



SECTION V - SCOPE OF WORK(SOW)

REQUEST FOR PROPOSAL (RFP) FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATION AND ASSOCIATED POWER EVACUATION SYSTEM FOR:

Group A: 300 MW (220kV ISTS) SOLAR PROJECT IN THE VICINITY OF MORENA PS, DISTRICT SHEOPUR, MADHYA PRADESH, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

AND

Group B: 100 MW (66kV InSTS) SOLAR PROJECT IN THE VICINITY OF SISRANA GETCO SS, DISTRICT BANASKANTHA, GUJARAT, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

RFP NO.: TeCL/CC/PSS/2026-27/03


Issued by

Terra Clean Limited

(Procurement & Contracts Section)

10th floor, Office Block 2, NBCC Commercial Complex, East Kidwai Nagar

New Delhi - 110 023

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

1 BRIEF SCOPE OF WORK

- 1.1 The objective of the RfP is to identify bidders for Design, Engineering, Supply, Construction, Testing & Commissioning of Pooling Substation and Associated Power evacuation systems, including 5 years of comprehensive Operation and Maintenance for the following project groups.

Group	Location	Capacity & Voltage
A	Proposed 300 MW Solar Project in vicinity of ISTS Morena PS, District Sheopur, Madhya Pradesh	300 MW, 220 kV
B	Proposed 100 MW Solar Project in vicinity of InSTS Sisrana GETCO SS, District Banaskantha, Gujarat	100 MW, 66 kV


- 1.2 **Group wise scope of work overview:**

1.3 Group A

- 1.3.1 Design, Engineering, Supply, Construction, Testing & Commissioning of 220 kV Air Insulated Switchgear (AIS) Pooling Sub Station (PSS) and associated 33 kV Pooling Switchgear for interconnection of 300 MW Solar Capacity along with associated Civil works for substation(s) including Control Room Building.
- 1.3.2 Design and construction of Single circuit EHV (i.e., 220 kV) Transmission Line (on double circuit towers) from Project Pooling substation to Interconnection point at ISTS/ Grid Sub Station (i.e., approx. 8.0 km) to evacuate power from 300 MW capacity excluding “Right of Way” arrangement for transmission line(s).
- 1.3.3 Comprehensive Operation & Maintenance of the PSS and Power evacuation system for a period of five (5) years from the date of project commissioning.

1.4 Group B

- 1.4.1 Design, Engineering, Supply, Construction, Testing & Commissioning of 66 kV AIS Pooling Sub Station (PSS) and associated 33 kV Pooling Switchgear for interconnection of 100 MW Solar Capacity along with associated Civil works for substation(s) including Control Room Building.
- 1.4.2 Design and construction of Double circuit EHV (i.e., 66 kV) Transmission Line (on double circuit towers) from Project Pooling substation to Interconnection point at InSTS/ Grid Sub Station (i.e., approx. 8.0 km) to evacuate power from 100 MW capacity excluding “Right of Way” arrangement for transmission line(s).

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


- 1.4.3 Grid substation bay construction work (i.e, at GETCO substation sisrana)
- 1.4.4 Comprehensive Operation & Maintenance of the PSS and Power evacuation system for a period of five (5) years from the date of project commissioning.
- 1.5 Detailed Scope of Work is mentioned in Clause 3.0 of this Section.

2 DEFINITIONS

- 2.1 **"ACT"** or **"ELECTRICITY ACT, 2003"** shall mean the Electricity Act, 2003 and include any latest modifications, amendments and substitution from time to time;
- 2.2 **"ACRE"** A land measurement unit which is equal to 43,560 square feet or 4840 square yard or 4046 square metre.
- 2.3 **"AFFILIATE"** shall mean a company that, directly or indirectly, through one or more intermediaries Controls, or is Controlled by, or is under common Control with such specified company;
- 2.4 **"AIS"** shall mean Air insulated substation in which the primary electrical equipment and busbars are insulated by air at atmospheric pressure.
- 2.5 **"BIDDER"** shall mean Bidding Company/ Sole Proprietorships / Partnerships / Limited Liability Partnerships/ Companies/ Government Agencies/ Government Companies/ Public Sector Undertaking. Any reference to the Bidder includes Bidding Company.

Bids from following types of bidders are not allowed:


- Who are in the Holiday list of Owner or its Parent company (IOCL), or its Administrative Ministry, MoPNG.
- Who are in the Holiday list of Ministry of Power or Ministry of New & Renewable Energy, Govt of India.
- Who are under liquidation, court receivership or similar proceedings.
- Who are undergoing insolvency resolution process or liquidation or bankruptcy proceeding under Insolvency and Bankruptcy Code, 2016 (Code) or any other applicable law (in case where Code is not applicable). Whose insolvency resolution process or liquidation or bankruptcy proceeding is initiated under the Code or any other applicable law (in case where Code is not applicable) at any stage of evaluation of the bid. In case where the bid of the L-1 bidder is rejected on the aforesaid grounds during the period between Price-Bid-Opening and Award-of-Contract, then the bid of the next higher eligible bidder will be considered for further processing.
- An agency appointed as Consultant for the project / work shall not be allowed

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

to participate in the tender either directly or indirectly for the same project for which they are working as consultant.

f. Foreign bidders.


- 2.6 “BG” shall mean Bank Guarantee is a guarantee given by the bank on behalf of the applicant to cover a payment obligation to a third party;
- 2.7 “BOM” shall mean Bill of Materials;
- 2.8 “BoS/ BoP” shall mean Balance of System/ Balance of Plant;
- 2.9 “BoQ” shall mean Bill of Quantity;
- 2.10 “CAPACITY” shall mean the AC capacity in MW contracted with Owner or Connectivity Clearances received from the concerned Central or State agency (ies) for Solar Photo Voltaic panels;
- 2.11 “CEA” shall mean Central Electricity Authority (Government of India);
- 2.12 “CENTRAL TRANSMISSION UTILITY (CTU)” shall mean the Central Transmission Utility as defined in Sub-Section (1) of Section 38 of the Electricity Act, 2003;
- 2.13 “CERC” shall mean Central Electricity Regulatory Commission;
- 2.14 “CHARTERED ACCOUNTANT” shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949.
- 2.15 “CONTRACT VALUE” shall mean the Award Price (inclusive of O&M and all applicable taxes & including GST) mentioned elsewhere in the tender
- 2.16 “CONTRACTOR” shall have the meaning given to it in the array of Parties;
- 2.17 “CONTROL” shall mean the ownership, directly or indirectly, of more than 50% (fifty percent) of the voting shares of such Company or right to appoint more than 50% (fifty percent) of the Directors; or to control the management or policy decisions exercisable by a person or persons acting individually or in concert, directly or indirectly, including by virtue of their shareholding, ownership, or management rights or shareholders agreements or voting agreements or in any other manner; and the terms “controlled” or “controlling” shall be construed accordingly.
- 2.18 “CTUIL” shall mean Central Transmission Utility of India Limited;
- 2.19 “DAY” shall mean calendar day of the Gregorian calendar;
- 2.20 “DFR” shall mean Detailed Feasibility Report with the scope of RE resource assessment/estimation;
- 2.21 “DISCOM(s)” shall mean electricity distribution company(ies) of the State as

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


defined in Section 2, Point. 17 of the Electricity Act 2003;

- 2.22 **“DLP”** shall mean Defects Liability Period;
- 2.23 **“DPR”** shall mean Detailed Project Report;
- 2.24 **“EFFECTIVE DATE”** shall mean the date of issuance of Letter of Acceptance (LOA);
- 2.25 **“EHV”** shall mean Extra High Voltage (EHV) transmission;
- 2.26 **“EMD”** shall mean Earnest Money Deposit;
- 2.27 **“EQUITY”** shall mean Net Worth as defined in Indian Accounting Standards (Ind AS);
- 2.28 **“EIC”** shall mean the person appointed by the Owner to perform the duties delegated by the Owner for contract performance.
- 2.29 **“GERC”** shall mean Gujarat Electricity Regulatory Commission;
- 2.30 **“GNA”** shall mean General Network Access regulation of CERC along with its amendments;
- 2.31 **“GPA”** shall mean General Power of Attorney;
- 2.32 **“GROUP COMPANY”** of a Company means two or more enterprises which, directly or indirectly, are in a position to:
 - a. exercise twenty-six percent or more of voting rights in other enterprise; or
 - b. appoint more than fifty percent of members of Board of Directors in the other enterprise
- 2.33 **“GSS”** shall mean Grid Sub-station of Central or State Grid Utility (as applicable) as defined in Section 2, Point. 69 of the Electricity Act 2003;
- 2.34 **“GST”** shall mean Goods and Services Tax;
- 2.35 **“GUIDELINES”** shall mean the “Guidelines issued by CEA/MoP/MNRE/CTUIL/GETCO for Design, Engineering, Supply, Construction, Testing & Commissioning, Operation and maintenance of Pooling substation and transmission lines;
- 2.36 **“INTER-CONNECTION POINT/ DELIVERY/ METERING POINT”** shall mean the point or points at 220 kV for Group A & 66 kV for Group B, where the power from the various components of the RE Power Project is injected into the identified ISTS/ InSTS Substation (including the dedicated transmission line connecting the components with the substation system) as specified in the RFP document. Metering shall be done at this interconnection point where the power is injected into. For interconnection with grid and metering, the bidders shall abide by the relevant CERC/ SERC Regulations, Grid Code and Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended and revised from time to time;

