

ASSAM ELECTRICITY GRID CORPORATION LTD.

REQUEST FOR PROPOSAL

FOR

**“SUPPLY, ERECTION, CONFIGURATION & COMMISSIONING OF RTU AT
132KV HAILAKANDI GSS”.**



Bid Identification NO. AEGCL/MD/CGM(T&CC)/ CAT&CC/2024/149

Chief General Manager (T&C, Comm.)

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INSTRUCTION TO BIDDERS

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SECTION 1

1.1.0 INTRODUCTION:

The Chief General Manager (T&CC) on behalf of Assam Electricity Grid Corporation Ltd. (AEGCL), hereinafter referred to as AEGCL or Purchaser invites single stage two envelope e-bids for the following work from eligible manufacturers/firms/companies'/ contractors. **Joint venture** is not allowed for this bid.

a) Name of work: SUPPLY, ERECTION, CONFIGURATION & COMMISSIONING OF RTU AT 132KV HAILAKANDI GSS UNDER PANCHGRAM SUB-STATION DIVISION.

INTENT OF THE TENDER ENQUIRY:

The intent of the Tender Enquiry is to invite proposals from the prospective and relevantly experienced and financially sound contractor(s) /firms to carry out the works as specified in this bidding document.

1.2.0 SCOPE OF WORK:

The Scope for supply, erection & installation, testing & commissioning of equipment for data communication through RTU complete with required hardware, software, communication modules & accessories from 132KV Hailakandi GSS AEGCL to SLDC, Guwahati is as follows

- i) Supply, Erection & Installation the RTU complete with required hardware, software, communication modules and accessories.
- ii) Configuration and integration of the RTU with existing IED's, bay controllers, meters and other substation equipment (configured with the required MFM, CMR, OLTC Transducers etc), including signal mapping, database configuration and communication with SCADA/SLDC. The gateway should be able to pull data from SAS as well as RTU vide MFM, CMR. The BCU Model is AREVA C264. The engineer should have expertise of the present system for integration.
- iii) Testing, commissioning and end to end verification of all signals and communication links, including troubleshooting rectification and submission of configuration/database, test and commissioning documents.
 - iv) The contractor has to carry out a survey after award of contract and submit the survey report jointly signed by the site – in – charge & T&T, T&C and Communication division representative as well to the employer for approval for subsequent amendment to the work order if there is a change in the BOQ
 - v) The RTU at 132 KV Hailakandi GSS, shall be installed and commissioned along with all the cabling work for the connection and shall be tested locally.
 - vi) The equipment shall be properly earthed with the supply of required earth flat. Cables for the equipment shall be properly dressed before termination with the supply of required cable tray wherever necessary
 - vii) Telemetry data is to be integrated for 132 KV Hailakandi GSS, AEGCL to SLDC

The broad scope of this turnkey project includes the survey, planning, design, engineering, supply transportation, insurance and delivery at site, unloading, handling, storage, installation, splicing, termination

integrating to C&R, BCUs, existing communication system, testing & demonstration for acceptance commissioning & documentation for the following as applicable.

viii) After integration of i/o data points and protection signals, data validation is to be done with SLDC.

The equipment shall be supplied as per the technical specification specified by AEGCL/CGM and from approved manufacturer/vendor list of AEGCL. The same shall be supplied only after approval from AEGCL/CGM(T&CC)

ix) Handing over of the completed system to the Owner.

STANDARD AND COMPULSORY REQUIREMENTS FOR TRANSMISSION OF DATA FROM 132KV Hailakandi GSS TO SLDC

(i) RTU (Remote Terminal Unit)

- (a) The Remote Terminal Unit (RTU) shall be installed at Substation to acquire analog data and device status signals in both 101 & 104 PROTOCOL. RTU shall also be used for control of station devices from Master station. The supplied RTUs shall be interfaced with the Control & Relay (C&R) panels, BCUs, communication equipment, power supply distribution boards for which all the interface cables shall be supplied by the Contractor.
- (b) The contractor shall supply RTU, associated equipment such as 110V – DC- dual RS-232 port –secure make MFM, 110V - DC CMR, cables etc. for housing of all the hardware envisaged for the RTU and system interface cubicle. The contractor shall be responsible for supplying all hardware, software, installation, cabling and field implementation for RTU as defined in this Specification. The contractor shall also provide complete documentation, training and testing to fully support the hardware and software provided. The RTU shall be used for real-time supervision and control of substation/ power plant through SCADA system. The use of contractor's standard hardware and software may cause the contractor to conclude that there is a need for additional items specifically mentioned in this specification. The contractor shall supply all such items and provide a complete RTU design that meets all of the Owner's functional requirements defined in this specification. The scope shall include:
 - a. Erection of RTU panel at 132KV Hailakandi GSS, AEGCL, switchyard control room as per site survey.
 - b. Wiring is to be carried out between C/R panel and RTU Panel as per approved I/O list of AEGCL
 - c. Installation of MFM in C & R panel for measuring analog parameters like MW, MVAR, MVA, KV, HZ.
 - d. Installation of CMR in C & R panel for monitoring Breaker and isolator status.
 - e. Creating and loading of the RTU configuration in the RTU with approved signals and data parameters. And integrating with the BCUs
 - f. Local data validation and validation with SLDC
 - g. The uptime of the RTU after integration to the SLDC should be 99%.

(c) RTU functions:

All functional capability described herein shall be provided by the Contractor even if a function is not initially implemented. The term master station is used to denote the SCADA systems. As a minimum, the RTUs shall be capable of performing the following functions:

- a. Collecting and processing the digital status inputs, analog inputs, accumulated values and transmitting to master station(s).
- b. Receiving and processing digital & analog control commands from the master station(s).
- c. Accepting polling messages from at least two master station(s) simultaneously using separate logical databases for each master station. **There should be provision for two separate ports on two separate NIC cards for communicating with master stations.**
- d. Communication simultaneously on all Communication ports and using multiple concurrent protocols, including the 60870-5-1041& 104 & MODBUS/103 protocol.
- e. Data transmission rates from 300 to 9600 baud for serial ports (MODBUS/103) and 10/100 Mbps for TCP/IP Ethernet ports.
- f. RTU shall be compatible with protocol 61850 for communication with IEDs.
- g. RTU shall have the capability of automatic start-up and initialization following restoration of power after an outage without need of manual intervention. CPU will also reset if error is detected and status LED will flash the error code. All restarts shall be reported to the connected master station(s).
- h. RTU shall support downloading of RTU database from the master station using Intranet.
- i. RTU shall support SOE (Sequence of events) feature. Internal battery back up to hold data in SOE buffer memory and maintain date & time.
- j. Acting as a data concentrator for acquiring data from Slave RTUs and exercising supervisory control on slave RTUs using IEC 60870-5-104 protocol.
- k. RTU shall support archiving facility for reporting and analysis. The archived data shall be saved to user defined file duration at user-defined interval-e.g. Every 5 minutes for a period of 1 week. The computation of the archived data shall also be supported – e.g. Maximum, Minimum and Average.

(d) **Communication ports:**

The RTUs shall support simultaneous communications with two independent master stations (SCADA system) over Ethernet ports. The RTUs shall require number (min 2) of RS 485 ports for polling MFMs using Mod bus / 103 Protocol in multi-drop mode. Maximum 16 nos of MFM shall be connected to each port. It shall be possible to increase the no of communications ports in the RTU by addition of cards if required in future.

(e) **Local Configuration & Maintenance Interface:**

The RTUs shall include the interface to support the portable configuration and maintenance terminal (PCMT). The interface shall provide easy access to allow employer to use the maintenance terminal at the RTUs installed in the field using Ethernet, Local Configuration & Maintenance Interface.

(f) **Communication interface between RTU & MFMs:**

The RTU shall acquire data from the MFMs. The MFMs will act as slave to the RTU. The RTU shall have the ability of issuing retry scan to acquire data from the MFMs in case of communication failure

between RTU and MFMs. All data from the devices connected on a single port shall be acquired within 5 seconds communication failure between RTU and MFMs. All data from the devices connected on a single port shall be acquired within 5 seconds.

(a) **Communication Protocol between RTU & IEDs:**

The RTU shall use the IEC 61850 protocol for communication with IEDs over Sub-station LAN. The RTU shall act as a Client and collect data from the IEDs.

(b) **Master Station Communication Protocol:**

The Contractor shall provide a communication protocol for communicating with SCADA master stations using IEC 60870-5-104 communication protocol standard. The communication protocol shall support all the requirements of this standard. The communication protocol shall be non-proprietary and the Contractor shall provide complete description and documentation of the protocol to Owner.

The RTU shall perform as a slave to SCADA master station when using the IEC 60870-5-protocol. All communication shall be initiated by the SCADA master stations. RTU must notify the master stations of unusual conditions at the RTU (such as a power fail/restoration or RTU malfunction), the transfer of changed data etc. All the notifications shall be accomplished within the framework of the periodic data acquisition exchanges.

(c) **Scan groups:**

Analog and digital input points (including points reported by exception) shall be assignable to scan groups using the IEC 60870-5-104 protocol profile communication protocol standard. A scan group shall be a specified set of data points within the RTU central database, which will be communicated to a master station when requested by a specific (addressed) scan request. A scan group size shall only be limited by the communication protocol message length. Any RTU input point shall be assignable to any scan group. The RTUs shall support at least sixteen scan groups and all scan groups per communication port. The Contractor shall provide a convenient and flexible scheme for assigning points in the RTU to scan groups.

(d) **Reporting of status points:**

The RTU communication protocol shall be configured to report digital status changes by exception to master station using the IEC 60870-5-104 protocol profile communication protocol standard. Digital status data shall have higher priority than the Analog data. All the digital status data shall also be assigned to scan groups for integrity check by Master stations at every 10 minutes.

(e) **Reporting of Analog points:**

The analog data shall be reported periodically to update all the values at the master station within 10 to 15 seconds using IEC /104-protocol profile. Analog data shall also be reported by exception if the analog value exceeds its previous value by more than 10%.

