

BIDDING DOCUMENT
FOR
Design, Manufacturing, Testing & Supply of 220kV Emergency Restoration
System Tower at Central Assam Region

FUND: "AERC Fund"



(E-Tender)

**ASSAM ELECTRICITY GRID
CORPORATION LIMITED**

BID IDENTIFICATION NO:

AEGCL/MD/Tech-1027/ERS/2022/BID

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Section – 1

Instruction to Bidders

Section 1 - Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

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Section 1 - Instructions to Bidders

1.1.0 General

1.1.1. Scope of Bid

1.1.1.1. In support of the Invitation for Bids indicated in the Bid Data Sheet (BDS), the **Managing Director** on behalf of **Assam Electricity Grid Corporation Limited (AEGCL)** (hereinafter referred to as "the Purchaser" or "AEGCL"), issues this Bidding Document for the supply of Goods and Related Services incidental thereto as specified in Section 3 (Purchaser's Requirements). The name and identification nos. of this Competitive Bidding are provided in the Bid Data Sheet (BDS) attached as Appendix to ITB-1 of this Section.

1.1.1.2. **10 (Ten) months** from the date of acceptance of the purchase order or LOA/ Techo-Commercially clear order. Bidders should note that time is the essence of this bid. The bidders who cannot commit to complete the work within the stipulated time may refrain themselves.

Unless otherwise stated, throughout this Bidding Document definitions of terms shall be as prescribed in **Section 5** (Special Conditions of Contract).

1.1.2. Eligible Bidders

1.1.2.1. Subject to meeting the Qualifying Requirements, a Bidder may be a firm or company. When the bidder is a firm, the names and address of the partners should be indicated and a copy of the certificate of registration with the concerned Registrar of firms should be enclosed with the Bid.

1.1.2.2. When the bidder is a Company, the company registration document along with Memorandum of Association should be submitted.

1.1.2.3. When the bidder is an individual carrying on business in a firm's name, the tender should be submitted by the owner of the firm, who may describe himself as carrying on business in the firm's name.

1.1.2.4. Joint Venture is not allowed to participate in this bidding.

1.2.0 Contents of Bidding Document

1.2.1. Sections of Bidding Document

1.2.1.1. The Bidding Document consists of following six Sections, and should be read in conjunction with any Addenda issued in accordance with ITB **Clause 1.2.3**.

Section 1 - Instructions to Bidders (ITB) with Appendix-1 and Appendix-2

Section 2 - Bidding Forms (BDF)

Section 3 - Purchaser's Requirements (PRQ)

Section 4 - "General Conditions of Supply and Erection of AEGCL"

(This section is supplied separately)

Section 5- Special Conditions of Contract (SCC)

Section 6 - Contract Forms (COF)

1.2.1.2. *The completed Section 6 shall constitute "the Contract".*

1.2.1.3. The Invitation for Bids issued by the Purchaser is not part of the Bidding Document.

1.2.1.4. The Purchaser is not responsible for the completeness of the Bidding Document and its addenda, if they were not obtained directly from the source stated by the Purchaser in the Invitation for Bids.

- 1.2.1.5. The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.

1.2.2. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

- 1.2.2.1. A prospective Bidder requiring any clarification of the Bidding Document shall contact the Purchaser in writing at the Purchaser's address indicated in the **BDS** or raise his enquiries during the pre-bid meeting if provided for in accordance with **ITB Clause 1.2.2.4**. The Purchaser will respond to any request for clarification, provided that such request is received no later than seven (7) days prior to the deadline for submission of bids. The Purchaser's response shall be in writing with copies to all Bidders who have acquired the Bidding Document in accordance with **ITB Clause 1.2.1.4**, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under **ITB Clause 1.2.3** and **ITB Clause 1.4.2.2**.

- 1.2.2.2. The Bidder is advised to visit and examine the sites 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.

- 1.2.2.3. The Bidder 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.

- 1.2.2.4. The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the **BDS**. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 1.2.2.5. The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Purchaser not later than **one week** before the pre-bid meeting.

- 1.2.2.6. Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with **ITB Clause 1.2.1.4**. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Purchaser exclusively through the issue of an Addendum pursuant to **ITB Clause 1.2.3** and not through the minutes of the pre-bid meeting.

- 1.2.2.7. Non attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

1.2.3. Amendment of Bidding Document

- 1.2.3.1. At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Document by issuing addenda.

- 1.2.3.2. Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Purchaser in accordance with **ITB Clause 1.2.1.4**.

- 1.2.3.3. To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to **ITB Clause 1.4.2.2**.

1.3.0 Preparation of Bids

1.3.1. Cost of Bidding

- 1.3.1.1. The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

1.3.2. Language of Bid

- 1.3.2.1. The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the English language. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the English language, in which case, for purposes of interpretation of the Bid, such translation shall govern.

1.3.3. Documents Comprising the Bid

- 1.3.3.1. The Bid shall comprise two envelopes submitted simultaneously, one called the '**Technical Bid**' containing the documents listed in **ITB Clause 1.3.3.2** and the other the **Price Bid** containing the documents listed in **ITB Clause 1.3.3.3**, both envelopes must be submitted online through e-tendering portal at <http://assamtenders.gov.in>.

1.3.3.2. The Technical Bid submitted by the Bidder shall comprise the following:

- (i). Letter of Technical Bid;
- (ii). Bid Security, in accordance with **ITB Clause 1.3.9**;
- (iii). Tender Fee;
- (iv). Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with **ITB Clause 1.3.10.1**; (i.e. Notarized Power of Attorney)
- (v). Documentary evidence in accordance with **ITB Clause 1.3.5** establishing the Bidder's eligibility and qualifications to perform the contract if its Bid is accepted;
- (vi). Documentary evidence establishing in accordance with **ITB Clause 1.3.6** that the plant and services offered by the Bidder conform to the Bidding Document;
- (vii). Documents as called for in **ITB Clauses 1.1.2.1, 1.1.2.2, and 1.1.2.3**;
- (viii). Any other document required in the **BDS**.

1.3.3.3. The Price Bid submitted by the Bidder shall comprise the following:

- (a) Letter of Price Bid;
- (b) Completed schedules as required, including Price Schedules, in accordance with **ITB Clauses 1.3.4 and 1.3.7**; and
- (c) Any other document required in the **BDS**

1.3.4. Letter of Bid and Schedules

- 1.3.4.1. The Letters of Technical Bid and Price Bid, and the Schedules, and all documents listed under **ITB Clause 1.3.3**, shall be prepared using the relevant forms furnished in Section 2 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.

1.3.5. Documents Establishing the Eligibility and Qualifications of the Bidder

- 1.3.5.1. To establish its eligibility and qualifications to perform the Contract in accordance with Appendix 2 of ITB (Evaluation and Qualification Criteria), the Bidder shall provide the information requested in the corresponding information sheets included in Section 2 (Bidding Forms).

1.3.6. Documents Establishing Conformity of the Goods and Services

- 1.3.6.1. The documentary evidence of the conformity of the goods and services to the Bidding Document may be in the form of literature, drawings and data, and shall furnish:
- (a) A detailed description of the essential technical and performance characteristics of the goods and services, including the functional guarantees of the Goods, in response to the Specification;
 - (b) A commentary on the Purchaser's Specification and adequate evidence demonstrating the substantial responsiveness of the plant and services to those specifications. Bidders shall note that standards for workmanship, materials and equipment designated by the Purchaser in the Bidding Document are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalog numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the Specification.

1.3.7. Bid Prices

- 1.3.7.1. Unless otherwise specified in the **BDS** and/or Section 3 (Purchaser's Requirements), bidders shall quote for the entire scope of supply and services on a "single responsibility" basis such that the total bid price covers all the Supplier's obligations mentioned in or to be reasonably inferred from the bidding document in respect of the design, manufacture, including procurement, delivery, and completion of the entire scope.
- 1.3.7.2. Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding document. No deviation in this regard normally, shall be accepted.
- 1.3.7.3. Bidders shall give a breakdown of the prices in the manner and detail called for in the Price Schedules included in Section 2 (Bidding Forms). Separate numbered Schedules included in Section 2 (Bidding Forms) shall be used for each of the following elements. The total amount from each Schedule (1 & 2) shall be summarized in a Grand Summary (Schedule 3) giving the total bid price(s) to be entered in the Bid Form. ***In case of e-tender, the bidder shall fill up the Price schedules as provided in the online tender.***

Schedule No. 1: Supply of Goods

Schedule No. 2: Related Services (Freight & Insurance)

- 1.3.7.4. The prices shall be fixed

The prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated **as non-responsive and rejected**.

1.3.8. Period of Validity of Bids

- 1.3.8.1. Bids shall remain valid for the period specified in the **BDS** after the bid submission deadline date prescribed by the Purchaser. A bid valid for a shorter period **shall be rejected** by the Purchaser as non-responsive.
- 1.3.8.2. In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with **ITB Clause 1.3.9**, it shall also be extended for a corresponding

period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid.

1.3.9. Bid Security

- 1.3.9.1. The Bidder shall furnish as part of its bid, in original form, a Bid Security as specified in the **BDS**. The amount of Bid Security shall be as specified in the **BDS**.
- 1.3.9.2. The bid security shall be a demand guarantee, in the forms of an unconditional bank guarantee from a Scheduled or Nationalized Bank. The bid security shall be submitted using the 'Bid Security Form' included in Section 3 (Bidding Forms). The form must include the complete name of the Bidder. The bid security shall be valid for thirty days (30) beyond the original validity period of the bid, or beyond any period of extension if requested under **ITB Clause 1.3.8.2**.
- 1.3.9.3. Bids not complying with **ITB Clause 1.3.9.1** and **ITB Clause 1.3.9.2**, **shall be rejected** by the Purchaser as **non-responsive**.
- 1.3.9.4. The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.
- 1.3.9.5. The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the performance security pursuant to **ITB Clause 1.6.4**.
- 1.3.9.6. The bid security may be forfeited:
 - (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in **ITB Clause 1.3.8.2** or
 - (b) if the successful Bidder fails to:
 - (i) Sign the Contract in accordance with **ITB Clause 1.6.1**; or
 - (ii) Furnish a performance security in accordance with **ITB Clause 1.6.2**.

1.3.10. Format and Signing of Bid

- 1.3.10.1. The Bidder shall prepare one original of the Technical Bid and one original of the Price Bid comprising the Bid as described in **ITB Clause 1.3.3**
- 1.3.10.2. The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the **BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialised by the person signing the bid.
- 1.3.10.3. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialised by the person signing the bid.

1.4.0 Submission and Opening of Bids

1.4.1. On-line submission of Bids

- 1.4.1.1. The Technical as well as Price Bid should be submitted through online portal only.
- 1.4.1.2. For Technical bid, all forms and supporting documents as required by **ITB Clause 1.3.2** and duly signed and stamped as per **ITB Clause 1.3.10** are to be uploaded to the e-tendering portal. The documents are to be uploaded in pdf format and each file should not exceed 5 MB in size. In case a document is more than 5 MB in size, the same may be split to make the size below 5 MB.

- 1.4.1.3. The Price Bid must be submitted in the Price Schedule provided on the e-tendering portal as per the online format.

1.4.2. Deadline for Submission of Bids

- 1.4.2.1. Bids shall be received **ONLINE** only on or before the date and time indicated in the **BDS**.
- 1.4.2.2. The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with **ITB Clause 1.2.3**, 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.

1.4.3. Late Bids

- 1.4.3.1. The e-tendering portal shall allow the bidders to submit bids up to the date and time specified in **ITB Clause 1.4.2** as per Server Clock. Bidders are advised to submit their bids well in advance of the deadline for submission of bids to avoid any last minute difficulties.

1.4.4. Withdrawal, Substitution, and Modification of Bids

- 1.4.4.1. E-tendering portal shall allow modification of bids any time before the deadline for Bid Submission. A bidder may withdraw its bid, by sending a written notice duly signed by an authorized representative, and shall include a copy of the authorization in accordance with **ITB Clause 1.3.10.1**, Notices must be received by the purchaser prior to the deadline prescribed for submission of bids, in accordance with **ITB Clause 1.4.2**.
- 1.4.4.2. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Technical Bid or any extension thereof.

1.4.5. Bid Opening

- 1.4.5.1. The Purchaser shall conduct the opening of Technical Bids through online process at the address, date and time specified in the BDS. The Bid Opening Committee shall open the bids received online in the presence of Bidders' designated representatives who choose to attend. The Price Bids will remain unopened until the specified time of their opening.
- 1.4.5.2. First, physical envelopes marked "WITHDRAWAL" shall be opened and read out and the corresponding bid shall not be considered/ rejected with comments. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal duly signed by an authorized representative and is read out at bid opening.
- 1.4.5.3. All envelopes holding the Technical Bids shall be opened one at a time, and the following read out and recorded
- a) the name of the Bidder;
 - b) the presence of a Bid Security, if required; and
 - c) any other details as the Purchaser may consider appropriate.

Only Technical Bids and alternative Technical Bids read out and recorded at bid opening shall be considered for evaluation. No bid shall be rejected at the opening of Technical Bids except for withdrawn bids.

- 1.4.5.4. The Purchaser shall prepare a record of the opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal and alternate proposals and the presence or absence of a bid security or a bid securing declaration, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.

- 1.4.5.5. At the end of the evaluation of the Technical Bids, the Purchaser will invite bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Purchaser. Bidders shall be given reasonable notice of the opening of Price Bids.
- 1.4.5.6. The Purchaser shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders' representatives who choose to attend at the address, date and time specified by the Purchaser. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.
- 1.4.5.7. All envelopes containing the Price Bids shall be opened one at a time and the following read out and recorded:
- a) the name of the Bidder;
 - b) the Bid Prices, including any discounts and alternative offers; and
 - c) any other details as the Purchaser may consider appropriate.
- Only Bid Prices and discounts read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.
- 1.4.5.8. The Purchaser shall prepare a record of the opening of Price Bids that shall include, as a minimum: the name of the Bidder, the Bid Price (per lot if applicable), any discounts. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.

1.5.0 Evaluation and Comparison of Bids

1.5.1. Confidentiality

Information relating to the evaluation of bids and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with such process.

- 1.5.1.1. Any attempt by a Bidder to influence the Purchaser in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
- 1.5.1.2. Notwithstanding **ITB Clause 1.5.1.1**, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it should do so in writing duly signed by an authorized representative.

1.5.2. Clarification of Bids

- 1.5.2.1 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 or submission of any shortfall documents. However, the following may be noted in this regard:

- Any clarification submitted by a Bidder that is not in response to a request by the Purchaser shall not be considered.
- All **clarification or shortfall documents shall be submitted through the e-tendering portal only**. No other means of communication shall be considered unless specified otherwise.
- No change in the substance of 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, in accordance with **ITB Clause 1.5.9**.

- 1.5.2.2. If a Bidder does not provide clarifications/shortfall documents of its bid by the date and time set in the Purchaser's request, its bid may be rejected.

1.5.3. Deviations, Reservations, and Omissions**1.5.3.1.** 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.

1.5.4. Preliminary Examination of Technical Bids**1.5.4.1.** The Purchaser shall examine the Technical Bid to confirm that all documents and technical documentation requested in **ITB Sub-Clause 1.3.3.2** 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.****1.5.4.2.** The Purchaser shall confirm that the following documents and information have been provided both as hardcopies and alongwith Technical Bid in the e-tendering portal. If hardcopies of any of these documents or information are not submitted by the bidder within the specified time (**i.e., at least 1 (one) hour prior to bid submission deadline**), **the offer shall be rejected.**

- a) Letter of Technical Bid;
- b) Written confirmation of authorization to commit the Bidder (i.e. Notarized Power of Attorney);
- c) Bid Security; and
- d) Evidence of online submission of Tender Fee

1.5.4.3. Preliminary Requirement of Opening of Technical BIDS

Bidder should submit hard copies of the documents mentioned above in clause 1.5.4.2 (a), (b), (c) and (d) in a physical envelope one day prior to bid submission deadline. Techno-commercial bids shall not be opened if these documents are not submitted in hard copy one day prior bid submission deadline.