SECTION V - SCOPE OF WORK (SOW)	Page 5 of 39
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Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 2.37 “ISTS” means Inter-State Transmission System;
- 2.38 “InSTS” means Intra-State Transmission System;
- 2.39 “JOINT CONTROL” shall mean a situation where a company has multiple promoters (but none of the shareholders has more than 50% of voting rights and paid up share capital);
- 2.40 “LETTER OF ACCEPTANCE” or “LOA” shall mean the letter issued by Owner to the selected Bidder for award of the Project;
- 2.41 “LIMITED LIABILITY PARTNERSHIP” or “LLP” shall mean a Company governed by Limited Liability Partnership Act 2008 or as amended;
- 2.42 “LLC” shall mean Limited Liability Company as defined in Companies Act 2013;
- 2.43 “LS” shall mean Lump Sum;
- 2.44 “LTA” shall mean Long Term Access;
- 2.45 “MNRE” shall mean Ministry of New and Renewable Energy;
- 2.46 “MONTH” shall mean Gregorian calendar month;
- 2.47 “MoP” shall mean Ministry of Power;
- 2.48 “MU” shall mean million units;
- 2.49 “MW or MWp” shall mean Mega Watt or Mega Watt peak as the case may be as- a unit of power that is equal to one million watts in AC or DC;
- 2.50 “NA” shall mean Non-Agriculture order is a document that confirms that a property is non- agricultural land and can be used for construction;
- 2.51 “NEFT” shall mean National Electronic Fund Transfer is an inter-bank/inter-branch online fund transfer within India
- 2.52 “NET-WORTH” shall mean the Net-Worth as defined section 2 of the Companies Act, 2013 as amended or revised or substituted from time to time;
- 2.53 “NH” shall mean National Highway;
- 2.54 “NLDC” shall mean National Load Dispatch Centre as defined in Section 2, Point. 45 of the Electricity Act 2003;
- 2.55 “NOC” shall mean No Objection Certificate;
- 2.56 “NPV” shall mean Net Present Value;
- 2.57 “OPEX” shall mean operational expenditure;
- 2.58 “OWNER/ BUYER” shall mean Terra Clean Limited, a company incorporated in India


Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

and having its registered office at 10th Floor, Tower 2, NBCC Office Block, East Kidwai Nagar, New Delhi-110023 and shall include its legal successors or permitted assigns. Owner or Buyer both can be used interchangeably.

- 2.59 **“PAID-UP SHARE CAPITAL”** shall mean the paid-up share capital as defined in Section 2 of the Companies Act, 2013 as amended or revised or substituted from time to time;
- 2.60 **“PGCIL” or “POWERGRID”** shall mean PowerGrid Corporation of India Limited;
- 2.61 **“PMC”** shall mean Project Management Consultant;
- 2.62 **“POOLING SUBSTATION (PSS)/ POOLING POINT”** shall mean a point where more than one Project may connect to a common Transmission System. Multiple Projects can be connected to a pooling substation from where common transmission system shall be constructed and maintained to get connected to the CTU/STU substation.
- 2.63 **“PQC”** shall mean Pre-Qualification Criteria;
- 2.64 **“RE PROJECT/ POWER PLANT”** shall mean solar power plant as per the latest definitions as issued Ministry of New & Renewable Energy (MNRE)/ Central Electricity Regulatory Commission (CERC)/ Central Electricity Authority (CEA);
- 2.65 **“RCC”** shall mean Reinforced Cement Concrete;
- 2.66 **“RFP/RfP DOCUMENT”** shall mean the Request For Proposal bidding document issued by Owner including all attachments, clarifications and amendments thereof vide;
- 2.67 **“RLDC”** shall mean Regional Load Despatch Centre;
- 2.68 **“RoW”** shall mean Right of Way;
- 2.69 **“RTGS”** shall mean Real Time Gross Settlement of fund-transfer;
- 2.70 **“SCC”** Special Conditions of Contract;
- 2.71 **“SELECTED BIDDER” or “SUCCESSFUL BIDDER” or “CONTRACTOR”** shall mean the Bidder selected pursuant to this RFP and to whom LoA is issued by the Owner;
- 2.72 **“SERC”** shall mean State Electricity Regulatory Commission.
- 2.73 **“SH”** State Highway;
- 2.74 **“SITE”** shall mean the land(s) and other places upon which the works are to be carried out, and such other land or places as may be specified in the project as forming part of the Site;
- 2.75 **“SLDC”** shall mean State Load Dispatch Centre as defined in Section 2, Point. 66 of the Electricity Act 2003;

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 2.76 **“SOLAR PV”** shall mean Ground Mounted Solar Photovoltaic;
- 2.77 **“SOR”** shall mean Schedule of Rates;
- 2.78 **“SPV”** shall mean Special Purpose Vehicle;
- 2.79 **“STATE TRANSMISSION UTILITY” or “STU”** shall mean the Board or the Government Company notified by the respective State Government under Sub-Section I of Section 39 of the Electricity Act, 2003;
- 2.80 **“TBCB”** shall mean Tariff Based Competitive Bidding;
- 2.81 **“TCQs/ TQs/ CQs”** shall mean Techno-commercial Queries/ Technical Queries/ Commercial Queries;
- 2.82 **“TEST”** shall mean such process or processes to be carried out by the Bidder/ Contractor (as applicable and as per the scope) that are prescribed in the relevant BIS and equivalent standards and codes in order to ascertain quality, workmanship, performance and efficiency of equipment or construction or part thereof;
- 2.83 **“TSR”** shall mean Title Search Report;
- 2.84 **“ULTIMATE PARENT”** shall mean a Company, which owns more than 50% (Fifty Percent) voting rights and paid-up share capital, either directly or indirectly in the Parent and Affiliates;
- 2.85 **“WCC”** Work Completion Certificate;
- 2.86 **“WEEK”** shall mean Gregorian calendar week;

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3 SCOPE OF WORK:

All the construction works should be executed in line with MoP/ CEA/ MNRE/ CTUIL/ GETCO Guidelines (as amended from time to time), technical specifications provided in the relevant section of the RfP document and the SoR items. The scope of work for both groups (Group A - 220 kV, 300 MW & Group B - 66 kV, 100 MW) includes, but is not limited to, the following:

3.1 POOLING SUBSTATION (PSS)


- 3.1.1 Design, Engineering, Supply, Erection, Construction, Testing & Commissioning of 220 kV Air Insulated Switchgear (AIS) Pooling substation for Group A, 66 kV AIS Pooling substation for Group B including all associated works such as Substation automation system (SAS), Protection & Switchgear system, Plant illumination, Nitrogen Injection Fire Protection System (NIFPS) for Power transformers, Firefighting, Fire Alarm & Detection system, UPS, DG Back up power system etc.

Notes:

- a. *Power Transformer(s) for Group A (2 No's of 165 MVA, 33/220 kV) and Group B (2 No's of 55 MVA, 33/66 kV) shall be provided as Free Issue Material by the Owner.*
 - b. *Auxiliary Transformer(s) for Group A (2 No's of 250 kVA, 33/0.433 kV) and Group B (2 No's of 100 kVA, 33/0.433 kV) shall be provided as Free Issue Material by the Owner.*
- 3.1.2 Design, SITC of Telemetry system for data communication as per CTUIL/ NLDC/ GETCO/ RLDC/ SLDC requirements.
- 3.1.3 Undertaking, providing all necessary approvals and clearances from concerned Central/ State agencies in the name of Owner shall be arranged by the Successful Bidder including the approval required under section 68 of the Electricity Act 2003, carrying out necessary coordination, liaisoning, expediting etc. Further, all statutory fees paid in the name of Owner and submitted along with documentary proof shall be reimbursed to the Successful Bidder. Necessary documentation/application forms shall be signed and provided by the Owner.
- 3.1.4 Successful Performance of Grid Compliance Study in co-ordination with respective agencies of each group.

3.2 POWER EVACUATION SYSTEM/ TRANSMISSION SYSTEM

- 3.2.1 Carrying out survey on the already provided RoU/ RoW from the PSS to GSS, tower spotting, optimization of tower location, final levelling and grading, soil resistivity measurements and geo-technical investigation shall be in the scope of the bidder.

Bid No:	TeCL/CC/PSS/2026-27/03
 TERRA <i>Clean Ltd.</i> <small>A Wholly Owned Subsidiary of IOC</small>	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.2.2 Design & engineering, procurement & supply of materials & accessories, shop testing, inspections, packing and forwarding, dispatching, receipt, unloading, storage, inter-carting, associated civil works, services, permits, licenses, installation and incidentals, insurance at all stages, erection, testing and commissioning of following components but not limited to:

- a. Transmission line Towers (All type of Towers) including specific design requirements for river/ highway/ rail track crossing/ all types of crossings (if required), tower extensions, including bolts, nuts and washers, hangers and all type of pole accessories like phase plate, circuit plate, number plate, danger plate, anti-climbing devices and other items which is required for the scope.
- b. Conductor/cable, earth wire, insulators, hardware fittings and accessories for conductor/cable.
- c. Insulators
- d. Optical ground Wire (OPGW) Conductor
- e. Hardware and accessories
- f. Earthing components
- g. Bird Flight Diverter (BFD)
- h. Any other items not explicitly listed above, but required to make the system complete.