(f) Digital control commands:

The RTU shall follow the select-and-execute sequence for operation of digital control commands from the master station using the IEC 60870-5-104 protocol profile communication protocol standard. The RTU shall reset its control logic upon any error in the sequence.

(g) Data Concentrator Communication Protocol:

The RTU shall act as an IEC 60870-5-101 and IEC 60870-5-104 protocol master and collect data and also perform supervisory control from/on the slave RTUs and communicate it to the Control Center. The Master protocol implementation shall be such that the data polling requirements to be accomplished.

RTU as a Data concentrator shall be provided with at least ten (10) IEC input ports/ cards and shall have capability to report to two master stations on IEC 104 interface. Data concentrator shall support at least 1,500 (fifteen hundred) data points. The RTU as a Data Concentrator shall be supplied with GPS receiver system with antenna, cable etc. for time stamping of Data concentrator which in turn shall synchronize the IEC protocol connected RTU/device. The RTU as a Data Concentrator shall come complete with built in monitoring mechanism to avoid loss of any data, especially the one reported by exception. The data concentrator shall have dual CPU and dual Power supply unit. The overall data update requirement from any Sub-RTU to Control center should not affect the functionality defined elsewhere in the specification.

The Data concentrator shall have the provision for remote login from Control center. The SLDC computer system shall be able to configure and poll health of Data concentrator from remote on 104 connected interfaces after due authentication of the users.

It shall support diagnostic & maintenance activities remotely. Individual RTU configuration shall be possible from Data Concentrator including accommodating devices from heterogeneous suppliers. The RTU as a Data Concentrator shall have following communication ports & support for protocols:

- a. IEC104 for SCADA control centers.
- b. IEC 104 for local SCADA

The other requirements given for RTU elsewhere in the specification shall be applicable to RTU as a Data concentrator also.

(h) Analog Inputs:

The RTU shall accommodate analog inputs which are unipolar or bipolar, 2- wire ungrounded differential signals. RTU shall be capable of accepting other standard analog input ranges (0 to 5V, 0 to 10mA, +/- 10 mA, 4-20 mA).

The RTU shall make all appropriate signal level conversion and conditioning to allow full utilization of analog inputs and meaningful reasonability checking. The analog-to-digital converter shall have a minimum resolution of 2048 counts (sign plus 11 data bits). Each type of analog input shall be converted with full resolution. The RTU shall monitor the drift in characteristics of its ADC and mark the analog points with a drift quality code if a drift is detected. This drift quality code shall be sent to the master station also.

The RTU accuracy, for analog input measurement, shall be 99.8% or better at 25 degree C ambient temperature. Mean accuracy shall drift no more than 0.002% per degree C within the temperature range of -5-to-+55-degree C. Determination of accuracy shall be made while the analog multiplexer is operating at rated speed

Each input shall have suitable protection and filtering to provide protection against voltage spikes and residual current at 50 Hz, 0.1 ma (peak-to-peak) and overload. Loading up to 150% of the input value shall not sustain any failures to the RTU input. The total input impedance offered by the RTU shall not be greater than 250Ω (for +4 to

+20 mA range).

All analog inputs shall be scanned by the RTU from the field at least at 1-second periodicity.

(i) Status Inputs:

RTU shall be capable of accepting isolated dry (potential free) contact status inputs. The RTU shall provide necessary sensing voltage, current, optical isolation and de-bounce filtering independently for each status input. The sensing voltage shall not exceed 48 VDC. The sensing voltage source shall be isolated from that of the RTUs logic power so that any noise or a short circuit across the sensing supply of a digital status input terminals would not disrupt the RTU operation other than the shorted digital status input.

The RTU shall be set to capture contact operations of 20 ms or more duration. Operations of less than 20 ms duration shall be considered no change (contact bounce condition). The RTU shall accept two types of status inputs i.e. Single point Status inputs and Double point status inputs.

Single point status input will be from a normally open (NO) or normally- closed (NC) contact which is represented by 1-bit in the protocol message.

Double point status input will be from two complementary contacts (one NO and one NC) which is represented by 2-bits in the protocol message. A switching device status is valid only when one contact is closed and the other contact is open. Invalid states shall be reported when both contacts are open or both contacts are closed.

All status inputs shall be scanned by the RTU from the field at one (1) millisecond periodicity.

(j) Contact Multiplying Relay:

Contact multiplying relays (CMRs) are required to multiply the auxiliary contacts of breaker/isolators etc. The contacts of these relays shall be used to provide status input to the RTUs. The relays shall be of self-reset type. The relay shall have a minimum of two changeover contacts each with minimum current carrying capacity of 5 A at 110 V DC.

The CMRs shall be generally mounted in existing control & Relay panel but in case of non-availability of space, it shall be accommodated in the System Interface Cabinets (being supplied by the Contractor).

(k) Sequence of Events (SOE) feature:

SOE is the time-stamped digital status data. SOEs will enable Employer's personnel to determine the sequential operation of digital status input devices for their state changes. The RTU shall time-stamp the digital status data with a time resolution of one millisecond.

Initially, all breakers & protection contacts digital status input points in the RTU shall be

configured as SOE points. However, it shall be possible to assign any digital status input data point in the RTU as SOE point.

Each time a SOE status input point changes state, the RTU shall time-tag the change and send it to the Master station. The RTU shall maintain a SOE buffer within the RTU for communication delays and communication failure. SOE buffer shall be sized to store, as a minimum, of 1024 events. The RTU shall transmit the SOE data stored in its buffer to master station. An acknowledgement of receipt by the master station shall be made prior to the loss of any data in the RTU SOE buffer. Data not received at the master station shall be retransmitted. The RTU shall send a message to the master station to indicate the RTU SOE data buffer overflow condition.

(l) Control Outputs:

The RTU shall provide the capability for a master station to select and change the state of digital output points. Device control will be used by employer to control power system devices including:

- c. Two-state Devices: Circuit breakers, motor-operated switches, auto/manual switches, relay disable/enable, and other two-state devices.
- d. Variable Output Devices: Raise/lower control of generators, transformer load-tap-changers (LTC), and other variable output devices.

(ii) 110V DC to 48V DC Converter

DC-to-DC converter (110 V DC TO 48V DC) shall be installed in the RTU panel at 132 KV Hailakandi GSS, AEGCL to provide 48V DC to the RTU. It should be IS/ IEC standard of any reputed make like COSEL MAKE POWERTRON INDIA PVT LTD or equivalent.

(iii) Safety:

- (a) All equipment shall be complete with approved safety devices wherever a potential hazard to personnel exists and with provision for safe access of personnel to and around the equipment for operational and maintenance functions. The design shall include all necessary precautions and provisions for the safety of operating and maintenance personnel.
- (b) There should be no emission of corrosive fumes or gases under normal operating condition in case of Battery.
- (c) Special care shall be taken to make enclosed equipment proof against entry of rat, lizards and other creeping reptiles, which may create electrical short circuits inside, live equipment.
- (d) Continuity of power supply is the first consideration and the design shall be such as to provide facilities to simplify inspection, testing maintenance, clearing and repair at site.
- (e) The contractor has to assure 100% safety of all man & material at site during entire period of contract.
- (f) The contractor shall adhere to normal safety procedure as per AEGCL guidelines while carrying out installation / commissioning work at site

(iv) **Warranty Terms:**

- (a) Comprehensive warranty period: 12 months from commissioning or 18 months from the supply, whichever is later.
- (b) Response time for critical issues: 4 hours
- (c) Resolution time for critical issues: 24 hours
- (d) Spare parts availability guarantee
- (e) Software updates and patches

(v) **Documentation Deliverables:**

(a) **Project Documentation**

- a. Detailed project implementation plan
- b. Quality assurance plan
- c. Field Quality plan
- d. Test plans and procedures
- e. System design documents
- f. Weekly and monthly progress reports

(b) **Technical Documentation**

- a. System architecture documentation
- b. Network topology diagrams
- c. Equipment datasheets and manuals
- d. Software configuration guides
- e. I/O lists and cable schedules

(c) **As-Built Documentation**

- a. Final system architecture drawings
- b. Updated network configuration details
- c. Final I/O lists and signal database
- d. Test and commissioning reports
- e. Final system parameters and settings

(vi) **Exclusions:**

The following items are specifically excluded from this Scope of Work:

- (a) The system shutdown and necessary fonts will be in the scope of owner.
- (b) Main power supply to RTU locations will be provided by the owner.

Note:

- a. Supply, Technical requirements/specification, site survey report etc. shall be approved by the CGM (T&CC) AEGCL proceeding any stage of above in the execution of the works. However, the approval from the concerned authority shall be the scope of contractor.
- b. The Single line Diagram of the 132KV Hailakandi GSS is attached at Annexure-II. However, the exact quantity of the various module like MFM/MFT, CRM, transducer, CAT-6 cable, Control cable, Power cable and screened armoured cable shall be decided only after the architecture drawing approval from the CGM (T&CC) AEGCL. However, the approval from the concerned authority shall be the scope of contractor.

1.1. Inspection and Testing:

- (i) The Owner's representative shall be entitled at all reasonable times during manufacture to inspect, examine and test at the supplier's premises, the materials and workmanship of all equipment/materials to be supplied under this contract and if part of the said equipment/material is being manufactured in other premises, the supplier shall obtain for the Owners's representative permission to inspect, examine and test as if the equipment/material were being manufactured in the contractor's premises. Such inspection, examination and testing shall not relieve the supplier from his obligations under the contract.

The Supplier shall give to the Owner adequate time/notice (at least clear 15 days for inside the state suppliers and 20 days for outside the state suppliers) in writing for inspection of materials indicating the place at which the equipment/material is ready for testing and inspection and shall also furnish the shop Routine Test Certificate, Calibration certificates of Testing instruments, calibrated in Govt. approved laboratory with authenticity letter of that laboratory along with the offer for inspection. A packing list along with the offer, indicating the quantity which can be delivered in full truck load/Mini truckload to facilitate issue of dispatch instruction shall also be furnished.

