

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

FUND: "Fund Received from AERC"



(E-Tender)
(National Competitive Bidding)

**ASSAM ELECTRICITY GRID
CORPORATION LIMITED**

BID IDENTIFICATION NO:

AEGCL/MD/Tech-1168/ERS/2025-26/Retender/BID Dated 28.07.2025

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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. When the bidder is a Joint Venture (JV) of two or more firms as partners, all partners shall be jointly and severally liable. The JV shall legally authorize one of the partners as the lead partner for the purpose of submitting the bid, incur liabilities; receive payments and instructions on behalf of the others. A copy of the registered JV agreement, executed on non-Judicial stamp paper, shall be submitted with the bid. However, in case of successful bid, the agreement shall be signed by all the partners, so as to be legally binding on all the partners.

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:

- "Deviation" is a departure from the requirements specified in the Bidding Document;
- "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and
- "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 along with 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.**

- Letter of Technical Bid;
- Written confirmation of authorization to commit the Bidder (i.e. Notarized Power of Attorney);
- Bid Security; and
- 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.

The bidders who have already submitted the BG for the tender vide NIT No. AEGCL/MD/Tech-1027/ERS/2022/NIT Dated 17/06/2025, the same BG shall be accepted for this tender.

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,

- if accepted, would:
 - 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-1168/ERS/2025-26/Retender/IFB Dated 28.07.2025</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-1168/ERS/2025-26/Retender/BID Dated 28.07.2025</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: gm.mpr@aegcl.co.in with a copy to cgm.ppd@aegcl.co.in</p> |
| ITB 1.2.2.4 | Pre-Bid Meeting shall be scheduled: No |

| | |
|----------------|---|
| 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 | Unless otherwise specifically indicated in the Section 3 (Purchaser's Requirements), bidders shall quote for the entire plant and services on 'single responsibility basis'. |
| | |

| | |
|--------------|---|
| ITB 1.3.7.4 | The prices quoted by the Bidder shall be FIXED for entire period of the Contract. |
| 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.16,00,000.00 |
| 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> <p>The bidders who have already submitted the BG for the tender vide NIT No. AEGCL/MD/Tech-1027/ERS/2022/NIT Dated 17/06/2025, the same BG shall be accepted for this tender.</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 bid submission purposes 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: 18.08.2025 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: 19.08.2025 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 | Must meet requirement | 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 | Must meet requirement | Not applicable | Form LIT – 1 |
|--|-----------------------|----------------|-----------------------|----------------|--------------|

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 | Must meet requirement | Not applicable | Form FIN - 1 with attachments |
|---|-----------------------|----------------|-----------------------|----------------|-------------------------------|

2.3.2 Average Annual Turnover

| | | | | | |
|---|-----------------------|-----------------------|-------------|---|--------------|
| Minimum average annual turnover of Rs. 2,40,00,000.00 (Rupees Ninety Lakh only) calculated as total certified payments received for contracts in progress or completed, within the last 3 years . | Must meet requirement | Must meet requirement | 25% Minimum | Must meet 40% of the requirement (Lead partner) | Form FIN – 2 |
|---|-----------------------|-----------------------|-------------|---|--------------|

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: | Must meet requirement | Must meet requirement | 25% Minimum | Must meet 40% of the requirement (Lead partner) | Form FIN – 3 |
|---|-----------------------|-----------------------|-------------|---|--------------|

| | | | | | |
|---|--|--|--|--|--|
| (1) the following cash-flow requirement, Rs. 2,80,00,000.00 (Rupees One Crore Twenty Lakhs only) , and | | | | | |
| (2) the overall cash flow requirements for this contract and its current works commitment. | | | | | |

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 3 (three) years prior to the bid submission deadline | Must meet requirement | Not applicable | Must meet requirement | Not applicable | Form EXP – 1 |
|---|-----------------------|----------------|-----------------------|----------------|--------------|

2.4.2 Specific Experience

| | | | | | |
|--|-----------------------|----------------|----------------|-----------------------|--------------|
| The bidder must have supplied 132 kV (or above voltage class) various equipment in different utilities of Power Sector under operation for at least two 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 | Must meet requirement | 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 from manufacturers mentioned against item as per specifications in the Bidding Document.

NOTE: *1. 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.*

2.5 All the guidelines issued by Govt of India on Emergency Restoration System of Transmission Line are applicable for this tender. However, the performance to the manufacturer shall be as per the terms and conditions of the above-mentioned bid/tender.

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 Guarantee 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 220kV Emergency Restoration System (ERS) for 220kV and 132kV transmission line along with accessories, T&P, software and a transportation vehicle of the ERS Tower as per Purchaser's Requirement and BoM of the bid documents. | | | |
| 1.1 | Tension 0 to 60deg ERS Tower (Min. height of 35mtrs) convertible into Suspension ERS | 2.00 | Nos. | |
| 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 220kV Emergency Restoration System (ERS) for 220kV and 132kV transmission line along with accessories, T&P, software and a transportation vehicle of the ERS Tower as per Purchaser's Requirement and BoM of the bid documents. | | | |
| 1.1 | Tension 0 to 60deg ERS Tower (Min. height of 35mtrs) convertible into Suspension ERS | 2.00 | Nos. | |
| 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 10 (ten) 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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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 (Brief description of the scope of the work)

- 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 and 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,. 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 vehicle of (Model Name: Bharat Benz 1117 BSVI 4X2-7, Body Type: 20 Feet HSD, or equivalent Model of other make) for transportation of ERS Towers along with all accessories from the store. Approval of the model of vehicle from the purchaser is required during detail engineering. Registration, Insurance & necessary Permits, Taxes etc. of the Vehicle should be in the scope of the contractor. The bidder shall quote including this item in the prices of ERS.

- All bidder must provide training on design, installation etc. of ERS using PLS-CADD only to purchasers Engineers.
- Bidder should submit Design documents of ERS with various configuration Erection drawing in A3 size paper showing all loading & design parameters as per technical specification of AEGCL along with supply of ERS materials. This should include following for each tower configuration i.e. Line & Tower Configuration along with design criteria considered, Anchor position & Attachment Points.
- 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, containers, mandatory spares etc.
- 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.
- The on-site training and demonstration of supplied ERS as per Purchaser's Requirements.

Part-II

SECTION-I

220KV ERS Technical Specification

**TECHNICAL SPECIFICATIONS
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TECHNICAL SPECIFICATION

Section-I

1.0 General Information & Scope:

This specification covers the scope of work, technical description and requirements for design, manufacture and supply of Emergency restoration systems for 220kV transmission lines.

1.1 The scope of work inter-alia includes design, manufacturing, testing and supply of complete sets of Emergency Restoration System (ERS) up to designated stores.

1.2 Each set of ERS shall include the following:

- (i) modular ERS towers/structures, foundation/base plates, guys & guy hardware, anchor assemblies,
- (ii) modular composite insulators along with hardware fittings,
- (iii) tools and tackles and equipments required for erection and stringing.
- (iv) computer software for analyzing failure scenarios and identifying appropriate scheme of ERS deployment,
- (v) containers for all ERS items
- (vi) Other items as detailed in Section-II of Technical specification, Bid proposal sheets and Purchaser's Requirements.

Further, the scope of work shall also include training & demonstration as well as preparation and submission of comprehensive installation and maintenance manuals and guidelines for storage, transportation, erection and stringing operation of ERS and associated Equipments.

1.3 The detailed BOQ for the above scope of work is indicated Part-III of the Technical Specification.

2.0 Table of Compliance

Bidder shall use one copy of "Technical Specifications" (Section-I & Section-II) to indicate compliance status. Within the right-hand margin, Bidder shall indicate compliance status to each paragraph along with a cross-reference to its proposal and an index key for any explanation or comment.

In addition, The Bidder shall annotate the Table Of contents of the above stated volume to provide a high-level summary of compliance status, in both cases, the following symbols, and no others, shall be used:

C- Bid complies with all requirements in the adjacent paragraph

A- Bid is not compliant with the requirements in the adjacent paragraph, but a functional alternative is proposed.

X- Bid takes exception to the requirements of the adjacent paragraph and no functional alternative is proposed.

Only one symbol shall be assigned to a paragraph and shall indicate the worst-case level of compliance for that paragraph. The annotation may be hand written.

Bidder shall underline, on the compliance copy, all requirements to which exceptions have been taken (X) or to which alternatives have been proposed (A).