3.2.3 The erection of towers, and stringing of conductors, insulators, hardware, optical ground wire (OPGW), earth-wire, joints, splicing, connectors, Joint box, earth-wire clamps, identification plate, danger plate, anticlimbing and earthing devices and all accessories & hardware, which may be required but not specifically mentioned in the specification and are essential for completion and satisfactory operation of the 220 kV, 66 kV transmission system shall be in the scope of Bidder.


3.2.4 The scope shall also include supply, laying, splicing and termination of OPGW cable along with all other networking equipment's required for establishing communication between Pooling Sub-Station and ISTS/ InSTS Sub-Station.

3.2.5 Bidder to provide single circuit 220 kV for Group A, Double circuit 66 kV for Group B transmission line as per CEA/ Utility/ statutory guidelines and to be finalized during detailed engineering.

3.2.6 Required approvals from relevant agencies for the successful commissioning of 220 kV for Group A, 66 kV for Group B transmission system shall be in the scope of the Bidder.

3.2.7 The Bidder shall prepare detailed design basis report (DBR), Master Drawing List

SECTION V - SCOPE OF WORK (SOW)	Page 10 of 39
---------------------------------	---------------


Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

(MDL), Route profile, Tower schedule and abstract, all the design drawings and calculations and shall submit the same to Owner/ Owner's appointed PMC for review, approval during detailed engineering phase.

3.2.8 In case of design calculations done in spread sheet, editable (working) soft copy of the spread sheet shall also be submitted along with 'pdf' copies during every submission. The Owner shall return the document / drawing to the Bidder with category of approval marked thereon. Two nos. of hard copies of approved documents and drawings shall be submitted to the Owner at its office at New Delhi and one copy at the site. The Bidder shall submit basic design data, design documents, drawings and engineering information including Guaranteed Technical Particulars (GTP) and test reports to Owner/ Owner's appointed PMC for review and approval from time to time as per project schedule. The documents typically include, but not limited to, the following:

- a. Detailed technical specifications of all the equipment for transmission line works
- b. Route profile in 'dwg' format.
- c. Tower abstract in 'Excel' and 'pdf' format.
- d. Tower schedule in 'Excel' and 'pdf' format.
- e. Foundation and structure drawings of all types of towers in 'pdf' format.
- f. Test reports for type, routine and acceptance tests for all components for transmission line works.
- g. Design calculations and sheets (civil, mechanical, structural and electrical designs)
- h. Geo-technical investigation data and Topographical survey report including topographical survey data in digital format and Contour plan of the area.
- i. Transmission line drawings and erection plans as per CTU/ STU guidelines
- j. Quality assurance plans for manufacturing (QAP), Standard Operating Procedure (SOP) and field quality assurance plan (FQAP).
- k. Detailed site Environmental, Health and Safety (EHS) plan, fire safety & evacuation plan and disaster management plan.
- l. Detailed risk assessment and mitigation plan.
- m. O&M Instruction's and maintenance manuals for major equipment.
- n. As-built drawings / documents
- o. Project specific adoption approval, in case of Standard design and drawing

SECTION V - SCOPE OF WORK (SOW)	Page 11 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


used.

- p. All drawings shall be fully corrected to match with the actual "As - Built" site conditions and submitted to Owner (three sets of hard copies and one set of soft copy) after commissioning of the project for record purpose.

3.3 Bidder shall comply with all the provisions and amendments thereafter of:

- a. Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022.
- b. Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Transmission License and other related matters) Regulations, 2024.
- c. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023.
- d. Central Electricity Regulatory Commission (Communication System for Inter - State transmission of electricity) regulations, 2017.
- e. CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 and Report of the Working Group in respect of Data Submission Procedure and Verification of Compliance to CEA Regulations on Technical Standards for Connectivity to the Grid by RE Generators.
- f. CEA (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2022.
- g. CEA (Grid Standard) Regulations, 2010.
- h. CEA (Safety requirements for construction, operation and maintenance of Electrical Plants and Electrical Lines) Regulations, 2011.
- i. CEA (Measures relating to Safety and Electricity Supply) Regulations, 2023.
- j. CEA (Installation and Operation of Meters) Regulations, 2006.
- k. CEA (Cyber Security in Power Sector) Guidelines, 2021.
- l. Central Electricity Authority (Manual on Transmission Planning Criteria), 2023.
- m. Indian Electricity Grid Code Regulation, 2023.
- n. MOP Order dated 02.07.2020 stating measures to protect the security, integrity and reliability of the strategically important and critical Power Supply System and Network in the Country.
- o. MNRE guidelines/ OM/ Advisory/ Clarifications.
- p. Any other applicable standards/ regulations/ Guidelines/ clarifications/ OMs/Advisories.


SECTION V - SCOPE OF WORK (SOW)	Page 12 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.4 DESIGN & DRAWINGS:

3.4.1 The following documents shall be submitted by the Bidder for approval of the Owner/ PMC, prior to commencement of fabrication/production. This list is not exhaustive but indicative only:

- a. Single line diagram with relay and metering protection system along with General arrangement (GA) drawings.
- b. Design Documents.
- c. Detailed Technical Specifications.
- d. Schematic Drawings.
- e. Interlocking Schematics.
- f. Protection and control philosophy and selection of protection, control and annunciation schemes.
- g. Test Reports.
- h. Data sheets.
- i. Manuals.
- j. Quality Assurance Plan.
- k. Grid Compliance Study Reports.
- l. Pooling Substation layout drawings (plan, section and clearance diagram).
- m. Earthing system design/ drawings calculation for entire PSS and Power evacuation system.
- n. Lightning protection design calculation and Direct Stroke lightning protection (DSLPP) layout as per IEC 62205-3: 2010 for complete substation area including control room.
- o. Various electrical layouts such as electrical equipment's layouts, lighting layouts, cabling layouts, earthing layouts, lightning protection layout etc. for complete substation area.
- p. Pooling substation drainage system layout including storm water drainage and cable trench drainage in substation area & Terminal Bay.
- q. Operation and maintenance manuals for all electrical equipment.
- r. All final as built drawings on completion of project and submit the final as built with 1 set of soft copy in USB pen drive or in a cloud folder with download / edit rights along with 4 sets of hard copy.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

s. Bidder shall furnish documentary evidence from OEM for transmission line tower structures along with foundation design and drawing meeting the requirements of the technical specification.

t. Stringing Chart.

3.4.2 Bidder shall provide complete engineering data, drawings, reports, manuals, Test reports, etc. for Owner's review, approval and records.

3.5 GENERAL

3.5.1 The Bidder shall make themselves fully aware of the prevailing conditions at the proposed site, locations of adjoining facilities/ structures, climatic conditions including monsoon pattern, local conditions and site-specific parameters, laws and factors which may have any effect on the execution of the Contract and shall include for all such conditions and contingent measures in the bid, including those which may not have been specifically brought out in the specifications.


3.5.2 Bidder shall design the transmission line and pooling substation for interconnection with the InSTS in accordance with prevailing SERC regulations in this regard. For interconnection with the grid and metering, the Bidder shall abide by applicable Grid Code, Grid Connectivity Standards, Regulations on Communication System for transmission of electric and other regulations (as amended from time to time) issued by Appropriate commission and GERC (Procedure for Grant of Connectivity to projects based on renewable energy sources to intra-state transmission system 2025) Regulations, 2025.

3.5.3 The voltage for interconnection at the ISTS GSS (CTUIL) shall be 220 kV and at the InSTS GSS (GETCO) shall be 66 kV.

3.5.4 Power Evacuation shall be through tie transformers, transmission line, InSTS bay to be installed by Bidder as per the specification mentioned elsewhere in the tender documents at voltage level of corresponding grid connecting substation.. Supply and installation of metering panel along with control cable shall be in Bidder's scope. ABT metering arrangement at InSTS substation ends shall be as per STU requirement/standard and CEA Metering Regulation.


3.5.5 Similarly, Bidder shall design the EHV transmission line and pooling substation for interconnection with the ISTS in accordance with prevailing CERC regulations in this regard. For interconnection with the grid and metering, the Bidder shall abide by applicable Grid Code, Grid Connectivity Standards, Regulations on Communication System for transmission of electric and other regulations (as amended from time to time) issued by CEA/CERC.

3.5.6 Power Evacuation shall be through tie transformers, transmission line, to be installed

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

by the Bidder as per the specification mentioned elsewhere in the tender documents at voltage level of corresponding grid connecting substation. Supply and installation of metering panel along with control cable shall be in Bidder's scope. ABT metering arrangement at ISTS substation ends shall be as per CTU requirement/ standard and CEA Metering Regulation.