1.5.5. Responsiveness of Technical Bid**1.5.5.1.** The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in **ITB Clause 1.3.3.****1.5.5.2.** A substantially responsive Technical 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.

1.5.5.3. The Purchaser shall examine the technical aspects of the Bid submitted in accordance with **ITB Clause 1.3.6**, Technical Proposal, in particular to confirm that all requirements of Section 3 (Purchaser's Requirements) have been met without any material deviation or reservation.

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

1.5.6. Nonmaterial Nonconformities

1.5.6.1. Provided that a Bid is substantially responsive, the Purchaser may waive any nonconformity in the bid that does not constitute a material deviation, reservation or omission.

1.5.6.2. Provided that a Bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

1.5.6.3. Provided that a Bid is substantially responsive, the Purchaser shall rectify nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in **Appendix-2 of ITB (Evaluation and Qualification Criteria)**.

1.5.7. Detailed Evaluation of Technical Bids

1.5.7.1. The Purchaser will carry out a detailed technical evaluation of the bids not previously rejected as being substantially non-responsive, in order to determine whether the technical aspects are in compliance with the Bidding Document. In order to reach such a determination, the Purchaser will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders, taking into account the following:

- a) overall completeness and compliance with the Purchaser's Requirements; deviations from the Purchaser's Requirements; conformity of the goods and services offered with specified performance criteria; suitability of the goods and services offered in relation to the environmental and climatic conditions prevailing at the site; and quality, function and operation of any process control concept included in the bid. The bid that does not meet minimum acceptable standards of completeness, consistency and detail will be rejected for non-responsiveness;
- b) type, quantity and long-term availability of mandatory and recommended spare parts and maintenance services; and
- c) other relevant factors, if any, listed in **Appendix-2 of ITB (Evaluation and Qualification Criteria)**.

1.5.8. Eligibility and Qualification of the Bidder

1.5.8.1. The Purchaser shall determine to its satisfaction during the evaluation of Technical Bids whether a Bidder meets the eligibility and qualifying criteria specified in **Appendix to ITB-2 (Evaluation and Qualification Criteria)**.

1.5.8.2. The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to **ITB Clause 1.3.5**.

1.5.8.3. ***An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result into the disqualification of the Bid, in which event the Purchaser shall not open the Price Bid of the Bidder.***

1.5.9. Correction of Arithmetical Errors

1.5.9.1. During the evaluation of Price Bids, the Purchaser shall correct arithmetical errors on the following basis:

- a) where there are errors between the total of the amounts given under the column for the price breakdown and the amount given under the Total Price, the former shall prevail and the latter will be corrected accordingly;
 - b) where there are errors between the total of the amounts of Schedule Nos. 1 and 2, and the amount given in Schedule No. 3 (Grand Summary), the former shall prevail and the latter will be corrected accordingly; and
 - c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetical error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- 1.5.9.2.** If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be ***disqualified and its bid security may be forfeited.***
- 1.5.10. Evaluation of Price Bids**
- 1.5.10.1.** The Purchaser shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be used.
- 1.5.10.2.** To evaluate a Price Bid, the Purchaser shall consider the following:
- a) the bid price, including taxes, as quoted in the Price Schedules;
 - b) price adjustment for correction of arithmetical errors in accordance with ***ITB Clause 1.5.9.1***; and
 - c) the evaluation factors if any indicated in Appendix 2 (Evaluation and Qualification Criteria).
- 1.5.10.3.** If price adjustment is allowed in accordance with ***ITB Clause 1.3.7.5***, the estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.
- 1.5.11. Comparison of Bids**
- 1.5.11.1.** The Purchaser shall compare all substantially responsive Bids to determine the lowest evaluated bid, in accordance with ***ITB Clause 1.5.10.2***.
- 1.5.12. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids**
- 1.5.12.1.** 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.
- 1.6.0 Award of Contract**
- 1.6.1. Award Criteria**
- 1.6.1.1.** The Purchaser shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be eligible and qualified to perform the Contract satisfactorily.
- 1.6.2. Notification of Award**
- 1.6.2.1.** Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Purchaser will pay the Contractor in consideration of the execution and completion of the plant and services (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price").

1.6.2.2. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

1.6.3. Signing of Contract

1.6.3.1. Within **seven (07) days** of receipt of the Letter of Acceptance, the successful Bidder shall be required to sign the Contract Agreement.

1.6.3.2. The contract signing shall take place at the premises of the Purchaser.

1.6.4. Performance Security

1.6.4.1. Within **seven (07)** days of the receipt of notification of award from the Purchaser, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, using for that purpose the Performance Security Form included in **Appendix – 4, Section 6 (Contract Forms)**, or another form acceptable to the Purchaser.

1.6.4.2. Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

APPENDIX TO ITB – 1

Bid Data Sheet (BDS)

A. Introduction

ITB 1.1.1.1	<p>The number of the Invitation for Bid (IFB) is: AEGCL/MD/Tech-1027/ERS/2022/31</p> <p>The Purchaser is: Assam Electricity Grid Corporation Limited.</p> <p>The name of the Bid is: “Design, Manufacturing, Testing & Supply of 220kV Emergency Restoration System Tower at Central Assam Region”</p> <p>Bid Identification Number: AEGCL/MD/Tech-1027/ERS/2022/BID</p>
ITB 1.2.2.1	<p>For <u>clarification purposes</u> only, the Purchaser's address is:</p> <p>Attention: The Chief General Manager (PP&D), AEGCL Street Address: Bijulee Bhawan, Paltanbazar Floor/Room number: First Floor City: Guwahati PIN Code: 781001 Country: India Telephone: +91 361 2739520 Facsimile number: +91 361 2739513 Electronic mail address: <u>cgm.ppd@aegcl.co.in</u></p>
ITB 1.2.2.4	<p>Purchaser may invite intending Bidders to a pre-bid meeting, if Purchaser feels it is necessary. The date and time of such pre-bid meeting shall be intimated to intending bidders in due course of time.</p>
ITB 1.3.3.2(h)	<p>The Bidder shall submit with its Technical Bid the following additional documents:</p> <ol style="list-style-type: none"> 1. Guaranteed and other Technical Particulars as required in Section 3, 'Purchaser's Requirements' 2. Type Test Certificates
ITB 1.3.7.1	<p>Unless otherwise specifically indicated in the Section 3 (Purchaser's Requirements), bidders shall quote for the entire plant and services on 'single responsibility basis'.</p>
ITB 1.3.7.4	<p>The prices quoted by the Bidder shall be FIXED for entire period of the Contract.</p>

ITB 1.3.8.1	The bid validity period shall be 180 (one hundred eighty) days.
ITB 1.3.9.1	The Bidder shall furnish a bid security amounting to Rs. 6,00,000.00
ITB 1.3.10.1	<p>The bidding is through E-tendering portal and received online, Bidders should submit the following documents in hard copy in a separate envelop one day prior to bid submission deadline:</p> <ul style="list-style-type: none"> a) Letter of Technical Bid; b) Written confirmation of authorization to commit the Bidder; c) Bid Security; d) Evidence of online submission of Tender Fee. <p>However, a bidder has to submit any document in hard copy if asked by the Purchaser.</p>
ITB 1.3.10.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of a written confirmation of Authorization to sign on behalf of the Bidder shall consist of Notarized Power of Attorney .

ITB 1.4.2.1	<p>For <u>bid submission purposes</u> only, (E-tenders shall be accepted through online portal http://assamtenders.gov.in only) The purchaser's address is: Attention: The Chief General Manager (PP&D), AEGCL Street Address: Bijulee Bhawan, Paltanbazar Floor/Room number: First Floor City: Guwahati PIN Code: 781001 The deadline for bid submission is Date: 03.03.2023 Time: 12.00 Hours</p>
ITB 1.4.5.1	<p>The bid opening of Technical Bids shall take place at <u>AEGCL, 1st Floor, Bijulee Bhawan, Paltanbazar, Guwahati-01</u> Date: 04.03. 2023 Time: 14.00 Hours</p>

APPENDIX TO ITB - 2

Evaluation and Qualification Criteria (ECQ)

This Appendix contains all the criteria that the Purchaser shall use to evaluate bids and qualify Bidders. In accordance with ITB 1.5.7 and ITB 1.5.8, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 2 (Bidding Forms).

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1. Evaluation

1.1 Technical Evaluation

In addition to the criteria listed in ITB 1.5.7.1 (a) – (c), no other factor shall apply.

1.2 Economic Evaluation

Any adjustments in price that result from the procedures outlined below shall be added, for purposes of comparative evaluation only, to arrive at an “Evaluated Bid Price.” Bid prices quoted by bidders shall remain unaltered.

1.2.1 Quantifiable Deviations and Omissions

Quantifiable Deviations and Omissions from the contractual obligations: No financial assessment shall be made by the Purchaser for deviations and omissions from the requirements of the Bidding Document. All such deviations, omissions or reservations shall be dealt with in accordance with ITB Clauses 1.5.5.2, 1.5.5.3, 1.5.5.4, 1.5.6.1, 1.5.6.2, 1.5.6.3, 1.5.7.1(a) and 1.5.9.

1.3 Time Schedule

10 (Ten) months from the date of issue of LOA. Bids not meeting the above time schedule shall be rejected. However, no credit will be given for earlier completion.

1.4 Specific additional criteria

In addition to the above, no additional criteria shall be considered for evaluation of Bids.

2 Qualification

Qualification of bidder will be based on meeting the minimum pass / fail criteria specified below

2.1 Eligibility Requirements

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	At Least One Partner	
Requirement of document as per ITB Sub-Clause 1.1.2	Must meet requirement	Not applicable	Not applicable	Not applicable	Required documents as per ITB Sub-Clause 1.1.2

2.2 Pending Litigation

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	

Using the 'Form LIT – 1' (Section 4, 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.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form LIT – 1
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2.3 Financial Situation

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	

2.3.1 Historical Financial Performance

Submission of audited balance sheets or, if not required by the law of the Bidder's country, other financial statements acceptable to the Purchaser, for the last 3 (three) years to demonstrate the current soundness of the Bidders financial position and its prospective long-term profitability. As a minimum, a Bidder's net worth calculated as the difference between total assets and total liabilities should be positive.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN - 1 with attachments
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2.3.2 Average Annual Turnover

Minimum average annual turnover of Rs. 90,00,000.00 (Rupees Ninety Lakh only) calculated as total certified payments received for contracts in progress or completed, within the last 3 years .	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN – 2
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2.3.3 Financial Resources/Cash Flow

Using Forms FIN – 3 and FIN - 4 in Section 4 (Bidding Forms) the 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: (1) the following cash-flow requirement, Rs.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN – 3
--	-----------------------	----------------	----------------	----------------	--------------

1,20,00,000.00 (Rupees One Crore Twenty Lakhs only), and (2) the overall cash flow requirements for this contract and its current works commitment.					
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2.4 Experience

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		Submission Requirements
		All Partners Combined	Each Partner	

2.4.1 General Experience

Experience as a supplier in Power Sector for last 5 (five) years prior to the bid submission deadline	Must meet requirement	Not applicable	Not applicable	Not applicable	Form EXP – 1
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2.4.2 Specific Experience

The bidder must have supplied 132 kV (or above voltage class) various equipment's in different utilities of Power Sector under operation for at least three years as on the date of Bid opening. The bidder should furnish a list of such works executed along with clients' performance certificates to substantiate the requirement of this Clause.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form EXP – 2
--	-----------------------	----------------	----------------	----------------	--------------

2.4.3 Subcontractors/Manufacturers

(If Bidder is a manufacturer or proposes to appoint subcontractor for supply of equipment required to be supplied as per this bid, he or his subcontractor must also meet the requirements of the clause 2.4).

Subcontractors/manufacturers for the listed major items of supply must meet the requirements mentioned either in clause 2.4.4 or 2.4.5.

2.4.4 Subcontractors/manufacturers for the following major items of supply must meet the following minimum criteria, herein listed for that item.

Failure to comply with this requirement will result in rejection of the subcontractor/manufacturer.

SI No	Description	Minimum Criteria to be met
1	Manufacture of ERS of 132kV and above voltage level	The Bidder or if the Bidder is not a manufacturer of listed items his supplier must have designed, manufactured; type tested, supplied listed equipment, which are in successful operation for at least three (3) years as on the date of bid opening. The bidder/manufacturer should list such works executed to substantiate the requirement of this Clause using Form EXP-2.

NOTE: The bidder complying above requirements must submit with his bid the following documents to substantiate the requirements of this clause:

- (i) Manufacturer's authorization, using the form provided in Section 2 (Bidding Forms). The Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements of bidding document and meets the minimum criteria listed above for that item.
- (ii) Full type test certificate. (Validity of type tests shall be as per latest relevant CEA guidelines)
- (iii) Manufacturer's experience list
- (iv) GTP of the equipment to be supplied.
- (v) Recent performance certificate from past clients. Performance & Completion certificates should not be older than 5 (three) years on the date of opening of the technical bid.

2.4.5 The Bidder may offer equipment's from manufacturers mentioned against item as per specifications in the Bidding Document.

NOTE: The bidder complying above requirements must submit with his bid the manufacturer's authorization and GTP, using the form provided in Section 2 (Bidding Forms), showing that the Bidder has been duly authorized by the manufacturer or producer of the related plant and equipment or component to supply and install that item in the Employer's establishment. The Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements of bidding document and meets the minimum criteria listed above for that item.

Section –2

BIDDING FORMS

Section 2 - Bidding Forms

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

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Form – 1
Document checklist

SL. No.	Document to be submitted	Submitted(Yes/No)	Name of uploaded pdf
1.	Letter of technical bid		
2.	Notarised Power of attorney for the person signing the tender		
3.	Bank Gurantee for EMD		
4.	Bidders company/firm registration certificate/certificate of incorporation		
5.	Manufacturer's authorization (Form MA) (Applicable for bidder who is not manufacturer of offered product)		
6.	GST registration		
7.	Filled up Form ELI-1		
8.	Filled up Form LIT		
9.	Filled up Form FIN-1		
10.	Filled up Form FIN-2		
11.	Filled up Form FIN-3		
12.	Filled up Form FIN-4		
13.	Audited Balance sheet for last three years		
14.	Bank solvency certificate/ other supporting document		
15.	Filled up Form EXP-1		
16.	Filled up Form EXP-2		
17.	Order/Contract copies establishing supplying offered product in past		
18.	Performance certificate of offered product		
19.	Document establishing manufacturing unit details		
20.	GTP and drawings		
21.	Type test reports		
22.	Completion schedule bar chart		
23.	Additional documents if any		

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.**

1 Letter of Technical Bid

[Bidder's Letterhead]

Date:

Bid Identification No (s):

:

:

:

Invitation for Bid No.:

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 1.2.3;
- (b) We offer to design, manufacture, test and deliver, in conformity with the Bidding Document the following Goods and Related Services:
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period

Name

In the capacity of

Signed

.....

Duly authorized to sign the Bid for and on behalf of

Date

.....

2 Letter of Price Bid**(NOT REQUIRED FOR E-TENDERING)**

[Bidder's Letterhead]

Date:

Bid Identification No:

Invitation for Bid No.:

To:.....