Each alternative shall be clearly and explicitly described. Such descriptions shall use the same paragraph numbering as the bid document sections addressed by the alternatives. All alternative descriptions shall be in one contiguous section of the Bidder's proposal, preferably in the same volume, and titled "Alternatives". A separate section titled "Exceptions" should be provided containing any discussion or explanation Bidder chooses to provide concerning exceptions taken.

Alternatives, which do not substantially comply with the intent of the bid documents, will be considered exceptions.

The Purchaser will assess the merits of each alternative and exception and will be the sole judge as to their acceptance.

3.0 Weights and Measures

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

4.0 General Technical Conditions

4.1 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.

4.2 Engineering Data

4.2.1 The Supplier shall furnish detailed engineering data of all the equipments/tools offered by him. 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.

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

4.3 Drawings

4.3.1 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, material description, Bill of Materials, weight of each component, break-up or packing and shipment, fixing arrangement required, the dimensions required for installation and any other information specifically requested in the Specifications.

4.3.2 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.

4.3.3 The drawings submitted by the Supplier shall be reviewed by the Purchaser as far as practicable within four (4) weeks and shall be modified by the Supplier if any modifications and/or corrections are required by the Purchaser in compliance with the 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.

4.3.4 The drawings submitted for approval to the Purchaser shall be in quadruplicate. One print of such drawings shall be returned to the Supplier by the Purchaser marked "approved/approved with corrections".

The Supplier shall thereupon furnish the Purchaser additional prints as stipulated in Section-II of Technical Specification along with one reproducible in original of the drawings after incorporating all corrections.

4.3.5 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.

4.3.6 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. The Supplier may make any changes in the design which are necessary to make the equipment/material conform to the provisions and intent of the Contract and such changes will again be subject to approval by the Purchaser. Approval of Supplier's drawing or work by the Purchaser shall not relieve the Supplier of any of his responsibilities and liabilities under the Contract.

4.4 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.

4.5 Reference Standards

4.5.1 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.

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

4.6 Design Improvements

4.6.1 The Purchaser or the Supplier may propose changes in the Specification of the equipment/material or quality thereof and if the parties agree upon any such changes, the Specification shall be modified accordingly.

4.6.2 If any such agreed upon change is such that it affects the price and schedule of completion, the parties shall agree in writing as to the extent of any change in the price and/or schedule of completion before the Supplier proceeds with the change. Following such agreement, the provision thereof, shall be deemed to have been amended accordingly.

4.7 Quality Assurance

4.7.1 To ensure that the equipment and services under the scope of this 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 the specifications, the Supplier shall adopt suitable quality assurance programme to control such activities at all points necessary. Such programme shall be outlined by the Supplier and shall be finally accepted by the Purchaser after discussions before the award of Contract. A quality assurance programme 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 programme;

(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 the 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.

4.8 Quality Assurance Documents

4.8.1 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.

4.8.2 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.

4.9 Purchaser's Supervision

4.9.1 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 document.

4.9.2 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 Specifications;
- 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.

4.10 Inspection, Testing & Inspection Certificate

4.10.1 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.

4.10.2 The Supplier shall give the Purchaser/Inspector written notice at (least 3 weeks in advance in case of domestic Supplies and at least 6 weeks in advance in case of foreign Supplies) of any material being ready for testing. Such tests shall be to the Supplier's account except for the expenses of the Inspector. 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.

4.10.3 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 objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to the Purchaser/Inspector giving reasons therein, that no modifications are necessary to comply with the Contract.

4.10.4 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 certificate 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 shall not bind the Purchaser to accept the equipment should it, on further tests after erection, be found not to comply with the Contract.

4.10.5 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 authorised representative to accomplish testing.

4.10.6 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.

4.11 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 basic 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.

4.12. Design Co-ordination Meeting

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

4.13 Packing

4.13.1 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.

4.13.2 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.

4.13.3 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.

4.13.4 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.

4.13.5 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.

4.13.6 To the maximum degree possible, the Supplier shall utilize the "metallic Containers" for shipping of equipments/tools to India. 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". The metallic containers shall be considered as the property of the Purchaser.

4.13.7 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.

5.0 Technical Data Sheet

The Technical Data Sheet of the equipment/material shall be furnished by the Bidders in one original and four (4) copies along with their offer. The Bidder shall also furnish any other schedule information as in their opinion is needed to give full description and details to judge the item(s) offered by them.

6.0 Technical Information

The technical particulars of 220kV & 132KV Double circuit A.C transmission lines under operation/ construction, for which ERS is to be designed are indicated below

6.1 Electrical System Data

| Sl. No. | Description | 220kV Lines | 132Kv Lines |
|---------|---|---------------|--------------|
| (a) | Nominal voltage | 220kV | 132KV |
| (b) | Maximum system voltage | 245kV | 145KV |
| (c) | BIL (Impulse) | 1050kV (Peak) | 650kV (Peak) |
| (d) | Power frequency withstands voltage (Wet) | 460kV(rms) | 275kV (rms) |
| (e) | Minimum corona extinction voltage (Dry) at 50Hz under dry condition | 156kV rms | 105kV rms |
| (f) | Short circuit level in 1sec. | 50 kA | 40 kA |

7.0 Service Conditions

7.1 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 (m/sec) | 50m/sec (Wind Zone 5) |
| 5. | Maximum altitude above mean sea level (Meters) | Up to 1000 meters |
| 6. | Isokeraunic level (days/year) | 70 |
| 7. | Moderately hot and humid tropical, climate, conducive to rust and fungus growth. | |
| 8. | Average no of rainy days Per annum | 150 days |
| 9. | Seismic Intensity | Wind Zone 5 |

SECTION-II

220KV ERS Technical Specifications

TECHNICAL SPECIFICATIONS

SECTION-II

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TECHNICAL SPECIFICATION

SECTION -II

1.0 Technical Description

1.1 The Emergency Restoration System (ERS) shall generally conform to IEEE-1070. However, other ERS supplying Equipments, materials, workmanship and other requirements such as design, geometry, fabrication and testing that provide performance in accordance with the functional specifications of the bidding documents will also be accepted.

1.2 Modular Restoration Structures

1.2.1 The ERS structure shall be of modular construction allowing easy adoption to various line designs/ configuration. 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 structure components shall be of light weight, made of high strength Aluminum Alloy or Hot Dip Galvanized Structural Steel or a combination of high strength Aluminum Alloy and Hot Dip Galvanized Structural Steel. The ERS with structures made as per above two options materials shall be considered equivalent. The shape, size, dimensions and weight of individual components shall be such that manual handling of the components is possible. The ERS structure shall facilitate tower climbing. The ERS structure column sections shall be made of aluminum alloy only & shall not be more than 4.2m (14feet) in length. Also, weight of the structure column section shall not exceed 200 kgs each. The weight of any other individual component of ERS shall not exceed 260kgs.

1.2.3 ERS towers shall be of following configuration types: -

- (i) Suspension ERS towers with horizontal V insulator assembly (to be suitable for up to 20deg line deviation). The Suspension ERS tower must be convertible into Tension ERS tower & vice-e-versa.
- (ii) Tension/Dead end towers (to be suitable for up to 60deg line deviation) with tension insulator assembly and horizontal V insulator assembly for jumper. The Tension ERS tower must be convertible into Suspension ERS tower & vice-e-versa.

Each ERS suspension tower shall accommodate three phases of one circuit for circuit- wise restoration of S/C or D/C lines.

1.2.4 The tower structures, composite insulators and hardware components shall be designed for circuit-wise restoration of 220kV and 132kV Double circuit transmission lines with Twin ACSR Moose, Deer, Zebra, Panther and Single ACSR Deer, Zebra, Panther conductor per phase.

1.2.5 The structures shall be designed to withstand the loads that results from the load cases specified at Clause 1.11 of this Section of Technical Specification.

1.2.6 Locating pins and alignment holes may be provided in each structure to simplify assembly and erection.

1.3 Foundation/ Base Plates

The foundation/ base plates shall be designed to rest on the ground surface with anchors or metal stakes to avoid sliding. They shall be made of light weight, high strength material. The foundation/ base plates shall be designed for loads on foundation/ base plates under specified

loading conditions considered for design of ERS structures. The detailed designs shall be submitted by the Supplier during detailed engineering. The bearing capacity shall be considered as 27,350 kg/sqm for normal soil and 10,000 kg/sqm for low bearing capacity soil.