- (ii) Where the contract provides for test at the Premises of the supplier or any of his sub-vendors, the supplier shall provide such assistance, labour, materials, electricity, fuel and instruments, as may be required or as may be reasonably demanded by the Owner's representative to carry out such tests efficiently. The supplier is required to produce shop routine test Certificate, calibration certificates of Testing Instruments before offering their materials/equipment for inspection & testing. The test house/laboratory where tests are to be carried out must be approved by the Govt. A letter pertaining to Govt. approved laboratory must be furnished to the purchaser along with the offer for inspection.
- (iii) After completion of the tests, the Owner's representative shall forward the test results to the Owner. If the test results conform to the specific standard and specification, the Owner shall approve the test results and communicate the same to the supplier in writing. The supplier shall provide at least five copies of the test certificates to the Owner.
- (iv) The Owner has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.
- (v) If the firm fails to present the offered items for inspection/testing as per their inspection call due to any reason(s) during the visit of inspecting officer at the testing site, the firm shall have to bear all expenses towards repetition of inspection and testing of the total offered quantity or part thereof.

1.2.Training Deliverables:

The successful bidder shall provide all possible facilities for training of Owner's Technical personnel, when deputed by the Purchaser for acquiring firsthand knowledge in assembly of the equipment, its erection, commissioning and for its proper operation & maintenance in service, wherein it is thought necessary by the purchaser. This scope includes the following:

- (i) Training manuals and guides
- (ii) Quick reference card Video tutorials (if applicable)
- (iii) Hands-on practical sessions) *
- (iv) Assessment and certification

1.3.Rejection of Material/Equipment

- (i) The equipment shall be supplied as per the GTP specified by AEGCL/CGM (T&CC) and from approved manufacturer Vendors list of AEGCL/CGM (T&CC) for this tender. For equipment for which GTP or selected Vendors is not specified by OPTCL, the same shall be supplied only after obtaining approval from AEGCL. In the event, any of the materials supplied by the Contractor is found defective due to faulty design, bad workmanship, bad materials used or otherwise not in conformity with the requirements of the Specification, the Owner shall either reject the materials / equipment or ask the Contractor in writing to rectify the same. The Contractor on receipt of such notification shall either rectify or replace the defective materials free of cost to AEGCL. If the Contractor fails to do so, AEGCL may:
 - (a) At its option replace or rectify such defective materials/equipment and recover the extra costs so involved from the Contractor plus fifteen percent and / or
 - (b) Terminate the contract for balance work / supplies at the risk and cost of the successful bidder for the un-delivered materials and with forfeiture of Contract Performance Bank Guarantee.

Bidders are advised to visit the site and acquaint themselves about the scope and conditions prior to bidding.

The technical specifications are enclosed as Annexure-I

The Single line Diagram of the 132KV Hailakandi GSS is enclosed as Annexure-II The detail of unpriced bill of quantity (BoQ) is enclosed as Annexure-III and is available in a separate section on the AEGHCL e-Tender Portal.

1.4.0 TIME SCHEDULE:

The successful bidder shall have to complete the works within **90 (Ninety) days** from the date of contract commencement.

1.5.0 ESTIMATE:

Rs. 19,25,358.00 (Rupees Nineteen Lakhs Twenty-Five Thousand Three Hundred and Fifty-Eight) only.

1.6.0 ELIGIBILITY CRITERIA:

1.7.0

1.7.1. EXPERIENCE

To be qualified for the bid the bidder must compulsorily meet the following minimum criteria.

- i. The bidder should have successfully completed, as a prime contractor for Telecom Products in Power Utility work during the previous Five (5) financial years:
“Execution of similar works in AEGCL/PGCIL/PSUs, etc as prime Contractor”
- ii. Manufacturer’s Authorization (MA) from OEM in case of supplier, shall be provided without which the bid shall be rejected. MA should specifically have clauses specifying full support from OEM during warranty period in case of insolvency of the supplier regarding replacement/ rectification of Cards.
- iii. Supplier should furnish customer care number of the OEM for any support.

1.7.2. FINANCIALS:

- i. As a minimum, a Bidder’s net worth calculated as the difference between total assets and total liabilities should be positive. As supporting document, bidder should submit **audited balance sheets** or other financial statements acceptable to the Purchaser, for last 3 (three) financial years to demonstrate the current soundness of the Bidders financial position and its prospective long-term profitability. Apart from audited balance sheet, bidder shall submit duly filled and signed **Form ‘FIN-1’** given in Section 2. Using the **‘Form LIT – 1’** (Section 2, Bidding Form), bidder shall list all Pending Litigation. All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50% percent of the Bidder’s net worth.
- ii. Bidder must have Minimum **Average Annual Turnover (AAT) of Rs.20,00,000/- (Rupees Twenty Lakhs Only)**. AAT shall be calculated by averaging total certified payments received for contracts in progress or completed, for the last 3 (three) years. The bidder shall furnish, along with its bid, audited balance sheets and duly filled up Form **‘FIN-2’** in support of this Clause.
- iii. Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:
 - a) the following cash-flow requirement, **Rs. 10,00,000.00**, and
 - b) the overall cash flow requirements for this contract and its current works commitment.

1.8.0 SITE VISIT:

- i. The Bidders are advised to visit and examine the sites and equipment where the works are to be carried out and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for the provision of plant and services. The costs of visiting the sites shall be at the Bidder’s own expense.
- ii. The Bidders and any of its personnel or agents will be granted permission by the Purchaser to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Purchaser and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

1.9.0 QUANTUM OF WORK:

The quantum of work is stated in the PRICE SCHEDULE at the end of section 2 – bidding forms.

1.10.0 QUERY ON THE BIDDING DOCUMENT:

Prospective bidder may submit queries, if felt necessary, requesting clarification of any bid clause. Such queries must be submitted through CGM (T&CC), AEGCL mail id latest by the **tender clarification end date and time** mentioned in the Bid Data Sheet. Purchaser shall clarify to the extent felt necessary or issue corrigendum for any amendment required in the bidding document. Such corrigendum/clarification shall be made available in the e tendering portal and official website of AEGCL, www.aegcl.co.in . Any query submitted outside the e-tender portal viz. email, or in physical letters, shall not be entertained.

1.11.0 CLARIFICATION OF BIDS:

To assist in the examination, evaluation, and comparison of the Technical and Price Bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its bid. Any clarification submitted by a Bidder that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the evaluation of the bids. If a Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid may be rejected.

1.12.0 DEADLINE FOR SUBMISSION OF BIDS:

Bids shall be received OFFLINE only on or before the date and time indicated in the **Bid Data Sheet (BDS)**. The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

1.13.0 SUBMISSION OF BID:

The bidder shall submit the techno commercial & price bid at O/o the CGM (T&CC), AEGCL, Narengi. All documents as required by this bidding document shall be scanned and uploaded in the portal. Price schedule should be submitted in the format provided in the portal. Bidder must go through the document checklist provided in this bidding document and submit all required document. Bidders are also requested to submit the information in the format provided in this bidding document where applicable.

In addition to the bid submission, (i) Original copy of **Bid Fee** and **EMD payment receipt**, (ii) Duly filled and signed **bid document** and (iii) **Authorization letter of bid signatory** must be submitted in a sealed envelope superscribed with the name of bidder, full address, IFB reference, name of work etc. at the office of the Managing Director, Assam Electricity Grid Corporation Ltd, Bijulee Bhawan, Paltan Bazar Guwahati-781001 **one hour prior to bid submission end date and time. In case these documents are not received, the bid shall be summarily rejected.**

1.14.0 BID VALIDITY:

The validity of bid shall be for **180 (One Hundred and Eighty days)** from the date of bid submission end date.

1.15.0 OPENING OF TECHNO-COMMERCIAL BIDS

The Purchaser shall conduct the opening of Technical Bids through offline process at the address, date and time specified in the BDS. Bidders at their discretion may attend the techno-commercial bid opening.

Price bid of those bidders shall only be opened whose techno-commercial bids are found to be responsive to the requirement of the bidding document.

1.16.0 EARNEST MONEY DEPOSIT (EMD):

EMD amount mentioned in BDS must be submitted with techno-commercial bid. Copy of the EMD payment receipt should be submitted along with Techno-Commercial bid. Alternatively, if allowed bidders may submit EMD from schedule banks in favor of Managing Director, AEGCL. The earnest money will be released to the unsuccessful bidders on finalization of the tenders. The EMD to the successful bidder will be released on submission of Bank Guarantee after execution of the contract agreement.

1.17.0 PRICE BASIS:

Cost quoted by the bidder shall be inclusive of all scope of work as specified in this bidding document including any related services that is implicit to carry out the work successfully. Price will be firm and no price variation will be allowed within the completion period given in the work order.

1.18.0 DEVIATIONS, RESERVATIONS, AND OMISSIONS:

During the evaluation of bids, the following definitions apply:

- a) "Deviation" is a departure from the requirements specified in the Bidding Document;
- b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and
- c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.

1.19.0 PRELIMINARY EXAMINATION OF TECHNICAL BIDS:

The Purchaser shall examine the Techno-commercial Bid to confirm that all documents and technical documentation requested in this bidding document have been provided, and to determine the completeness of each document submitted. If any of these documents or information is missing, **the Bid may be rejected.**

The Purchaser shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer **shall be rejected.**

- (a) Original copy of **EMD**
- (b) Duly filled and signed **bid document** and
- (c) **Authorization letter of bid signatory**

1.20.0 RESPONSIVENESS OF TECHNO-COMMERCIAL BID:

The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself. A substantially responsive Techno-commercial Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

- a) If accepted, would:
 - (i). Affect in any substantial way the scope, quality, or performance of the plant and services specified in the Contract; or

- (ii). Limit in any substantial way, inconsistent with the Bidding Document, the Purchaser's rights or the Bidder's obligations under the proposed Contract; or
- b) If rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

The Purchaser shall examine the Techno-commercial Proposal, to confirm that the requirement of the bidding document have been met without any material deviation or reservation.