- 3.5.7 Overall co-ordination with internal and external agencies, Owner, Owner appointed project management consultancy (PMC).
- 3.5.8 All equipment and materials shall be designed, supplied, and tested as per the relevant technical specifications mentioned elsewhere in the tender in compliance with the latest applicable standards, including Indian Standards (IS), International Electro-Technical Commission (IEC), MNRE, CEA, Utility / REC / CIEG regulations, and the specifications prescribed by relevant authorities. These may include railway electrification, post and telegraph, roadway, navigation, aviation, local governing bodies, defence authorities, and the power & telecommunication coordination committee, as applicable, or equivalent standards conforming to the Indian Electricity Rules, CEA, and the Indian Electricity Act.
- 3.5.9 The communication system shall be with PLCC as per existing STU/ State Load dispatch Centre (SLDC) of India / Local Statutory Authority requirement. The equipment shall be supplied by Bidder (PLCC panel, EPAX, OFC/Communication Cable etc.) as per the rating similar to utility end communication equipment. The same shall also comply to STU/SLDC/ Local Statutory Authority standards & requirements.
- 3.5.10 Termination of all power cables and communication shall be under Bidder scope.
- 3.5.11 Bidder shall need to perform all site testing and commissioning activities for all electrical equipment by using calibrated instruments and experts. The bidder shall offer the witness of such site test to owner. All the tests shall need to be carried out as per the owner's approved procedure and acceptance limit. Bidder shall need to submit the procedures and acceptance limit during the detail engineering stage.
- 3.5.12 Tree-cutting shall be the responsibility of the Bidder. The Bidder shall count, mark and put proper numbers with suitable quality of paint at his own cost on all the trees that are to be cut. Bidder may note that Owner shall not pay any compensation for any loss or damage to the properties or for tree cutting due to Bidder's work. The cost of cutting the trees, stacking of cut trees, logging of tress, clearing debris and transportation of cut trees (if required) shall be borne by the Bidder. Tree enumeration and obtaining tree felling permission are included in the scope of Bidder.
- 3.5.13 The Owner shall not be held responsible for any claim on account of damage done

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


by the Bidder or his personnel to trees, crops and other properties.

- 3.5.14 The material supply shall be of the best quality and as per preferred make as mentioned in technical specification of Section VI of tender document. Separate approval to be obtained from OWNER or OWNER's representative/ PMC in the absence of make in the approved list.
- 3.5.15 The Bidder shall be responsible for the supply of mandatory spares, tools and tackles as specified in technical specification which is required for the operation and maintenance without any extra cost.
- 3.5.16 Further, training of Owner's Operation and maintenance (O&M) personnel (both classroom and onsite job training) is in the scope of bidder.
- 3.5.17 In the event of any obstruction being encountered from local villagers or authorities, the Bidder shall immediately notify to Owner and shall take steps as may be necessary to clear the obstruction. The Bidder or his representative shall not adopt any antagonistic attitude towards the villagers or local authorities.
- 3.5.18 All material including cement, reinforcement steel and structural steel required for completion of the work covered under this package are in the scope of the bidder.
- 3.5.19 All the raw materials such as steel, zinc for galvanising, reinforcement steel and cement for foundation, coke and salt for earthing, bird guards, anti-climbing devices, bolts, nuts, washers, D-shackles, hangers, links, danger plates, phase plate, number plate etc. required for tower manufacturing and erection shall be in the scope of supply of Bidder.
- 3.5.20 Any other item / service not specifically mentioned herein but required for satisfactory operation of the transmission line and pooling substation shall be deemed to be included in the scope of Bidder.
- 3.5.21 The Bidder has flexibility to use the standard drawings of Central utility after getting project specific adoption approval from the relevant utility/ authority and the Owner with all necessary design/loss calculations, instead of designing the entire transmission system.

3.6 SPECIAL REQUIREMENTS FOR GETCO BAY JOB:

- 3.6.1 For Group B, the construction of the bay at the Grid Substation (i.e., at the GETCO end) shall be within the scope of the successful bidder and the work shall be executed by and only through contractors approved by GETCO for erection of 66 kV and above voltage level bays, as per the latest list published on the official GETCO website or as directed by GETCO from time to time.
- 3.6.2 The Scope of work shall include, but not be limited to, detailed engineering, supply of materials and equipment, civil works, erection, testing and commissioning in

SECTION V - SCOPE OF WORK (SOW)	Page 16 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

accordance with GETCO requirements for the successful completion of the 66 kV line bay job at the GETCO substation.

- 3.6.3 All activities shall be carried out in accordance with the instructions, technical specifications, and standards prescribed by GETCO, and with prior approval of the Owner, wherever applicable.

3.7 CIVIL

3.7.1 GENERAL

- 3.7.1.1 The scope of civil works shall include design, engineering & construction of all civil, structural and architectural works including supply of all materials complete for all equipment, gantry structures, equipment foundations and associated facilities as per relevant Bureau of Indian Standards, National Building Codes, Local Byelaws (as applicable) for the Pooling Sub-Station (PSS), Extra High Voltage (EHV) Transmission lines and ISTS/ InSTS Terminal bay (as applicable).


- 3.7.1.2 The nature of work generally involves earthwork in excavation including providing necessary shoring, strutting, slope protection measures and carrying out filling in layers (as required) in all types of soils/ rock with required compaction, dressing to the required profile, dewatering till the structures are constructed/erected up to required level or as directed by the engineer, shoring, backfilling / filling in layers (as required) around completed structures and in plinth with required compaction, disposal of surplus earth, concreting including reinforcement and formwork, fabrication and erection of all structural steel and miscellaneous steel (i.e., cable/pipe supports, ladders, railings, inserts, embedment's, gratings, chequered plate covers, platforms, anchor bolts, etc.), rail track for movement of transformers, fabrication, galvanizing & erection of Gantry Structure, Lighting Mast & Equipment supporting structure, RCC cable trench & precast covers, cable ducts / duct banks, soil sterilization / anti-weed treatment, anti-termite treatment, anti-rodent system, plinth protection, water proofing, plumbing, carpentry, steel and/ or Aluminium works, gravel filling, sanitary & drainage, external and internal finishing, fencing, gates, final grading, supplying and laying earthing mat and any other work required for completion and proper functioning of the EHV Switchyard.

- 3.7.1.3 All material including cement, reinforcement steel, bricks, stones, aggregates, water, structural steel etc and labour as required for completion of the work covered under this package are in the scope of the bidder.

- 3.7.1.4 All other civil works as required for CMCS, PSS and any other civil works pertaining to satisfactory completion of the Contract.

- 3.7.1.5 Power & Water as required for construction and completion of this contract are to be arranged by the Bidder at his own cost.

SECTION V - SCOPE OF WORK (SOW)	Page 17 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
 TERRA <i>Clean Ltd.</i> <small>A Wholly Owned Subsidiary of IOC</small>	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.7.1.6 Amenities for staff including Site Office, Toilet facility, drinking water arrangement and utility is in the scope of the bidder


3.7.1.7 The Bidder shall ensure periodic cleaning of work sites and removal of all waste material, packing material, surplus earth and left-overs and their proper disposal.

3.7.1.8 Construction of Control room, store yard, store shed, storeroom, security room, Package Sewage Pit and Soak Pit and plant drains system connected to a common drain outside the plant. Sufficient space for installation of SCADA and PPC panel system.


3.7.2 SCOPE OF CIVIL WORKS

3.7.2.1 The scope of work shall include Civil, Structural and Architectural Works, including supply of materials related to but not limited to the following areas, System, Structures / Substructures, Buildings and Facilities as per tender drawing and specifications:


SN	Activity / Facility / Building	Nature and Quantum of Work Envisaged
(i)	Topography survey	For PSS where construction is to be done in line with the Specifications.
(ii)	Geotechnical Investigation	For Transmission System and Pooling Substation areas Only for Foundation Design. Other areas, where construction is to be done in line with the Specifications.
(iii)	Site Grading and development	As per Actual Requirement (For the PSS and Transmission line RoW).
(iv)	Pooling Substation (PSS) Main Control Room Building	As per the Design Basis and the technical specifications outlined in the RfP.

Bid No:	TeCL/CC/PSS/2026-27/03
 TERRA <i>Clean Ltd.</i> <small>A Wholly Owned Subsidiary of IOC</small>	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

SN	Activity / Facility / Building	Nature and Quantum of Work Envisaged
		Any other Shed/space/room provisions for meeting the technical and functional requirements shall be suitably provided.
(v)	All Equipment Supporting Foundation and Structures, Earthing Mat in PSS	As required & as per technical specifications outlined in the RfP.
(vi)	Air-conditioned Porta cabin with complete electrical works and required furniture's for use as Office/ conference room and separate environmentally friendly Toilet Container or Mobile toilet with water tank.	As per technical specifications outlined in the RfP.
(vii)	Cable trenches including cable tray supporting arrangements in PSS	As required- & as per technical specifications outlined in the RfP.
(viii)	Foundations for Power Transformers and Auxiliary Transformers in PSS including oil pit, RCC fire wall (if any), stone filling, concrete encasement of pylon supports, laying and fixing of rails for movement of transformers, rail track and jacking pad as required, arrangement for cabling, etc.	As required & as per technical specifications outlined in the RfP.


Bid No:	TeCL/CC/PSS/2026-27/03
 TERRA <i>Clean Ltd.</i> <small>A Wholly Owned Subsidiary of IOC</small>	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

SN	Activity / Facility / Building	Nature and Quantum of Work Envisaged
(ix)	Switch yard works	Civil and structural works for switchyard gantry structures, lighting mast, proto assembly, and substructures, switchyard equipment supports, cable sealing ends, overhead lines, outdoor equipment including all embedment's, inserts, supporting structures, cable tray supports, and related components inside the control room.
(x)	Sewage disposal system such as Septic Tank & soak pit for all toilets /packaged type septic tank for PSS	As required & as per technical specifications outlined in the RfP.
(xi)	Concrete road in substation area including access to all major equipment, buildings and connecting to the Substation Approach road.	As required and as per relevant guidelines and technical specifications.
(xii)	RCC Roads within the PSS	RCC Roads shall be finalized during detailed Engineering. For typical cross section, please refer the drawings for the Roads annexed to this RfP (PK-DWG-RD-003).
(xiii)	Drainage system for complete substation area and suitable outfalls.	As required & as per technical specifications.