1.4 Gimbal Joints/Articulation

The Gimbal joint/Articulation shall be of such design that it can be fixed on the foundation plate and it shall allow assembly of structures over itself. It shall allow leaning and rotation in all directions. 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. To facilitate temporary fixing & alignment of gimbal/ articulation joint during erection of ERS structures, suitable arrangement with turn buckles or alternate means shall be provided.

1.5 Guy Plates/ Swivels, Box section/Connecting Box & Provisions for Earth wire

The design of Guy plates shall be such that they 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. Depending upon the requirement, the angle of guy plates shall be 0/0, 0/45 or 45/45. It shall be made of light weight, high strength material.

Box section (if required) shall be of such design that it allows attachment/mounting of 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 weight, high strength material.

Alternatively, swivels or Universal bracket or other means of attachment of insulators and guy wires to the structure in various directions simultaneously shall also be acceptable.

Suitable provisions shall be provided on the ERS tower for installation of earth wire, as required.

1.5.1 Actual number of guy plates/ swivels for attachment of guys shall be finalized based on design analysis of ERS towers during detailed engineering.

1.6 Anchoring Assembly

Depending on the prevailing soil conditions, following different anchoring arrangement shall be supplied, the details of which are given in Part-III of Technical Specification:

- (i) Cross plate anchor assembly for normal soil
- (ii) Manta Ray anchor assembly for normal soil
- (iii) Triple Helix anchor assembly for loose/ marshy soil
- (iv) Rock anchor assembly for rocky soil

Anchor assemblies shall be of minimum 150kN UTS and shall include guy adaptor, extension rod & associated fittings as per specified requirements

1.6.1 The quantity for anchor assemblies in the Bill of Quantities has been kept corresponding to the estimated number of guys required. Actual number of anchors shall be finalized based on design analysis of ERS towers during detailed engineering.

1.7 Guy Wires and Guy Hardware

1.7.1 Guy wires having minimum 150kN UTS (14.3mm dia) and made of high strength galvanized steel shall be supplied in standard lengths of 70mtr. Preformed guy grips and guy wire thimbles to be used along with the guy wires for attachment to the tower and anchoring assembly shall have minimum ultimate strength greater than that of guy wire.

1.7.2 Other Guy hardware comprising of turn buckle, anchor shackles, extension link/plates (as per requirements) as indicated in the Part-III of the technical specification shall also be supplied. The minimum UTS of guy hardware & components shall be 150 kN.

1.7.3 Actual number of guy wires & guy hard wares shall be finalized based on design analysis of ERS towers during detailed engineering.

1.7.4 In case, length of guy wire is more than standard length of 70m, such guy wires have to be supplied based on actual requirement.

Such guy wires can be supplied in one length or in multiples of standard lengths to the extent required. In addition, jointing arrangements (using additional thimble, preformed grips, shackles, etc.) have to be supplied.

The payment for such lengths & jointing arrangements, if any, shall be restricted to one standard length i.e. 70mtr.

In case requirement of guy wire is less than standard length of 70mtr, such guy wires shall be supplied in standard length.

1.8 Composite Insulator Strings, Hardware Fittings & Guy insulators

1.8.1 All necessary composite insulator assemblies and corresponding hardware required for proposed structures shall be supplied with each set of ERS. The hardware fittings shall include end attachment, yoke plate, suspension clamps, tension clamps, extension links, turn buckles, corona control rings, etc.

1.8.2 The insulator strings/assemblies shall be of following types:

i. Horizontal V (single braced, single post) suspension insulator assembly along with hardware fittings comprising of:

- a) Composite long rod suspension insulator (2.7m \pm 0.5m/3.5m length, 160kN tensile strength)
- b) Composite long rod post insulator (2.7m \pm 0.5m/3.5m length, min 64mm core dia, 120kN tensile strength, 30kN compressive strength)
- c) Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/grading rings other fittings & components as per requirement

ii. Double tension insulator string assembly along with hardware fittings comprising of:

- a) Composite long rod suspension insulator (2.7m \pm 0.5m/3.5m length, 160kN tensile strength)
- b) Hardware fittings including end attachment, yoke plates, tension clamps, extension links, turnbuckles, corona/grading rings other fittings & components as per requirement

iii. Horizontal V (single braced, single post) pilot suspension insulator assembly along with hardware fittings comprising of:

- a) Composite long rod suspension insulator (2.7m \pm 0.5m/3.5m length, 160kN tensile strength)
- b) Composite long rod post insulator (2.7m \pm 0.5m/3.5m length, min 64mm core dia, 120kN tensile strength, 30kN compressive strength)
- c) Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/grading rings other fittings & components as per requirement

The hardware fittings shall be suitable for Twin ACSR Moose, Deer, Panther, Zebra and Single ACSR Deer, Panther, Zebra conductors

1.8.3 Composite insulators (Suspension, post) with silicone weather sheds shall be supplied along with the associated corona control rings at each end. These insulators shall be supplied from manufacturers whose similar product is in satisfactory operation for 132kV or above voltage application for a minimum period of two years as on date of bid opening.

1.8.4 The insulation characteristics shall comply for the system parameters given in Clause 7.1 of SECTION-1 of Technical Specification.

1.8.5 The composite insulators shall comply with the electrical and mechanical test requirements specified in IEC-61109/1109.

1.8.6 These composite insulators shall be supplied in PVC tubing of proper size in order to protect these insulators. The PVC tube shall have the provision of closing and opening at one end.

1.8.7 Guy strain insulators shall be supplied for insulating portion of guy wires in proximity to live parts. Guy insulators shall be either composite long rod suspension insulators or insulating rods of minimum 160kN ultimate tensile strength. These insulators shall be provided with suitable end fittings for attachment to guy wires & ERS structures.

1.9 Earth wire/OPGW fittings

Earth wire/OPGW fittings as per requirements shall also be supplied. Each set of Earth wire/OPGW Suspension assembly shall consist of one assembly each for earth wire and OPGW whereas Each set of Earth wire/OPGW Tension/ Dead end assembly shall consist of two assemblies each for Earth wire and OPGW.

The suspension & tension/ dead end assemblies, fittings & components shall be suitable for 7/3.66 galvanised steel earth wire or equivalent OPGW having overall dia. of max. 13.5 mm.

1.10 Detailed Design & Engineering

1.10.1 The Supplier shall be responsible for the design of ERS towers (based on the specified design parameters, loading criteria) and also analysis of their use under alternate tower configuration options specified in 1.2.3.

1.10.2 For various ERS components where type/rating/strength requirements are stipulated in item description of the Bill of Quantities indicated in the Part-III of the technical specification, the design analysis to determine suitability/extent of usage etc. shall also be carried out by the Supplier during detailed engineering stage.

1.10.3 Loading Criteria

1.10.3.1 The design of ERS towers shall be carried out by the Supplier considering loads, loading conditions as per IS 802.

1.10.3.2 Following conductor bundle & earth wire parameters shall be considered for design of ERS towers

| | Conductor | | | |
|-----|------------------------------|--------------|--------------|----------------|
| (a) | Name | ACSR 'MOOSE' | ACSR 'ZEBRA' | ACSR 'PANTHER' |
| (b) | Strands and wire diameter of | | | |
| | (i) Aluminum | 54/3.53 mm | 54/3.18 mm | 30/3.0 mm |
| | (ii) Steel | 7/3.53 mm | 7/3.18 mm | 7/3.0 mm |
| (c) | Conductor per phase | 2 no. | 1 no. | 1 no. |
| (d) | Overall diameter | 31.57 mm | 28.62 mm | 21.00 mm |
| (e) | Weight | 2004 Kg/Km | 1621 Kg/Km | 974 Kg/Km |
| (f) | Minimum ultimate tensile | 161.1 KN | 130.37 KN | 89.54 KN |

| | Earth wire | 7/9 SWG | 7/10 SWG |
|----|-----------------------------------|----------------|-----------------|
| a) | Size (strands & wire diameter) | 7/3.66 mm | 7/3.15 mm |
| b) | Overall diameter | 10.98 mm | 9.45 mm |
| c) | Standard weight | 583 kg/km | 428 kg/km |
| d) | Minimum ultimate tensile strength | 68.4 KN | 56 KN |