If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Purchaser and may not be subsequently made responsive by correction of the material deviation, reservation, or omission.

1.21.0 EVALUATION OF PRICE BIDS:

The Purchaser shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be used. To evaluate a Price Bid, the Purchaser shall consider the following:

- a) The bid price excluding taxes as quoted in the Price Schedules;
- b) Price adjustment for correction of arithmetical errors.

1.22.0 AWARD CRITERIA:

Purchaser shall in general award the contract to the lowest substantially responsive bidder. However, the purchaser reserves the right to not award contract to the lowest substantially responsive bidder without thereby incurring any liability to Bidders.

1.23.0 PURCHASER'S RIGHT TO ACCEPT ANY BID, AND TO REJECT ANY OR ALL BIDS:

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

1.24.0 NOTIFICATION OF AWARD:

Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its bid has been partially or fully accepted quoting acceptance of the bid. The notification letter (hereinafter called the "Notification of Award") shall specify the sum that the Purchaser will pay the Contractor (hereinafter called "Contract Price") in consideration of the execution and completion of the services. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

1.25.0 PERFORMANCE SECURITY:

Within 15 (five) days of receipt of the Notification of Award from AEGCL, the successful bidder shall furnish to AEGCL a performance security in an amount of **10 (Ten) percent** of the Contract Price in accordance with the Conditions of Contract. The form of performance security provided in Section 3 of the bidding documents may be used or some other form acceptable to AEGCL. The performance guarantee BG shall be valid through **60 days** beyond the guarantee period.

1.26.0 SIGNING OF CONTRACT AGREEMENT:

Within **15 (Fifteen) days** of receipt of the Notification of Award, the successful Bidder shall be required to sign the Contract Agreement with AEGCL using for that purpose, the contract form provided with this bidding document failing which AEGCL at its discretion may cancel the award.

**Annexure to SECTION 1
BID DATA SHEET**

Name of Work	SUPPLY, ERECTION, CONFIGURATION & COMMISSIONING OF RTU AT 132KV HAILAKANDI GSS
Location of Work	O/o the AGM, CA Communication Division, AEGCL, Samaguri.
NIT No.	AEGCL/MD/CGM(T&CC)/CA T&CC/2023/150, Dtd: 17.09.2026
Bid Identification No.	AEGCL/MD/CGM(T&CC)/CA T&CC/2023/149
Estimate (In Indian Rupees)	Rs. 19,25,358.00 (Rupees Nineteen Lakhs Twenty-Five Thousand Three Hundred and Fifty-Eight) only.
Tender Fee	Rs.2000 (Rupees Two Thousand only)
Earnest Money Deposit (EMD)	Rs. 40,000 (Rupees Forty Thousand) Only
Purchase's Address for correspondence	The Chief General Manager (T&CC), AEGCL Narengi, ASEB Colony, Guwahati (Assam)-781026. Telephone: +91 7896731924 Electronic mail address: cgm.tcc@aegcl.co.in
Bid submission mode	OFFLINE
Address for bid opening	The Chief General Manager (T&CC), AEGCL Street Address: ASEB Colony, Narengi City: Guwahati (Assam) PIN Code: 781026 Country: India
Key dates	Tender publishing date: 17.09.26 14:00 Hrs Tender submission start date: 18.09.26 10:00 Hrs Tender submission end date and time: 07.10.26 14:00 Hrs Techno-commercial bid opening date: 08.10.26 12:00 Hrs.

SECTION 2 BIDDING FORMS

(This Section contains the forms which are to be completed by the Bidder and submitted as part of his Bid)

Form – 1
Document checklist

SL. No.	Document to be submitted	Submitted (Yes/No)	Name of uploaded PDF
1.	Letter of technical bid (Form-2)		
2.	Notarized Power of attorney for the person signing the tender		
3.	EMD & Tender Fee Copy		
4.	Bidders company/firm registration certificate/certificate of incorporation		
5.	GST registration & PAN		
6.	MA		
7.	Filled up Form ELI-1		
8.	Filled up Form LIT		
9.	Filled up Form FIN-1		
10.	Filled up Form FIN-2		
11.	Audited Balance sheet for last three years		
12.	Bank solvency certificate/certificate/another supporting document		
13.	Filled up Form EXP-1		
14.	Order/Contract copies establishing past experience		
15.	Completion certificate of work executed		
16.	ITR return for last three years		
17.	Documents relating to Personnel Capability of the Bidder*		
18.	Documents relating to Equipment Capabilities of the bidder**		
19.	Additional documents if any		

*The Bidder must be suitably qualified personnel to fill positions required for contract implementations.

Note: Bidders are requested to submit all required documents in e-tender portal and **physical copies of i) Letter of technical bid, ii) EMD and iii) Power of Attorney(notarized) for bid signatory to Tender inviting authority.**

(In bidder's letterhead)

Form-2
Letter of technical bid

Date:

To

The Chief General Manager (T&CC)
AEGCL, Narengi, Ghy-26.

Bid Identification No:

Sir,

I/We the undersigned, declare that, we, [insert name of the bidder] having registered office at [insert address of the registered office] having experience in Execution of similar works, have read the bid document and do not have any reservation to any of the clause therein. We offer to execute the work of:

SUPPLY, ERECTION, CONFIGURATION & COMMISSIONING OF RTU AT 132KV HAILAKANDI GSS UNDER
PANCHGRAM SUB-STATION DIVISION.

in conformity with the bid specification. Our Bid shall be valid for a period of **180 (One Hundred and Eighty Days)** days from the date fixed for the bid submission deadline and it shall remain binding upon us at any time before the expiration of that period.

Common Seal and Signature of the authorized person:

Name:

Designation:

Form – 3

Format for Bank Guarantee (Earnest money deposit)

Bank Guarantee

(To be stamped in accordance with Stamp Act)

(The non-Judicial Stamp Paper should be in the name of issuing Bank)

Bank's Name:

Address of Issuing Branch or Office:

Email id and phone no for correspondence:

Beneficiary: The Managing Director, AEGCL

Name and Address of Purchaser

Bid Security No.:

We have been informed that *name of the Bidder*. (Hereinafter called "the Bidder") intends to submit to you its bid against *Bid ref* for Hotline OPGW Stringing in 132 KV Kahilipara-Dispur Line.

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *name of Bank with address*. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *amount in figures* (*amount in words*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder's bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

BG expiry date:

BG claim date:

Bank's seal and authorized signature(s)

NOTE

1. *All italicized text is for use in preparing this form and shall be deleted from the final document. An amount is to be inserted by the Guarantor, representing the EMD amount as per bid.*
2. *This guarantee shall be valid upto 30 days beyond the bid validity.*
3. *For BG amount equal to or more than 50,000.00, BG should be signed by two bank officers to be valid.*
4. *Address of the banker with email and phone number for correspondence with banker should be clearly mentioned. Any correspondence related to the BG with the banker shall be made to the address mentioned in the BG.*

Form-ELI-1
Bidder's information Sheet

Sl. No.	Particulars	Bidders' response
1	Bidders name and registered address	
2	Bidders authorized representative, designation and contacts	
3	GST registration no.	
4	Bid validity	180 (One Hundred and Eighty) Days
5	MSME/SSI registration Udyog Adhaar/NSIC registration available?	Yes/No
6	EMD exemption claimed	Yes/No

(Signature and common seal)

Name:

Designation:

Date:

Form – LIT

Pending Litigation

Year	Matter in Dispute	Value of Pending Claim in Rupees	Value of Pending Claim as a Percentage of Net Worth

(Signature and common seal)

Name:

Designation:

Date:

Form FIN – 1
Financial Situation

Information from Balance Sheet

Financial Data for Previous 3 Years [Rupees]	Year 1 [Mention Financial Year]	Year 2 [Mention Financial Year]	Year 3 [Mention Financial Year]
Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

Note: To be supported by audited financial documents

(Signature and common seal)

Name:

Designation:

Date:

Form FIN – 2
Average Annual Turnover

Annual Turnover Data for the Last 3 Years	
Year	Amount (Rupees)
Average Annual Turnover	

The information supplied should be the Annual Turnover of the Bidder in terms of the amounts billed to clients for each year for contracts in progress or completed.

(Signature and common seal)

Name:

Designation:

Date:

**Form – EXP-1
EXPERIENCE**

Each Bidder must fill in this form

Sl. No.	Customer name	Contract No. and date	Work order value	Brief description of work	Completion date

Note: Order/contract copies are to be submitted as supporting document. Performance/ per certificate to be submitted wherever applicable.

(Signature and common seal)

Name:

Designation

SECTION 3

Purchaser's Requirements

3.1.0 SCOPE

The brief description of scope covered under this Bidding Document is furnished below:

- a) Supply, Erection & Installation the RTU complete with required hardware, software, communication modules and accessories.
- b) Configuration and integration of the RTU with existing IED's, bay controllers, meters and other substation equipment, including signal mapping, database configuration and communication with SCADA/SLDC.
- c) Testing, commissioning and end to end verification of all i/o & protection signals and communication links including troubleshooting, rectification and submission of configuration/database, test and commissioning documents.

SCHEDULE OF REQUIREMENTS

Sl .No	Description of material	U.O.M	QTY	REMARKS
	SUPPLY, ERECTION, CONFIGURATION, INTEGRATION with Control & Relay Panels, BCUs, existing communication equipment & COMMISSIONING OF RTU for telemetry data reporting & voice communication upto SLDC			The Bay, IED and Signal Details to be integrated are mentioned in Annexure – I & II to Section 3
1	132kV Hailakndi GSS	No.s	1	

Conditions:

- 1) Design and Engineering documents approvals (i.e. Drawing approvals) shall be taken from Design wing within 1st month of project schedule.
- 5) The bidder shall provide 20% Spares shall be provided as per station wise for BOQ mentioned in Specification.