We, the undersigned, declare that:

- (i). We have examined and have no reservations to the Bidding Document, including Addenda issued in accordance with Instructions to Bidders (ITB) 1.2.3;
- (ii). We offer to design, manufacture, test and deliver in conformity with the Bidding Document the following Goods and Related Services:;
- (iii). The total price of our Bid is the sum of:,
- (iv). Discount offered (if any) for (i) Supply (Schedule 1)%, and (ii) Related Services (Schedule 2, F& I) %
- (v). Our bid shall be valid for a period of days from the date fixed for the submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (vi). If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (vii). We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (viii). We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

3 Price Schedules

PREAMBLE

General

1. The Price Schedules are divided into separate Schedules as follows:

Schedule No. 1:	Supply of Goods
Schedule No. 2:	Related Services (Freight & Insurance)
Schedule No. 3:	Grand Summary
2. The entered rates and prices shall be deemed to cover the full scope as specified in the bidding document, including overheads and profit.
3. If bidders are unclear or uncertain as to the scope of any item, they shall seek clarification in accordance with **ITB 1.2.2** prior to submitting their bid.

Pricing

1. Prices shall be excluding GST.
2. Prices shall be filled in indelible ink/ on-line and any alterations necessary due to errors, etc., shall be initialed by the Bidder if asked for hardcopy.
3. Bid prices shall be quoted on-line in the manner indicated in Schedules.
4. As specified in the Bid Data Sheet and Special Conditions of Contract, prices shall be fixed and firm for the duration of the Contract, or prices shall be subject to adjustment in accordance with the corresponding Appendix (Price Adjustment) to the Contract Agreement.
5. Prices given in the Schedules against each item shall be for the scope covered by that item as detailed in Section 6 (Purchaser's Requirements) or elsewhere in the Bidding Document.

NOTE: For E-Tendering these forms are indicative only. All prices to be filled in the price schedule provided in the e-tendering portal only.

Schedule No. 1 – Supply of Goods

Sl. No.	Item Description	Quantity	Units	TOTAL AMOUNT In Words
1	2	4	5	55
1	Design, Manufacturing, Testing & Supply of IEEE 1070-2006 transmission line Emergency Restoration System along with a suitable transportation vehicle of the ERS Tower.			
1.1	Design, Manufacturing, Testing & Supply of IEEE 1070-2006 transmission line Emergency Restoration System along with a suitable transportation vehicle of the ERS Tower as per Scope, Purchaser's Requirement (Section-3) and BOM (Section-7) of the bid document.	2.00	No	
Total in Figures				

Name of the Bidder :

Signature of the Bidder:

1. All amounts shall be in Rupees
2. Prices shall be exclusive of taxes

Schedule No. 2 - Freight & Insurance

Sl. No.	Item Description	Quantity	Units	TOTAL AMOUNT In Words
1	2	4	5	55
1	Design, Manufacturing, Testing & Supply of IEEE 1070-2006 transmission line Emergency Restoration System along with a suitable transportation vehicle of the ERS Tower.			
1.1	Design, Manufacturing, Testing & Supply of IEEE 1070-2006 transmission line Emergency Restoration System along with a suitable transportation vehicle of the ERS Tower as per Scope, Purchaser's Requirement (Section-3) and BOM (Section-7) of the bid document.	2.00	No	
Total in Figures				

Name of the Bidder :

Signature of the Bidder.....

1. All amounts shall be in Rupees
2. Prices shall be exclusive of taxes

4 Form of Bid Security

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, and Address of Issuing Branch or Office**.....

Beneficiary: **Name and Address of Purchaser**

Date:

Bid Security No.:

We have been informed that **name of the Bidder**. (Hereinafter called "the Bidder") has submitted to you its bid dated (Hereinafter called "the Bid") for the execution of **Name & Identification No of Bid** under Invitation for Bids No. ("the IFB").

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**. 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.

.....**Bank's seal and authorized signature(s)**

Note: All italicized text is for use in preparing this form and shall be deleted from the final document

5 Contract Execution Schedule

The Bidder shall indicate here his proposed Contract Execution Schedule if the contract is awarded to him. The Schedule shall match with the time for completion specified.

6 Bidders Qualification

To establish its qualifications to perform the contract in accordance with Appendix 2 of ITB (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

6.1 Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address	
Bidder's authorized representative (Name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents. <input type="checkbox"/> 1. In case of single entity/firm, documents, in accordance with ITB 1.1.2.1. <input type="checkbox"/> 2. In case of single Company, documents, in accordance with ITB 1.1.2.2.	

6.2 Form LIT - Pending Litigation

Each Bidder must fill in this form

Pending Litigation			
<input type="checkbox"/> No pending litigation in accordance with Criteria 2.1.3 of Appendix 2 of ITB (Evaluation and Qualification Criteria)			
<input type="checkbox"/> Pending litigation in accordance with Criteria 2.1.3 of Appendix 2 of ITB (Evaluation and Qualification Criteria)			
Year	Matter in Dispute	Value of Pending Claim in Rupees	Value of Pending Claim as a Percentage of Net Worth

6.3 Form FIN - 1: Financial Situation

Each Bidder must fill in this form

Financial Data for Previous 3 Years [Rupees]		
Year 1:	Year 2:	Year 3:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

☐ Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last three years, as indicated above, complying with the following conditions.

- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
- Historic financial statements must be audited by a certified accountant.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

6.4 Form FIN - 2: Average Annual Turnover

Each Bidder must fill in this form

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.

6.5 Form FIN – 3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total cash flow demands of the subject contract or contracts as indicated in **Appendix 2 of ITB** (Evaluation and Qualification Criteria) with necessary supporting documents.

Financial Resources		
No.	Source of financing	Amount (Rupees)
1		
2		
3		

6.6 Form EXP – 1: General Experience

Each Bidder must fill in this form

General Experience				
Starting Month Year	Ending Month Year	Years	Contract Identification and Name Name and Address of Purchaser Brief Description of the Works Executed by the Bidder	Role of Bidder

6.7 Form EXP – 2: Specific Experience

Fill up one (1) form per contract.

Contract of Similar Size and Nature	
Contract No. of	Contract Identification
Award Date	Completion Date
Role in Contract	<input type="checkbox"/> Contractor <input type="checkbox"/> Subcontractor
Total Contract Amount	(Rupees)
Purchaser's Name Address Telephone/Fax Number E-mail	
Description of the similarity in accordance with Criteria 2.4.2 /2.5 of Section 3	
1. Brief Specification of Goods supplied 2. Date of commissioning.	
Attached are copies of the following original documents. <input type="checkbox"/> 1. Type Test Certificates. (Not older than five years on the date of Technical Bid opening) <input type="checkbox"/> 2. Recent performance certificates (Not older than five years on the date of Technical Bid opening) <input type="checkbox"/> 3. Copy of the Contract Document.	

7 Manufacturer's Authorization

[The Bidder, in pursuant to ECQ Clause 2.1.2 (if applicable) shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. Please refer to notes at bottom]

(Manufacturer's Letterhead)

Date: **[insert date (as day, month and year) of Bid Submission]**

Bid No.: **[insert number of bidding process]**

To: [Insert: full name of Purchaser]

WE **[insert: name of Manufacturer]** who are established and reputable manufacturers of **[insert: name and/or description of the Goods]** having production facilities at **[insert: address of factory]** do hereby authorize **[insert: name & address of Bidder]** (hereinafter, the "Bidder") to submit a bid the purpose of which is to provide the following goods, manufactured by us, and to subsequently negotiate and sign the Contract:

1. _____
2. _____
- _____

We hereby extend our full guarantee and warranty in accordance with **Clause 5.11.0** of the Special Conditions of Contract, for the above specified Goods supporting the Supply of specified Goods and fulfilling the Related Services by the Bidder against this Bidding Documents, and duly authorize said Bidder to act on our behalf in fulfilling these guarantee and warranty obligations. We also hereby declare that, we will furnish the Performance Guarantee in accordance with **SCC Clause 5.9.2**. Further, we also hereby declare that we and, **[insert: name of the Bidder]** have entered into a formal relationship in which, during the duration of the Contract (**including related services and warranty / defects liability**) we, the Manufacturer or Producer, will make our technical and engineering staff fully available to the technical and engineering staff of the successful Bidder to assist that Bidder, on a reasonable and best effort basis, in the performance of all its obligations to the Purchaser under the Contract.

For and on behalf of the Manufacturer

Signed: _____

Date: _____

In the capacity of **[insert: title of position or other appropriate designation]** (and this should be signed by a person having the power of attorney to legally bind the manufacturer).

Date:

Place:

(Signature).....

(Printed Name)

(Designation).....

(Common Seal)

Notes:

1. The letter of Undertaking should be on the letterhead of the Manufacturer and should be signed by a person competent and having **Power of Attorney to sign on behalf of the Manufacturer** (to be attached with this MA) to legally bind the Manufacturer. It shall be included by the bidder in its bid.
2. **Above undertaking shall be registered or notarized so as to be legally enforceable.**

Section - 3

Purchaser's Requirements

Section 3 - Purchaser's Requirements

This Section contains the Technical Requirements and supplementary information that describe the Goods and Related Services

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Section 3

Purchaser's Requirements

Part I

1.0 General Information

AEGCL intends to procure Emergency Restoration System (ERS) along with associated hardware polymer insulators, anchors, guy wires, equipment, fittings etc for effectively restoring up to 220 kV Double circuit, with Twin Moose transmission lines in event of their getting damaged due to storms, vandalism or other circumstances.

2.0 Table of Compliance

The tenderer shall furnish all guaranteed technical particulars as per Specification. Tender lacking in this regard will not be considered.

3.0 Scope

- This specification covers the design, manufacturing, testing and supply of ERS suitable for emergency restoration of Double circuit with twin conductor up to the destination stores along with all associated hardware, Polymer insulators, anchors, guy wires, equipment, fittings etc. as per detailed technical requirements stipulated in Part-II.
The materials covered under this Specification shall be supplied complete in all respects, including all parts/items/fittings/components required for their efficient performance and satisfactory maintenance under various operating conditions. This shall generally comprise of all required material parts / items/ equipment required for erecting 2 numbers of ERS towers to bypass fallen/damaged 220/132 kV, double circuit transmission towers having twin ACSR/AAAC Moose conductor, AAAC/ACSR Single/twin Zebra, AAAC/ACSR Single/twin Deer, AAAC/ACSR Single/twin Panther, HTLS ACCC Casablanca, HTLS ACCC Drake. Such parts/items/fittings/components that are necessary for the satisfactory operation of the system shall be deemed to be within the scope of the contract, whether specifically included or not in the specification or in the contract schedules. The supplier shall not be eligible for any extra charges for such parts/items/fittings/components etc.
- Supply of a suitable vehicle of TATA or Mahindra make for transportation of 2 No's of complete ERS Towers along with all accessories from the store.
- Approval of the model of vehicle from the purchaser.
- Registration, Insurance & necessary Permits, Taxes etc. of the Vehicle should be in the scope of the contractor.

3.2 The supply of following complete sets of ERS is under the scope of the Bidders.

ERS sets suitable for emergency restoration of 220/132kV Double circuit lines with single/twin conductors.

The ERS sets to be offered by the Bidders shall be capable of restoring above transmission lines shall generally include but not limited to.

- a) Light weight modular aluminum column sections of the basic column section are 6.4 mtrs (21 ft) with other column heights of 4.27 mtrs (14ft) & 2.13 mtrs (7ft) height. These combinations allow considerable flexibility in building structures for most standard transmission voltages (220kV). These lengths maintain the same diagonal spacing for ease of the climbing. The entire column assembly is welded for consistency, strength and to eliminate the loss of bolted members.
- b) Foundation base assemblies.
- c) Gimbal joint assemblies.

- d) Box section assemblies.
- e) Polymer station post insulators with 220kV corona ring.
- f) Polymer suspension insulators with 220kV corona ring.
- g) Guy assemblies.
- h) Anchor Assemblies for normal soil, low density soil and rocks.
- i) Gin pole.
- j) Tirfor grips.
- k) Rachets.
- l) Anchor installation tools.
- m) All other essential tools and mandatory accessories.
- n) Complete software with all necessary details required for assessment of requirements for recovery of fallen towers under various conditions of tower failures like failure of suspension type, tension type towers, towers with extension, towers for railway lines/road/hills/river crossings of 220kV ratings.

3.2.1. The design and dimensioning of the ERS shall be done such that the most condition specified at 3.2.(i) above is met.

3.2.2. The scope of work includes supply of erection tools & special Tools & Plants required for erection & stringing of the ERS offered by the Bidder, stringing accessories for ease of stringing as well as supply of required containers (detachable) for storage & transportation of ERS components/material.

3.2.3. The system offered by the Bidder shall be suitable for erection by Gin pole. The supply of minimum three sets of motorized Gin pole and/or motorized winch or Auxiliary hoisting tower with hydraulic tools along with all necessary tools & tackles required for erecting the system offered by the Bidder shall be in the scope of Bidder for each set of ERS.

3.2.4. Based on the above, the Bidder in the relevant schedules shall fill the detailed BOQ or detailed BOQ as specified in Part-III of this specifications including quantity per ERS set proposed for different individual components viz. modular structure components, anchoring assemblies, guy wires, polymer insulator assemblies, hardware, erection tools, special Tools & Plants, stringing accessories, trailers, containers, mandatory spares etc.

3.2.5. The ERS supplied shall also be suitable for deployment for Emergency Restoration of 220kV Single circuit & Double circuit lines with single/twin AAAC/ACSR Zebra/ Moose conductor per phase and 132kV Single circuit & Double circuit lines with single/twin AAAC/ACSR Panther/Zebra conductor per phase and also for AAAC/ACSR Deer & HTLS conductors as mentioned above.

3.3 The scope of works also includes supply of software for line design using ERS structures as specified in Part-II

3.4 The Supplier shall impart training to Purchaser's representatives at Purchaser's Premises (without any additional cost to AEGCL), on the use of computer software for analysis of failure scenarios, selection of suitable scheme of deployment etc., extensive training on actual field assembling, erection & stringing of ERS as well as training on storage and maintenance of ERS. A description of training programme module offered by the Bidder shall be furnished along with the bid. The bidder shall also furnish the actual computer printout results of analysis of the failure scenarios specified at 3.2.i above considering the standard loading criteria as per relevant specifications, along with his offer. All input data and output data for this computer analysis shall be clearly indicated in the bid. Further, the detailed design/drawings for ERS structures shall be submitted by the Supplier during execution stage both in hard copy (5 sets) and soft copy (.pdf and AutoCad).

3.5 The Supplier shall furnish comprehensive transportation, erection, stringing, Storage and maintenance manuals along with guidelines (15 sets). The supplier shall also furnish CD's having video-graphic demonstration for carrying out effective restoration of transmission lines (15 copies).

3.6 The scope of works also includes demonstration of restoration operation of 220/132kV Double circuit lines of the Purchaser as per clause 3.2.i above using the supplied tools & plants to the Purchaser's satisfaction.

3.7 The scope of work also includes supply of PLC-CADD software (Edition: STANDARD +FE (SAPS)) including PLS -pole & PLS-tower latest version (2 licenses) for line design using ERS structures, self-supporting permanent towers, monopoles, guyed towers etc including software for thermal up-gradation by using various conductors, sag tension calculations tower loading trees, tower analysis, foundation designs, guy wire loads and tower spotting etc and training on PLS-CADD to purchasers Engineers and / two computers/ laptops duly loading software. The bidder shall quote including this item in the prices of ERS.

4.0 Weights and Measures

All weights and measures shall be in System International (S.I.) units. All fasteners shall be of Metric size only

5.0 General Technical Conditions

5.1 The following provisions shall supplement all the detailed technical specifications and requirements brought out in the accompanying Technical Specifications. The Bidder's proposal shall be based on the use of equipment and materials complying fully with the requirements, specified herein.