1.10.3.3 Following wind load parameters / wind loads shall be considered for design of ERS towers with reference to IS:802: -

| Sl. No. | DESIGN PARAMETERS/ LOADS | For 220KV Twin Moose Conductor Line |
|----------------|---|--|
| 1. | Wind Span (in meters)-S | 350mtr for 220KV 335mtr for 132KV |
| 2. | Basic Wind Load Parameters | |
| | Wind Zone (as per IS-875) | 5 |
| | Basic Wind Speed (m/sec) | 50 |
| | Reliability Level | 1 |
| | Risk Coeff. | 1.0 |
| | Terrain Roughness Coeff. (Terrain Category-2) | 1.0 |
| | Design Wind Pressure - N/sqm - kg/sqm | 701 71.5 |
| 3. | Wind Load on Conductor | |
| | Drag Coeff. | 1.0 |
| | Gust Response Factor | 2.01 |
| | Wind Load on Conductor-bundle (kg) Where S – wind span (sum of half the span on either side of support, m) 400 m D – Dia of conductor (m) (31.77 mm) N- No. of sub-conductors (2) | 143.7 $\times S \times D \times N$ |
| 4. | Wind Load on Earth wire | |
| | Drag Coeff. | 1.2 |
| | Gust Response Factor | 2.11 |
| | Wind Load on Earthwire (kg) Where S – wind span in m (sum of half the span on either side of support) 400 m D – Dia of earthwire (m) (11.0 m) | 181.0 $\times S \times D$ |
| 5. | Wind Load on Towers | |
| | Gust Response Factor | 2.3 |
| | Wind Load on Tower (kg) Where Cdt – Drag Coeff. as per IS-802 depending upon solidity ratio A – Net projected area of tower (sqm) | 164.5 $\times Cdt \times A$ |
| 6. | Wind Load on Insulators | |
| | Gust Response Factor | 2.3 |
| | Drag Coeff. | 1.2 |
| | Wind Load on Insulator (kg) Where A – Projected area of insulator (sqm) | 197.4 $\times A$ |

1.10.3.4 For calculation of vertical loads due to conductor weight span shall be considered as follows:

| | | Normal Condition (NC) | Broken Wire Condition (BWC) |
|------------------|------|-----------------------|-----------------------------|
| Suspension Tower | Max. | 600 m | 360 m |
| | Min. | 200 m | 100 m |
| Tension Tower | Max. | 600 m | 360 m |
| | Min. | 0 | -300 m |

1.10.3.5 Following criteria shall be considered for conductor & earth wire sag-tension calculations: -

- Conductor & earth wire tension at everyday temperature at no wind condition shall be considered as 22% & 17% of UTS respectively.
- Max sag shall be considered corresponding to 95deg C conductor temperature & 53deg C earth wire temperature.
- Max conductor/earth wire tension (for calculation of line deviation loads) shall be considered corresponding to 32deg C & full wind pressure on conductor/earth wire on the entire wind span.

1.10.3.6 The Supplier shall furnish the limit loads as well as ultimate strengths of all components (along with calculations) during engineering stage. The Ultimate strengths finalized during detailed engineering stage shall be applicable for testing purposes.

1.10.4 Electrical parameters

1.10.4.1 Electrical system parameters for design of ERS shall be same as those indicated for existing transmission lines under clause 6.1 of Section-I of Technical Specification.

1.10.4.2 Electrical clearances to be considered for ERS shall be as follows: -

| S. No. | ELECTRICAL CLEARANCES | 220KV Twin Moose Line | 132KV Single Panther Line |
|--------|---|-----------------------|---------------------------|
| 1. | Minimum Ground Clearance (m) | 7 | 6.1 |
| 2. | Minimum Live-metal Clearance (m) | 2.13 | 1.53 |
| 3. | Minimum Inter-phase/pole spacing(m) | 6.5 | 5 |
| 4. | Minimum Mid-span clearance between conductor & earth wire (m) | 8.5 | 6.1 |

1.10.4.3 Minimum total creepage distance (phase to ground) for insulators shall be the most critical one considering heavy pollution zone as per relevant Indian/ International standard.

1.11 Erection & Stringing Equipments, Tools & Tackles:

The Erection & Stringing Equipments, Tools & Tackles required for erection/assembly of structures as indicated in Part-III of technical specification of the Bidding Documents shall be supplied with each set of ERS. The bidders shall also indicate in their bid under additional information schedule or other relevant schedule, other recommended erection & stringing Equipments, tools and tackles which in their opinion are required for use & deployment of ERS.

1.12 Containers for ERS

Required number of 20 feet containers shall be supplied for storage of all ERS components/material as well as for transportation of the same to restoration site. The containers shall have suitable stacking arrangement for storage & provision (sliding stacks or alternate arrangements) for easy access & removal of material from stacks. Estimated quantity of containers has been indicated Part-III. Actual quantity shall be finalized during detailed engineering.

The containers shall be such that these can be loaded on separate trucks or flatbed trailers for transportation.

The containers supplied shall be suitable for indoor storage & outdoor storage under service conditions mentioned at 7.1 of Section-1 of Technical Specification.

1.13 Computer Programs

1.13.1 An extensive set of computer analysis programs to assist in determining the capabilities of the structures shall be supplied with each set of ERS set. One License of such programs shall be supplied on CD or Pen drive or cloud based for compatible personnel computers using WINDOWS.

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

1.13.3 The computer programme output data (for given load design scenario) shall include but not limited to guy wire tension, maximum span for a given conductor height, compressive loads for the foundation plate, right of way area requirement, total anchor load requirement, graphic representations of the structures to be built.

1.13.4 The computer programme must have the capability to analyze all configuration of towers. Up-gradation of computer programme, if any, should be furnished free of cost for 2 years period.

1.14 List of Drawings and Documents

1.14.1 The Bidder, along with his Bid, shall furnish necessary description and illustration of the materials offered. Bidder shall also furnish a preliminary design of ERS structure considering design criteria stipulated in the specification.

1.14.2 The Bidder in his Bid shall furnish the drawings, 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, Composite insulators, hardwares and all other equipment offered.
- b) Technical standard, manufacturing technology and quality assurance system for ERS components.
- c) Description of the ERS structure, including broad dimensions of each part, unit weight.
- d) Technical standards of all other main elements used in ERS and other equipment offered.
- e) Test reports and certificates showing compliance with the tests as listed in Section- II of Technical Specification;
- f) Description of Quality Control/Assurance Programme.

1.14.3 The Supplier shall also furnish 4 copies each of the following documents during detailed engineering in addition to drawings & documents specified in 1.14.2:

- a) Detailed design of the ERS structure & all components considering design criteria stipulated in the specification.
- b) Detailed description of the ERS structure, including dimensions of each part, unit weight and cross-section drawings.

- c) Erection drawings
- d) Specific instructions for installation of ERS, maintenance and instruction manuals.
- e) Drawings of each hardware item showing ultimate or breaking strength.
- f) Details of packing and
- g) Detailed drawings of jumper connections including electrical clearances

1.14.4 After Purchaser's approval and successful completion of all type tests, the Supplier shall within three weeks, submit 10 prints, one set of good quality reproducible.

1.14.5 Sixteen (16) sets of nicely printed separate bound volume of storage, maintenance, transportation & erection manuals in English for each equipment as well as stringing manuals shall be submitted by the Supplier for distribution, prior to the dispatch of the equipment.

The manual shall contain in separate sections all the -drawings and information required for emergency restoration of the transmission lines. The manual shall also contain a set of all the approved drawings, type test reports/ performance test reports etc.

1.14.6 The Supplier shall also furnish six pen drives demonstrating the video procedure of installation/stringing of conductor and associated hardware and such other works and procedures (with slow motion sequences also) which would educate and guide the Purchaser's engineers in execution of work. The pen drives shall be informative and self-explanatory and in English language only.

1.15 Workmanship

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 interchangeable. All corners should be rounded and sharp edges should be broken.

1.16 Galvanizing

1.16.1 The structures and components of ERS made of steel shall be fully galvanised. Galvanising shall conform to IS: 2629 and IS:4759. Post treatment (chromating) recommended as per IS:2629 shall also be carried out after galvanising. All galvanised members shall withstand tests as per IS:2633. For fasteners, the galvanising shall conform to IS:1367 (Part-13). Spring washers shall be electrogalvanised as per Class-4 of IS:1573.

1.16.2 The steel strands of the guy wires shall be hot dip galvanised and shall have minimum zinc coating of 275 gms/sqmm after stranding. These shall withstand three & a half dips under the Standard Preece test.

1.16.3 Other ferrous components (of hardware fittings, etc.) shall be hot dip galvanised and shall have minimum average coating of zinc equivalent to 600 gms/sqmm. These shall withstand at least six dips of one minute duration under the Standard Preece test.

