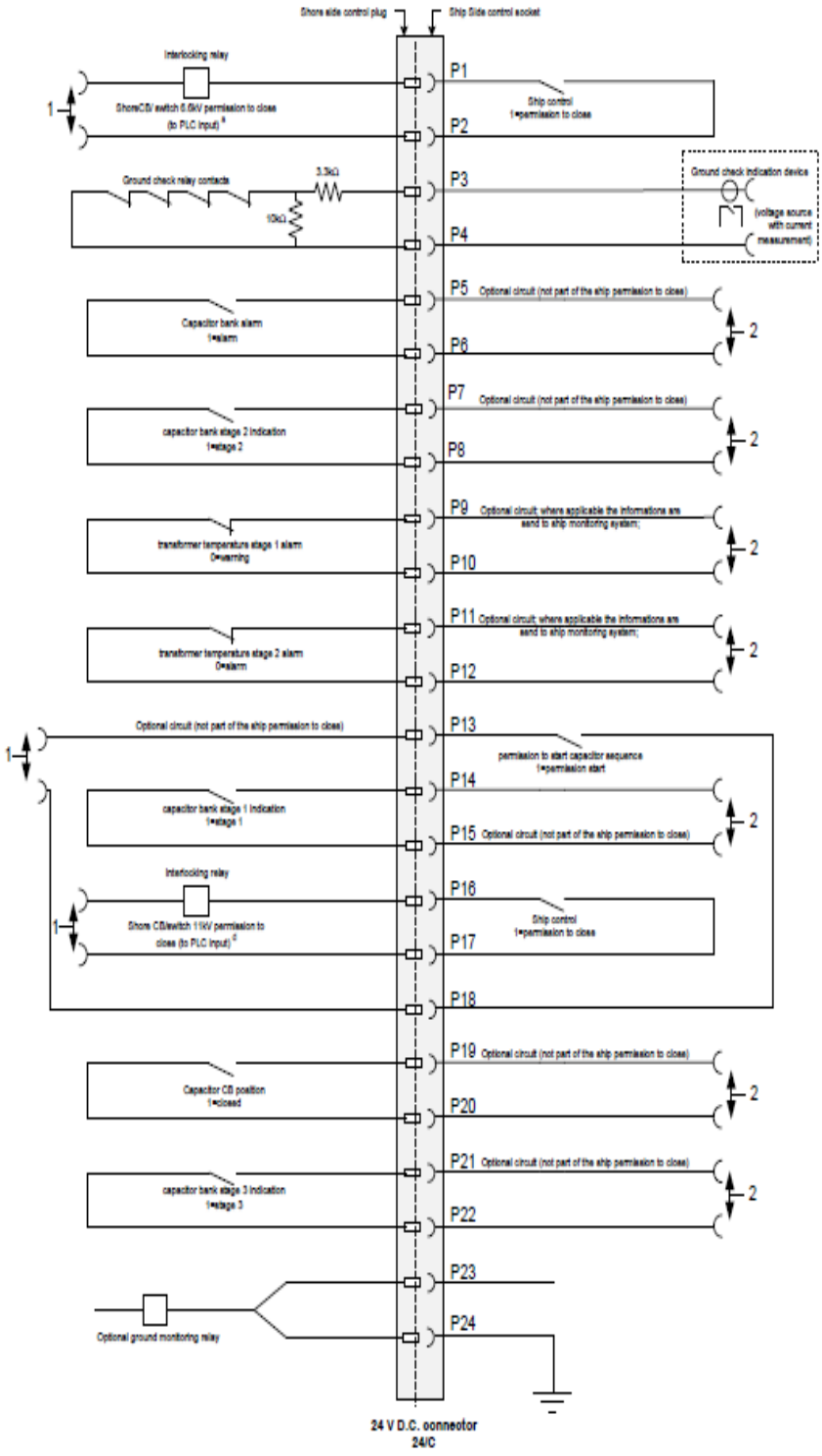


Figure 3.3 Safety and control circuits – 24V DC circuit

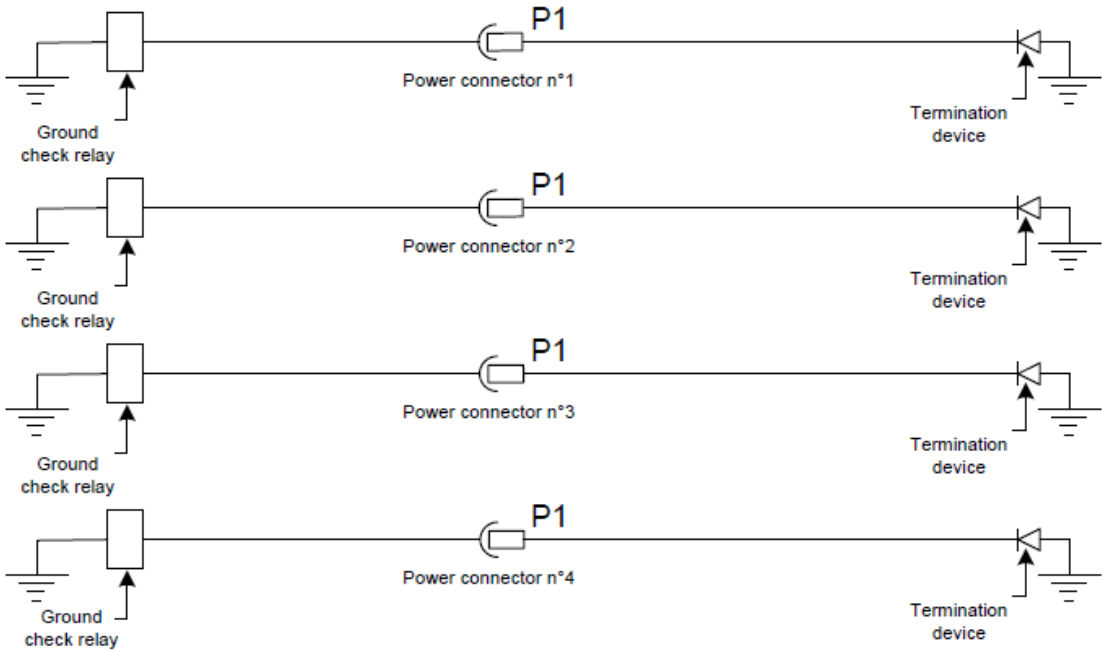


Figure 3.4 Safety and control circuits – ground check circuit