ANNEXURE-I to Section 3

Bay, IED and Signal Details to be integrated

Sl. No.	Name of Feeders	No. of BCUs to be Integrated (Model-C264)	No. of relays to be Integrated (Model - P442 (Lines), P642(Transformer), P141(Dir O/C, &E/F)	No. of signals to be configured per bay
1	PGCIL Silchar-1 (132kV Silchar-Hailakandi)	1	1	12
2	PGCIL Silchar-2 (132kV Silchar-Hallakandi)	1	1	12
3	132kV Panchgram Line	1	1	12
4	132kV Dullavcherra Line	1	1	12
5	132/33kV, 50MVA ICT#1 HV Bay	1	1	12
6	132/33kV, 16MVA ICT#2 HV Bay	1	1	12
7	132/33kV, 50MVA ICT#1 LV Bay	1	1	12
8	132/33kV, 16MVA ICT#2 LV Bay	1	1	12
9	33kV Lala	1	1	12
10	33kV Spare	1	1	12
11	33kV Hailakandi	1	1	12
12	33kV R.K. Nagar	1	1	12
13	33kV Serispore (Under Construction)	1	1	12
TOTAL		13 nos. of BCU	13 nos. of Relay	154

ANNEXURE-II to Section 3

SIGNAL DETAILS to be integrated

Sl. No.	Bays	Signals	Signal Type	Remarks
1	PGCIL Silchar-1 Bay (132kV Silchar-Hailakandi)	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		LBB Operated	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
2	PGCIL Silchar-2 (132kV Silchar-Hallakandi)	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
3	132kV Panchgram Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	

4	132kV Dullavcherra Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
5	132/33kV, 50MVA, Transformer#1 HV Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Transformer Tap Position	MV	
		Transformer Isolator Status	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
6	132/33kV, 16 MVA, Transformer#2 HV Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Transformer Tap Position	MV	
		Transformer Isolator Status	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
7	132/33kV, 50MVA, Transformer#1 LV Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850
		Y ph current	(*V	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Transformer Tap Position	MV	

		Transformer Isolator Status	SPS	Edition I)
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
8	132/33kV, 16MVA, Transformer#2 LV Bay	R ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Transformer Tap Position	MV	
		Transformer Isolator Status	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
		R ph current	MV	
		Y ph current	MV	
9	33kV Lala (Under Construction)	B ph current	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
		R ph current	MV	
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
10	33kV Spare	Reactive Power	MV	Data set creation = YES, RCB creation =YES, Icd generation =YES (IEC 61850 Edition I)
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
		R ph current	MV	
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
11	33kV Hailakandi	CB Status	DPS	Data set creation =
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	

		Reactive Power	MV	YES, RCB creation =YES, lcd generation =YES (IEC 61850 Edition I)
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
12	33kV R.K. Nagar	R ph current	MV	Data set creation = YES, RCB creation =YES, lcd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	
13	33kV Serispore (Under Construction)	R ph current	MV	Data set creation = YES, RCB creation =YES, lcd generation =YES (IEC 61850 Edition I)
		Y ph current	MV	
		B ph current	MV	
		Active Power	MV	
		Reactive Power	MV	
		CB Control	DPC	
		CB Status	DPS	
		Bus Isolator Status	SPS	
		Line Isolator	SPS	
		Main-1/Main-2 Protection Operated	SPS	
		Overvoltage Operated	SPS	
		LBB Operated	SPS	

- A. Total no. of Measured Value MV Signals= 67 Signals
- B. Total no. of DPC (Double Point Controllable) Signals= 13 Signals
- C. Total no. of DPS (Double Point Signals) Signals= 13 Signals
- D. Total no. of SPS (Single Point Signals) Signals= 61 Signals

Total no. of Gateway Signals(A+B+C+D) = 154 Signal

TECHNICAL SPECIFICATIONS

A. Remote Terminal Unit (RTU)

SI No	Parameter	Value
01	Data transmission rate	10/100 Mbps for Ethernet Port (Configurable)
02	Communication Ports	- Two Ethernet ports for connectivity to master station on IEC 60870-5-104 and IEDs/Numerical relays on IEC 61850 - One port for RTU Configuration & maintenance tool. - One port for LDMS - Four RS 485 ports for polling MFMs/ Energy Meters
03	Communication protocol with Master stations	IEC 60870-5-104
04	Communication protocol with LDMS	IEC 60870-5-104
05	Communication protocol with MFMs	MODBUS/103
06	Status data transfer to Master station	By exception
07	Analog data transfer to Master station	Normally Periodic For major change -by exception
08	No. of Scan Groups supported	16
09	Separate Logical Database for each Master Station	
10	RTU shall be able to capture contact Operations	Of 20 ms or more duration
11	SOE buffer size	At least 1024 events
12	Time stamping accuracy for SOE	1 ms
13	Supporting Control of Devices	Two state & OLTC capacitors
14	Down loading of RTU database from master station	Supported
15	RTU internal clock stability	At least 1 ppm
16	Nominal Power supply voltage	48V DC
17	Compliance to Transducer Protection	
18	SPD to be provided for the surge protection	

B. Laptop:

SI No	Parameter	Value
01	Processor (CPU)	Intel Core i7 (13 th /14 th Gen)

02	RAM	16 GB DDR5 (16 GB preferred for multitasking & software tools)
03	Storage	1 TB SSD (NVMe preferred for faster data handling)
04	Display	15.6" Full HD (1920x1080) with anti-glare
05	Operating System	Windows 11 Pro (Pro version supports remote desktop and better networking tools)
06	Ports	Must include: • Minimum 2 x USB 3.0/3.1 • 1 x USB-C • 1 x RS-232 Serial Port or USB-to-Serial adapter support • Ethernet Port (RJ-45, for direct RTU connection) • HDMI (for presentations or monitoring screens)
07	Battery Life	8+ hours with fast charging support (for field use)
08	Build Quality	Rugged or semi-rugged chassis preferred
09	Weight	Ideally under 3 kg for portability in the field
10	Software Compatibility	Compatible with RTU programming tools, Modbus/IEC-101/104 drivers, and SCADA tools like Siemens TIA Portal, Schneider EcoStruxure, ABB MicroSCADA, etc.

C. DC to DC Converter

SI No	Parameter	Value
01	I/P voltage	90V DC –300VDC
02	O/P Voltage	48V DC
03	O/P Current	10 Amp
04	Over current protection	Works over 105% of rating current and recovers automatically
05	Overvoltage protection	55.2 to 67.20 V

Section 4

Bill of Quantities (BOQ)

Table -1: BoQ for communication Equipment I Transmission Equipment (Total Scope)

Sl.,No	PARTICULARS	Qty
	Supply, Erection, Commissioning, Adaptation and integration of remote terminal units, RTU along with interface cabinet, BCUs, relays, transducers, cabling, switches etc and necessary spares for 132KV Hailakandi GSS (The RTU should be able to pull data from MFMs, CMRs as well as the existing SAS	1
1.	Supply of RTU	
2.	Erection, commission, configuration of, RTU	
3.	Creating system and network configuration of the RTU	
4.	Creation of Data ports in the RTU, 1 no of IEC 61850, 2 nos of IEC 101 and 2 nos. of IEC 104	
5.	Creation of new data sets and RCBs (Buffer/ un buffered), New client mapping and creation of SCL files for RTU	
6.	Integration 13 nos. of bays/BCUs in the RTU and integrating the signals to IEC 101 & 104 protocol in the RTU (154 SIGNALS)	
7.	Io address configuration in the RTU	
8.	Configuration of a Separate/ Redundant IEC 104 port in the RTU	
9.	Integration with existing communication equipment	
10.	Gateway Signal (i/o & protection signals) validation upto SLDC (Testing & simulation)	

Section 5

Data Requirement Sheets

The following sets of Data Requirement Sheets are required to be filled up by the bidders to aid in the evaluation process. The response shall be brief and to the point and shall be supported by the printed product description and other literature. The DRS duly filled and the relevant drawings shall also be submitted during the detailed engineering along with the relevant technical brochures.

SI.NO	Item Description	AS per Technical specification		Bidder to specify
		Value	Remarks	
1	Data transmission rate	Serial (up to 38.4 kbps) - Ethernet-10 Mbps		
2	B. Communication ports	2 serial ports 3 Serial/Ethernet ports 4 Ethernet ports	(a) Master station communication ports (101) – 2 ports (b) Maintenance – 1 serial/Ethernet port (c) Local display (HMI) – 1 serial/Ethernet port (d) For interfacing Energy Meters (MODBUS) – 1 serial/Ethernet port (e) Ethernet Ports with TCP/IP – 4 Nos. (2 ports for 104 protocol, IEC 61850, modbus over TCP/IP)	
3a	Communication protocol	IEC 870-5-101,104	With Master station	
3b	Communication protocol	IEC 61850	With IED	
3c	Communication protocol	IEC 870-5-104	With Local SCADA system	
3d	Communication protocol	--	--	
4	Analog accuracy of the RTU	At least 99.8%	at 25 degree C	
5	Analog-to-digital converter resolution	16384 counts (sign plus 14 data bits)		
6	Analog input overload withstand capability	up to 150% of the input	Shall not sustain any failures to the input point	
7	Analog input impedance (for current inputs)	Less than 250Ω.		
8	RTU shall be set to capture contact operations	of 20 ms or more duration.		
9	SOE buffer size	1024 events		
10	Time stamping accuracy for SOE points	1 milli sec		
11	Supporting Control of Devices	Two state devices		
12	RTU internal clock stability	At least 1 ppm		
13	Nominal Power supply voltage	48V DC		

Data Requirement sheet for Modems (for PLCC)

The Contractor shall supply modems at RTU locations and at Control Centres suitable for interface with PLCC communication equipment's for communicating with the master station. The modems shall be stand-alone type, which include power supply module for modem and mounting rack as required.