1.17 Quantities

Bill of Quantities (BOQ) of various items of ERS are given the Part-III of technical specification. The quantities of various items of ERS may vary based on final requirement to be determined after completion of detailed engineering. The final quantities shall be supplied by the Supplier at the same terms & conditions and unit rates shall remain the same for any variation in quantities of items of ERS. For overall quantity variation, provisions stipulated in relevant clauses under Conditions of Contract of the Bidding Documents shall be applicable.

2.0 Tests

2.1 General

The Bidder along with his bid shall furnish performance test certificates for the equipments/ material offered by him. If the Bidder is required to specially design the equipment to meet the Purchaser's Specification, then he should submit the performance test certificates for the equipments/material which are similar to those offered by him.

2.2 Production Tests and Performance Tests

All equipments covered under this Specification shall be subjected to Production and Performance tests during manufacturing, assembly and on completion. Cost of such tests shall be borne by the Supplier.

2.3 Production Tests

2.3.1 Production tests/Tests during Manufacture/ Routine tests of all major equipment/tools shall be conducted as per applicable standards/codes. In the absence of any Code/Standard, equipment shall be tested as per mutually agreed procedure between the Supplier and the Purchaser. These tests shall include all tests to be carried out at Supplier's works, works of his sub-vendor and at works where raw materials supplied for manufacture of equipments are fabricated.

2.3.2 The tests to be carried out shall include but not be limited to the tests described as follows:

(i) For Column Sections/Structures, Box Sections, Gimbals & Guy Plates

- a) Strength proof test
- b) Dimensional test
- c) Material analysis and testing

The test values for strength proof test shall be maximum of those specified in IEEE-1070 or 67 % of the ultimate strength values guaranteed by the Supplier and considered in the detailed design.

(ii) For Guy hardware, insulator string hardware & Anchor assembly hardware

- a) Dimensional test
- b) Material analysis and testing
- c) Proof Load Test } As per Annexure-A

(iii) For Composite Insulators & Guy insulators

- a) Visual Examination } As per IEC:61109-2008
- b) Mechanical routine test } As per IEC:61109-2008
- c) Material analysis and testing of metal parts
- d) Insulation resistance test for guy insulators (of insulating rods)

2.4 Performance Tests

2.4.1 Following Performance tests shall be carried out once at Supplier's works/ works of his sub-vendor before dispatch of material.

2.4.2 Tests for the IEEE standardized system shall be according to IEEE Standard 1070:2006 "Guide for the Design and Testing of Transmission Modular Restoration Structure Components". For other types of structures tests shall be carried out according the objectives of IEEE Standard but test parameters shall be mutually discussed and agreed.

2.4.3 The acceptance values for the tests to be carried out as per IEEE 1070 shall be maximum of those stipulated either in IEEE 1070 or those guaranteed by the Supplier and considered in the detailed design.

2.4.3.1 For Column Sections/Structures

- | | | |
|-------|---------------------------------------|--------------------|
| (i) | Compression test | } As per IEEE 1070 |
| (ii) | Bending test | } As per IEEE 1070 |
| (iii) | Torsion strength test | } As per IEEE 1070 |
| (iv) | Combined bending and compression test | } As per IEEE 1070 |
| (v) | Ultimate strength bending test-Bolts | } As per IEEE 1070 |
| (vi) | Ultimate strength bending test-welds | } As per IEEE 1070 |
| (vii) | Column Buckling test | } As per IEEE 1070 |

2.4.3.2 For Box Sections (if applicable)

- | | | |
|-----|-----------------------|--------------------|
| (i) | Box Section load test | } As per IEEE 1070 |
|-----|-----------------------|--------------------|

2.4.3.3 For Guy Plates/Universal Brackets

- | | | |
|-----|---------------------|--------------------|
| (i) | Guy Plate load test | } As per IEEE 1070 |
|-----|---------------------|--------------------|

2.4.3.4 For Gimbals

- | | | |
|-------|--------------------------|--------------------|
| (i) | Gimbal articulation test | } As per IEEE 1070 |
| (ii) | Gimbal compression test | } As per IEEE 1070 |
| (iii) | Gimbal transverse test | } As per IEEE 1070 |

2.4.3.5 For Bolts & Nut

- | | | |
|-----|------------------------|--------------------|
| (i) | Ultimate strength test | } As per IEEE 1070 |
|-----|------------------------|--------------------|

2.4.3.6 Stainless steel washer / thaw test (if applicable) } As per IEEE 1070

2.4.3.7 For Composite Insulators & Composite Insulator strings

- | | | |
|------|---|---------------------|
| (i) | Design & Type Tests on composite insulators | } As per IEC 1109 |
| (ii) | Corona & RIV tests on composite insulator strings | } As per Annexure-A |

The above design & type tests on composite insulators indicated at i) & ii) above shall not be required to be carried out if a valid test certificate is available for a similar design, i.e., tests conducted earlier should have been conducted in accredited laboratory or witnessed by the representative (s) of POWERGRID or other State Utility of India.

- | | | |
|-------|--|--|
| (iii) | Mechanical Strength Test on Composite insulators | } As per Annexure-A |
| (iv) | Mechanical Strength Test on Hardware fittings | } As per Annexure-A of insulator strings |

2.4.3.8 For guy wires, guy hardware, guy insulators (of insulating rods) & anchoring assemblies

- | | | |
|-----|-------------------------------|---------------------|
| (i) | UTS/ Mechanical Strength Test | } As per Annexure-A |
|-----|-------------------------------|---------------------|

2.4.4 The Purchaser's representative shall be given full access to all performance tests. The Supplier shall inform the Purchaser in accordance with clause no. 4.10.2 of Section-I of Technical Specification, so that, if the Purchaser so desires, his representative can witness the tests.

2.4.5 All test certificates and reports shall be submitted to the Purchaser for approval.

2.4.6 The entire cost of testing for the above production & performance tests shall be treated as included in the quoted price.

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 all the tests mentioned in this Specification at his own expense on the samples selected from lots supplied to the Purchaser at Supplier's premises or at any other test center. 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-Vendor at his works for periodic inspection by the Purchaser's representative.

2.7 Inspection

2.7.1 The Purchaser's representative shall at all times 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-vendor's works, raw materials, manufacturer's 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 stages 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 Training & Demonstration

3.1 Upon receipt of the equipment at site, the Supplier is required to give 5days field training & demonstrate installation of typical types of one suspension & one tension ERS structure using ERS structures & components supplied by the Supplier. All labour & other materials, equipments, tools & tackles required for field training & demonstration shall be provided by the Supplier.

3.2 In case of evidence of non-compliance during demonstration, 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 etc. or by providing additional item(s)/ components etc. and re-demonstrating compliance, all without any extra cost to the Purchaser.

3.3 The field training cum demonstration shall be carried out near to the designated destination store separately for each set of ERS supplied. The classroom software training shall be provided by the Supplier to Purchaser's representatives anywhere in Assam for a period of 3 working days separately for each set of ERS supplied.

3.4 During field training, usage of each type of equipment, tools and tackles shall be clearly instructed and demonstrated to the Purchaser's representative. The training shall include the actual field training imparting firsthand knowledge about the assembly of modular structures (all type of tower configurations), fixing of foundation plates, erecting of structures on the foundation, guying the tower with anchoring arrangement, etc.

3.5 The class room training shall include class room lectures, including training in computer analysis programme to assist the Purchaser's personnel in determining the capabilities of the structures, analysis of failure scenarios, selection of suitable scheme of deployment, etc. The class room training may also include explanation/demonstration of actual scenarios with scaled model. 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 w.r.t storage & maintenance of ERS shall also be provided to Purchaser's Personnel.

3.6 The software training and field demonstration charges shall include the to and fro travel expenses, lodging and boarding charges, and any other miscellaneous charges.