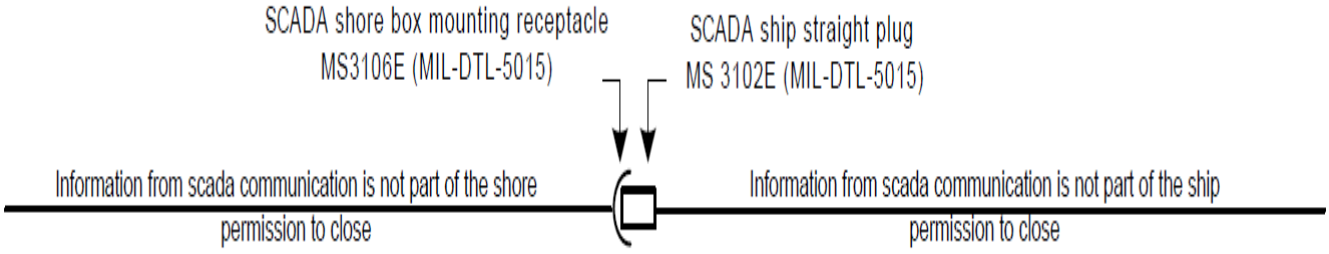


Figure 3.5 Safety and control circuits – SCADA circuit

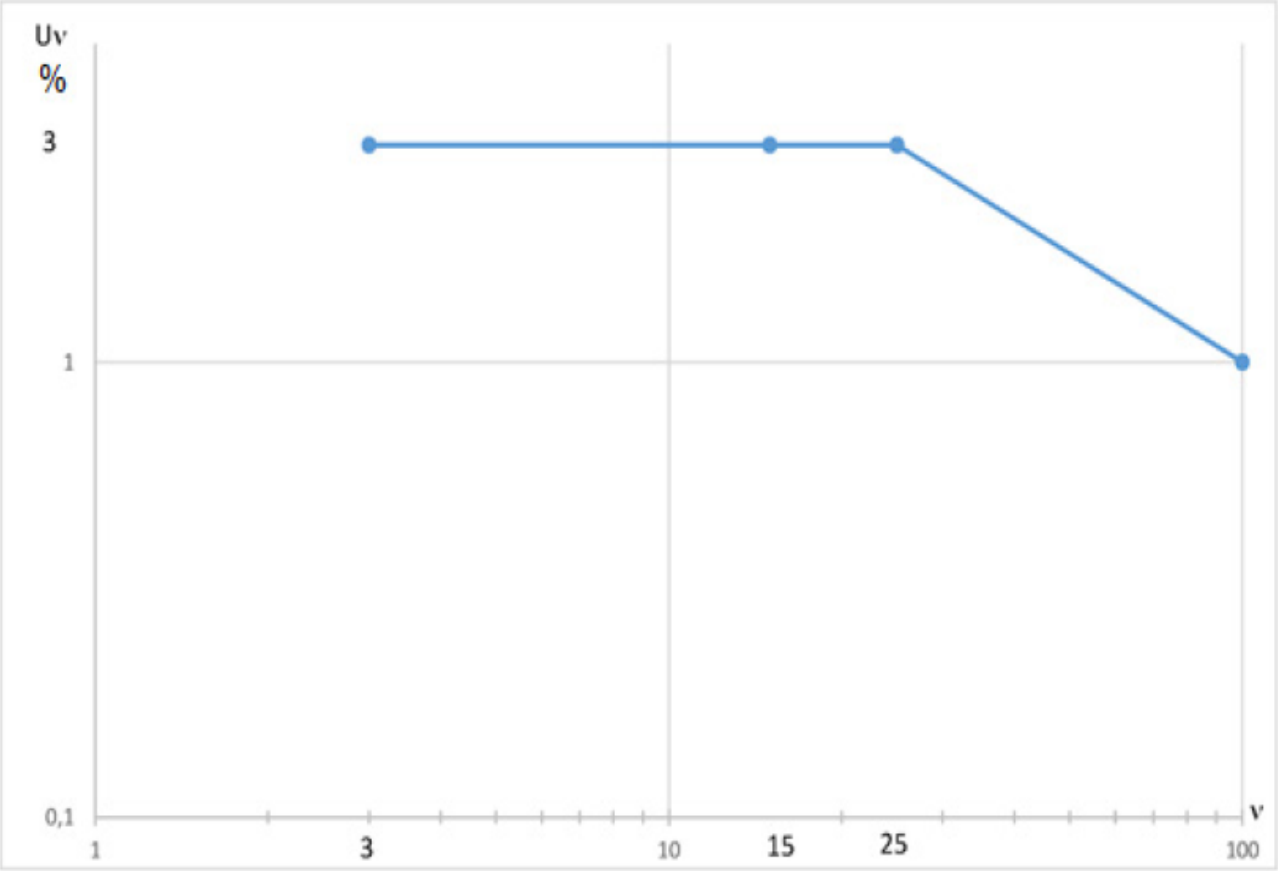


Figure 4 – Single harmonic distortion limits

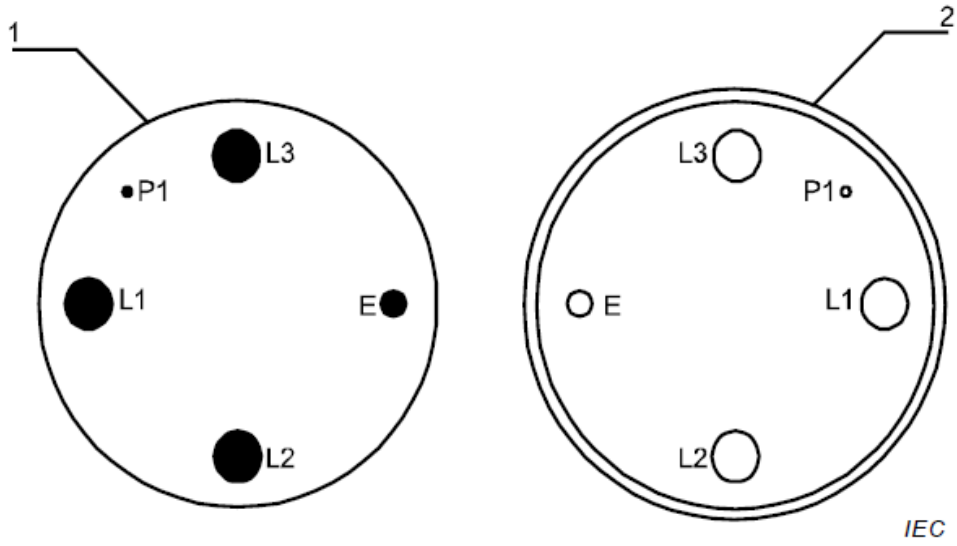


FIGURE 5.1– Three-phase ship connector and ship inlet contact assignment

1 Ship connector face
2 Ship inlet face
E Earth
P1 Pilot line 1 (used for continuity check)
L1 Phase A – phase R
L2 Phase B – phase S
L3 Phase C – phase T