5.2 Engineering Data

5.2.1 The Supplier shall furnish detailed engineering data of all the equipments/tools offered by him along with his offer. The review of these data by the Purchaser will cover only general conformance of the data to the Specifications and drawings. This review by the Purchaser may not indicate a thorough review of all dimensions, quantities and details of the equipment, materials, any devices or items indicated, or the accuracy of the information submitted. This review and/or approval by the Purchaser shall not be considered by the Supplier, as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications and documents.

5.2.2 All engineering data submitted by the Supplier after final process including review and approval by the Purchase shall form part of the Contract Document and the entire works performed under these Specifications shall be performed in strict conformity unless otherwise requested by the Purchaser in writing.

5.3 Drawings

5.3.1 All drawings submitted by the Supplier including those submitted at the time of bid shall be in sufficient detail to indicate the type, size, arrangement, dimensions, materials description, Bill of Materials weight of each component, break-up for packing and shipment, fixing arrangement required, the dimensions required for installation and any other information specifically requested in the Specifications.

5.3.2 Each drawing submitted by the Supplier shall be clearly marked with the name of the Purchaser, the unit designation, the specification title, the specification number and the name of the Project All titles, noting markings and writings on the drawing shall be in English. All the dimensions should be to the scale and in metric units.

5.3.3 The drawings submitted by the Supplier shall be reviewed by the Purchaser as far as practicable and shall be modified by the Supplier if any modifications and/or corrections are required by the Purchaser in compliance with this Specifications. The Supplier shall incorporate such modifications and/or corrections and submit the final drawings for approval. Any delays arising out of failure by the Supplier to rectify the drawings in good time shall not alter the contract completion date. Photographs of equipments shall not be submitted for approval, rather original drawings shall be submitted.

5.3.4 Overall general arrangement drawing along with literature for each type of structural component offered should be submitted in six copies and also the soft version in Auto-Cad along with the tender. The drawing shall include all drawings of system and also any other drawing forming a part of such system.

5.3.5 The successful tenderer shall have to furnish six sets of drawings for approval. Further work by the Supplier shall be strictly in accordance with these drawings and no deviation shall be permitted without the written approval of the Purchaser, if so required.

5.3.6 All manufacturing and fabrication work in connection with the equipment/material prior to the approval of the drawings shall be at the Supplier's risk. Approval of Supplier's drawing or work by the Purchaser shall not relieve the Supplier of any of these responsibilities and liabilities under the Contract.

5.4 Manufacturing Schedule

The Supplier shall submit to the Purchaser his manufacturing testing and delivery schedules of various items within thirty (30) days from the date of the Notification of Award in accordance with the delivery requirements stipulated Schedules shall also include the material and items purchased from outside Suppliers, if any.

5.5 Reference Standards

5.5.1 The codes and/or standards referred to in specifications shall govern, in all cases wherever such references are made. In case of a conflict between such codes and/or standards and the Specifications, latter shall govern such codes and/or standards, referred to shall mean the latest revisions, amendments/changes adopted and published by the relevant agencies and a copy of codes also shall be supplied and deemed to be included in the scope.

5.5.2 Other internationally acceptable standards which ensure equivalent or better performance than those specified shall also be accepted.

5.6 Design Improvements

The purchaser or supplier may propose changes in the specifications of the equipment/material or quantity thereof but limited to governing standard IEEE 1070 and its revision if any during the bid evaluation time.

5.7 Quality Assurance

5.7.1 To ensure that the equipment and services under the scope of the Contract whether manufactured or performed within the Supplier's Works or at his Sub- Supplier's premises or at the Purchaser's site or at any other place of Work are in accordance with these specifications, the Supplier shall adopt suitable quality assurance program to control such activities at all points necessary. Such program shall be outlined by the Supplier and shall be finally accepted by the Purchaser after discussions before the award of contract. A quality assurance program of the Supplier shall generally cover but not limited to the following.

- a) His organization structure for the management and implementation of the proposed quality assurance program.
- b) Documentation control system
- c) Qualification data for Bidder's key personnel.
- d) The procedure for purchases of materials, parts/components and selection of sub-supplier's services including vendor analysis, source inspection, incoming raw material inspection, verification of material purchases etc.
- e) System for shop manufacturing including process controls and fabrication and assembly controls.
- f) Control of non-conforming items and system for corrective action.
- g) Control of calibration and testing of measuring and testing equipments.
- h) Inspection and test procedure for manufacture.
- i) System for indication and appraisal of inspection status
- j) System for quality audits.
- k) System for authorizing release of manufactured product to the Purchaser.
- l) System for maintenance of records.
- m) System for handling storage and delivery and
- n) A quality plan detailing out of specific quality control procedure adopted for controlling the quality characteristics of the product.

The Quality Plan shall be mutually discussed and approved by the Purchaser after incorporating necessary corrections by the Supplier as may be required. The bidders quoting on behalf of their foreign principal shall submit the details as per above for the manufacturer.

5.8 Quality Assurance Document

5.8.1 The Supplier shall be required to submit all the Quality Assurance Documents as stipulated in the Quality Plan at the time of Purchaser's inspection of equipment/material.

5.8.2 The Purchaser or his duly authorized representatives reserves the right to carry out Quality Audit and Quality surveillance of the systems and procedures of the Supplier's his vendor's Quality Management and Control activities.

5.9 Purchaser's Supervision

5.9.1 To eliminate delays and avoid disputes and litigation it is agreed between the parties to the Contract that all matters and questions shall be resolved in accordance with the provisions of this specifications.

5.9.2 The manufacturing of the product shall be carried out in accordance with the specification. The scope of the duties of the Purchaser, pursuant to the contract, will include but not be, limited to the following.

- a. Interpretation of all the terms and conditions of these documents and specifications.
- b. Review and interpretation of all the Supplier's drawings, engineering data etc.;
- c. Witness or authorize his representative to witness tests and at the manufacturer's works or at site, or at any place where work is performed under the Contract.
- d. Inspect, accept or reject any equipment, material and work under the Contract in accordance with the Specification.
- e. Issue certificate of acceptance and/or progressive payment and final payment certificate.
- f. Review and suggest modification and improvement in completion schedules from time to time; and
- g. Supervise the quality assurance programme implementation at all stages of the Works.

5.10 Inspection, Testing & Inspection Certificate

5.10.1 The Purchaser, his duly authorized representative and/or outside inspection agency acting on behalf of the Purchaser shall have at all reasonable times access to the Supplier's premises or Works and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the Works during its manufacture and if part of the Works is being manufactured or assembled at other premises or works, the Supplier shall obtain for the Purchaser and/or his duly authorized representative permission to inspect as if the equipment/materials were manufactured or assembled on the Supplier's own premises or works.

5.10.2 The Supplier shall give the Purchaser/Inspector written notice (at least 2 weeks in advance) of any material being ready for testing. Such tests shall be to the Supplier's account and travel expenses of the inspector(s) for the inspection will be borne by the purchaser. The expenses of the inspector(s) towards all local transport, living and other incidental expenses are to be borne by the supplier. The Purchaser/Inspector, unless witnessing of the tests is waived, will attend such tests within fifteen (15) days of the date of which the equipment is notified as being ready for test/inspection or on a mutually agreed date, failing which the Supplier may proceed with the test which shall be deemed to have been made in the Inspector's presence and he shall forthwith forward to the Purchaser/Inspector duly certified copies of tests in triplicate.

5.10.3 The Purchaser/Inspector shall, within fifteen (15) days from the date of inspection as defined herein give notice in writing to the Supplier, of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Supplier shall give due consideration to such objection and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to the Purchase/Inspector giving reasons therein, that no modifications, are necessary to comply with the Contract.

5.10.4 When the factory tests have been completed at the Supplier's or Sub-supplier's works, the Purchaser/Inspector shall issue a certificate to this effect within fifteen (15) days after completion of tests but if the tests are not witnessed by the Purchaser/Inspector, the test certificate approval shall be issued within fifteen (15) days of receipt of the Supplier's Test certificate by the Purchaser/Inspector. The completion of these tests or the issue of the certificate approval shall not bind the Purchaser to accept the equipment should it, on further tests after erection, be found not to comply with the Contract.

5.10.5 In all cases where the Contract provides for tests whether at the premises or works of the supplier or of any sub-supplier, the Supplier except where otherwise specified shall provide free of charge such item as labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be reasonably demanded by the Purchaser/Inspector or his authorized representative to carry out effectively such tests of the equipment in accordance with the Contract and shall give facilities to the Purchaser/Inspector or to his authorized representative to accomplish testing.

5.10.6 The inspection by Purchaser and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Supplier in respect of provision of the technical specification and agreed quality assurance programme forming a part of the Contract.

5.11 Design Co-ordination

The Supplier shall be responsible for the selection and design of appropriate equipments/material to provide the best co-ordination performance of the entire system. The design requirements are detailed out in Technical

Specifications. The design of various components, sub-assemblies and assemblies shall be so done that it facilitates easy field assembly and maintenance.

5.12 Design Co-ordination Meeting

The supplier shall be called upon to attend design co-ordination meetings with the Purchaser, other Suppliers during, the period of Contract, if required. The Supplier shall attend such meetings at his own cost at Guwahati or at mutually agreed venue as and when required and fully co-operate with such persons and agencies involved during these discussions.

5.13 Packing

5.13.1 All the equipments shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit handling and storage at Purchaser's premises. The supplier shall be responsible for any loss or damage during transportation, handling and storage due to improper packing, packing should be such that long time storage at Purchaser's premises, if required, should not deteriorate the performance of any equipment/material supplied by the Supplier.

5.13.2 The Supplier shall include and provide for securely protecting and packing the equipment so as to avoid loss or damage during transport by air, sea, rail and road.

5.13.3 All packing shall allow for easy removal and checking at port/Purchaser's premises. Wherever necessary, proper arrangement for attaching slings for lifting shall be provided. All packages shall be clearly marked for with signs showing 'up' and 'down' on the sides of boxes, and handling and unpacking instructions as considered necessary. Special precaution shall be taken to prevent rusting of steel and iron parts during transit by sea.

5.13.4 The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbols, i.e., fragile, handle with care, use no hook etc wherever applicable.

5.13.5 Each package shall be legibly marked by the Supplier at his expenses showing the details such as description and quantity of contents, the name of the consignee and address, the gross and net weights of the package, the name of the Supplier etc.

5.13.6 The maximum degree possible, the Supplier shall utilize the "metallic Containers" for shipping of equipments/tools to India if the material comes from abroad. The Supplier shall ensure that the equipment shall be properly packed, blocked, padded coated and protected in the "Containers" so as to ensure that such equipment is not damaged due to possible mishandling of "containers".

5.13.7 All shipments shall be shipped in units as large as practicable, but within the transportation limits. The equipments may be nested in each other where desirable to reduce shipping volume provided such nesting shall not cause any damage to any such nested parts. Each piece of Works or equipment which is to be shipped as a separate piece or smaller parts packed within the same crate shall be legibly marked to show the unit of which it is a part and match marked to show its relative position in the unit, to facilitate handling/assembling at sites.

6.0 Guaranteed Technical Particulars

The guaranteed technical particulars of the equipment/material shall be furnished by the Bidders in their offer as specified in Part-III. The Bidder shall also furnish any other information as in their opinion is needed to give full description and details to judge the item(s) offered by them.

7.0 Technical Information

The technical particulars of transmission lines under operation/construction, for which ERS is to be designed are indicated below.

7.1 Electrical System Data

	A.C System	220 kV	132 kV
(a)	Nominal voltage	220kV	132 kV
(b)	Maximum system voltage	245 kV	145 kV
(c)	Number of phases	6/3	6/3
(d)	Rated frequency (Hz)	50	50
(e)	System earthing	Solidly Earthed	Solidly Earthed

7.2. Galvanized Steel Earth-wire

(a)	Size (strands & wire diameter)	7/3.66 mm
(b)	Overall diameter	10.98 mm
(c)	Standard weight	583 kg/km
(d)	Location of earth-wire	Two continuous earth-wires to run on top of the towers and conductors/one OPGW/HTGS Earth-wire
(e)	Minimum ultimate tensile strength	68.4 KN

7.2.4 Ruling Design Span:335/350m for 132/220 respectively in (Zone 5), 280 m for 132kV in (Zone 6),

7.2.5 Minimum Conductor height at the tower: Refer IEC Standards

7.2.6 Minimum Line metal clearance: - do-

7.2.7 Typical Indicative sketches for suspension and tension towers being used in Purchaser's transmission lines shall be collected by the successful supplier from AEGCL.

8.0 Service Conditions:

Equipment/material to be supplied against this Specification shall be suitable for satisfactory continuous operation, storage & maintenance under tropical conditions as specified below:

1	Maximum ambient temperature (deg Celsius)	50
2	Minimum ambient temperature (deg Celsius)	0
3	Relative humidity (%)	10 to 100
4	Maximum wind velocity (msec)	50 m/s (Zone 5), 55 m/s (Zone 6)
5	Maximum altitude above mean sea level (meters)	Upto 1000 meters
6	Isoceraunic level (days/year)	70
7	Moderately hot and humid tropical, Heavy rainfall region, climate,	Yes
8	Average no of rainy days Per annum	150
9	Seismic Intensity	Zone 5

Part II

1.0 Technical Requirements

1.1 The equipment and instruments covered by this specification shall comply with the requirements of the latest edition of the IEEE 1070-2006 standards and latest available design as on bid submission and shall be complete suitable up to 220 kV with all necessary material/equipments/ required accessories.

1.2 Modular Restoration Structure

1.2.1 The ERS structure shall be light weight, modular aluminium pylon support construction allowing easy adoption to various line designs/configuration rated for 220/132 kV transmission lines. All components must be fully exchangeable regardless whether they are used in suspension, angle or dead-end conditions. To ensure uniform compatibility of the ERS supplied under the contract all components of modular restoration structures shall be geometrically identical/mutually compatible.

1.2.2 The modular emergency restoration structure shall be geometrically identical, fabricated and tested in complete compliance with IEEE Std. 1070-2006 and latest design "IEEE Guide for the Design and Testing of Transmission Modular Restoration Structure Components" and shall have the following characteristics:

- a) The main structure elements shall be made from high strength structural aluminium alloy in order to reduce weight and prevent corrosion.
- b) No structural element shall weigh more than 275 kg.
- c) All extruded aluminium shapes used on the structure shall be of a standard design and shape, for ease of repair.
- d) Each ERS column section shall be of a welded aluminium construction, in order to prevent loss or theft of individual members.
- e) Only one size (diameter and length) of threaded fastener shall be used to assemble the ERS structural elements.
- f) The ERS column sections shall be large enough to allow up to four (4) linemen (80kgs avg) to work with ease at one elevation at one time.
- g) The angle bracing that the linemen stand on shall be a flat surface not less than (100mm) in width.
- h) The ERS structure elements shall be of a robust design to prevent damage during expected rough field handling during emergency conditions. In order to ensure this, no structural member shall have a thickness less than 6.5mm.
- i) Each column section shall be proof tested for minimum specified strength, and tested for accuracy of mating and alignment holes.
- j) The cross-section dimension of 6.4 mtrs with other column heights of 4.27 mtrs(14ft) & 2.13 mtrs (7ft) height long ERS column section should be 890 X 890 mm fitted with specified numbers of lattice members as per IEEE std. 1070-2006 with latest update. The fabrication process should comply with the permitted tolerances stipulate in IEEE std. 1070-2006 with latest update.
- k) The dimension of the base plate of the ERS foundation plate should be of 1525 X 1575mm with specified number of holes for inserting the foundation stakes as per IEEE std. 1070-2006. The fabrication process should comply with the permitted tolerances stipulate in IEEE std. 1070-2006 with latest update.
- l) The dimension of the ERS box section should be of 890 X 890mm with specific size and number of holes to fit post insulators as per IEEE std. 1070-2006. The fabrication process should comply with the permitted tolerances stipulate in IEEE std. 1070-2006 with latest update. The above requirements shall also be in accordance with IEEE std. 1070-2006 latest update, without exception.