3.7 The programme of training shall be mutually discussed and finalized by the Purchaser with the Supplier.

4.0 Standards

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

4.2 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 1000 V | IEC:61 466-1 |
| 3. | | Composite insulators for A.C. overhead lines with a nominal voltage greater than 1000 V: Definitions, test methods and acceptance | IEC:601109 |

| | | | |
|-----|---|---|---------------------|
| | | criteria | |
| 4. | | Loading and strength of overhead transmission lines | IEC:60826 |
| 5. | | Specification for Aluminum alloy sheet and plate | ASTM B209 |
| 6. | IS:802(Part-I) | Transmission Line towers: Materials, loads and permissible stresses | |
| 7. | Central Board of Irrigation and Power Publication No. 268 | Transmission Line Manual | |
| 8. | | IEEE Standard for Testing of Overhead Transmission and Distribution line Hardware | IEEE no.135.61-1997 |
| 9. | IS:1367 | Technical Supply conditions for Threaded Steel Fasteners | |
| 10. | IS:1573 | Electro-plated coatings of Zinc or Iron & Steel | |
| 11. | IS:2629 | Recommended Practice for Hot Dip Galvanizing of Iron & Steel | |
| 12. | IS:2633 | Method of Testing Uniformity of Coating of Zinc coated Articles | |
| 13. | IS:4759 | Specification of Hot Zinc Coatings on Structural Steel and other Allied Products | |

ANNEXURE-A

- (i) **Proof Load Test:** Each component is to be subjected to a load equivalent to 50% of the specified minimum ultimate tensile strength (UTS), which will then be steadily increased to 67% of the specified UTS. This load must be maintained for one minute before being removed. Following the removal of the load, the component should not exhibit any visual deformation.
- (ii) Corona & RIV tests for composite insulator strings
- a) Corona Extinction Voltage Test (Dry): When the sample assembly is subjected to power frequency voltage, its corona extinction voltage must not be less than 320 kV (rms) line to ground under dry conditions for a 400 kV line. There should be no signs of corona on any part of the sample. The atmospheric conditions during the test must be recorded, and the test results are to be corrected using a suitable correction factor as stipulated in IEC: 383.
 - b) RIV Test (Dry): Under the conditions specified in (1.2) above, the insulator string, along with all hardware fittings, must have a radio interference voltage level below 1000 micro volts at one MHz when subjected to 50 Hz AC voltage of 305 kV line to ground under dry conditions for a 400 kV line. The test procedure should adhere to IS:8263/IEC: 437.
- Corona & RIV tests are required for one suspension string (horizontal V suspension) and one tension string (double tension insulator string), both including their respective hardware fittings.
- (iii) Mechanical Strength Test on Composite insulators: One sample of each type of composite insulator must be subjected to 67% of the UTS (for both suspension and post insulators) and 67% of the ultimate compression strength (for post insulators only). This load should be held for 5 minutes, and the insulator should not display any visual deformation. Subsequently, the load will be increased steadily until it reaches the specified minimum UTS/Ultimate compression strength and held for one minute. No fracture should occur during this period.
- (iv) Mechanical Strength test on Hardware fitting components of insulator strings/ Mechanical strength test on guy hardwares, guy insulators (of insulating rods) & anchor assemblies: One sample of each component of the hardware fittings/guy hardwares & anchor assemblies must be subjected to 67% of UTS/Ultimate compression strength. This load is to be held for 5 minutes, during which the sample should not show any visual deformation. Afterwards, the load will be gradually increased until it reaches the specified minimum UTS/Ultimate compression strength and held for one minute. No fracture should occur during this period.
- (v) Mechanical Strength test on Guy Wires: Circles perpendicular to the axis of the guy wire are to be marked at two places on a minimum 5-meter-long sample of guy wire, suitably compressed with standard clamps at both ends. The load will be steadily increased to 50% of UTS and held for one minute. The drawn circles must not be distorted due to relative movement of strands. Following this, the load will be steadily increased to 100% of UTS and held for one minute. The guy wire sample should not fail during this period. The applied load will then be further increased until the failing load is reached, and this value is to be recorded.

Technical Specification
Section-III:
Guaranteed Technical Particulars

| Sl. No. | Description | Guaranteed Particulars |
|---------|---|------------------------|
| 1 | Name & address of supplier of ERS | |
| 2 | Name & address of manufacturers of ERS structures & components | |
| 3 | Name & address of manufacturers of Composite insulators | |
| 4 | Name & address of manufacturer of hardware assembly | |
| 5 | Table of compliance as per clause no 2 of section -1 of technical specification furnished | Yes/No |
| 6 | Detailed drawings and documents as per clause 1.16.1, 1.16.2 & 1.16.3 of section -II of Technical specification furnished | Yes/No |
| 7 | Detailed engineering data of all equipment/tool furnished | Yes/No |
| 8 | Standard to which ERS generally conforms to | |
| 9 | Materials of ERS structure | |
| 10 | Maximum length of structure column section (in mtrs) | |
| 11 | Maximum weight of structure column section (in kgs) | |
| 12 | Maximum weight of any individual ERS component | |
| 13 | Description of training program module proposed by Bidder furnished | Yes/No |
| 14 | Limits loads in kg/kg-m which can be withstood by: | |
| | a) Column sections/structures in: (i) Compression (ii) Bending (iii) Torsion (iv) Combined bending and compression (v) Buckling (vi) Ultimate strength bending Bolts (vii) Ultimate strength bending welds | |
| | b) Box Section | |
| | c) Guy Plates | |
| | d) Bolts & Nut | |
| | e) Gimbal | |
| 15 | Suitable provision for installation of earthwire provided on ERS structures | Yes/No |
| 16 | Material of Polymer Insulators offered | |
| 17 | Minimum Corona Extinction voltage of horizontal V and double tension insulator string (kV rms) | |
| 18 | Maximum RIV of above insulators string at 1 MHz when subjected to 305 kV rms line to ground voltage under this condition (μ v) | |

PART-III

Materials Requirement/Bill of Quantities (BoQ)

| Minimum Bill of Material - 220kV ERS (Bidder can add more quantities or can add new items as per their design if required in this Minimum Qty BOM to be offered) | | | | |
|---|---|---|-------------|---------------------------|
| Sl. No. | Activity Description | Item Description | Unit | Minimum Qty of ERS |
| 1 | 2 | 3 | 4 | 5 |
| 1.0 | ERS Tower | 220KV Twin ACSR Moose, Deer, Zebra, Panthar and Single ACSR Deer, Zebra, Panther ERS Towers (Suitable for used in 132kV level) including articulated base (Gimbal), mast sections, Guy plates/swivels/ Universal Brackets, Insulator attachments, Top Plates, bolts & nuts etc. components as per OEM design requirements. | | |
| 1.1 | | Suspension 0 to 20deg ERS Tower (Min. height of 35mtrs) convertible into Tension ERS | Nos. | 0 |
| 1.2 | | Tension 0 to 60deg ERS Tower (Min. height of 35mtrs) convertible into Suspension ERS | Nos. | 2 |
| 2.0 | Foundation/ Sub-foundation Base plates | Foundation/Base Plates including stakes as per requirement | | |
| 2.1 | | For ERS Suspension 0 to 20deg Tower suitable for | | |
| (i) | | Normal soil | Nos. | 0 |
| (ii) | | Low bearing capacity soil | Nos. | 0 |
| 2.2 | | For ERS Tension 0 to 60deg Tower suitable for | | |
| (i) | | Normal soil | Nos. | 2 |
| (ii) | | Low bearing capacity soil | Nos. | 2 |
| 3.0 | Guys & guy hardwares | Guys & guy hardwares | | |
| 3.1 | | High strength galvanised steel guy wire (14.3mm dia, minm 150 KN UTS, standard length 70 m) | Nos. | 50 |
| 3.2 | | Guy wire thimble | Nos. | 100 |
| 3.3 | | Preformed guy grip | Nos. | 100 |
| 3.4 | | Guy hardware including turnbuckle & anchor shackles, extension link/plate as per requirement | Sets | 50 |
| 4.0 | Anchor Assemblies | Anchor Assemblies (minm 150 KN ultimate strength) including guy adaptor, extension rod & associated fittings as per requirement. | | |