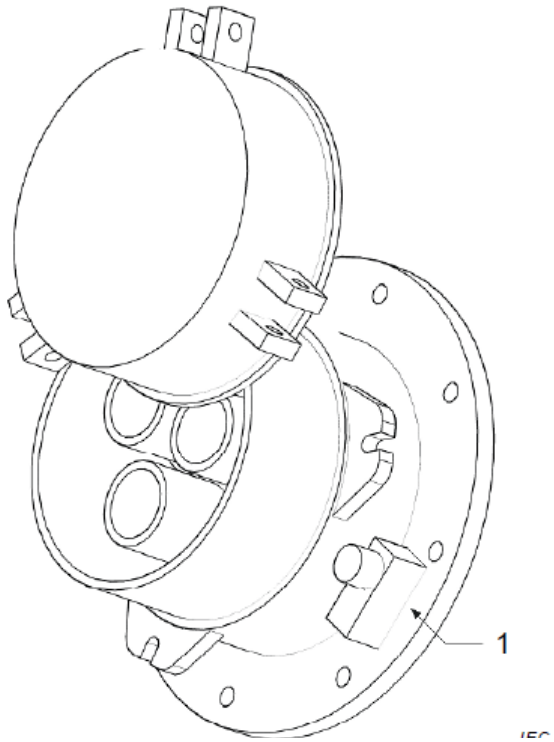


Figure 5.2- Three-phase ship inlet fitted with fail-safe limit switch

1 Fail-safe limit switch

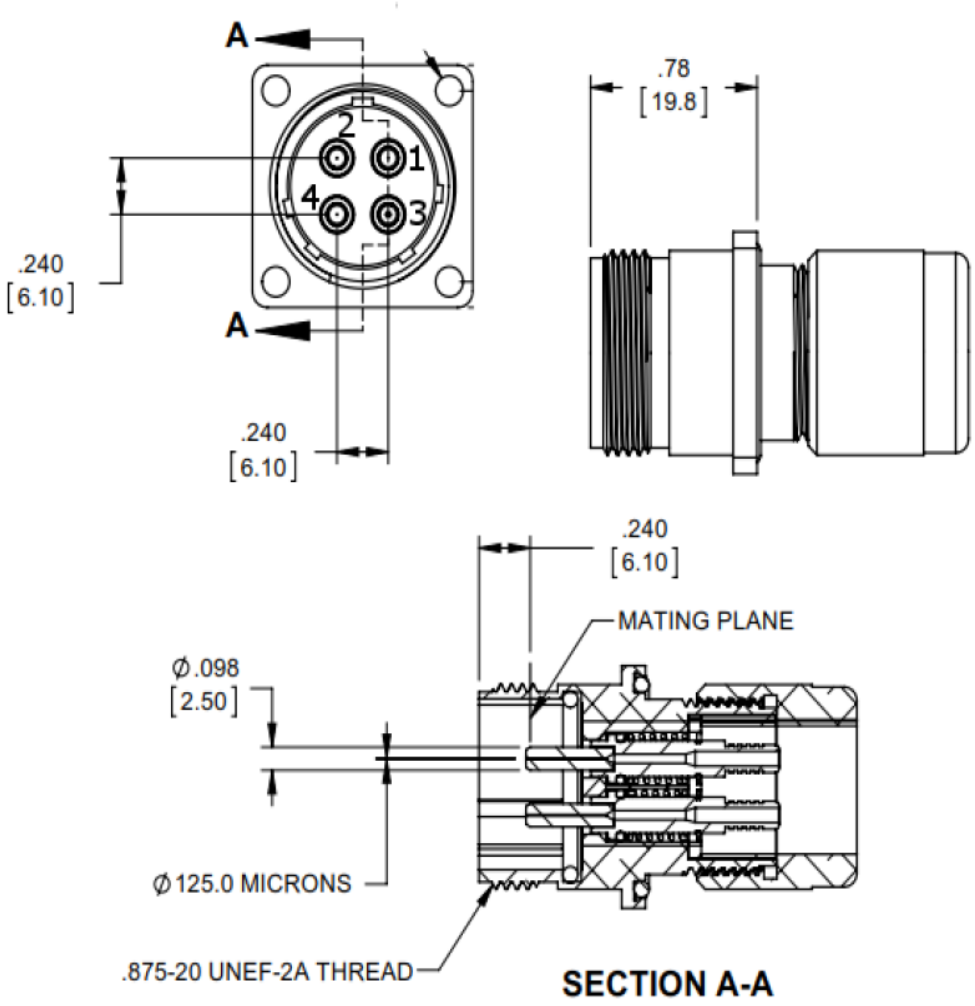


Figure 6.1 – Fibre-optic socket outlet

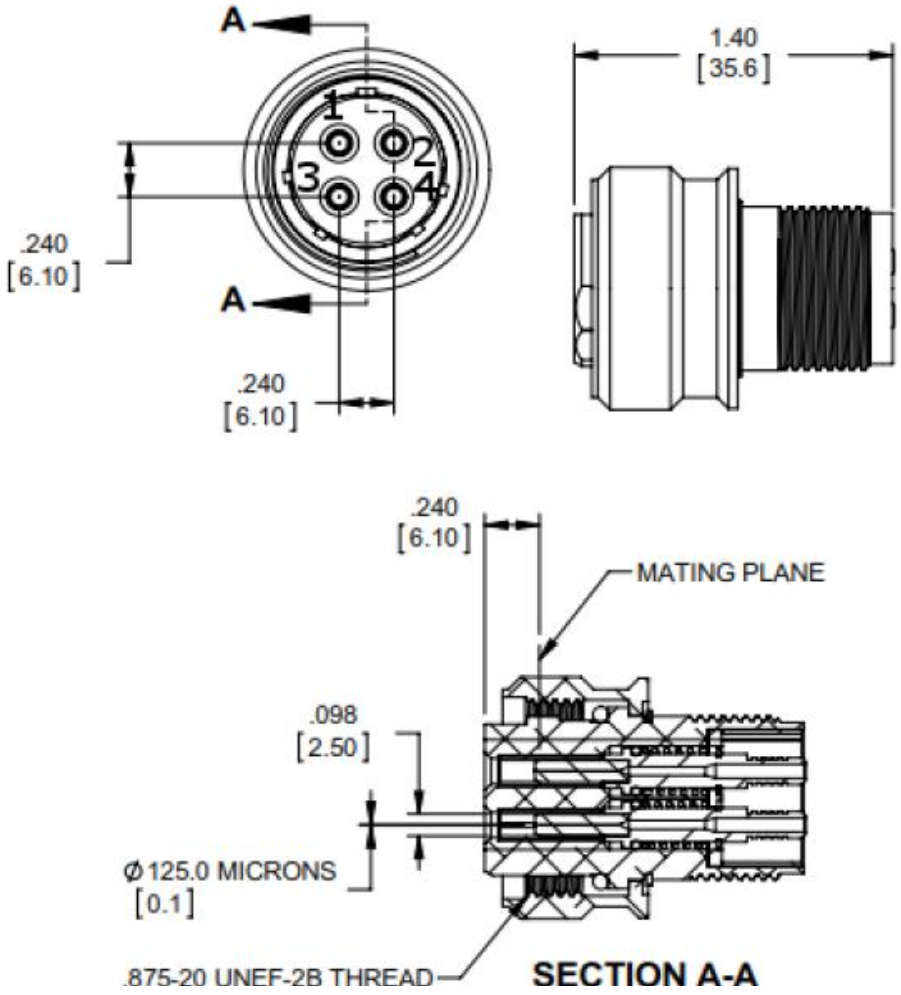


Figure 6.2 – Fibre-optic plug

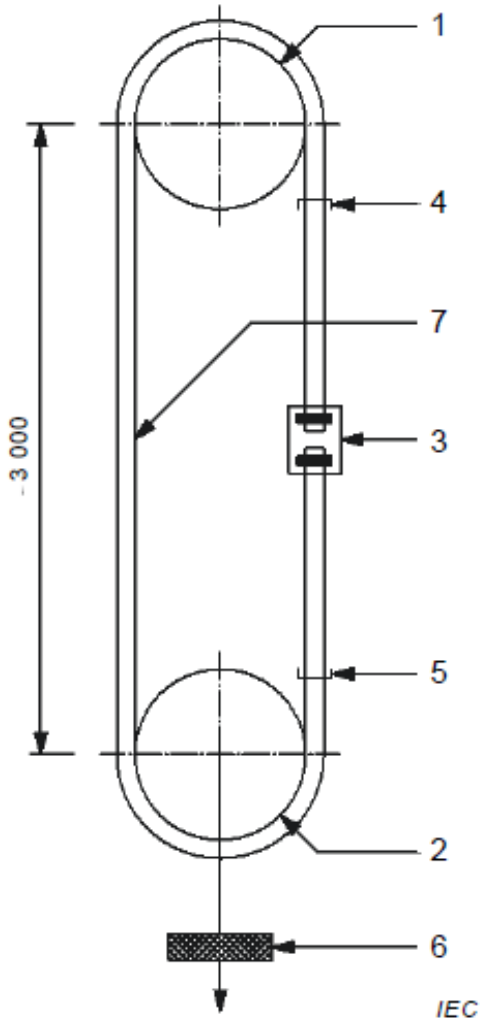


Figure 7 – Bending test arrangement

1 Upper bending reel
2 Lower bending reel
3 Clamp
4 Upper point of return
5 Lower point of return
6 Tensioning device
7 Specimen movement

SECTION VI

COCHIN PORT AUTHORITY

Tender for "Provision of High Voltage Shorepower Connection (HVSC) system of 6MVA capacity for the ships calling at the International Cruise Terminal of Cochin Port Authority"on Engineering, Procurement and Construction (EPC) contract basis"

BILL OF QUANTITIES

This Bill of Quantities (BoQ) defines the main equipment and the main works to be included in the scope of works of the Contractor.

This BoQ shall be considered in conjunction with the Scope of works, Technical Specifications and all the bid documentation. Major items for providing HVSC system including SITC of the system, Operation & Maintenance during guarantee period of two years after commissioning, shall be as detailed in Annexure-1 below.

Operation and maintenance of the system during Comprehensive AMC period also shall be considered as per Annexure-I. The items shall be provided as per the recommendation of TPIA during the evaluation of design of the system thereafter. This is bound to redesign/ add the specifications/equipments as per TPIA recommendations.

The successful bidder shall design and prepare completed and/or updated version of items required for submitting his bid as per the scope of work mentioned in the bid document..