The modems shall meet the following requirements:

- i. Use CCITT Standards including V.24, V.28.
- ii. Use frequency shift keying (FSK) modulation.
- iii. Communicate at data rates of 200, 300, 600 and 1200 bps.
- iv. Use CCITT R.38a and R.38b standard tones for the selected RTU data rate.
- v. Use both 2-wire and 4-wire communication lines.
- vi. Receive level adjustable from 0 to -40 dBm @ 600 ohms.
- vii. Transmit level adjustable from 0 to -24 dBm @ 600 ohms.
- viii. PLCC modem shall use a bandwidth upto + 4 kHz and shall accommodate multiple data channels over and above voice channels. It shall conform to CCITT-38 standards.
- ix. Modem Power supply shall be suitable for 48V DC (nominal).

Data Requirement sheet for CONTACT MULTIPLIER RELAY

Sl. No.	Description	As per Technical Specification	Bidder offering
1	Maker's Name		
2	Contact Material	Silver Alloy	
3	Contact Rating	5 Amps. @ 48 V DC / 230V AC + 10%	
4	Contact Resistance	50 M ohms max. (Initial) 100 M ohms max. (After life)	
5	Dielectric Strength		
	i) Between open contacts	500 V Rms	
	ii) Between Contact and Coil	2000 V Rms	
6	Insulation Resistance	500 M ohms @ 500 V DC, 250C	
7	Operate time at Nominal Voltage	20 milli seconds	
8	Release time at nominal Voltage	10 milli seconds	
9	Ambient temperature	0 to 70°C	
10	Life expectancy		
	(i) Mechanical	10 ⁶ operations.	
	(ii) Electrical	10 ⁵ operations at rated load	
11	Coil Resistance at nominal Voltage (DC)	30,000 ohms +10% at 250°C	
12	Type of contact multiplier	4R – 2 – 20 LD with DIN rail mounting with LED	
13	Type of mounting	Socket mounting	
14	No. of Poles	2 No. + 2 Nc.	

1. DATA REQUIREMENT SHEETS FOR LOCAL / REMOTE SELECTOR SWITCHES

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	operating voltage	110 V DC	
3	Operating current	16Amps	
4	No. of poles	4	
5	No of ways	2	
6	Ambient Temperature	0 - 60°C	
7	Size	Compact	
8	Terminal Capacity	2 x 2.5 Sq.mm	
9	Type of Mounting	Panel mounting outdoor	
10	Life Expectancy(Mechanical)	3 Million operations	
11	Locking Positions	At both positions (i.e) local and remote with facility to remove the keys. IEC 947. IS 13947	

Data Requirement sheet for INTERPOSING RELAY.

Sl. No.	Description	As per Technical Specification	Bidder Offering
	Maker's Name		
	Trip Applications:		
1	Auxiliary Power.	48 V DC	
2	Input signal from field	110 VDC	
3	Input impedance	More than 50 Kilo ohms	
4	Output signal to the RTU	48 V DC digital input module	
5	Contact mechanism	Self Reset	
6	Flag	Hand Reset	
7	Contact Make & Carry	30 A for 3 Sec. & 5A continously at 660V	
8	Operating time	Less than 10 m sec	
	Control applications:		
9	Auxiliary Power.	48 V DC	
10	Input signal from field	110 VDC	
11	Input impedance	More than 50 Kilo ohms	

12	Output signal to the RTU	48 V DC digital input module	
13	Contact mechanism	Self Reset	
14	Flag	Hand Reset	
15	Contact Make & Carry	30 A for 3 Sec. & 5A continuously at 660V	
16	Operating time	Approx. 15m sec	

Data Requirement sheet for ACTIVE POWER TRANSDUCERS (BIPOLAR)

Sl. No.	Description	As per Technical Specification	Bidder Offering
	Maker's Name		
1	Measurement	Two – Wattmeter method measuring span 0.5 to 1.5 times apparent power	
2	Input Voltage (normal)	110V, 3phase 3 wire	
3	Input Voltage Range	0 – 132V	
4	Input Current	R ph – 1A, B ph – 1A	
5	Input Current Range	0 – 132%	
6	Input Frequency	50 Hz	
7	Input Frequency Range	45 – 55Hz	
8	Burden	≤ 0.5 VA for Voltage path and 0.5 VA for current path	
9	Continuous Over load	1.2 Vr or 2.0 Ir	
10	Momentary Overload	40 x Ir for 0.5 Sec	
11	Nominal Output I	4 – 20mA	
12	No. of outputs	Dual; 4 - 20mA	
13	Output load (Rout)	$\leq 15V/ I$ out	
14	AC ripple	$\leq 1\%$	
15	Response time	≤ 1 Sec.	
16	Accuracy class	0.5	

17	Operating Temp	0 to 55°C	
18	Impulse test Voltage	5 kV Transient	
	Isolation Test Voltage	3 kV, 50Hz for 1 Min. for Voltage	
19	Auxiliary supply Nominal	48V DC	
20	Auxiliary Power supply range	42 – 58V DC	
21	Calibration range		
	i) For bipolar	– 228.63 – 0 – +228.63 Watts	
	ii) Output signal shall be 4 to 20 mA DC $\pm$ 0.5% accuracy class IEC 688.		

Data Requirement Sheet for REACTIVE POWER TRANSDUCER (BIPOLAR):

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	Measurement	Two – Wattmeter method	
3	Input Voltage (normal)	110V, 3phase 3 wire	
4	Input Voltage Range	0 – 132V	
	Input Current	R ph – 1A, B ph – 1A	
	Input Current Range	0 – 132%	
5	Input Frequency	50Hz	
6	Input Frequency Range	45 – 55Hz	
7	Burden	$\leq$ 0.5 VA for Voltage path and 0.5 VA for current path	
8	Continuous Over load	1.2 Vr or 2.0 Ir	
9	Momentary Overload	40 x Ir for 0.5 Sec	
10	Nominal Output Current	4 – 20mA	
11	No. of outputs	Dual; 4 - 20mA	
12	Output load (Rout)	$\leq$ 15V/ I out	
13	AC ripple	$\leq$ 1%	
14	Response time	$\leq$ 1Sec.	
15	Accuracy class	0.5	

16	Operating Temp	0 to 55°C	
17	Impulse test Voltage	5 KV Transient	
18	Isolation Test Voltage	3KV,50Hz for 1 Min. for Voltage	
19	Auxiliary supply Nominal	48V DC	
20	Auxiliary Power supply range	42 – 58V DC.	
21	Calibration range	- 190.52 – 0 – + 190.52 VAR.	

Data Requirement Sheet for VOLTAGE TRANSDUCERS:

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	Measuring range	0 – 132V	
3	Operating Frequency	45 – 55Hz	
4	Input burden	< 0.5 VA	
5	Continuous Over load	1.2 times rated voltage	
6	Momentary Overload	2 times for 1 Sec	
7	Nominal Output	4 – 20mA (0 - 500Ω)	
8	No. of outputs	Dual; 4.20mA	
9	Output load (Rout)	15V/ I out	
10	AC ripple	≤ 1%	
11	Response time	≤ 1Sec	
12	Accuracy class	0.5	
13	Operating Temp	0 to 55°C	
14	Isolation Test Voltage	3KV,50Hz for 1 Min	
15	Impulse test	5 kV Transient	
16	Auxiliary supply Nominal	48V DC	
17	Output is linear and Expanded in the operating Range	80% - 120% = 88-132 = 9 to 20 mA	

Data Requirement Sheet for FREQUENCY TRANSDUCERS:

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	Normal Operating Frequency	50Hz	
3	Operating Input Frequency	45 – 55Hz	
4	Input Voltage Range	0 – 132V AC	
5	Input burden	≤ 3VA	
6	Continuous Over Load	1.2 times rated voltage	
7	Momentary over load	2 times for 1 Sec	
8	Output is liner expanded	45 – 55Hz	
9	In the operating range Nominal Outp	4- 20mA	
10	No. of outputs	Dual; 4 - 20mA	
11	Output Load (Rout)	4 – 20mA, 0-500ohms	
12	Ac ripple	≤ 1%	
13	Response time	≤ 1Sec.	
14	Accuracy class	0.5	
15	Operating Temp	0 to 55°C	
16	Impulse test	5 kV Transient	
17	Isolation Test Voltage	4 kV,50Hz for 1 Min	
18	Auxiliary supply Nominal	48V DC	
19	Auxiliary supply Range	42 – 58V DC.	

Data Requirement Sheet for TRANSFORMER TAP POSITION (OLTC)

The existing tap position signals have a variable resistance output. The contractor shall supply transducers, which shall take input as variable resistance and shall give two outputs. one for RTU and other for local display to show the tap position locally. The contractor shall supply the local display unit and other hardware suitable to interface with the supplied transducer. The transducers shall have the following characteristics.