| | | | | |
|-------|---|--|-------|----|
| 4.1 | | Cross plate (2nos. 600mmx300mm) Anchor assembly For normal soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets | 50 |
| 4.2 | | Manta Ray MR-I (177mmx368mm) or Eqvt. Anchor assembly (min. 150kN UTS) including guy adaptor, extension rod & associated fittings as per requirement for normal soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets | 50 |
| 4.3 | | Tripple Helix (250mm-300mm-350mm) Anchor assembly required for loose/marshy soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets. | 50 |
| 4.4 | | Rock anchor (55mm anchor dia, min anchor length 1.2m) including grouting material, 150kN UTS) | Sets. | 25 |
| | | | | |
| 5.0 | | Insulator Strings alongwith hardware fittings | | |
| 5.1 | | Horizontal V (single brace, single post) Suspension Insulator String assy. Alongwith hardware fittings comprising of | | |
| (i) | | Composite longrod suspension insulator (2.7m \pm 0.5/3.4m Length, 160kN Tensile Strength) | Sets | 9 |
| (ii) | | Composite longrod post insulator (2.7m \pm 0.5/3.4m Length, min. 64mm Core dia, 120kN Tensile Strength, 30kN Compressive Strength) | Sets | 6 |
| (iii) | | Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/grading rings other fittings & components as per requirement | Sets | 3 |
| 5.2 | Suspension; Tension & Guy Insulator Assemblies & Conductor Hardwares | Horizontal V (single brace, single post) Pilot Suspension Insulator String assy, alongwith hardware fittings comprising of | | |
| (i) | | Composite long rod suspension insulator (\pm 2.7m Length/design specific, 160kN Tensile Strength) | Sets | 3 |
| (ii) | | Composite long rod post insulator (\pm 2.7m Length/design specific, min. 64mm Core dia, 120kN Tensile Strength, 30kN Compressive Strength) | Sets | 6 |
| (iii) | | Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/ grading rings other fittings & components as per requirement. | Sets | 3 |
| 5.3 | | Tension Insulator String alongwith Hardware fittings comprising of | | |
| (i) | | Composite long rod suspension insulator (\pm 2.7m Length/design specific, 160kN Tensile Strength) | Sets | 24 |
| (iii) | | Hardware fittings including end attachment, yoke plates, tension clamps, extension links, turnbuckles, corona/ grading rings other fittings & components as per requirement | Sets | 12 |
| 5.4 | | Earth wire Suspension clamp assembly including clamps, fittings & components as required | Sets | 2 |
| 5.5 | | Earth wire Double Tension InsulatorStringsTension clamp assembly including clamps, fittings & components as required | Sets | 4 |
| 6.0 | | Guy Insulators | | |

| | | | | |
|------|---------------------------|---|------|----|
| 6.1 | | Composite longrod suspension insulator/insulating rod (3.5m length, 160 KN tensile strength) alongwith suitable end fittings. | Nos. | 50 |
| | | | | |
| 7.0 | Erection Tools Set | ERS Tower Erection Tools Set: (mentioned break-up quantity is for 1Set of ERS Erection Tools from Sr. 7.1 to 7.24) | Sets | 2 |
| 7.1 | | Motorized Sliding Gin Pole set including Capstan Hoist with power pack, Ball joint Gin Pole/Derrick, Rope and other accessories as required | Nos. | 2 |
| 7.2 | | Tool Box with all necessary accessories like wrenches, spanners, plier, angle meter, plumb etc.. | Nos. | 2 |
| 7.3 | | Pulling Eye with adopter bushing, bolts and nuts. | Nos. | 8 |
| 7.4 | | Automatic Guy Wire Grip/ Come along clamp | Nos. | 8 |
| 7.5 | | Nylon Sling (10ft) | Nos. | 16 |
| 7.6 | | 1.5T Cap. Tirfor/Grip Puller with 70m steel rope | Nos. | 16 |
| 7.7 | | Temporary anchor/ Stake Plate including stake plate extension (3 per set) (Optional, it is design specific) | Sets | 10 |
| 7.8 | | Steel Stake/Rods (for temporary Anchors) (Optional, it is design specific) | Sets | 60 |
| 7.9 | | Linesman safety clamp/ Tower attachment (Optional, it is design specific) | Sets | 4 |
| 7.10 | | Tower alignment clamp/ tool) (Optional, it is design specific) | Sets | 4 |
| 7.11 | | Tool bucket | Sets | 4 |
| 7.12 | | Digital Dynamometer with shackles - 10T capacity | Sets | 2 |
| 7.13 | | 1.5Ton Ratchet Lever Hoist with 3m long chain lift | Nos. | 8 |
| 7.14 | | 4.5m long Working Platform for ERS | Sets | 2 |
| 7.15 | | 5kg Sledge Hammer | Nos. | 4 |
| 7.15 | | Rod Remover | Nos. | 2 |
| 7.16 | | Safety Belt for Lineman | Nos. | 4 |
| 7.17 | | Safety Helmet for Lineman | Nos. | 30 |
| 7.18 | | Rock Anchor installer Kit with drilling bits & accessories | Sets | 2 |
| 7.19 | | Hydraulic Installation Kit for Helix Anchors | Sets | 2 |
| 7.20 | | Hydraulic Installation Kit for Manta Ray Anchors | Sets | 2 |
| 7.21 | | 15" Reversible Ratchet | Nos. | 12 |
| 7.22 | | Square Drive Deep Socket | Nos. | 12 |
| 7.23 | | Box Wrench for structure bolt | Nos. | 12 |
| 7.24 | | Any other item(s) required by Bidder for his ERS Installation work | Sets | 2 |
| | | | | |

| | | | | |
|---|-------------------|---|----------|---|
| 8.0 | ERS Storage | 20ft Containers for very systematic/mess-up free ERS material storage | Nos. | 2 |
| | | | | |
| 9.0 | Design Softwares | ERS Design Software with 2yrs free up-gradation | Licences | 1 |
| | | | | |
| 10.0 | Various Trainings | Field & Software Training (To be conducted by the OEM Engineer or authorized OEM representatives) | | |
| 10.1 | | 5days each ERS Tower Erection Field Training | Nos. | 1 |
| 10.2 | | 5days each ERS design Training on PLS-CADD software | Nos. | 1 |
| 10.3 | | 3yrs onsite technical support during emergency situation for ERS erection/dismantling | Nos. | 1 |
| 11.0 | Vehicle | Vehicle for transportation of ERS Towers as per Purchar's Requirement | Nos. | 1 |
| | | | | |
| <p>Note: i) The bidder shall furnish the split wise BOQ details with quoted price on request by AEGCL.</p> <p>ii) The designs of some of the items may vary from the above-mentioned list based on the design specific of the manufacturer. However, it must have be as per the IEEE 1070.</p> <p>iii) Actual BoM quantities may vary based on manufacturer design specifications. Any additions or modifications identified during the detailed engineering and field demonstration stage shall be provided by the bidder without any price implication.</p> | | | | |

**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. However, if the angle bracing is less than 100mm it shall comply with the mechanical testing requirements of IEEE 1070. | |
| 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 | IEC 1109 | |
| | a) Standard to which the suspension insulator shall conform to | | |
| | 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. | |
| | g) The electrical and mechanical properties of suspension insulator | Should conform to Table - 1. | |
| 10. | Post Insulators | | |
| | a) Type | Polymer | |
| | b) Single insulator for, kV | 220 KV | |
| | c) Electrical and mechanical properties | Should conform to Table-2. | |
| 11. | <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 hydraulic power unit with capacity of 18 HP and capable of delivery 5-8 gpm at a maximum diesel | |
| | a) The normal soil anchor installation tool shall have | Jack Hammer compatible with the above power unit | |
| | b) Anchor installation by means of | A compatible rotary hammer to drill holes | |
| | c) Anchor installation in rocks by means of | A compatible hydraulic load locker | |
| | d) Proof testing of soil anchors and rock anchors to be done by means of | | |
| 13. | <u>Guy Wire and grips</u> | ASTM-A474 | |
| | a) Standard that the guy wire shall conform to | 149 kN | |
| | b) Minimum breaking strength should be | 149 kN | |
| | c) Minimum ultimate strength of preformed grips should be | | |
| 14. | <u>Conductor Hardware</u> | Galvanized in accordance with ASTM A-153 | |
| | a) All ferrous materials should be | Only one size capable of fitting all hardware, guy wire and anchoring assemblies and shall have a minimum | |
| | b) Shackle | | |

| | | | |
|-----|--|---|--|
| | 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

| | | |
|--|--|--|
| <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/manufacturer 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/manufacturer 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/manufacturer 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> | |
|--|--|--|