1.2.3 The structures, polymer insulators and hardware components shall be suitable for restoration of 220 kV / 132 kV lines both Single circuit & Double circuit lines as mentioned above.

1.3 Foundation Plate

Foundation plate shall be designed to rest on the ground surface with metal stakes to avoid sliding and shall be made from Aluminium with dimensions of 1525 X 1575 mm with specified number of holes for inserting the foundation stakes as per IEEE std. 1070-2006. The fabrication process should comply with the permitted tolerances stipulate in IEEE std. 1070-2006 with latest update.

1.4 Gimbal Joint

The Gimbal joint shall be of such design that it can be fixed on the foundation plate. It shall allow assembly of structures over itself. It shall allow leaning and rotation allowing assembled column to be rotated from the horizontal plane to the vertical position. It shall minimize column eccentricity and eliminate torsional loading on structures due to its rotational capability. It shall be made of light weight, high strength material. It shall be designed as per figure 3, "Gimbal design and Tolerance" of IEEE-1070=2006

1.5 Guy Plate

The design of Guy plate shall be such that it shall allow attachment of insulators and guy wires to the structure. It shall be assembled between two column structures and have predetermined holes to allow attachment of insulators and guy wires. The angle of guy plates shall be 0/45 or 45/45. It shall be made of structural aluminium and shall be designed as per figure 2, "Guy Plate Design and Tolerance" of IEEE-1070-2006

1.6 Box Section/Connecting Box

Box section shall be of such design that it allows attachment/mounting of post insulators and guy wires to the structure. It shall be assembled between column structures and shall have predetermined holes on sides to allow attachment of insulators and guy wires. It shall be made of light structural aluminium with dimensions of 890 X 890mm with specific size and number of holes to fit post insulators as per IEEE std. 1070-2006. The fabrication process should comply with the permitted tolerances stipulate in IEEE std. 1070-2006 with latest update.

1.7 Anchoring Assembly

Depending on the prevailing soil conditions, different anchoring arrangements shall be required. The suitable anchoring assembly for following type of soils shall be supplied:

- i) For soils having good bearing capacity
- ii) For marshy / swampy lands
- iii) For soils having predominantly hard rocks

For hard rock soils, drilling tools and other associated tools required for drilling in hard rocks shall also be supplied. A quantity of hydraulically installed type anchors shall be provided as specified in Bill of Quantity (BoQ). All anchors shall be hot dip galvanized in accordance with ASTM A-153. Each anchor shall terminate with a triple eye nut suitable for attachment of preformed type guy wire grips.

For normal average density soil conditions, a quantity of hydraulically installed type anchors shall be provided as specified in BOQ. All anchors shall be hot dip galvanized in accordance with ASTM A-153. The soil bearing area of each anchor shall be greater than 45,000 Sq. mm. The ultimate strength capacity of these anchor components shall be 178kN. Each anchor shall be supplied with one extension bar of 2.1 mts. and one of 1 mt. including their couplers, and one triple-eye eyelet suitable for preformed type grips.

For low-density soil conditions, i.e. swamp or peat, the nominal strength capacity of these anchor components shall be 201 kN. Each anchor shall be supplied with one triple helix screw anchor lead section with square shaft,

one square shaft extension bar of 3 Mts and two of 1.52 Mt., and one triple eyelet suitable for preformed type grips. A minimum of four (4) tools for manual installation of these swamp anchors shall be supplied. For rock conditions, the nominal strength capacity of these anchor components shall be 89 kN. Each anchor shall be supplied with one extension bar of 2.1 Mts. and one of 1 Mt. Including their couplers, and one triple eyelet suitable for preformed type grips.

Quantity of Anchor installation kit shall be supplied as specified in bill of quantity. Each anchor installation kit shall have:

- a) The normal soil anchor installation tool set shall have as a minimum: an 18 HP petrol hydraulic power unit, capable of delivery 5-8 gpm (20-35 lpm) at a maximum pressure of 2000 PSI (13790 kPa).
- b) One Jack Hammer for installing the anchors in soil.
- c) A compatible hydraulic rotary hammer for drilling holes in rocks for installing rock anchors.
- d) A compatible hydraulic Load Locker, proof testing unit for locking and proof testing soil anchors and proof testing rock anchors.
- e) All necessary and compatible hydraulic hoses, rock drill bits (5 per rotary hammer), and torque installation tools for the rock anchors. Hydraulic hoses shall have quick disconnected type couplers.

1.8 Guy Wires & Grips

1.8.1 Guy wires made of galvanized steel wires having minimum breaking strength of 149kN and shall conform to ASTM-A474. Guy wire shall be of 19 strands for flexibility and shall be supplied on wooden spools.

1.8.2 A sufficient length of guy wires, not less than as specified in bill of quantity to the nearest hundred shall be supplied.

1.8.3 Helical preformed type grips for attachment to anchor rods & thimble shall be supplied. The grip shall have minimum ultimate strength not less than that of guy wire.

1.8.4 Thirty percent (30%) additional spare guy wire and fifty percent (50%) additional compatible helical preformed grips and guy wire thimbles shall be supplied beyond the minimum required to build any of the ERS Structures.

1.9 Polymer Insulator Assemblies and Hardware

1.9.1 All necessary polymer insulator assemblies and hardware required for proposed structures shall be supplied with each set of ERS with applicable electrical and mechanical tests as required by IEC-1109.

1.9.2 Polymer Composite insulators (Suspension, tension, station-post) of adequate mechanical ratings, with silicone or silicone-EPDM alloy weather sheds shall be supplied along with associated corona control rings.

1.9.3 Suspension insulators shall conform to all applicable electrical and mechanical tests as required by IEC 1109. All suspension insulators shall be given a routine test load (RTL) of 111 kN and have an ultimate mechanical load of 222 kN. One suspension insulator shall be capable to form a 220 kV insulator.

1.9.4 Each suspension insulator shall have an Oval-Eye on each end, for ease of assembly. Nos. of insulators required for 220 kV circuits, for which the insulators shall be suitable to carry the load for 1) Single conductor 2) Double conductors is to be considered. The type of conductors shall be zebra or Moose or any suitable generally adopted in 220 kV System.

1.9.5 The electrical and mechanical characteristics of the suspension insulators are given in Table 1.

1.9.6 The individual post insulators shall have a minimum diameter of fiber glass reinforced resin rod of (76 mm). One post insulator will be capable to form a 220KV insulator. Each post insulator shall be of a station post design in order to allow linking the insulators together.

1.9.7 The electrical and mechanical characteristics of the most insulators are given in Table 2.

Table 1: Suspension Insulator Characteristics

Polymer Suspension Insulator with Corona Ring	Rating
Single Insulator for, kV:	220KV
Leakage Distance, mm	7595
Leakage Distance kV Phase-Phase, mm/kV	31
Arcing Distance, mm	2000
Specified Mechanical Load, kN	222
Routine Test Load, kN	111
Power Frequency Dry Flashover, kV	505
Power Frequency Wet Flashover, kV	460
Impulse Flashover, Pos., kVp	1050
Impulse Flashover, Neg., kVp	1050

Table 2: Post Insulator Characteristics

Polymer Line Post Insulator	Rating
Single Insulator for, kV:	220KV
Leakage Distance, mm	7595
Leakage Distance kV Phase-Phase, mm/kV	31
Arcing Distance, mm	2000
Max. Design Cantilever Load, kN	10
Power Frequency Dry Flashover, kV	505
Power Frequency Wet Flashover, kV	460
Critical-Impulse Flashover, Pos., kV	1050
Critical-Impulse Flashover, Neg., kV	1050

NB: These insulators shall be suitable to be used in most polluted areas.

1.9.8 For insulators assembly, multiple units are recommended for use with the Emergency structures, so that these units can also be used for 220 kV and 132 kV lines.

1.9.9 An additional quantity of 156kN guy strain insulators with minimum length of 3 meters shall be supplied for insulating guy wires from energized lines. These guy strain insulators shall be provided with sufficient hardware for connecting them together when greater length is required.

1.10 Conductor Hardware

1.10.1 A minimum number of different types of hardware shall be provided in order to minimize confusion during emergencies. Hardware should be suitable for Single conductor, Double conductors. The type of conductors shall be Panther, zebra or Moose or any suitable generally adopted in 220,132 kV System.

1.10.2 Ultimate strength of each hardware component shall be greater than 134 kN, unless specified otherwise.

1.10.3 All ferrous materials shall be galvanized in accordance with the latest revision of ASTM A-153. All materials shall be free from burr, sharp edges, lumps and dross and shall be smooth so that any connecting parts may be assembled or disassembled easily. All threaded parts shall be galvanized after threading and excessive zinc shall be removed from threads. Drilling shall be made before galvanizing. All nuts and lock nuts shall be re-tapped after galvanizing and shall be capable of being turned on the bolt threads easily without using a wrench. All cotter pins shall be made of stainless steel in order to avoid oxidation.

1.10.4 Only one size of shackle shall be supplied, capable of fitting all hardware and guy wire anchoring assemblies. These shackles shall have a minimum ultimate strength of 267 kN and be supplied with a bolt, nut and cotter.

1.10.5 Only one size bolted tension clamp shall be supplied to fit the range of conductors specified (Panther, Zebra, and Moose etc).

1.10.6 The conductor suspension and tension clamps shall have a minimum ultimate strength of 111 kN, and shall be capable of allowing a minimum 30° line angle at the suspension clamp.

1.10.7 All conductor suspension clamps shall be of a corona free design.

1.10.8 A quantity of 156 kN turnbuckles, at least one half the quantities of suspension insulators, shall be provided for take up of hardware assemblies. Minimum take up shall be 0.3m.

1.10.9 A minimum of ten percent (30%) additional spare hardware shall be supplied beyond the minimum required to build any of the ERS Structures as specified

1.11 Special tools and Erection Tools

A 50 to 1 Scale model kit of the actual restoration structures shall be supplied with emergency restoration system. The kit shall include sufficient materials to build any of the proposed structures as supplied to the purchaser. The model shall be able to help determine clearances, erection methods and new structure types. A complete set of all necessary construction / erection hydraulic tools and hand tools shall be provided for assembly and erection of a complete emergency restoration structure as specified in bill of quantity.

1.11.1 30-foot (10 mtrs) gin poles made from aluminium alloy shall be provided as per bill of quantity. The gin pole shall be supported on one corner of a column section and allow lifting of up to 1000 lb / 450kg to the top of the structure. The gin pole shall be suitable for simultaneous lifting a 21 foot column section and a Box section as described in IEEE Standard 1070 Figures 1 and 5. All necessary snatch blocks and rigging ropes shall be supplied with the gin pole. All ropes shall be a minimum 5/8" polyester rope. The gin pole shall have a swivel base for initially tilted up with a hand winch, with the base of the gin pole pivoting on the foundation plate. After the initial tilt up and placement of the gimbal and first column section, no additional guy lines shall be needed and the gin pole shall be self-supporting on the emergency restoration structure. The gin pole shall have a davit arm to keep loads clear of the structure while being raised by a capstan hydraulic power unit and low friction bushings for rotation of the load. A slider shall clamp to the corner members of the

emergency restoration structure and allow the gin pole to be raised on the structure using a pulley and the capstan wench.

1.11.2 Tirfor Grip hoist, 2-ton, 24 Nos shall be provided with 150 foot of 7/16" (11.5mm) wire rope. Forged safety hooks shall be provided on both ends for the Tirfor grip hoist body and for the 7/16" wire rope.

1.11.3 Hydraulic capstan winch with foot pedals, 0.5 ton, 3 nos. shall be provided with each gin pole. This capstan shall be capable of being powered by the same hydraulic power unit used to install the soil anchors. The capstan shall be mounted on a plate that can be anchored to the ground.

1.11.4 Long reversible ratchet for hand installation, min 12" long, 24 Nos for hand installation of ERS bolts as described in IEEE Standard 1070 Section 3.1. The reversible ratchet shall be made of forged material and provided with a 1/2" square drive, 15/16" deep socket in order to provide additional clearance for tightening the nut. A forged closed box wrenches with a drift pin will also be provided as an assembly tool (24 nos.).

1.11.5 Reversible chain hoists, 3 ton, 18 nos. shall be provided for tensioning of guy wires and conductor. Forged safety hooks shall be provided on the reversible chain hoist. The hook throat openings shall be a minimum of 1 1/2" square drive, 15/16" deep socket in order to provide additional clearance for tightening the nut.

1.11.6 Pulling Eyes made of ferrous material, 24 Nos shall be supplied for attachment to anchor rods and shall allow placement of safety hooks for either the 3-ton chain hoist or the 2-ton Tirfor grip hoist.

1.11.7 Automatic wire grips, 24 Nos suitable for gripping the 9/16 x 19 strand guy wires shall be provided. The grips shall be made of forged steel and have a bail suitable for attachment of the 3-ton chain hoist safety hook. They shall have a minimum safe working load of 65 kN.

1.11.8 Double loop steel wire rope slings shall be provided. These slings shall have a loop eye swaged at both ends and have an ultimate strength of 134kN. A quantity of 12 Nos nylon slings shall be provided for lifting purposes. The slings shall have a twisted eye at both ends and have a rated capacity of 42kN when loaded vertically. A quantity of 24 Nos., 6 ft (1.8m) long, round endless slings, with a rated capacity of 24 kN when loaded vertically, shall be provided for temporary guying of this structure.

1.11.9 Aluminium conductor lifting hooks, 9 Nos shall be provided. These lifting hooks shall be made from 6061-T651 aluminium and shall a minimum ultimate strength of 45 kN.

1.11.10 Light weight aluminium Anchor Construction Yokes, 15 Nos, shall allow attachment of up to three Tirfor grip hosts, Chain hoists and / or ropes to one pulling eye and anchor rod shall also be supplied.

1.11.11 Self contained 6-ton hydraulic wire cutter; 3 Nos shall be provided. This self-contained hydraulic cutter shall be capable of not only cutting the 9/16 x 19 strand guy wire but also the ACSR conductor and the overhead static wire.

1.11.12 With each foundation plate, 10 Nos, foundation stakes of 25.4mm diameter and 1.2 meters in length shall be provided for staking the foundations to the ground. The stakes shall have a pulling eye at the top for retracting the stakes after use.

1.12 Containers for ERS

1.12.1 Ocean Cargo Storage Container, 20 feet, shall be provided to accommodate the 2 No's of ERS Towers.

1.12.2 This container shall be outfitted for holding all of the hardware, insulators, guy plates, guy and anchor accessories, tools (including the gin pole) and nuts and bolts. The insulators shall be held in PVC conduit tubes in order to protect them from adjacent insulators. All hardware and nuts and bolts shall be stored in ferrous metal wire containers. There shall be easy access to the containers and easy access to the parts in the containers. The 20 feet ocean cargo storage containers shall be lockable to prevent loss. All ERS components with the exception of the large ERS structure components and guy wire shall be stored in these 20 feet containers.

1.13 Computer Programs

1.13.1 An extensive computer analysis programs to assist in determining the capabilities of the structures shall be supplied with each set of ERS set along with suitable laptops/ computers for running the programme. The programs shall be supplied on standard CD's compatible personnel computers using MS-DOS or WINDOWS 7.