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	Input measurement range	0 to 200 ohm	
3	Output signal for RTU	+ 4 to 20 mA	
4	Output signal to local display unit		
5	Local display unit with interfacing hardware		

Data Requirement Sheets for MULTI FUNCTION TRANSDUCERS

Sl. No.	Description	As per Technical Specification	Bidder Offering
1	Maker's Name		
2	Aux Power Supply Range.	110 V DC nominal	
3	Electric Network.	3-Phase 4-Wire.	
4	CT Secondary.	1A/5A (SITE SELECTABLE)	
5	PT Secondary.	110 P-P	
6	VA Burden.	1 VA on each PT for Sensing. 0.5 VA on each CT.	
7	Nominal Input Current (I_{in}).	1A/5A.	
8	Insulation Resistance.	> 10 M Ω at 500 VDC.	
9	Momentary Overload Capacity.	20 times I_{in} for 1 sec.	
10	Input Frequency Range.	40 to 60 Hz.	
11	Communication Port.	RS 485. 2WIRE	
12	Communication Protocol.	MODBUS RTU.	
13	Dimensions (mm).	96 x 96 x 65mm.	
14	Mounting.	FLUSH Mounting.	
15	Terminals.	Suitable for 2.5 mm ² wires.	
16	Measuring Parameters.	☐ RN YN BN & RY YB BR Voltages, ☐ R Y B & N Currents, ☐ Line Frequency, ☐ Power Factor, ☐ Active, Reactive and Apparent Power. ☐ Active and Reactive Energy. (Import/Export)	

17	Display / Indications / Settings available on the Unit.	☐ yes	
18	Accuracy Class.	0.5s as per IEC 60688 & IEC 60687 (clause 21)	
19	Temperature Range.	0-55°C	
20	Response Time.	Less than 200ms	

SECTION 6

General Conditions of Supply and Erection of AEGCL

***This Section 'General Conditions of Supply and Erection of AEGCL' supplementary to Section -5 'Special Conditions of Contract' of this document and [can be downloaded from www.aegcl.co.in](http://www.aegcl.co.in).
Whenever there is a conflict, the provisions in SCC or the other Sections of this bid document shall prevail over those in the 'General Conditions of Supply and Erection of AEGCL'.***

SECTION 7
Special Conditions of Contract

7.0.0 DEFINITION OF TERMS

“Contract” means the Contract Agreement entered into between the Purchaser and the Contractor, together with the Contract Documents referred to therein; they shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly.

“Contract Documents” means the documents listed in Article 1.1 (Contract Document) of the Contract Agreement (including any amendments thereto).

“Contract Price” means the price payable to the Contractor as specified in the Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.

“Day” means calendar day

“Year” means 365 days.

“Month” means calendar month.

“Party” means the “Purchaser” or the “Contractor”, as the context requires.

“*Purchaser*” means the Assam Electricity Grid Corporation Limited (in short AEGCL) and its assignees.

The “*Contractor*” shall mean the tenderer / bidder whose tender/ bid has been accepted by the “Purchaser” and shall include the bidder’s legal representatives, successors and assignees.

“Goods” means all of the commodities, raw material, machinery and equipment, and/or other materials that the Contractor is required to supply to the Purchaser under the Contract.

“Delivery” means the transfer of the Goods from the Contractor to the Purchaser in accordance with the terms and conditions set forth in the Contract.

“Completion” means the fulfilment of the Related Services by the Contractor in accordance with the terms and conditions set forth in the Contract.

“Related Services” means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other similar obligations of the Contractor under the Contract.

The “Specification” shall mean the “Purchaser’s Requirements”.

“Contractor” means the natural person, a company/firm, or a combination of these, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the Contractor.

7.1.0 CONTRACT DOCUMENTS

- i. Subject to Article 1.2 (Order of Precedence) of the Contract Agreement, all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.

7.2.0 LEGAL JURISDITCTION

7.2.1 For any litigation arising out of the contract which cannot be resolve through mutual agreement or through Arbitration the honorable Guwahati High Court will have sole jurisdiction of all settlement.

7.3.0 LANGUAGE

7.3.1 The ruling language of the Contract shall be English.

7.4.0 SCOPE OF WORK

7.4.1 The work has to be executed as per Scope of work mentioned in section 1, 1.2.0 & Purchaser's requirement and quantity as stated in Section -3

7.4.2 **Unless otherwise stipulated in expressly limited in the *Purchaser's Requirements*, the Scope of Work/Supply shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Delivery and Completion of the Goods and Related Services as if such items were expressly mentioned in the Contract.**

7.5.0 DELIVERY SCHEDULE

7.5.1 Contract completion period shall be counted from contract commencement date. Completion of the work shall be within **90 (Ninety) days** from Contract commencement.

7.5.1 The Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Article 3 of the Contract Agreement (Contract Forms) or within such extended time to which the Contractor shall be entitled under **SCC Clause** Error! Reference source not found. hereof.

7.6.0 CONTRACT PRICE

7.6.1 The Contract Price shall be as specified in **Article 2 (Contract Price)** of the Contract Agreement.

7.6.2 Unless an escalation clause is provided for in the **Article 2 (Contract Price)**, the Contract Price shall be a firm shall not subject to any alteration, except in the event of a Change in the scope or changes in applicable tax rates or as otherwise provided in the Contract.

7.7.0 TERMS OF PAYMENT

7.7.1 The contract price shall be paid as specified in subsequent sub-clauses, if not provided in Contract Forms, Section-6.

7.7.2 The terms of payment for the works shall be as follows

- i. **Terms of Payment:** Payments would be admissible within 02(Two) months from the date of receipt of the Equipment at the mentioned field offices in full and good condition subject to availability of fund. All payments shall be made from the O/o the MD, AEGCL, Bijulee Bhawan, Paltan Bazar, Guwahati (ASSAM)-781001. The bills after due verification and passing by the consignee should be placed to the CGM (T&CC), AEGCL, Narengi for payment. All billing transactions must be in strict adherence with AEGCL payments terms and clauses. No payment shall be made unless Performance Security Deposit in the form of Bank Guarantee is furnished as per the clause.
- ii. **Payment Procedures:** Application for payment shall be made to the Consignee against complete supply of plants/ materials/ equipment at site in full and good condition. All payments

shall be released through electronic fund transfer from HQ. **Bill** should be routed through the consignee.

7.7.3 Documents required along with invoice: Following documents need to be submitted along with invoice

–

- (i) Application for payment
- (ii) Contractor's invoice showing LOA reference, Goods description, quantity dispatched, unit reclamation price, total amount (6 Copies)
- (iii) Packing List (for supply)
- (iv) Railway receipt/ LR (For supply)
- (v) Manufacturer's guarantee certificate of Quality (For supply)
- (vi) Insurance certificate (For supply)
- (vii) Physical verification certificate of material received at site by Purchaser/Purchaser's site representative (For supply).
- (viii) E-way bill

7.8.0 ADVANCE PAYMENT

No advance payment is applicable for this contract.

7.9.0 PERFORMANCE SECURITY DEPOSIT

7.9.1 The successful bidder shall have to deposit to the extent of **10% (Ten percent) of the Contract price** as performance security (Bank Guarantee), within fifteen (15) days of receipt of notification of award, duly pledged in favor of the Managing Director, AEGCL and such security deposits shall be valid up to 60 (sixty) days beyond the warranty period as per **clause 5.11.3**.

7.9.2 If the Contractor fails or neglects to observe, perform any of his obligations under the contract, it will be lawful for the "Purchaser" to forfeit either in full or in part at his absolute discretion, the security deposit furnished by the Contractor.

7.9.3 No interest shall be payable on such deposits.

7.10.0 RETENTION MONEY

7.10.1 Deduction shall be as per payment terms clause no. 5.8.2.

7.11.2 No interest shall be payable on such deductions/retentions.

7.12.0 WARRANTY

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

7.12.2 The Contractor/Manufacturer further warrants that the Goods shall be free from defects arising from any act or omission of the Contractor or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.

7.12.3 The warranty shall remain valid for a period of **12 (Rupees Twelve) months** from the date of completion of the project and accepted at the final destination as indicated in the Purchaser's Requirement. Bidder may at its discretion offer extra warranty which shall be evaluated in the mark-based evaluation system

7.12.4 If during the Period Warranty any defect is payments found, the Purchaser shall give Notice to the Contractor/Manufacture stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Contractor/Manufacturer to inspect such defects.

7.12.5 If having been notified, the Contractor/Manufacturer fails to remedy the defect within a period of 15 (fifteen) days, the Purchaser may, following notice to the Contractor/Manufacturer, proceed to do such work, and the reasonable costs incurred by the Purchaser in connection therewith shall be paid to the Purchaser by the Contractor or may be deducted by the Purchaser from any monies due the Contractor or claimed under the Performance Security.

7.13.0 QUANTITY VARIATION

7.13.1 "Purchaser" shall have the right to increase/decrease the ordered quantity by 35% within 50 days of the period of completion and the same shall be carried out at the same rates /prices and terms and conditions stipulated in the contract except in regard to completion schedule, which shall be mutually agreed upon in case of enhancement of the ordered quantity.

7.14.0 FORCE MAJEURE

7.14.1 "Force Majeure" shall mean any event beyond the reasonable control of the Purchaser or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following:

- (a) war, hostilities or warlike operations whether a state of war be declared or not, invasion, act of foreign enemy and civil war
- (b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts
- (c) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority
- (d) strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine and plague
- (e) earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves or other natural or physical disaster
- (f) shortage of labor, materials or utilities were caused by circumstances that are themselves Force Majeure.

7.14.2 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.

7.14.3 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with **SCC Clause** Error! Reference source not found..

7.15.0 EXTENSION OF TIME FOR COMPLETION

7.15.1 The Time(s) for Completion specified in the Article 3 of the Contract Agreement (Contract Forms) shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:

- (a) any Change in the scope of works by the Purchaser; which justifies extension of completion time as provided in **SCC Clause Error! Reference source not found.**; and
- (b) any occurrence of Force Majeure as provided in **SCC Clause Error! Reference source not found.**

7.15.2 Except where otherwise specifically provided in the Contract, the Contractor shall submit to the Purchaser's Representative a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Purchaser and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Purchaser's estimate of a fair and reasonable time extension, the Contractor shall be entitled to refer the matter to a Dispute Board, pursuant to **SCC Sub-Clause Error! Reference source not found.**

7.16.0 LIQUIDATED DAMAGE

7.16.1 The Contractor guarantees that it shall attain Completion of the Works within the Time for Completion specified in the Contract Agreement pursuant to **SCC Sub-Clause Error! Reference source not found.**, or within such extended time to which the Contractor shall be entitled under **SCC Clause Error! Reference source not found.** hereof.

7.16.2 If the Contractor fails to attain Completion of the Works within the Time for Completion or any extension thereof under **SCC Clause Error! Reference source not found.**, the Contractor shall pay to the Purchaser liquidated damages at the rate of **1% (one percent)** of the total Contract Price per week or part thereof delay. The aggregate amount of such liquidated damages shall in no event exceed **10% (ten percent)** of the total contract price.