Bid No:	TeCL/CC/PSS/2026-27/03
 TERRA <i>Clean Ltd.</i> <small>A Wholly Owned Subsidiary of IOC</small>	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

SN	Activity / Facility / Building	Nature and Quantum of Work Envisaged
(xiv)	Chain link fencing with gates for switchyard inside PSS	As required & as per technical specifications.
(xv)	Water supply for toilet and office in the buildings and connecting to water supply line and/ or bore well (including approval from local authority) with pumping facility for providing water supply.	As required and as per technical specifications.
(xvi)	Detailed survey including route alignment, profiling, tower spotting, tower schedule, layout of crossing locations, optimization of tower locations, check survey etc.	As per system requirement & Tech. Specs. For EHV Transmission Line.
(xvii)	Fabrication and supply of all type of transmission line towers, Supply of all types of materials, tower accessories, casting of foundations, Testing of towers materials etc	As per system requirement & Tech. Specs. for Transmission Line.
(xviii)	Earthing and Lightning protection	As per system requirement.
(xix)	Any other facility / structure that would be required as per system requirements	As per system requirement

Note: Any requirements as per latest SERC/ GETCO/ CEA/ CERC/ Central & State

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

Nodal agency as amended from time to time for applicable items to be considered and provided at no extra cost to the Owner.

- 3.7.2.2 Supply and Installation of Portable Cabin at respective project site for use as the Owners site office of size 40 ft X 10 ft including overhead filing cabinets and complete furniture and seating arrangement of 8 Executives shall be in the scope of contractor, with no extra cost to the owner, till completion of main control room building. Upon completion of the project requirements, the portable cabin shall remain the property of the Contractor and shall be dismantled and removed from the project site.

The Porta cabin shall consists of one room for Incharge and open office for balance 7 Executive along with 1 toilet with septic tank & soak pit and pantry. (The entire structure shall be raised above the ground level by 6" to 8" or more using steel supports (iron joints) depend on ground condition, The wooden flush doors shall be made out of textures-coated exterior grade. Bottom frame & stiffeners with minimum ISMB 100, Top frame & stiffener, Corner post with 63 mm dia pipe, False ceiling with 12 mm thick prelaminated particle board, Bottom floor with 18 mm cement board with 2 mm Vinyl carpet. The dimensions of the door will be (7'3") with alluminium handles, L-drops for locking arrangements, window-MS Steel 14 guage (RHS) sliding windows with 4-mm glass will be provided, The roof will also be made out of 75 mm / 20 kg / D thick sandwiched panel of EPS (Insulated material) finish with GI Sheets (1.20 mm thick), False ceiling using Gypsum board & facilitated with 2 nos 1.5 Tonner Split AC units with outdoor compressors (5 Star Rating). Electrical points & wiring required for tube light, Fan, PC, Printer with Main MCB, ELCB, 16 A, 6A Switch & Switch sockets.


The Contractor shall also arrange supply of electricity, water, and all other associated utilities required for operation and maintenance of the portable cabin.

- 3.7.2.3 Adequate no. and size of temporary Sheds with basic facilities shall be provided at sufficient locations within the project by the Bidder which shall be used as resting place for Bidder's workmen deployed during the construction period of the project. Environment friendly Male/female Toilet containers or Mobile Male/female Toilets with water storage and supply provision shall be provided besides the sheds. Safe Drinking water facilities shall be provided at each shed location. The Bidder shall be responsible for maintaining all these facilities during construction stage and dismantling of all these temporary sheds and associated facilities as per the instruction Owner. The Bidder is free to take back the Material/Scrap/waste etc. from these facilities.

3.8 OPERATION & MAINTENANCE


3.8.1 GENERAL TERMS

SECTION V - SCOPE OF WORK (SOW)	Page 22 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 3.8.1.1 Owner intends to entrust the Comprehensive Operation & Maintenance (O&M) for the PSS and Power evacuation system package for a period of 05 years from the date of commissioning of the plant including defect liability period of one year and thereafter the O&M period may be extended for an additional 5 year duration, up to a total of ten (10) years, subject to satisfactory performance and at the sole discretion of the Owner.
- 3.8.1.2 At the sole discretion of the Owner, the O&M contract may be extended on yearly basis for a further period of 05 (five) years from 6th year to 10th year on the same terms and conditions of the tender, subject to satisfactory performance of the Contractor.
- 3.8.1.3 The O&M of Solar plants are not covered under the scope; however Bidder shall be responsible for the coordination with other Contractors who shall maintain the solar power plant/ BoS.
- 3.8.1.4 Operation & Maintenance of all equipment supplied, constructed, erected and commissioned shall be in the scope of this bidder.
- 3.8.1.5 The bidder shall be responsible for all the required activities for the successful running, & maintenance of the PSS and power evacuation system including but not limited to the system covering:
- Deputation of Operating, Maintenance, Engineering and supporting personnel.
 - Contractor shall provide Preventive / Routine Maintenance schedule based on Original Equipment manufacturer and good engineering practices. The team deployed for the O&M must have sufficient experience of executing similar tasks.
 - Monitoring controlling, troubleshooting maintaining records, registers.
 - Supply of all required spares, consumables and fixing application
 - Conducting periodical maintenance check, testing over hauling and taking preventive action for smooth functioning of PSS and Power evacuation system as required.
 - General up keeping of all equipment, building & roads.
 - Submission of periodical reports to Owner such as monitoring of equipment's and operating conditions, etc. as per owner requirement.
- 3.8.1.6 Bidder shall perform the following obligations prior to taking over of the O&M activity:
- Develop and implement plans and procedures including those for firefighting, maintenance planning, procuring and inventory control of stores and spares,


SECTION V - SCOPE OF WORK (SOW)	Page 23 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

plan to meet emergencies, plant safety and security and such other facilities and systems as may be necessary to commence Operator's ongoing responsibilities.


- b. Prepare in order to effectively operate and maintain the plant, including all related and auxiliary mechanical and electrical equipment, provide all operations and maintenance services that are required in line with Contract.
- c. Keep accurate and current operating logs, records, and monthly reports about the plant's upkeep and operation. These records must include information on energy data / power consumptions , other operating data, repairs made, and the status of the equipment. The Bidder will turn over such records to owner at the end of the term. Owner, however, will always have access to all of these records at any points of time
- d. Maintain a preventative maintenance program and update equipment repair or replacement policies on a regular basis in accordance with original equipment manufacturer recommendations and specifications.
- e. Perform periodic preventive maintenance and overhauls required for the Plant in accordance with the recommendations of equipment manufacturers. Attend any break down in the Facility promptly. Inform time taken in attending to such breakdown shortly after restoration of system.
- f. Provide technical & engineering support for resolving operation and maintenance problems whenever required.
- g. Perform the services required to procure all spare parts, or equipment/s as required, overhaul of parts, tools and equipment, required to operate and maintain the Plant in accordance with the recommendations of individual original equipment manufacturer.
- h. Operate and maintain the Plant for fire protection and safety of equipment's.
- i. Maintain with the assistance of Owner, records regarding the facility in accordance with generally acceptable accounting principles under the Laws.
- j. Arrange spares, consumables, tools & tackles, crane and testing. Cost of these items shall be included in the price quoted for O&M.
- k. Arrange for Stakeholders meeting. Bidder Shall maintain documents for Initial testing/calibration certificate of meters & instruments from accredited laboratory/test house and Periodic re-calibration certificates.

3.8.1.7 The bidder shall maintain cordial relations, manage getting support of local community & Government functionaries etc. for community, area and sustainability

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

development works in & around project site and managing the same to ensure that the project remains acceptable over local stakeholders.

- 3.8.1.8 Operation part consists of deputing necessary manpower to operate the PSS & Power evacuation system at the maximum capacity.
- 3.8.1.9 Daily work of the operators in the PSS & Power evacuation system involves logging the voltage, current, power factor, power and energy output, battery voltage, specific gravity, temperature etc. The operators shall also note down failures, interruption in supply including grid failure and tripping of different relays, reason for such tripping, duration of such interruption etc.
- 3.8.1.10 The O&M operator shall record failures, interruptions in supply and tripping of all relays, reason for such tripping, duration of such interruption etc.
- 3.8.1.11 The operator shall maintain the record of daily generation, down time, capacity factor, machine availability, Preventive maintenance, breakdown maintenance, etc. and these record shall be computed and share with Owner on daily basis.
- 3.8.1.12 Monthly reports shall be prepared on performance of transmission line and pooling substation indicating, down time, machine availability etc. and these figures shall be computed for the entire Solar power plant.
- 3.8.1.13 Bidder shall maintain a storeroom of size not less than 25 sq. meter with no dimension of the room being less than 5 m for the storage of mandatory spares as per the OEM recommendations.
- 3.8.1.14 Bidder shall operate and maintain Central Monitoring& Control System (CMCS)
- 3.8.1.15 The necessary provisions for storing the fast-moving consumables / spares etc. shall be available in the CMCS building as per the requirement. The CMCS building shall have a room to be used as an office for the O&M manpower. A suitable cabin/ seating arrangement shall be made available for Owner's representative.
- 3.8.1.16 Bidder shall ensure that Project facilities (control room, substation, all the SCADA systems, water facilities, power facilities, approach roads, etc.) shall be accessible all time to Owner or Owner's authorized representative without any hindrance.
- 3.8.1.17 The Bidder shall immediately report the accidents, if any, to the nominated Owner's official & to all the concerned authorities as per prevailing law of the state.
- 3.8.1.18 Indemnify Owner for any losses arising out of above acts and shall undertake responsibility to comply all statutory rules & regulations governed under the acts/ laws applicable.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.8.1.19 At all stages, necessary Insurance (as specified in SCC & GCC) should be taken by bidder. Post completion and handing over of the works, the beneficiary in all insurance policy shall be the Owner. In all other insurances till completion and handing over of the works, Owner should be included as additional insured and loss payee.