1.13.2 The programme shall be easy to use, i.e., user friendly and shall be accompanied by a thorough instruction manual.

1.13.3 The computer program shall be able to be copied as many times as deemed necessary by the Purchaser for multiple use with full functionality by the Purchaser only without incurring licensing fee. If second party software is provided then a letter stating that the computer program can legally be copied as many times as deemed necessary by the purchaser shall be provided with the bid document.

1.13.4 The computer program output data (for given load design scenarios) shall include but not limited to allowable conductor height and span, Insulators load, guy wire tension, Guy and anchor loads, right of way area requirement total anchor load requirement, graphic representations of the structures to be built.

1.13.5 The computer program must have the capability to analyse all configuration of towers. The program calculations shall show if loads are acceptable with the various structure components used, and they shall also show the foundation and anchoring forces. Applicable computer calculations shall take into account the flexibility of structures and possible displacement of anchoring or foundations.

1.13.6 The same computer programs shall also calculate and show construction loads. The program shall calculate the total weight of the structure and provide lifting loads for the tilt up gin pole method of erection, crane erection, and helicopter erection.

1.13.7 The computer programme and calculations shall use the input data like Emergency restoration structure geometry, Conductor specifications, Overhead shield wire geometry, Wind loading on conductors and structures, Overload safety factors, Guy slopes, Wind and weight spans.

The computer program and calculations shall have the following typical output data:

- Allowable conductor height and span.
- Insulator loads.
- Guy and anchor loads.
- Right-of-Way requirements.
- Graphic representations of the structures to be built.

1.13.8 The computer software shall allow easy analysis of 220kV/132kV restoration structures. The programs shall be accompanied by a detailed instruction manual that explains the theory used and gives examples for each type of structure. The programs shall come ready to analyzing the following types of structures: Angle or suspension chainette, Angle or suspension four pole, Single or double circuit herringbone, Angle or suspension horizontal vee, Delta horizontal vee, running angle, Single phase tension, three phase tension. The computer program should be easy to learn. A qualified engineer should be capable of learning to use this software within one day. Any software program that requires a week or more of training is strictly disallowed as this creates an additional burden at a time of emergency. Software programs must be user friendly. The program must give clear and failsafe outputs. If a tower is not sufficient to meet the necessary loading conditions, then the program should immediately display a failure message or it should neglect to provide a printout. A computer program that analyzes a failing tower design and still outputs a printout of the tower is strictly disallowed. For emergency use there is no time to analyze outputs and therefore all outputs should be limited to only passing results.

1.14 Mandatory Spares/Consumables

1.14.1 The Supplier shall supply all spares/ consumables for anchoring assembly, guy wires polymer insulators, and hardware as indicated in bill of quantity.

1.14.2 All mandatory spares/consumables shall be supplied along with the main items

1.15 Recommended Spares/Consumables

1.15.1 In addition to the Mandatory spares/consumables mentioned above, the supplier should also provide a list of recommended spares/consumables for at least 10 years operation/use of these equipments/tools, with item wise unit rates.

1.15.2 The exact quantities to be procured shall be decided while finalizing the offers.

1.16 Quantities of Equipment/Tools required for ERS set

1.16.1 Emergency restoration system of lightweight modular aluminium pylon support type suitable for single circuit and /or Double circuit 220KV Transmission line towers, suspension type, tension type, tower with extension for Road Crossing, River Crossing etc. 220kV single circuit & double circuit having single conductor, double conductors (moose or any suitable conductor generally adopted in 220kV system).

1.16.2 In order to meet the specification requirements, the breakup of the materials & tools have been specified by the AEGCL in the specification generally required for two sets of ERS system. In order to meet the specification requirement if certain additional equipments/tools are to be included in the list of equipment/tools beyond those specified by the AEGCL the tenderer shall include the same in his offer. If after field demonstration any additional tools and plants are found necessary to accomplish the restoration system, the supplier shall supply the same without any extra cost to the purchaser.

1.17 List of Drawings and Documents

1.17.1 Bidder shall furnish full description and illustration of the materials offered.

1.17.2 The bidder shall furnish the drawing, calculations, test reports and literature pertaining to specified items which shall include but not be limited to the following information.

- a) Name and location of the factory or company manufacturing the ERS components, Polymer insulators, hardware and all other equipment offered.
- b) technical standard, manufacturing technology and quality assurance system for ERS components.
- c) Detailed description of the ERS structure, including Dimensions of each part, unit weight and cross-section drawings.
- d) technical standards of all other main elements used in ERS and other equipment offered.
- e) Erection drawings.
- f) Schematic drawings showing details of different restoration scenarios and different structures proposed.
- g) Type test Reports: The bidder shall furnish type test reports. The type tests must have been conducted on the material offered as per IEEE Std. 1070-2006 in recognized laboratory as per the latest revision of the relevant standards applicable and technical specification. The date of type test shall not be later than 10 years as on the date of bid opening. If any change in design was made latest type tests shall be furnished along with approved drawing. The bids received without type test reports will be treated as non responsive.
- h) Specific instructions for installation of ERS, maintenance and instruction manuals.
- i) Drawings of each hardware item showing ultimate or breaking strength
- j) Description of Quality control Assurance programme.
- k) Details of packing
- l) Detailed drawings of jumper connections including electrical clearances.

1.17.3 The bidder shall also furnish sectional view drawings of all equipments offered.

1.17.4 The supplier shall within 6 weeks of placement of order, submit four sets of final versions of all the above said drawings for purchaser's approval.

1.18 Workmanship

All the material shall be of latest design and all works shall be performed using the best modern practices of the industry. All material should be new and free of defects or irregularities. All components of the same design and designation should be identical and like components should be inter-changeable. All corners should be rounded and sharp edges should be broken.

2.0. Tests

2.1 All the equipments and materials to be supplied against this tender shall be designed, manufactured and tested at manufacturer's works as per the latest practices and relevant standards applicable for Emergency Restoration Systems as per IEEE 1070-2006 as amended up to date and all other relevant standards applicable for various components.

2.2 Routine mechanical pull tests shall be applied to all hardware items in Accordance with IEEE Std 135.61-1997. All galvanized wire rope with swaged fittings shall be proof tested to one and half (150%) their ultimate strength times to.

2.3 Test reports shall be prepared in detail containing all the data, number of tested samples and other necessary information as required by IEEE Std 135.61 -1997.

2.4 All test certificates and reports shall be submitted to the Purchaser for approval. The entire cost of testing for the above production & performance tests shall be treated as included in the quoted prices.

2.5 Additional Tests

2.5.1 The Purchaser reserves the right of having, at his own expense, any other test(s) of reasonable nature carried out at Supplier's premises, at site, or in any other place in addition to the aforesaid type tests, performance tests and tests during manufacture so as to satisfy himself that the material comply with the Specification.

2.5.2 The Purchaser also reserves the right to conduct the tests mentioned in this Specification at their own expense on the samples selected from lots supplied to the Purchaser at Supplier's premises or at any other test centre. In case of evidence of non compliance, it shall be binding on the part of Supplier to prove the compliance of the items to the Technical Specification by repeat tests or corrections of deficiencies or replacement of defective items, all without any extra cost to the Purchaser.

2.6 Test Reports

2.6.1 Copies of Performance test report shall be furnished in at least six copies. One copy shall be returned, duly certified by the Purchaser, only after which the materials will be dispatched.

2.6.2 Record of Production test report / Tests during Manufacture shall be maintained by the Supplier / Sub-Supplier at his works for periodic inspection by the Purchaser's representative, if required.

2.7 Inspection

2.7.1 The Purchaser's representative shall at all times shall be entitled to have access to the works and all places of manufacture, where materials shall be manufactured and the representatives shall have full facilities for unrestricted inspection of the Supplier's, sub-Supplier's works, raw materials, manufacturer's works of all the materials and for conducting necessary tests as detailed herein.

2.7.2 The Supplier shall keep the Purchaser informed in advance of the time of starting and of the progress of manufacture of materials in its various stage so that arrangements could be made for inspection.

2.7.3 Materials shall not be dispatched from its point of manufacture before it has been satisfactorily inspected and tested, unless the Purchaser in writing waives off the inspection in the latter case also the materials shall be dispatched only after all tests specified herein have been satisfactorily completed.

2.7.4 The acceptance of any quantity of materials shall in no way relieve the Supplier of his responsibility for meeting all the requirements of the Specification, and shall not prevent subsequent rejection. If such materials are later found to be defective.

3.0 Field Demonstration

3.1 Upon receipt of the equipment at site, the Supplier is required to demonstrate Restoration operation of Purchaser's transmission line for restoration scenarios for which ERS is designed using the supplied tools & plants, to the Purchaser's satisfaction.

3.2 In case of evidence of non compliance, it shall be binding on the part of Supplier to prove the compliance of the items to the Technical Specification by replacement/modifications of relevant item(s)/components/tools etc or by providing additional item(s), components, tools etc. and re-demonstrating compliance, all without any extra cost to the Purchaser.

4.0 Storage of Equipment

The storage of equipment/ material will be the responsibility of Purchaser. However, the Supplier shall give detailed storage instructions to the Purchaser to avoid any damage during storage due to act of nature, accidents or any other cause. The containers supplied shall be suitable for indoor storage & outdoor storage under service conditions mentioned in Technical Specification.

5.0 Training:

5.1 The Supplier shall be required to impart training to Purchaser's representatives for a period of minimum two (2) weeks free of cost. The training shall be given with the ERS system to be supplied to the Purchaser and usage of each type of equipment, tools and tackles shall be clearly instructed & demonstrated to the Purchaser's representative.

5.2 The training shall include the actual field training imparting firsthand knowledge about the assembly of modular structures, fixing of foundation plates, erecting of structures on the foundation, guying the tower with anchoring arrangement and stringing of conductor. Specific instructions shall be given for installation of ERS using cranes, gin pole and hydraulic hoisting equipment. The training shall also include classroom lectures, study material including training in computer analysis programs described in respective sections in order to assist the purchaser's personnel in determining the capabilities of the structures. The class room training should also include explanation / demonstration of actual scenario with a 50:1 scale model of the emergency restoration structure. Special stress shall be given so as to ensure that the trained personnel acquire proficiency in restoring of failed structures so that they can take up this work independently. Training with respect to storage & maintenance of ERS shall also be provided to purchaser's personnel.

5.3 The period, programme and module of training shall be mutually discussed and finalized by the Purchaser with the Supplier. The training shall also be carried out at customer's site.

6.0 Standards

6.1 The material shall conform to the following Indian/International Standards, which shall mean latest revisions, amendments/changes adopted and published unless otherwise specified herein below. International and internationally recognized standards to which these standards generally correspond are also listed below.

6.2 In the event of the supply of material conforming to any standard other than standards listed below, the salient features of comparison shall be brought out and furnished along with the bid

Sl.No.	Indian Standard	Title	International Standards
1		IEEE guide for the Design and Testing of Transmission Modular Restoration Structure components	IEEE:1070-2006
2		Composite insulator units for overhead lines with a nominal voltage greater than 1000V	IEC:61466-1

3		Composite insulators for A.C. overhead lines with a nominal voltage greater than 1000 V: Definitions, test methods and acceptance criteria	IEC:601109
4		Specification for Aluminium alloy sheet and plate	ASTM: B209
5	IS:802 (Part-I) Section-2	Transmission Line towers: Materials, loads and permissible stresses	
6	CBIP publication No.239	Guide for New Code for design for transmission line towers in India	
7		IEEE standard for Testing of Overhead Transmission and distribution line Hardware	IEEE no. 135.61-1997

PART-III**MATERIAL REQUIREMENTS****1.0 Material Requirements**

One ERS tower should consist of following minimum main structural components.

- a) Foundation base assembly.
- b) Gimbal Joint assembly
- c) 14ft column assembly (4.27mtrs)
- d) 7ft column assembly (2.13mtrs)
- e) Box section assembly.
- f) Polymer station post insulators with corona ring
- g) Polymer suspension insulator with corona ring

2.0 Minimum total ERS Structures, Components, Hardware, construction tools etc. for erecting 2 towers and other required accessories if any of 220 kV class as specified and as per IEEE-1070 for each set:

Item	Description	BOQ for 2 tower
1.	Foundation plate	As per requirement
2.	Rigid Gimbal	
3.	14 Ft Column (4.27mtrs)	
4.	7 Ft Column (2.13mtrs)	
5.	45/45° Guy Plate	
6.	0/0° Guy Plate	
7.	Box Section	
8.	5/8-11 x 3 1/2 Hex HD bolt	
9.	5/8-11 Hex nut zinc	
10.	5/8 Lock washer	

ERS Training & Computer Program

11.	ERS Computer Analysis Programs	1
12.	ERS on site Training (Weeks)	2

Conductor Guying Hardware

Item	Description	
13.	Anchor shackle, 60 kip	As per requirement
14.	Chain link , 60 kip	
15.	7/8 x 12" eye-eye turnbuckle	
16.	30 kip(4 conductor yoke plate)	
17.	Insulator blade adapter	
18.	30 kip Extension strap, 78.5"	
19.	EHV Suspension Clamp, 30.7-36.3 mm	
20.	Conductor strain clamp	
21.	OHGW Suspension clamp	
22.	OHGW Strain clamp	
23.	Suspension Insulator	
24.	EHV corona ring for susp. Insulator hot end, 15"	
25.	EHV corona ring for susp. Insulator cold end, 8"	
26.	Station post Insulator	
27.	EHV corona ring for post Insulator, 15"	

Guy wire Components

Item	Description	
28.	Thimble Clevis	As per requirement
29.	PLP dead -End guy Grip	
30.	9/16" Dia. EHS Guy wire (m)	
31.	Guy Strain Insulator	

Anchor Assemblies

Item	Description	
32.	MANTA RAY ANCHOR ASSEMBLY	As per requirement
	Each set Consists of the Following Items:-	
	Manta Ray-1 anchor	
	Sar10A 1" x 7ft rod	
	TE-IT Triple Thimble Eye	
	Sar10C 1" x 3.5ft rod	
	C-1 Nut	
33.	MARSH ANCHOR ASSEMBLY, TRIPLE HELIX	
	Each set Consists of the Following Items:-	
	Triple Thimble Eye	
	Triple Helix Anchor	
	10ft Extension Rod	
	5ft Extension Rod	

Assembly & Erection Tool Set IEEE-1070.

Consisting of the Following Items:-

Item	Description	
34.	30 ft Gin Pole (10mtrs)	As per requirement
	2 Ton. Tirfor Griphoist	
	Capstan with Foot Pedal	
	5/8" Polyester Rope, 600 ft spool	
	Snatch Block for 5/8 rope	
	12" Spanner Wrench	
	1/2" Sq. Drive Ratchet	
	1/2" Sq. Drive Deep Socket 15/16"	
	12" Point Box Wrench- 15/16"	
	3 ton Chain Hoist	
	Pulling Eye	
	Automatic Wire Grip	
	10 Ft metal sling	
	10 Ft nylon sling	
	6 (1.8m) Endless Round Sling (Green)	
	Conductor Lifting Hook	
	Anchor Construction Yoke plate	
	6 Ton Hydraulic Wire Cutter	

MANDATORY INSTALLATION TOOL SET & HPU Set

Consists of the Following Items:-

Item	Description	
35.	GPU-18-8 Hydraulic power unit, 18 hp	As per requirement
	HB90-14 Hammer	
	Hose sets HC-16-25	
	LL-1 Load Locker.	
	SCG-14 Drive Steel Set	
	SG2 Extension (3ft)	
	SG4 Couplers	
	SG3 Radius Tip	
	SG-14 1 1/4" Shank	

Item	Description	
36.	Marsh Anchor manual Installation Tools	As per requirement
37.	Foundation stakes 1.2 Mts.	
38.	20ft Insulator & Hardware Storage Container	

Additional- Spare for rock anchoring system (3 sets)

Rock anchor assy. -

Rock anchor head	As per requirement
Each set Consists of the Following Items:-	
1" X 12" threaded rod	
C-1 nut	
Triple thimble eye	

Rock Anchor installation tool set	
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Note: The quantities mentioned above are tentative. However, the bidder should give their list of materials and quantities suitable for (2Nos. ERS systems) with 2 towers each of 220 kV Double circuit towers restoration work, meeting the specifications and IEEE 1070 of latest revision.