Tenders are invited through Government e- Market Place (GeM portal) in Single Stage Two Cover bidding procedure [Technical Bid and Financial Bid], the Price Bid shall be submitted separately only at the provision made in the Gem portal.

The Price quoted shall not be mentioned anywhere in the techno-commercial Bid.

Annexure -1

(Below mentioned table is only indicative for reference and information before preparing the bid and no price shall be quoted as per Annexure-1.

Price Bid (cost of project in title 1 and cost of AMC as per title 2 in BoQ) shall be submitted only at the provision made in the Gem portal)

NO	DESCRIPTION				
I	**PROVIDING HVSC SYSTEM including** Operation & Maintenance of the system during guarantee period of two years.				
1.	Bay Extension in the existing 11kV HT Panels at the 110kV Receiving station, Installation of 3 nos. of Circuit breaker Panels and associated cabling in HT including Metering, Monitoring & Protection system integrated to the existing panels and associated Cabling in LT auxiliary and control power supply.				
2.	SITC of the following: 1) Cabling through HDD/ open trench/ HDPE pipe/RCC trench/ HDPE pipe with supports etc.. from 110 KV Main Receiving Station to the proposed Substation near International Cruise Terminal with 3 runs of 3 x 400 sq.mm 11 KV grade (E)XLPE UG Cables. 2) Jointing &Terminations at both ends of each cable				
3.	Design and provide Power Supply Distribution System consisting of the following items: 1) Construction of Substation near International Cruise Terminal including all civil works involved. 2) Installation of HT panels/ Ring Main Units, H.V Circuit breakers, transformers, distribution system, earthing as per standards etc. as per IEC 61936-1, 3) Providing necessary battery backup for the station control system.				
4.	Design and Provide 1) High Voltage Shore Connection System to provide Shore connections to the vessels in 11KV and 6.6 KV Voltage levels in both 50 Hz & 60 Hz frequencies as per the standard IEC/ISO/IEEE 80005-1consists of the following items: a) Installation of Power Transformers. b) The Power Convertors c) Shore- Side Protection Relaying d) Shore-side circuit-breaker and earth switch e) Control system of shore connection f) Shore-to-ship connection and interface equipment including Cable Management System and Connectors g) Communication equipments **2)** Providing shore power connection in 440 V System both in 50 Hz & 60 Hz frequencies with capacity of 1 MVA				

5.	Other Substation equipments with following: 1) Installation of No. 1 (one) 24VDC Battery Charger and Distribution board; 2) Installation of No. 1 (one) 24VDC Battery Bank with Cabinet; 3) Installation of No. 1 (one) Transformer 11/.433, 50hz for Substation use. 4) Installation of No. 1 (one) LV Distribution Board for Building services;				
6.	Fire & Safety equipments				
	Total				
II	**OPERATION AND MAINTENANCE OF THE SYSTEM**				
1.	Charges for the Operation and Comprehensive Annual Maintenance Contract of the entire system for five years after the expiry of 2-year guarantee period, as detailed below:				
1)	First Year from date of taking over				Under Guarantee
2)	Second Year from date of taking over				Under Guarantee
3)	Third Year				
4)	Fourth Year				
5)	Fifth Year				
6)	Sixth Year				
7)	Seventh Year				
	Total				
	COMBINED COST OF PROJECT INCLUDING AMC FOR 5 YEARS (I + II)				
	GST @				
	GRAND TOTAL				
	(Rupees ……..……. Only)				

Note 1:-

1) The price shall be quoted in Indian Rupees only
2) Bidder should indicate base price only
3) Discounting factor @ 6% per year will be taken to arrive NPV
4) Evaluation of the price bid will be based on the combined cost of the Project and cost for Operation and AMC of the entire system for 5 years after the 2-year guarantee period.

Note 2: The bidder shall furnish the break- up price of each and every component of the items to be supplied for the successful commissioning of the project as per the technical specification and scope of work, immediately after the receipt of LoA for the Chief Mechanical Engineer's approval with relevant documents to ensure that the cost of supply of items are not exceeding the total price quoted by the bidder.