3.8.2 OPERATION & MAINTENANCE OF POOLING SUBSTATION AND POWER EVACUATION SYSTEM

3.8.2.1 Comprehensive Operation & Maintenance of PSS and Power evacuation system/EHV Transmission line, Terminal Bay, all data transmission for optimal operation, maintenance and monitoring of Solar power plant. The bidder shall be responsible for arranging at his own cost all spare parts required for repair/replacement for keeping the plant operational, repairs /replacement of any defective equipment(s) at his own cost as required from time to time, schedule and preventive maintenance, major overhauling of the equipment, maintaining log sheets/records of operational details, deployment of competent staffs for continuous operation and qualified engineers for supervision of O&M work, deployment of personnel so as to ensure trouble free operation & healthy condition of the entire system at the designed efficiency/ performance level for the entire period of O&M. Owner shall not pay any other amount except the agreed O&M charges.

3.8.2.2 All cost related to Upfront charges and recurring cost till completion of O&M period defined in the tender document shall be considered by the bidder as a part of the bid price.


3.8.2.3 Bidder shall ensure successful operation of each system and components.

3.8.2.4 The Bidder shall provide on the site technical and non-technical staff in connection with the operation and maintenance, execution and completion of the works and the remedying of any defects therein related to any equipment/ instruments/ machines/ panels/ switchgears/ associated accessories installed in electrical substations.


3.8.2.5 Bidder shall ensure Breakdown maintenance, Preventive maintenance overhauls, arranging visit of O&M experts (when required).

3.8.2.6 The contractor shall at his own expense provide all amenities to his workmen as per applicable laws and rules.


3.8.2.7 The Contractor shall ensure that all safety measures are taken at the site area to avoid accidents to his employees or his Co-contractor's employees but not limited to adherence to industry standards.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


- 3.8.2.8 Cost of all spares and consumables, tools, tackles, crane arrangement, test equipment's and instruments, services, to take care of preventive & breakdown maintenance, fees / charges / taxes payable to Govt. agencies for O&M related services (like service tax, etc.) cost of all activities for O&M related services (like liaison with all govt. agencies, all administrative work, maintaining records and submission to all concerned authorities, etc.) shall be borne by the Bidder during the entire O&M period. The Contract Price for O&M Works shall be inclusive of all the cost for travel, stay, incidental expenses etc. also.
- 3.8.2.9 Bidder shall maintain at the facility, accurate and up-to-date operating logs, records, and monthly reports regarding Operation & Maintenance of the transmission line and pooling substation.
- 3.8.2.10 Bidder shall perform or contract for and to oversee the Performance of periodic overhauls or maintenance required for the facility in accordance with the recommendations of the original equipment manufacturer.
- 3.8.2.11 Bidder shall maintain and up-keep of control room, all internal roads, tool room, stores, equipment, etc. in workable conditions.
- 3.8.2.12 Bidder shall maintain all necessary Insurance during O&M.
- 3.8.2.13 Bidder shall comply with all the statutory requirements as per various Regulations/Acts/Grid Code in force. Bidder shall ensure compliance with the CERC/ SERC rules and regulations including "Indian Electric Grid Code" as well as CEA Regulations. Penalty imposed by concerned authorities on account of non-compliance of any rules/regulations/ codes/ acts would be borne by bidder.
- 3.8.2.14 Bidder shall mandatorily grant access to Owner, SECI and MNRE or any other designated agency to the remote monitoring portal of the power projects on a 24x7 basis.
- 3.8.2.15 During O&M period, Owner and Owner's representatives shall have unrestricted entry to the pooling sub-station control room. Owner may suitably depute its personnel to associate with O&M activities. Bidder shall assist them in developing expertise through their day-to-day O&M activities.
- 3.8.2.16 All records of maintenance must be maintained by the Bidder which can be accessed by Owner on demand. These records are to be handed over to Owner after the O&M period of contract.
- 3.8.2.17 Bidder shall provide Operation & Maintenance/ instruction manuals, as built drawings, and other information as per the Package Scope.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE


- 3.8.2.18 The O&M agreement for common shared transmission infrastructure if applicable shall be executed by bidder/lead generator with Owner before release of final payment to the bidder. (if applicable)
- 3.8.2.19 As per the advice of the Bidder, Owner shall nominate the Coordinating Agency for Scheduling & Forecasting as per the CERC/SERC guidelines, at such times. Owner shall bear all charges to be paid to the Coordinating Agency.
- 3.8.2.20 Operation procedures such as preparation for starting, running routine operations with safety precautions, monitoring etc. shall be carried out as per the manufacturer's instruction to have trouble free operation of the complete system.
- 3.8.2.21 Bidder shall ensure monitoring, controlling, troubleshooting of the PSS and Power evacuation system & maintaining of relevant records, register and data.
- 3.8.2.22 Bidder shall conduct periodical checking, testing overhauling and preventive maintenance of the PSS & Power evacuation system.
- 3.8.2.23 Bidder shall ensure general up keeping of all equipment, building, roads, within the PSS area.
- 3.8.2.24 Bidder shall ensure submission of periodical reports to Owner on the operating conditions of the transmission line and pooling substation.
- 3.8.2.25 Bidder shall ensure continuous monitoring of performance of the PSS & Power evacuation and regular maintenance of the whole system including overhead line, control panels, Power Transformers etc. as necessary for extracting and maintaining the maximum energy output from the solar power plant.
- 3.8.2.26 Bidder shall ensure security of all PSS and transmission lines during construction period.
- 3.8.2.27 Bidder shall ensure all staff are familiar with safety procedures, HSE practices at site as well as at office to mitigate risks.
- 3.8.2.28 Bidder shall provide necessary support, on site facilitations/ resources, inputs, data, records, as required for verification, monitoring, certification, audit, due diligence etc. of generation, performance, operation as well as carbon revenues.
- 3.8.2.29 Bidder shall facilitate settlement of any disputes, arising if any, between State/Central Power utility and OWNER regarding payment in terms of PPA.
- 3.8.2.30 The Bidder's daily tasks include logging the Solar power plant parameters such as voltage, current, power factor, power and energy output once a day. The operators must also record failures, interruptions in supply, including grid failures, and the tripping of various relays, as well as the reason for the tripping and the duration of the disruption.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 3.8.2.31 The Bidder must record monthly energy output and prepare reports on PSS/EHV Transmission line Downtime, machine availability, and other metrics will be calculated for the entire farm facility.
- 3.8.2.32 Bidder shall record details of local employment generated directly/indirectly in implementation of PSS & Power evacuation system & its O&M.
- 3.8.2.33 Bidder shall ensure proper functioning of SCADA system, SCADA server at CMCS with data capture at required frequency and storage thereof.
- 3.8.2.34 Bidder shall use all reasonable and practical efforts:
- To maximize plant capacity utilization.
 - To minimize plant downtime.
 - Optimize useful life of all the equipment's.
- 3.8.2.35 Bidder shall bear all costs pertaining to testing, and calibration of meters at Project side of Delivery Point and shall be responsible for maintenance, renewal and repair during O&M as per referred Grid code and at ISTS/ InSTS substation end as per CTUIL/STU requirement/standard and CEA Metering Regulation.
- 3.8.2.36 In addition to ensuring compliance of the applicable codes, the Bidder shall install Main & Check meters at the Delivery Point, along with Stand-by meter(s) as per the applicable Central/State regulations.
- 3.8.2.37 Bidder shall ensure that all safety measures are taken at the site to avoid accidents. The Contractor shall provide all the personal protective equipment (PPEs) for O&M personnel. Bidder shall immediately report the accidents, if any, to the Engineer-In-Charge & to all the concerned authorities as per prevailing laws of the state and central government.
- 3.8.2.38 Bidder shall comply with the provision of all relevant Acts of Central or State Governments including payment of Wages Act 1936, Minimum Wages Act 1948, Employer's Liability Act 1938, Workmen's Compensation Act 1923, Industrial Dispute Act 1947, Maturity Benefit Act 1961, Employees State Insurance Act 1948, Contract Labor (Regulations & Abolishment) Act 1970 or any modification thereof or any other law relating where to and rules made there under from time to time.
- 3.8.2.39 Bidder shall provide necessary routine and preventive maintenance schedules in accordance with the recommendations of equipment manufacturers and as per the OEM manuals for the PSS equipment and transmission system with grid substation bay for the Owner's approval and shall carry out all routine, preventive maintenance and periodic overhauls accordingly.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 3.8.2.40 Bidder shall ensure proper housekeeping and cleaning of the Pooling substation including 33 kV feeders, HT & EHT switchgear equipment, Power transformers, Control & Relay panel, etc. on regular basis and as and when required, Cleaning of drains, cable trenches, box culverts etc.
- 3.8.2.41 Bidder shall ensure Transformer, line, and switchyard equipment maintenance as per approved schedule.
- 3.8.2.42 If any discrepancies / observations / failures noticed the bidder shall inform to Owner and owner's representative and submit the observation report with failure analysis for Pooling Substation and Transmission Line.
- 3.8.2.43 Bidder shall need to perform the complete transmission line patrolling and shall take necessary maintenance actions like tree branch cutting, stay adjustments, etc.
- 3.8.2.44 Bidder shall be responsible for liaising with statutory authorities and local authorities to ensure smooth execution and operation of the PSS & transmission system with grid substation bay. Bidder shall maintain necessary co-ordination with CTUIL/ STU, NLDC/ SLDC/ RLDC and other agencies as may be required during the Operation and Maintenance term for smooth operation of the plant.
- 3.8.2.45 Bidder shall supply, maintain required spares including mandatory spares, tools and tackles, consumables required for comprehensive operation and maintenance of the facility as per prudent/ standard utility practices, OEM recommendations and warranty clauses for the entire O&M period at his own cost without any additional cost to the Owner.
- 3.8.2.46 Bidder shall ensure storage of materials in appropriate stock yard or container at the site to ensure safety, accounting, and timely availability of the materials.
- 3.8.2.47 The Contractor shall ensure that deployment of adequate manpower to operate the plant, 24 (twenty-four) hours a day and 7 (seven) days a week commencing from the project commissioning date. The competent persons shall have the necessary licenses to work in HT & EHV systems.
- 3.8.2.48 Bidder shall provide training to the Owner's personnel and owners representatives in relation to the operation & maintenance of the PSS, EHV/ HV transmission line and grid substation bay facility.
- 3.8.2.49 Bidder shall maintain all accounting records regarding the facility in accordance with the generally acceptable accounting principles under the Laws of India.
- 3.8.2.50 The bidder shall provide copies of all necessary documents including the following:
- Operation and maintenance manuals duly approved by owner.


Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- b. Failure Analysis/history/trouble shooting details of all the equipment.
- c. Preventive maintenance schedule for complete system.
- d. List of vendors supplying equipment for PSS and power evacuation system indicating name and addresses with credentials.
- e. Record of consumables / spare parts.


3.8.3 OPERATION AND MAINTENANCE OF CIVIL FACILITIES:

- 3.8.3.1 Bidder shall maintain boundary wall and the fencing of the facilities to prevent for cracks, damage, or any structural issues, repairing any defects to ensure the security and integrity of the boundary.
- 3.8.3.2 Bidder shall implement consistent monitoring and control of pests, rodents, and wildlife to avoid damage to infrastructure and equipment.
- 3.8.3.3 Bidder shall perform periodic cleaning to remove debris or obstructions, walkways, and drainage systems. Bidder shall conduct regular vegetation management to prevent excessive growth, remove debris, fallen branches, and overgrowth near the boundary wall and fencing to maintain a clear and secure perimeter around the facility.
- 3.8.3.4 Bidder shall carry out daily housekeeping, including masonry, carpentry, plumbing, sanitation, and sanitization tasks, ensuring cleanliness and hygiene in the PSS, CMCS/ Control Room, storage yard and associated buildings.
- 3.8.3.5 Bidder shall maintain overall cleanliness of facilities including floors within the building and premises, wooden surfaces and other materials, doormats, framed photos, display boards, glazed surfaces, fittings, furniture, fixtures, ceilings, windows, metal frames, other areas and partition glass.
- 3.8.3.6 Bidder shall maintain and clean exposed electrical fixtures, including ceiling fans, pedestal and wall-mounted fans, AC vents, and lighting, following necessary safety precautions.
- 3.8.3.7 Bidder shall ensure the chain link fencing is regularly inspected for rust, loose fittings, or damage. Any weak or damaged sections must be repaired or replaced to maintain a secure perimeter.
- 3.8.3.8 Bidder shall perform routine maintenance of gates, ensuring proper functioning of locks, hinges, and latches. Check access control points for any wear and tear that could affect security.

3.8.4 MAINTENANCE

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- 3.8.4.1 The Bidder shall draw the preventive maintenance schedules and attend to the breakdowns keeping in view that the system availability is minimum 99%.
- 3.8.4.2 The Bidder shall carry out the periodical/plant maintenance as given in the manufacturer's service manual.
- 3.8.4.3 To meet the maintenance requirements stock of consumables are to be maintained as well as various spare as recommended by the manufacturer as per the requirement.
- 3.8.4.4 Maintenance of other major equipment involved in PSS & EHV systems are step up transformers, overhead line equipment and outdoor 33 kV VCB panel and metering panel. Particular care shall be taken of outdoor equipment to prevent corrosion. Cleaning of the insulators and applying Vaseline on insulators shall also be carried out at every year interval. Resistance of the earthing system as well as individual earth pit is to be measured and recorded every year. If the earth resistance is high, suitable action is to be taken to bring down the same as per IE Rules & as per IS 3043 (Latest version).
- 3.8.4.5 Suitable manpower & equipment, power supply for oil filtration machine shall be made available to cover periodic preventive maintenance, cleaning and up keeping of the Pooling substation & Power evacuation system facilities including:
- Transformer Oil Filtration
 - Control Panel & LT Panel Maintenance
 - Site and Transformer Yard Maintenance
- 3.8.4.6 A maintenance record is to be maintained by the operator to record the regular maintenance work carried out as well as any breakdown maintenance along with the date of maintenance, reasons for the breakdowns, steps to be taken to prevent recurrence.
- 3.8.4.7 The Schedules will be drawn such that some of the jobs other than breakdown, shall be carried out preferably during the cloudy days/ monsoon season.
- 3.8.4.8 The Bidder shall deploy enough manpower at Pooling Substation and Transmission Line site to carryout work instructions and preventive maintenance schedules as specified.
- 3.8.4.9 The Breakdown repair Work involve labor and use of components, spares, and consumables in the event of any breakdown or suspected breakdown due to any reasons, attended as soon as practically possible to put the Equipment back into operation. The breakdown repairs will cover cost of labor, spares/materials and other works, which inter-alia include but not limited to the following:

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- a. Spares repairs/replacement
- b. Total replacement of oil in and Transformers
- c. Oil & spare Replacement for Diesel generator
- d. Battery replacement

3.8.5 QUALITY SPARES & CONSUMABLES


- 3.8.5.1 To ensure longevity and safety of the core equipment and optimum performance of the system the Bidder should use only genuine spares of high-quality standards. The Bidder shall include in his scope of supply all the necessary Mandatory spares as per OEM specifications and requirements of the tender.
- 3.8.5.2 The bidder shall be responsible for supply of all spare parts, repairs / replacement of any defective equipment at his own cost as required from time to time during the O&M period.
- 3.8.5.3 Bidder is required to maintain adequate O&M spare during the O&M contract period with the view to maximize availability and generation of the plant. In case, Contractor uses mandatory spares, provided by Owner, the contractor shall have to return/replenish the spare(s) of the matching quality, quantity and rating within shortest possible time.
- 3.8.5.4 Supply of all type of maintenance spares, consumables, and fixing / application of the same pertaining to the package. To meet the emergent requirements, contractor, with the permission of Owner can utilize the mandatory spares being supplied under the contract. However, the used spares shall be replenished by the contractor within reasonable time.

3.8.6 TOOLS AND TACKLES

- 3.8.6.1 The bidder shall provide technically suitable tools and tackles for installation & erection of Plant and Machineries conforming to relevant BIS safety and technical standards for proper execution of work. The Owner in no way, shall be responsible for supply of any tools and tackles for implementation of the work and to carry out operation and maintenance activities.

3.8.7 MANAGEMENT SERVICES

- 3.8.7.1 Follow-up with suppliers for equipment related warranty / guarantees providing all data inputs and required support for carbon revenue.
- 3.8.7.2 Coordinating with State/Central power utility for their infrastructure management Inspection of all equipment, safety & operational parameters, troubleshooting etc.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.8.7.3 Detailed analysis reports on frequent and major breakdowns/ failures, equipment wise/fault wise with action taken report along with preventive action plan for future.

3.8.7.4 Timely feedback / inputs on queries related to the project.

3.8.7.5 To ensure availability of right of way to Owner and/or authorized representatives.

3.8.7.6 Provide all requisite facilities and support to Owner during periodic site inspection /audit.

3.8.8 MEASUREMENT OF ENERGY AND METERING

3.8.8.1 **METERING SYSTEMS:** The Bidder shall maintain the Metering System comprising energy meter, current and potential transformers etc. The Metering System shall be designed to measure energy and power delivered by solar power plant at its 33 kV end of the pooling substation and by the total solar power plant at the identified grid's delivery point, i.e. point of inter connection and also for the import of energy for any purpose. Accuracy class of all metering equipment (preferably 0.2S for CTs used for special energy meters) shall comply with the requirements of State Electricity transmission/ CEA (Installation and Operation of meters) Amendment Regulations 2010/ distribution utility (Transco/ Discom). Meter reading shall be done jointly with Power Utility Engineer on monthly basis or at mutually agreed time interval.