SPECIFIC TECHNICAL REQUIREMENTS, QUANTITY AND GUARANTEED TECHNICAL PARTICULARS SCHEDULE-A

(To be filled in and signed by the supplier)

Schedule of the Guaranteed Technical Particulars for Lightweight Modular Aluminium Pylon Support (Emergency Restoration System)

Sl. No.	Description	Details to be furnished by the tenderer
1.	Name and address of the manufacturer	
2.	Governing standards	
3.	Whether the tenderer is original equipment manufacturer (OEM) or authorized representative or associate.	
4.	If tenderer is not OEM, have they furnished back up guarantee from OEM for guarantee period and after guarantee period in tender/ offer (enclose back up guarantee).	
5.	Do the tenderer / OEM has the facility for after sale support in India? If yes, give location and details.	
6.	Whether the system offered is being used by other power utilities of India since at least last 5 years?	
7.	Manufacturers in ERS business since 10 years.	
8.	Does the system meet the requirement of the technical specification of the tender documents?	
9.	The details of software used and to be supplied with the system to be furnished.	

Place:

Date:

Signature

Name

Status / Designation

Name & Seal of the Company

SCHEDULE-B

(To be filled in and signed by the supplier)

Schedule Of Guaranteed Technical Particulars For Light Weight Modular Aluminium Pylon Support (Emergency Restoration System)

Sl. No.	Description	AEGCL's requirement	Bidder's data
1.	Material of main structural elements	High strength structural aluminium alloy	
2.	Max. weight of any one structural element	Not more than 275 kg.	
3.	Type of construction of column section	Welded aluminium section	
4.	Sizes (diameter and length) of threaded fastener used to assemble the ERS structural elements	As per design but shall be of only one standard size	
5.	No. of persons who can work at a time at one elevation	Four	
6.	The size of angle bracing on which the working person will stand on.	Not less than 100 mm	
7.	Minimum thickness of structural member	Not less than 0.255 inch	
8.	Standard to which all the above should conform to	IEEE std. 1070-2006	
9.	Suspension Insulators		
	a) Standard to which the suspension insulator shall conform to	IEC 1109	
	b) Type	Polymer	
	c) Routine test load	111 KN	
	d) Ultimate mechanical load	222 KN	
	e) Single insulator for, kV	220 KV	
	f) Assembly method	Suspension insulator to have an oval eye on each end.	
10.	g) The electrical and mechanical properties of suspension insulator	Should conform to Table - 1.	
	Post Insulators		
	a) Type	Polymer	
	b) Single insulator for, kV	220 KV	
11.	c) Electrical and mechanical properties	Should conform to Table-2.	
	<u>Anchors</u>		
	a) Type	Hydraulically installed type terminating with a triple eye suitable for attachment of preformed type guy	
	b) Galvanization	Hot dip galvanized in accordance with ASTM - A -153.	
	c) Soil bearing area for each anchor to be used in normal soil	Greater than 45000 sq. mm.	

	d) Ultimate strength 1) Normal soil 2) Low density soil 3) Rocks	178 KN 201 KN 89 KN	
	e) Additional items to be supplied with each anchor for normal density average soil conditions.	One extension bar of 2.1 meter and one of 1 meter with the couplers and one triple eye eyelet suitable for preformed type grips.	
	f) Additional items to be supplied with each anchor for low density soil conditions i.e. swamp or peat.	One triple helix screw anchor lead section with square shaft, one screw shaft extension bar of 3.05 m and two of 1.52 m and one triple eyelet suitable bar preformed type grips	
	g) Additional items to be supplied with each anchor for rock conditions.	One extension bar of 2.1 m and one of 1 meter including three coupler and one triple eye let suitable for preformed type grips.	
12.	<u>Anchor installation kit</u> a) The normal soil anchor installation tool shall have	A hydraulic power unit with capacity of 18 HP and capable of delivery 5-8 gpm at a maximum diesel	
	b) Anchor installation by means of	Jack Hammer compatible with the above power unit	
	c) Anchor installation in rocks by means of	A compatible rotary hammer to drill holes	
	d) Proof testing of soil anchors and rock anchors to be done by means of	A compatible hydraulic load locker	
13.	<u>Guy Wire and grips</u> a) Standard that the guy wire shall conform to	ASTM-A474	
	b) Minimum breaking strength should be	149 kN	
	c) Minimum ultimate strength of preformed grips should be	149 kN	
14.	<u>Conductor Hardware</u> a) All ferrous materials should be	Galvanized in accordance with ASTM A-153	
	b) Shackle	Only one size capable of fitting all hardware, guy wire and anchoring assemblies and shall have a minimum	
	c) ERS nuts, bolts and washers	Only one standard type to be used for all structural components	
	d) Routine mechanical pull tests to all hardware items in accordance with	IEEE Std. 135.61-1997	

15.	<u>Construction tools</u> 2 sets of all necessary construction tools to be supplied	Strictly as per Technical specification.	
16.	<u>Field Training</u> Field training to AEGCL personnel	Free of charge for a period of 2 weeks.	
17.	Computer Software	As per technical specification	
18.	ERS Material requirement	As per technical specification.	

Place:

Signature

Date:

Name

Status / Designation

Name & Seal of the Company

SCHEDULE-C

BID SUBMITTALS

(To be filled in and Signed by the tenderer)

All of the following details and documents shall be submitted with the bid, otherwise the bidder shall be considered non-responsive. The bidder shall answer yes, if document is submitted with his proposal. If yes, the bidder shall indicate in what portion of their proposal (i.e., Page No., Volume No., etc.) the required information is located. Bidders shall submit the following details with their bid proposal:

	AEGCL Requirement	Bidder's Data
1. Design Test Reports in accordance with Section 4 of IEEE Std. 1070-2006 (Revision of IEEE 1070-1995)		
<ul style="list-style-type: none"> ▣ Compression of the columns ▣ Bending of Columns ▣ Torsion Strength ▣ Combined Bending and Compression Test ▣ Ultimate Strength Bending - Bolts ▣ Ultimate Strength Bending - Welds (four tests to destruction required) ▣ Box Section Load Test ▣ Guy Plate Load Test ▣ Bolt and Nut Ultimate Strength Test ▣ Column Buckling Test ▣ Stainless Steel Washer Freeze/ Thaw Test ▣ Gimbal Articulation Test ▣ Gimbal Compression Test ▣ Gimbal Transverse Test (Yes, No) 	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>	
2. Detailed fabrication drawings showing that all manufacturing tolerances and basic design should be as specified in the referenced figure of IEEE Std. 1070-2006, for the following components:	Yes	
<ul style="list-style-type: none"> ▣ 7 Ft. column section in accordance with IEEE Std. 1070-2006 The number of diagonals should be as specified and positioned on the column section to facilitate climbing. 	Yes	
<ul style="list-style-type: none"> ▣ 14 ft. column section in accordance with IEEE std. 1070-2006 The number of diagonals should be as specified and positioned on the column section to facilitate climbing. 	Yes	
<ul style="list-style-type: none"> ▣ Foundation section in accordance with IEEE Std 1070-2006. The foundation shall be to have a column section attached directly to it. 	Yes	

<p>□ Box section in accordance with IEEE std. 1070-2006</p> <p>□ Guy plates in accordance with IEEE Std.1070-2006</p> <p>□ Gimbal joint in accordance with IEEE std. 1070-2006</p> <p>□ End plate design and tolerances of attachment hole locations in accordance with IEEE std. 1070-2006</p> <p>3. Manufacture's experience:</p> <p>References of: Indian electric utilities that have used IEEE Std.1070=2006 modular emergency restoration structures manufactured and sold by the bidder/manufacture to restore lines at voltages for 220/132 kV. These references shall include the following:</p> <p>□ The utilities name,</p> <p>□ A name, address, telephone and fax number of a contact person at the utility,</p> <p>□ Brief description of the quantity purchased</p> <p>□ A complete description of the utilities actual emergency use of the structures supplied by the bidder</p> <p>4. Manufacture's experience:</p> <p>The bidder/manufacture shall furnish, a proof of experience, showing that the supplier shall have been in the business of manufacturing and training utilities in the use of the ERS made to the IEEE Std. 1070-2006 for not less than 10 years.</p> <p>5. Manufacturers experience:</p> <p>The bidder/manufacture shall furnish, as a proof, a copy of their valid ISO 9001 certificate for the design and fabrication of emergency restoration systems</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>At least 5 different utilities in India.</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>	
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Date:

Place:

Signed:

Designation:

Name of Company:

Section - 4

General Conditions of Supply and Erection of AEGCL

This Section 'General Conditions of Supply and Erection of AEGCL' is supplied separately and supplementary to Section -5 'Special Conditions of Contract' of this document.

Whenever there is a conflict, the provisions in SCC or the other Sections of this document shall prevail over those in the 'General Conditions of Supply and Erection of AEGCL'.

Section 5 - Special Conditions of Contract

This Section 'SCC' is supplementary to Section -4 'General Conditions of Supply and Erection of AEGCL'.

Whenever there is a conflict, the provisions in this Section shall prevail over those in the 'General Conditions of Supply and Erection of AEGCL'.

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Section - 5

Special Conditions of Contract

5.1.0 DEFINITION OF TERMS

"Contract" means the Contract Agreement entered into between the Purchaser and the Supplier, 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 Supplier 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 "Supplier", as the context requires.

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

The "*Supplier*" 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 Supplier is required to supply to the Purchaser under the Contract.

"Delivery" means the transfer of the Goods from the Supplier 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 Supplier 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 Supplier under the Contract.

The "Specification" shall mean the "Purchaser's Requirements".

"Supplier" 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 Supplier.

5.2.0 CONTRACT DOCUMENTS

- 5.2.1. 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.

5.3.0 LEGAL JURISDICTION

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

5.4.0 LANGUAGE

5.4.1. The ruling language of the Contract shall be English.

5.5.0 SCOPE OF SUPPLY

5.5.1. The Goods and Related Services to be supplied shall be as specified in Schedule No. 1 and Schedule No. 2 of Section -2, Bidding Forms.

5.5.2. Unless otherwise stipulated in expressly limited in the **Purchaser's Requirements**, the Scope of 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.

5.6.0 DELIVERY SCHEDULE

5.6.1. For the purpose of determining the completion time of the Contract, the date of issue of LoA shall be taken as Commencement Date of the contract.

5.6.2. The Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and **specified in the Article 3** of the Contract Agreement (Contract Forms) or within such extended time to which the Supplier shall be entitled under **SCC Clause 5.16.0** hereof.

5.7.0 CONTRACT PRICE

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

5.7.2. 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 Works or as otherwise provided in the Contract.

5.8.0 TERMS OF PAYMENT

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

5.8.2. Payment against Goods and F&I (Price Schedule 1 & 2) shall be made as follows: -

Progressive payments for supply items: (Only SUPPLY)

- (a) Within 60 (sixty) days from the date of submission of the invoice against supply, 80% (eighty percent) payment of the total supply amount would be made along with 100% GST on receipt and acceptance of materials in full and good condition.
- (b) In total 5 (five) Nos. of progressive supply invoice/ bill would be entertained.
- (c) For payment of 80% of the total supply amount, maximum 4 (four) Nos. of progressive supply invoices/ bills would be entertained.
- (d) Remaining 1 (one) No. of supply invoice/ bill of 20% balance supply amount would be entertained on completion of supply in full and good condition.

5.8.3. Documents to be submitted for separate supply and erection work with invoice:

- (a) Unconditional acceptance of the Letter of Award and signed Contract Agreement, by the contractor for supply.
- (b) Detailed Supply Plan approved by AEGCL/Project Execution Chart/Pert chart approved by AEGCL.
- (c) Documentary evidence of dispatch (R/R or receipt of L/R) (For Supply only)
- (d) Contractor's detailed invoice & packing list identifying contents of each shipment/supply.
 - i. (For Supply only)

- (e) Copy of certificate in respect of payments of State/ Central taxes, duties, levies, etc. have been made against supply of equipment/ materials through contractors/ sub-vendors under the contract, if applicable.
- (f) Certified copy of Insurance Policy/ Insurance Certificate.
- (g) Manufacturer's/ Contractor's Guarantee Certificate of Quality.
- (h) Material Dispatch Clearance Certificate (MDCC)/ Dispatch Instructions (DI) for dispatch of materials from the manufacturer's works. MDCC/DI shall be issued by authorised Officer of AEGCL. (For Supply only)
- (i) Manufacturer's/ Supplier's copy of challan.(for Supply only)
- (j) Copy of testing/ inspection of equipment/ material clearance certificate issued by AEGCL.
- (k) Copy of Goods Receipt Sheet (GRS)/ Materials Received Voucher (MRV)/ Materials Handing Over Voucher (MHOV).(For Supply only)
- (l) Joint Measurement Sheet.(For erection only)
- (m) Labour License, insurance, etc.- (for erection only)
- (n) Payments would be made subject to fulfillment of the following conditions-
 - i. Advance copy of invoices/ bills in duplicate with documents/ information as stated under clause (a) to (m) are to be furnished sufficiently in advance.
 - ii. Any demurrage charges on account of late intimation and/or delivery of documents by the Bank is to be borne by the supplier.
 - iii. The supplier should intimate the dispatch of each and every consignment to the Purchaser and the Consignee.
 - iv. All Bank charges are to be borne by the supplier.
 - v. Payment through Bank for supply of equipment/ materials, dispatched by Rail would be allowed if required, however the equipment/ materials have to reach at destination/ project site in full and good condition and additional expenditure in any form for this is to be borne by the supplier. A prior approval from appropriate authority of the AEGCL is to be taken in this respect.
 - vi. Payment through Bank in respect of material/ equipment dispatched by road transport would be allowed if required, provided that the transport agency is approved by the Banking Association and prior approval thereof is given by the AEGCL's appropriate authority.

5.8.4 ADVANCE PAYMENT

No advance payment is applicable for this contract.

5.8.5 Fund Availability

Payment shall be made subject to availability of fund against this specific project.

5.9.0 PERFORMANCE SECURITY DEPOSIT

5.9.1. Subject to **Clause 5.9.2 & 5.9.3** the contractor shall have to deposit to the extent of 10% (ten percent) of the total value of the contract order as performance security (Bank Guarantee), within **ten (10)** days of receipt of notification of award/LOI and before signing of the Contract Agreement, duly pledged in favor of the Purchaser and such security deposits shall be valid up to **60(sixty) days** beyond the warranty period.

5.9.2. If required, the supplier on his own has to renew the BG atleast 1(one) month before the date of expiry of the BG; failing which the BG shall be revoked by AEGCL within the claim period without any prior intimation to the contractor.

5.9.3. If the supplier 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 supplier.

5.9.4. No interest shall be payable on such deposits.

5.10.0 WARRANTY

5.10.1. The Supplier/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.

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

5.10.3. The warranty shall remain valid for **sixty (60) months** after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Purchaser's Requirement.