However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Works or from any other obligations and liabilities of the Contractor under the Contract.

7.16.3 Once the aggregated "Liquidated damage" reaches 10% of the total contract price, the Purchaser may consider following actions:

- (a) Procure the undelivered material/ equipment and/or complete the balance works from elsewhere giving notice to the Contractor and to recover any extra expenditure incurred thereby for having to procure these materials and works at higher price, at the risk and responsibility of the Contractor; or
- (b) Cancel the contract wholly or in part and to complete the works at the full risk and cost of the Contractor and forfeit the security deposit.
- (c) Declare it as a "Contractual Failure" and act in accordance with **SCC Clause Error! Reference source not found.**

5.17.0 CONTRACTUAL FAILURE

5.17.1 In the event of contractual failure of any respect on the part of the Contractor, the Purchaser shall be entitled to operate security deposit or any deposit or any payment due to Contractor irrespective of whether his default relates to the particular orders or not towards the Purchaser's claim for damages arising out of the failure. In addition,

the Purchaser may black-list or bans the "Contractor" or pending enquiry, suspend him or take any other steps considered suitable.

5.18.0 ARBITRATION

5.18.1 If at any time, any question, disputes or differences whatsoever shall rise between the Purchaser and the Contractor, upon or in relation to or in connection with the contract, either party may forthwith give notice to the other in writing of the existence of such question of dispute or difference and the same shall be referred to the adjudication of three Arbitrators, one to be nominated by the Purchaser the other by the Contractor and the third by the President of the Institution of Engineers, India/ Retired or Sitting Judge not below the status of a retired Judge of High Court of India. If either of the parties fail to appoint its arbitrators within 60(sixty) days after receipt of notice of the appointment of arbitrators then the President of the Institution of Engineers /retired or sitting Judge of India, as the case may be, shall have the power at request of either of the parties, to appoint an Arbitrator. A certified copy of the "President" making such an appointment shall be furnished to both parties

5.18.2 The arbitration shall be conducted as per provisions of the Indian Arbitration Act, shall be held at Guwahati or any other place as may be decided by the Purchaser. The decision of the majority of Arbitrators shall be final & binding upon the parties and the expenses of the arbitration shall be paid as may be determined by the Arbitrator. However, any dispute arising out of this contract will first be discussed and settled bilaterally between Purchaser and the Contractor.

SECTION 8 - Contract Forms

This Section contains the format for Notification of Award, the Contract Agreement and Appendices to the Contract Agreement which, once completed, will form the Contract along with the Section 4 and Section 5. The Bidder should note that this Section shall be completed fully at the time of Contract signing.

Notification of Award

[date]

To: [Name and address of the Contractor]

This is to notify you that your Bid dated *[date]* for execution of the *[name of the work]* against *[Bid identification number]* for the Contract Price in the aggregate of Rupees *[amounts in numbers and words]* (as per Price Schedule), as corrected and modified in accordance with the Instructions to Bidders is hereby accepted, and it is decided to award on you the (‘ _____Name of work_____’) covering inter-alia supply of all equipment and services specified in bidding document.

You are requested to furnish the Performance Security within fifteen (15) days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section 6 (Contract Forms) of the Bidding Document.

[Authorized Signature]

[Name and Title of Signatory]

Assam Electricity Grid Corporation Limited

Attachment: 1) Price schedule (with arithmetic correction if any)
 2) Draft Contract agreement

STAMP (Rs. 100, Non-Judicial)
1. Contract Agreement
(Supply and related services Contract)

THIS AGREEMENT made the _____ day of _____, _____,
BETWEEN

Assam Electricity Grid Corporation Limited (herein after referred to as AEGCL), a corporation incorporated under the laws of Company Act, 1956 and having its registered office at First Floor, Bijuli Bhawan, Paltanbazar, Guwahati-781001, Assam and [name of Contractor], a firm/company incorporated under the laws of Company Act, 1956 and having its principal place of business at [address of Contractor] (hereinafter called "the Contractor"). [~~in case of JV insert name and address of the Lead Partner as well as other Partners~~]

WHEREAS AEGCL desires to engage the Contractor to the 'Ex-works Supply Contract' (also referred to as the 'First Contract') covering inter-alia supply of all equipment and materials for the complete execution of 'Name of the work' as detailed in the Contract Document ("the Facilities"), and the Contractor has agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

NOW IT IS HEREBY AGREED as follows:

Article 1
Contract
Documents

1.1 Contract Documents (Reference SCC Clause **Error! Reference source not found.**)

The following documents shall constitute the Contract between the Purchaser and the Contractor, and each shall be read and construed as an integral part of the Contract:

- (a) This Contract Agreement and the Appendices hereto
- (b) Letter of Price Bid and Price Schedules submitted by the Contractor
- (c) Letter of Technical Bid and Technical Proposal submitted by the Contractor
- (d) Special Conditions of Contract
- (e) General Conditions of Supply and Erection
- (f) Specification (Purchaser's Requirements)
- (g) Drawings (Purchaser's Requirements)
- (h) Other completed Bidding Forms submitted with the Letters of Technical and Price Bids
- (i) Guaranteed and other Technical Particulars (as submitted with the Bid)
- (j) Any other documents shall be added here

1.2 Order of Precedence (Reference SCC Clause **Error! Reference source not found.**)

In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract Documents are listed in Article 1.1 (Contract Documents) above.

1.3 Definitions (Reference SCC Clause **Error! Reference source not found.**)

Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the SCC.

Article 2
Contract Price and
Terms of Payment

2.1 Contract Price (Reference SCC Clause **Error! Reference source not found.**)

The Purchaser hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder. The Contract Price shall [. . . *amounts in rupees in words* . . .], [. . . *amounts in figures*. . .] as specified in Price Schedule (Grand Summary) (Appendix – 4 Price Schedule).. The Contract Price is fixed.

2.2 Terms of Payment (Reference SCC Clause **Error! Reference source not found.**)

The terms and procedures of payment according to which the Purchaser will pay the Contractor are given in the the Appendix -1 (SCC Clause 5.8.0 - Terms and Procedures of Payment).

Article 3
Commencement
Date and
Completion Time

3.1 Commencement Date (Reference SCC Clause **Error! Reference source not found.**)

The Commencement Date upon which the period until the Time for Completion of the Works shall be counted from is the date when this Contract Document is signed.

3.2 Completion Time (Reference SCC Clause **Error! Reference source not found.**)

The whole works under the scope of this Contract shall be completed within 120 (One Hundred Twenty) days from Contract Commencement Date as per completion schedule bar chart (Appendix – 2).

Article 4.
Appendices

- 4.1 The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement.
- 4.2 Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

IN WITNESS WHEREOF the Purchaser and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives the day and year first above written.

Signed by, for and on behalf of the
Purchaser

Signed by, for and on behalf of the
Contractor

[*Signature*]
[*Title*]

[*Signature*]
[*Title*]

in the presence of
[*Signature*]
[*Title*]

in the presence of
[*Signature*]
[*Title*]

APPENDICES

Appendix 1 - Performance Security

Appendix 3 - Form of Performance Security
Bank Guarantee

(To be stamped in accordance with Stamp Act)
(The non-Judicial Stamp Paper should be in the name of issuing Bank)

Beneficiary: Managing Director, AEGCL
Name and Address of Purchaser

Bank's Name:
Address of Issuing Branch or Office:
Email id and phone no for correspondence:

Bid Security No.:

WHEREAS _____ [name and address of Contractor]

(hereinafter called "the Contractor") has undertaken, in pursuance of NoA No. _____ dated _____ to execute _____ *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized/scheduled bank for the sum specified therein as security for compliance with its obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ *[amount of Guarantee]* _____ *[in words]*, such sum being payable in the currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ *[amount of Guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

BG expiry date:

BG clam date:

Bank's seal and authorized signature(s)

NOTE

1. *All italicized text is for use in preparing this form and shall be deleted from the final document. An amount is to be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract.*
2. *This guarantee shall be valid upto 30 days beyond the Warranty Period as per the Contract.*
3. *For BG amount equal to or more than 50,000.00, BG should be signed by two bank officers to be valid.*
4. *Address of the banker with email and phone number for correspondence with banker should be clearly mentioned. Any correspondence related to the BG with the banker shall be made to the address mentioned in the*

STANDARD AND COMPULSORY REQUIREMENTS FOR TRANSMISSION OF DATA FROM 132KV Hailakandi GSS TO SLDC

RTU'S

1. The remote station RTU should be suitable for integration to the existing SCADA System of control centre at SLDC .Present protocol implemented at SLDC is IEC 870-5-101.
2. The RTU should be enabled for IEC 870-5-104 protocol for integration with Main and Backup SLDCs in future (redundant system for four possible connections) and it should be capable of integrating with IED Relays over IEC 61850 protocol (client).
3. The RTU should be capable of reporting to control centres on IEC 870-5-104 protocol.
4. The RTU should be enabled for communication to any Front End Processor of any vendor and should be capable of being integrated to any SCADA system of any vendor over IEC 104 protocol.
5. The uptime of the RTU after integration to the SLDC should be 99%.

SUBSTATION AUTOMATION SYSTEMS

1. Dedicated Gateway server should be provided for transmission of data to the SLDC.
2. The Gateway server should be suitable for integration to the existing control centre at SLDC APTRANSCO. Present protocol implemented at SLDC is IEC 870-5-101.
3. The Gateway server should be enabled for IEC 870-5-104 protocol for integration with Main and Backup SLDCs in future (redundant system for four possible connections)
4. The Gateway server should be capable of reporting to SLDC on IEC 870-5-104 protocol.
5. The Gateway server should be enabled for communication to any Front End Processor of any vendor and should be capable of being integrated to any SCADA system of any vendor over IEC 104 protocol.
6. The uptime of the Gateway server after integration to the SLDC should be 99%.