3.8.8.2 TESTING OF METERS

- a. Owner shall have the right to carry out surprise inspections of the Metering Systems from time to time to check their accuracy.
- b. All testing and metering equipment shall conform to the relevant BIS/IEC/TRANSCO/ DISCOM standards.
- c. If either Party finds any inaccuracy in the Metering System, the party shall notify the other Party in writing within 24 hours for a joint inspection and testing from TRANSCO/DISCOM or other agreed authorized agency.

3.8.8.3 SEALING AND MAINTENANCE OF METERS

- a. The Metering System shall be sealed in the presence of both Parties. Bidder shall submit the calibration schedule of meters.
- b. When the Metering System and/or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it should be repaired, re-calibrated or replaced by the bidder at the earliest with owners approval.
- c. The seal of any meter shall be broken only by Owner's representative in the

SECTION V - SCOPE OF WORK (SOW)	Page 34 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

presence of the bidder's representative whenever the Metering System is to be inspected, tested, adjusted, repaired or replaced in consultation with the TRANSCO/DISCOM representative.

3.8.8.4 TERMINAL POINTS


- a. The Bidder shall be responsible for making all connections at terminal points, and shall supply necessary jointing material, connectors, nuts, bolts, etc. required to make the Solar power project operational.
- b. Terminal Point shall be CTU/STU connection Point and 33kV Solar power plant side also.

3.8.8.5 OTHER PERFORMANCE REQUIREMENTS

- a. System availability guarantee during O&M shall be dealt as per the criteria mentioned elsewhere in the tender documents.
- b. All the workers assigned by the agency will participate in an induction training program that encompasses a medical examination and job-specific instructions, including fire safety, first aid, and accident reporting. Furthermore, all employees are required to complete safety training in line with the BOCW Act/Rules.
- c. The contracting agency is tasked with delivering at least one day of job-specific safety training on various relevant topics, conducted by either internal or external safety professionals. Records of all training sessions and attendance will be kept for review by Statutory Authorities and the Engineer-In-Charge.

3.8.8.6 SITE TESTS


- a. Site tests shall include all tests to be carried out at site upon receipt of equipment. It shall include but not be limited to testing calibration, configurations and pre-commissioning trials start up tests, trial operation and performance and guarantee tests. The Bidder shall be responsible for all site tests including pre-commissioning & commissioning tests.
- b. The Bidder shall maintain all tests, calibration records in Owner approved formats, and these shall be countersigned by authorized quality assurance personnel of the Bidder supervising these works.
- c. The Bidder shall maintain master checklists to ensure that all tests and calibration for all equipment/devices furnished under these specifications are satisfactorily completed under the supervision of the authorized quality assurance personnel of the Bidder.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

- d. Site/Commissioning Tests is applicable for all the materials, which shall include all tests required to fully demonstrate to Owner's satisfaction that each equipment/subsystem/system as well as software modules furnished as per the specification, fully meets the functional, parametric and other requirements of this specification and Owner's approved drawings/documents under all operating regimes. The testing shall be conducted as per the IS/IEC or equivalent standards. The Owner shall witness all Site/Commissioning tests.
- e. The Bidder shall submit a detailed Site/Commissioning test procedure and FQP (Field Quality Plan) for Owner's approval during detailed engineering stage based on the IS/IEC or equivalent standard. The Site/Commissioning test procedure to be submitted by the Bidder shall be detailed and exhaustive enough such that Owner is satisfied that all the specification requirements and features are being tested and the system meets these requirements. The test results obtained shall be properly documented by the Bidder and furnished in the Owner approved format as decided during detailed engineering and submitted in the requisite number of copies with all annexes irrespective of the fact that Owner's representative was present during the tests
- f. An indicative on site test list has given in technical specification section of this RfP for each equipment. Bidder shall perform any additional test based on specialties of the items as per the Field Quality Plan/ instructions of the equipment supplier or Owner without any extra cost to the Owner. The Bidder shall arrange all instruments required for conducting these tests along with calibration certificates and shall get the list of instruments approved from the Owner.

3.9 PROJECT WARRANTIES:

- 3.9.1 The manufacturer's warranty for all bought out items shall be made available to the Owner. However, this does not absolve the Bidder of his responsibilities under defect liability clause to perform, in attending to the defects noticed and rectifying these without any delay.
- 3.9.2 Manufacturer's/ Bidder's warranty, for any replaced item shall also be made available to the Owner and shall be kept valid for the original warranty period.
- 3.9.3 Guaranteed performance data as required in the specifications shall be included as part of the contract. The Bidder shall furnish further, such data as per relevant clauses mentioned elsewhere and this shall form a part of the contract document.
- 3.9.4 The Bidder shall guarantee that the Goods supplied will be new and in accordance

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

with the Contract Documents and be free from defects in material and workmanship. The Bidder shall further warrant that the Goods supplied under this contract shall have no defect(s) arising from design, material or workmanship or from any act or omission of the Bidder, which may develop under normal use of the supplied goods in conditions obtaining in the country of destination.

3.9.5 This Warranty/ Guarantee shall remain valid for 24 (twenty-four) months from the actual date of completion of Commissioning.

3.9.6 The Bidder shall replace / repair to the satisfaction of the Owner any defective parts in the Goods of his own manufacture or those of his/her sub-Bidder or under normal use and arising solely from faulty design, materials and /or workmanship.

3.9.7 If any defect(s) is/are not remedied within Fourteen (14) days from the date of notice by the Owner, the Owner may proceed to do the work at the Bidder's risk and cost, but without prejudice to any other rights, which the Owner may have against the Bidder in respect of such defects.

3.9.8 The repaired or new parts will be furnished and erected free of cost by the Bidder. If any repair is carried out on his behalf at the Site, the Bidder shall bear the cost of such repairs.

3.9.9 The cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the plant or defective work carried out by the Bidder, the same shall be borne by the Bidder.

3.9.10 The acceptance of the Goods by the Owner shall in no way relieve the Bidder of his obligation under this clause. Timely replacement/ repair of the defective part would be at bidder's cost.

3.9.11 **PROJECT COMPONENTS WARRANTY:**

3.9.11.1 Project components warranty can essentially be construed as guarantees / warranties provided by the project component manufacturers beyond the contract period including defect liability period.


3.9.11.2 Warranties and conditions thereof for key project components are separately specified in general technical specification of key project components mentioned in this document.

3.9.11.3 Any and all such warranty for any of the project components shall be transferred to the owner after completion of O&M period.

3.9.11.4 Owner shall reserve the right to call for extended warranties from the manufacturers; same shall be agreed by the Bidder and product manufacturer.

3.9.12 **PROJECT START-UP AND FUNCTIONAL REQUIREMENTS**

SECTION V - SCOPE OF WORK (SOW)	Page 37 of 39
---------------------------------	---------------

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE

3.9.12.1 The start-up and functional requirements shall essentially meet all the supply, installation, testing and commissioning by Bidders as required to complete the substation and the required infrastructure within the premises. Functional requirements presented here are non-exhaustive, these are required to conform the latest International standards, wherever not applicable then best industry engineering practices shall be followed with prior approval from Owner / Owner appointed PMC.

3.9.13 Defects Warranty:

3.9.13.1 The Bidder shall provide warranty as per the terms of the Contract for the entire Scope. The Bidder shall warrant that the project shall be free from any and all defects including unseen and latent in all project components and workmanship.

3.9.13.2 In case of any manufacturing defect or underperformance of any project component, the Bidder shall guarantee supply, installation, testing and commissioning of replacement of defective project component/s at no cost to the owner.

3.9.13.3 Expected Pooling substation & Power evacuation system availability should be 99%, in case of non-maintaining of the pooling substation availability based on defects found due to improper handling of project components by Bidder's team, Owner may claim any loss in revenue due to such non availability during the O&M period as per relevant clauses mentioned elsewhere in tender.


3.9.13.4 Any replacement made or component repaired by the Bidder shall continue to be in warranty for the balance warranty period along with an additional extended warranty for 12 months with no charge to the owner. The extended warranty shall come in effect upon completion of original warranty period.

3.10 SITE FACILITIES:

3.10.1 Bidder shall provide all the required site facilities essentially including utilities and adequate temporary sanitation facilities for its employees and labours in order to maintain hygiene onsite in line with applicable Indian/international laws. Bidder shall arrange electricity with required backup and water for executing the works as per scope of work without any additional charge to the Owner.

3.10.2 Storage for Pooling substation & Power Evacuation equipment / inventory shall be in the Bidder's scope. Respective supplier standards, recommendations and practices shall be followed for open storage and covered storage for all the equipment.

3.10.3 Appropriate housekeeping of pooling substation shall be provided by the Bidder to timely replenish the material breakage / theft/ repair including transport without additional cost to the Owner.

Bid No:	TeCL/CC/PSS/2026-27/03
	REQUEST FOR PROPOSAL FOR EPC PACKAGE FOR DESIGN, ENGINEERING, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF POOLING SUBSTATIONS AND ASSOCIATED POWER EVACUATION SYSTEMS, INCLUDING 5 YEARS OF COMPREHENSIVE OPERATION AND MAINTENANCE