5.10.4. If during the Period Warranty any defect should be found, the Purchaser shall give Notice to the Supplier/Manufacturer 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 Supplier/Manufacturer to inspect such defects.

5.10.5. If having been notified, the Supplier/Manufacturer fails to remedy the defect within a period of 15 (fifteen) days, the Purchaser may, following notice to the Supplier/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 Supplier or may be deducted by the Purchaser from any monies due the Supplier or claimed under the Performance Security.

5.11.0 COPY RIGHT ETC

5.11.1. The Supplier shall indemnify the purchaser against all claims actions, suits and proceedings for the infringement or alleged infringement of any patent, design or copyright protected either in the country of origin or in India by the use of any equipment supplied by the Supplier but such indemnity shall not cost any use of the equipment other than for the purposes indicated by or reasonably to be inferred from the specification.

5.12.0 QUANTITY VARIATION

5.12.1. "Purchaser" shall have the right to increase the ordered quantity by 20% 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 order except in regard to completion schedule, which shall be mutually agreed upon in case of enhancement of the ordered quantity.

5.13.0 INSPECTION AND TESTING

5.13.1. The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in Sections 3, Purchaser's Requirements.

5.13.2. The inspections and tests may generally be conducted on the premises of the Supplier/Manufacturer, at point of delivery. Subject to **Sub-Clause 5.13.3**, The Supplier shall furnish, all reasonable facilities and assistance, including access to drawings and production data to the inspectors at no charge to the Purchaser.

- 5.13.3. The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in **SCC Sub-Clause 5.13.2**, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.
- 5.13.4. Whenever the Supplier is ready to carry out any such test and/or inspection, the Supplier shall give a reasonable advance notice (not less than 30 days) of such test and/or inspection and of the place and time thereof to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.
- 5.13.5. The Supplier/manufacture shall provide the Purchaser with a certified report of the results of any such test and/or inspection.
- 5.13.6. The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to **SCC Sub-Clause 5.13.4**
- 5.13.7. If it is agreed between the Purchaser and the Supplier that the Purchaser shall not attend the test and/or inspection, then the Supplier may proceed with the test and/or inspection, and should provide the Purchaser with a certified report of the results thereof.
- 5.13.8. The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to **SCC Sub-Clause 5.13.5 & 5.13.7**, shall release the Supplier from any warranties or other obligations under the Contract.

5.14.0 INSURANCE

- 5.14.1. The "Supplier" shall, have, unless, otherwise specified by the Purchaser, insure the materials through their underwrites at their cost and shall keep it insured against any loss/ damaged/ pilferage in transit, destruction or damage by fire/ flood, without exposure to vagaries of weather or through riot, civil commotion, war or rebellion, for the full value of the materials until the materials are received at the purchaser's destination store.
- 5.14.2. The "Supplier" shall be responsible for safe arrival at destination, unloading and receipt of the materials by the consignee. The Purchaser will discharge consignee's responsibilities only and shall not be responsible for any damage/ loss/ pilferage/ non-delivery by the carriers.
- 5.14.3. In case of any loss/ damage/ pilferage/ non-delivery/ short delivery by carriers etc.; the Supplier shall replace free of cost missing / damaged / lost materials within 30(thirty) days from the receipt of report thereof from the consignee(s) without waiting for settlement of their claims with their carriers / under-writers. Normally, such reports from the consignee(s) to the supplier shall be initiated within a period of 30(thirty) days from the date of receipt of each consignment by him /them.
- 5.14.4. If it is considered necessary that the damage equipment either in part or in full to be sent back to the manufacturer's works for repair, the manufacturers/ suppliers will furnish the Bank Guarantee for the full value of equipment needing repairs and such Bank Guarantee shall remain valid till such time, the equipment are repaired and returned to the consignee in good condition. The to and fro freight, handling and insurance charges in such cases will be borne by the Supplier.
- 5.14.5. Unless, otherwise mutually agreed upon, in case of failure by the Supplier to replenish /make good of the loss /damage /short supplied quantities, within the stipulated period, the Purchaser reserves the right to

forfeit the security deposit and/ or adjust any outstanding payment to the "Supplier" with the Purchaser or take any other appropriate action.

5.15.0 FORCE MAJEURE

- 5.15.1.** "Force Majeure" shall mean any event beyond the reasonable control of the Purchaser or of the Supplier, 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 where caused by circumstances that are themselves Force Majeure.
- 5.15.2.** 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.
- 5.15.3.** 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 5.16.0**.

5.16.0 EXTENSION OF TIME FOR COMPLETION

- 5.16.1.** The Time(s) for Completion specified in the Article 3 of the Contract Agreement (Contract Forms) shall be extended if the Supplier 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 5.12.0**; and
 - (b) any occurrence of Force Majeure as provided in **SCC Clause 5.15.0**.
- 5.16.2.** Except where otherwise specifically provided in the Contract, the Supplier 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 Supplier shall agree upon the period of such extension. In the event that the Supplier does not accept the Purchaser's estimate of a fair and reasonable time extension, the Supplier shall be entitled to refer the matter to a Dispute Board, pursuant to **SCC Sub-Clause 5.19.0**.

5.17.0 LIQUIDATED DAMAGE

- 5.17.1. The Supplier guarantees that it shall attain Completion of the Works within the Time for Completion specified in the Contract Agreement pursuant to **SCC Sub-Clause 5.6.2**, or within such extended time to which the Supplier shall be entitled under **SCC Clause 5.16.0** hereof.
- 5.17.2. If the Supplier fails to attain Completion of the Works within the Time for Completion or any extension thereof under **SCC Clause 5.16.0**, the Supplier shall pay to the Purchaser liquidated damages at the rate of $\frac{1}{2}$ % (**half 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 Supplier from any of its obligations to complete the Works or from any other obligations and liabilities of the Supplier under the Contract.
- 5.17.3. 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 supplier 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 Supplier; or
 - (b) Cancel the contract wholly or in part and to complete the works at the full risk and cost of the Supplier and forfeit the security deposit.
 - (c) Declare it as a "Contractual Failure" and act in accordance with **SCC Clause 5.18.0**.

5.18.0 CONTRACTUAL FAILURE

- 5.18.1. In the event of contractual failure of any respect on the part of the Supplier, the Purchaser shall be entitled to operate security deposit or any deposit or any payment due to supplier 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 "Supplier" or pending enquiry, suspend him or take any other steps considered suitable.

5.19.0 ARBITRATION

- 5.19.1. If at any time, any question, disputes or differences whatsoever shall rise between the Purchaser and the Supplier, 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 Supplier 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.
- 5.19.2. 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 Supplier.

Section - 6

Contract Forms

(This Section contains the Letter of Acceptance, 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)

Section 6 - Contract Forms

This Section contains the Letter of Acceptance, 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.

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1. Notification of Award

[AEGCL's letter head]

**Letter of Acceptance
Supply of Goods and Related Services**

[date]

To: [Name and address of the Supplier]

This is to notify you that your Bid dated [date] for execution of the [name of the Contract and identification number, as given in the Contract Data] for the Contract Price in the aggregate of [amounts in numbers and words] [name of currency] (as per Price Schedule-1), as corrected and modified in accordance with the Instructions to Bidders is hereby accepted, and it is decided to award on you the 'Supply and Delivery Contract' covering inter-alia Ex-works supply and Delivery of all Goods including Related Services.

You are requested to furnish the Performance Security within seven (7) days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section 8 (Contract Forms) of the Bidding Document

[Authorized Signature]

[Name and Title of Signatory]

Assam Electricity Grid Corporation Limited

Attachment: Contract Agreement

2. Contract Agreement

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, BijuliBhawan, Paltanbazar, Guwahati-781001, Assam and **[name of Supplier]**, a firm/company incorporated under the laws of Company Act, 1956 and having its principal place of business at **[address of Supplier]** (hereinafter called "the Supplier"). **[in case of JV insert name and address of the Lead Partner as well as other Partners]**

WHEREAS AEGCL desires to engage the Supplier to the 'Supply and Related Service Contract' covering "Supply of Power & Control cables of 1.1KV Class for various sub-stations in Assam under PSDF" with all accessories and delivery to various Substation Sites of AEGCL and Related Services, as detailed in the Contract Document, and the Supplier 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 5.2.0)

The following documents shall constitute the Contract between the Purchaser and the Supplier, 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 Supplier
- (c) Letter of Technical Bid and Technical Proposal submitted by the Supplier
- (d) Special Conditions of Contract
- (e) General Conditions of Supply and Erection.
- (f) Specification (Purchaser's Requirements)
- (g) Other completed Bidding Forms submitted with the Letters of Technical and Price Bids
- (h) Guaranteed and other Technical Particulars (as submitted with the Bid).
- (i) Any other documents (if necessary) shall be added here

1.2 Order of Precedence (Reference SCC Clause 5.2.0)

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 5.1.0)

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

Article 2

Contract Price and

2.1 Contract Price (Reference SCC Clause 5.7.0)

The Purchaser hereby agrees to pay to the Supplier the Contract Price in

Terms of Payment

consideration of the performance by the Supplier of its obligations hereunder. The Contract Price shall [. . . **amounts in rupees in words** . . .], [. . . **amounts in figures** . . .] as specified in Price Schedule No. 3 (Grand Summary).

The Contract Price is FIXED for entire period of the Contract.

2.2 **Terms of Payment** (Reference SCC Clause 5.8.0)

The terms and procedures of payment according to which the Purchaser will pay the Supplier are given in the Appendix (Terms and Procedures of Payment) hereto.

**Article 3
Commencement Date
and Completion Time**3.1 **Commencement Date** (Reference SCC Clause 5.6.1)

The Commencement Date upon which the period until the Time for Completion of the total scope under the Contract shall be counted from is the date when the LOA is issued.

3.2 **Completion Time** (Reference SCC Clause 5.6.2)

The whole scope under this Contract shall be completed within Nine (09) months from Contract Commencement Date with following schedule:

Article 4. Appendices

5.1 The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement.

5.2 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 Supplier 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

[**Signature**]

[**Title**]

in the presence of

[**Signature**]

[**Title**]

Signed by, for and on behalf of the Supplier

[**Signature**]

[**Title**]

in the presence of

[**Signature**]

[**Title**]

APPENDICES

Appendix 1 - Terms and Procedures of Payment

Appendix 2 - Time Schedule

Appendix 3 - Performance Security.

Appendix 4– Price Schedules.

Appendix 5– Guaranteed and Other Technical Particulars.

Appendix 1 – Terms and Procedure of Payment

The Purchaser shall pay the Supplier In accordance with the provisions of SCC Clause 5.8.0 (Terms of Payment).

Appendix 2 - Time Schedule

(Bidders shall furnish with bids a construction schedule in form of bar chart. The time schedule should match with the completion time mentioned elsewhere in the Bidding Document)

Appendix 3 - Form of Performance Security**Bank Guarantee**

(To be stamped in accordance with Stamp Act)

To: _____ *[name of Purchaser]*
 _____ *[address of Purchaser]*

WHEREAS _____ *[name and address of Supplier/Manufacturer]* has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ *[name of Supplier/Manufacturer and brief description of Scope]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier/Manufacturer 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 Supplier/Manufacturer such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Supplier/Manufacturer, up to a total of _____ *[amount of Guarantee]*¹ _____ *[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 Supplier/Manufacturer 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 scope to be performed thereunder 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.

This guarantee shall be valid until the date, 30 days beyond the Warranty Period as per the Contract.

Signature and Seal of the Guarantor _____
 Name of Bank _____
 Address _____
 Date _____

¹ An amount is to be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract.

Appendix 4–Price Schedules

Appendix 5—Guaranteed and other Technical Particulars

Section-7

Bill Of Material (BOM)

SI No	Item	Unit	Qty
1	Design, Engineering, Testing and Supply of IEEE 1070-2006 transmission line Emergency Restoration System manufactured along with suitable transportation vehicle of the ERS Tower.	No	2

Bill of materials of Accessories and spares of 2 no of ERS

ERS Structure Component				
SI No	Description	Qty	Total Qty	Unit
1	Foundation Plate	1	2	No
2	Rigid Gimbal	1	2	No
3	7ft Column	4	8	No
4	14 ft Column	6	12	No
5	45/45 deg Guy Plate	8	16	No
6	0/0 deg Guy Plate	3	6	No
7	Box Section	4	8	No
8	ERS 5/8-11 x 3½ Hex Bolt	250	500	No
9	5/8- 11 hex Nut Zinc	250	500	No
10	5/8 Lock Washer	360	720	No

ERS Training & Computer Programs

11	ERS Computer Analysis Program	1	1	No
12	ERS On-Site Training (Weeks)	2	2	No

Conductor & Guying Hardware

13	Anchor Shackle, 60kip	40	80	No
14	Chain Link, 60kip	10	20	No
15	7/8 x 12" Eye-Eye Turnbuckle	5	10	No
16	Insulator Blade Adopter	4	8	No
17	30 kip Extension Strap x 15" long	8	16	No
18	30 kip Extension Strap x 49" long	8	16	No
19	Suspension Clamp 19.1-30.2	8	16	No
20	Conductor Strain Clamp 12.7-30.5mm	8	16	No
21	OHGW Suspension Clamp	2	4	No
22	OHGW Strain Clamp	2	4	No

Insulator

23	220kV Suspension Insulator	8	16	No
24	EHV Corona Ring for Suspension Insulator 8"	0	0	
25	Station Post Insulator	8	16	No
26	EHV Corona Ring Post Insulator	0	0	

Guy Wire Component

27	Thimble Clevis	12	24	No
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28	PLP Dead-end Guy Wire Grip	40	80	No
29	9/16" Dia EHS Guy Wire - in meter	1000	2000	No
30	Guy Strain Insulator	6	12	No

Anchor Assemblies

31	<i>Cross Plate Anchor Assembly</i> <i>Each Set Consisting the following</i>	9	18	Set
	Triple Eye Anchor Rod- 1No			
	Cross Plate Anchor Head- 1No			
32	<i>Marsh Anchor Assembly, Triple Helix</i> <i>Each Set Consisting the following</i>	9	18	Set
	Triple Thimble Eye-1 no			
	Triple Helix Anchor- 1 no			
	10ft Extension Rod -1 no			
	5ft Extension Rod- 1 no			
33	Cross Plate Anchor Head Only	5	10	No

Accessories

34	<i>Assembly and Erection tool set</i> <i>Each set</i> <i>Consisting of the following</i>			
	30ft Gin Pole	1	2	No
	2 Ton Tirfor Grip hoist	6	12	No
	Capstan with foot Pedal	1	2	No
	5/8" Polyester Rope, 600' Spool	4	8	No
	12" Spanner Wrench	2	4	No
	1/2" Square Drive Ratchet	4	8	No
	1/2" Square Drive Deep socket 15/16"	4	8	No
	12 Point Box Wrench 15/16"	4	8	No
	3 Ton Chain Hoist	5	10	No
	Pulling Eye	8	16	No
	Automatic Wire Grip	6	12	No
	10ft Metal Sling	4	8	No
	10ft Nylon Sling	6	12	No
	6ft (1.8m) Endless Round Sling	6	12	No
	Conductor Lifting hook	3	6	No
	Snatch Block	5	10	No
	Anchor Construction Yoke Plate	4	8	No
	6 Ton Hydraulic Wire Cutter	1	2	No
35	<i>Hydraulic Power Unit (HPU Set)</i> <i>Each set</i> <i>Consisting of the following</i>			
	GPU-18-8 Hydraulic power unit .18hp	1	2	No
	Hose set HC-16-25	2	4	Set
36	Marsh Anchor Manual Installation Tool	3	6	No
37	Foundation Stakes 1.2m	18	36	No
38	20ft Insulator & Hardware Storage Container	1	2	No