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 JURISDITCTION

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

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)

| Minimum Bill of Material - 220kV ERS (Bidder can add more quantities or can add new items as per their design if required in this Minimum Qty BOM to be offered) | | | | |
|--|--|--|------|--------------------|
| Sl. No. | Activity Description | Item Description | Unit | Minimum Qty of ERS |
| 1 | 2 | 3 | 4 | 5 |
| 1.0 | ERS Tower | 220KV Twin ACSR Moose, Deer, Zebra, Panthar and Single ACSR Deer, Zebra, Panther ERS Towers (Suitable for used in 132kV level) including articulated base (Gimbal), mast sections, Guy plates/swivels/ Universal Brackets, Insulator attachments, Top Plates, bolts & nuts etc. components as per OEM design requirements. | | |
| 1.1 | | Suspension 0 to 20deg ERS Tower (Min. height of 35mtrs) convertible into Tension ERS | Nos. | 0 |
| 1.2 | | Tension 0 to 60deg ERS Tower (Min. height of 35mtrs) convertible into Suspension ERS | Nos. | 2 |
| 2.0 | Foundation/ Sub-foundation Base plates | Foundation/Base Plates including stakes as per requirement | | |
| 2.1 | | For ERS Suspension 0 to 20deg Tower suitable for | | |
| (i) | | Normal soil | Nos. | 0 |
| (ii) | | Low bearing capacity soil | Nos. | 0 |
| 2.2 | | For ERS Tension 0 to 60deg Tower suitable for | | |
| (i) | | Normal soil | Nos. | 2 |
| (ii) | | Low bearing capacity soil | Nos. | 2 |
| 3.0 | Guys & guy hardwares | Guys & guy hardwares | | |
| 3.1 | | High strength galvanised steel guy wire (14.3mm dia, minm 150 KN UTS, standard length 70 m) | Nos. | 50 |
| 3.2 | | Guy wire thimble | Nos. | 100 |
| 3.3 | | Preformed guy grip | Nos. | 100 |
| 3.4 | | Guy hardware including turnbuckle & anchor shackles, extension link/plate as per requirement | Sets | 50 |

| | | | | |
|-------|---|--|--------------|----|
| 4.0 | Anchor Assemblies | Anchor Assemblies (minm 150 KN ultimate strength) including guy adaptor, extension rod & associated fittings as per requirement. | | |
| 4.1 | | Cross plate (2nos. 600mmx300mm) Anchor assembly For normal soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets | 50 |
| 4.2 | | Manta Ray MR-I (177mmx368mm) or Eqvt. Anchor assembly (min. 150kN UTS) including guy adaptor, extension rod & associated fittings as per requirement for normal soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets | 50 |
| 4.3 | | Tripple Helix (250mm-300mm-350mm) Anchor assembly required for loose/marshy soil (minimum anchor rod length with extension rod 4.5m & 150kN UTS) | Sets. | 50 |
| 4.4 | | Rock anchor (55mm anchor dia, min anchor length 1.2m) including grouting material, 150kN UTS) | Sets. | 25 |
| | | | | |
| 5.0 | Suspension; Tension & Guy Insulator Assemblies & Conductor Hardwares | Insulator Strings alongwith hardware fittings | | |
| 5.1 | | Horizontal V (single brace, single post) Suspension Insulator String assy. Alongwith hardware fittings comprising of | | |
| (i) | | Composite longrod suspension insulator (2.7m \pm 0.5/3.4m Length, 160kN Tensile Strength) | Sets | 9 |
| (ii) | | Composite longrod post insulator (2.7m \pm 0.5/3.4m Length, min. 64mm Core dia, 120kN Tensile Strength, 30kN Compressive Strength) | Sets | 6 |
| (iii) | | Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/grading rings other fittings & components as per requirement | Sets | 3 |
| 5.2 | | Horizontal V (single brace, single post) Pilot Suspension Insulator String assy, alongwith hardware fittings comprising of | | |
| (i) | | Composite long rod suspension insulator (\pm 2.7m Length/design specific, 160kN Tensile Strength) | Sets | 3 |
| (ii) | | Composite long rod post insulator (\pm 2.7m Length/design specific, min. 64mm Core dia, 120kN Tensile Strength, 30kN Compressive Strength) | Sets | 6 |
| (iii) | | Hardware fittings including end attachment, yoke plates, suspension clamps, extension links, turnbuckles, corona/ grading rings other fittings & components as per requirement. | Sets | 3 |
| 5.3 | | Tension Insulator String alongwith Hardware fittings comprising of | | |
| (i) | | Composite long rod suspension insulator (\pm 2.7m Length/design specific, 160kN Tensile Strength) | Sets | 24 |
| (iii) | | Hardware fittings including end attachment, yoke plates, tension clamps, extension links, turnbuckles, corona/ grading rings other fittings & components as per requirement | Sets | 12 |
| 5.4 | | Earth wire Suspension clamp assembly including clamps, fittings & components as required | Sets | 2 |

| | | | | |
|------|---------------------------|---|------|----|
| 5.5 | | Earth wire Double Tension InsulatorStringsTension clamp assembly including clamps, fittings & components as required | Sets | 4 |
| 6.0 | | Guy Insulators | | |
| 6.1 | | Composite longrod suspension insulator/insulating rod (3.5m length, 160 KN tensile strength) alongwith suitable end fiitngs. | Nos. | 50 |
| | | | | |
| 7.0 | Erection Tools Set | ERS Tower Erection Tools Set: (mentioned break-up quantity is for 1Set of ERS Erection Tools from Sr. 7.1 to 7.24) | Sets | 2 |
| 7.1 | | Motorized Sliding Gin Pole set including Capstan Hoist with power pack, Ball joint Gin Pole/Derrick, Rope and other accessories as required | Nos. | 2 |
| 7.2 | | Tool Box with all necessary accessories like wrenches, spanners, plier, angle meter, plumb etc.. | Nos. | 2 |
| 7.3 | | Pulling Eye with adopter bushing, bolts and nuts. | Nos. | 8 |
| 7.4 | | Automatic Guy Wire Grip/ Come along clamp | Nos. | 8 |
| 7.5 | | Nylon Sling (10ft) | Nos. | 16 |
| 7.6 | | 1.5T Cap. Tirfor/Grip Puller with 70m steel rope | Nos. | 16 |
| 7.7 | | Temporary anchor/ Stake Plate including stake plate extension (3 per set) (Optional, it is design Specific) | Sets | 10 |
| 7.8 | | Steel Stake/Rods (for temporary Anchors) (Optional, it is design Specific) | Sets | 60 |
| 7.9 | | Linesman safety clamp/ Tower attachment (Optional, it is design Specific) | Sets | 4 |
| 7.10 | | Tower alingment clamp/ tool (Optional, it is design Specific) | Sets | 4 |
| 7.11 | | Tool bucket | Sets | 4 |
| 7.12 | | Digital Dynamometer with shackles - 10T capacity | Sets | 2 |
| 7.13 | | 1.5Ton Ratchet Lever Hoist with 3m long chain lift | Nos. | 8 |
| 7.14 | | 4.5m long Working Platform for ERS | Sets | 2 |
| 7.15 | | 5kg Sledge Hammer | Nos. | 4 |
| 7.15 | | Rod Remover | Nos. | 2 |
| 7.16 | | Safety Belt for Lineman | Nos. | 4 |
| 7.17 | | Safety Helmet for Lineman | Nos. | 30 |
| 7.18 | | Rock Anchor installer Kit with drilling bits & accessories | Sets | 2 |
| 7.19 | | Hydraulic Installation Kit for Helix Anchors | Sets | 2 |
| 7.20 | | Hydraulic Installation Kit for Manta Ray Anchors | Sets | 2 |
| 7.21 | | 15" Reversable Ratchet | Nos. | 12 |
| 7.22 | | Square Drive Deep Socket | Nos. | 12 |

| | | | | |
|---|-------------------|---|----------|----|
| 7.23 | | Box Wrench for structure bolt | Nos. | 12 |
| 7.24 | | Any other item(s) required by Bidder for his ERS Installation work | Sets | 2 |
| | | | | |
| 8.0 | ERS Storage | 20ft Containers for very systematic/mess-up free ERS material storage | Nos. | 2 |
| | | | | |
| 9.0 | Design Softwares | ERS Design Software with 2yrs free up-gradation | Licences | 1 |
| | | | | |
| 10.0 | Various Trainings | Field & Software Training (To be conducted by the OEM Engineer or authorized OEM representatives) | | |
| 10.1 | | 5days each ERS Tower Erection Field Training | Nos. | 1 |
| 10.2 | | 5days each ERS design Training on PLS-CADD software | Nos. | 1 |
| 10.3 | | 3yrs onsite technical support during emergency situation for ERS erection/dismantaling | Nos. | 1 |
| 11.0 | Vehicle | Vehicle for transportation of ERS Towers as per Purchar's Requirement | Nos. | 1 |
| | | | | |
| <p>Note: i) The bidder shall furnish the split wise BOQ details with quoted price on request by AEGCL.</p> <p>ii) The designs of some of the items may vary from the above-mentioned list based on the design specific of the manufacturer. However, it must have be as per the IEEE 1070.</p> <p>iii) Actual BoM quantities may vary based on manufacturer design specifications. Any additions or modifications identified during the detailed engineering and field demonstration stage shall be provided by the bidder without any price implication.</p> | | | | |