

Notice Inviting Quotation

NIQ No- AEGCL/DGM/LAC/TT/TLS-69/2018/327

Dated: 19/12/2018

TENDER INVITING PROPOSALS WITH TERMS & CONDITIONS FOR

“Supply of 220kV Transmission Line Materials against the raising of height of 220kV D/C Sarusajai-Mirza TL under Deposit Scheme.”

1. Intent of the Tender Enquiry

The intent of the Tender Enquiry is to invite proposals from the prospective and relevantly experienced and financially sound contractor(s) (individual or joint venture)/firms to carry out the works as mentioned above on turnkey mode.

Supply of 220kV Transmission Line Materials against the raising of height of 220kV D/C Sarusajai-Mirza TL under Deposit Scheme.

The various activities under the scope of work shall among other related aspects cover the following.

- a) Procurement and supply of all materials required for the work.
- b) Arrange inspection / testing of any/all items ordered at manufacturer's works for officer deputed by AEGCL for such inspection/testing.
- c) Site unloading, storage and handling of all materials supplied including watch and ward for safe custody.
- d) Site fabrication work as per requirement.
- e) Submission of implementation schedule from the date of award of contract for: -
*Erection, testing and commissioning of all materials/equipment supplied/system installed.
- f) Project management and site organization.
- g) Obtaining clearance from statutory Agencies, Government Departments, Village Panchayats etc. wherever necessary
- h) Submission of technical specification/Test Certificate/Drawings etc. of all materials supplied.
- i) A list of various items normally involved in proposed type of work is provided in this document. This, however, is not to be considered as limiting but only typical. Vendors' scope will include all other items and materials as may be required to effectively complete the work.

Above all, the scope of work of the vendor/contractor will include all items and facilities as may be necessary to complete the electrification work on turnkey basis and as binding requirement.

3. Basic specification of the various equipment/ works to be supplied /carried out.

- i. All equipment supplied shall conform to the requirement of relevant ISS (BIS) as approved by AEGCL specification and construction standards.
- ii. All materials supplied shall be erected, protected as per approved standard practice for proposed type of electrical work so as to supply electricity to the consumers most effectively and in an intrinsically safe manner.
- iii. All equipment supplied and installed shall provide easy and effective:

- Maintainability
- Reliability

□ Availability

□ Long life

All equipment supplied and installed shall be provided stable and adequate weather protection, system earthing etc. LA should be earthed separately.

- iv. All items, which may require frequent opening up/ dismantling for maintenance, shall be adequately sealed against any tampering/ theft etc.
- v. Generally supply and erection of materials and system shall meet the requirement of construction standard being followed in the electrification work.

4. Basic qualifying requirement:

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

A. Technical.

The prospective bidder must fulfill the following qualifying requirements

- a. The bidder must have valid electrical Contractor's and Supervisor's License (HT minimum upto 33KV) issued by the Licensing Authority of Govt. Of Assam.
- b. The bidder must have the experience of doing similar type of works for a minimum period of three years as on the date of bid opening and must be in satisfactory operation for at least 1 (one) year.
- c. The bidder must have the above mentioned experience of working in the state of Assam.
- d. The bidder shall furnish details of the work / works along with its value already in hand either of AEGCL, or in any other successor companies of ASEB along with date of completion as per Letter of Award and likely date of completion duly certified by the competent authority as per format enclosed as **Annexure-IA. This shall be treated as one of the major qualifying criteria for technical evaluation of the bid.**

B. Financial

- a. Average annual turnover of the bidder for the last three consecutive financial years should be as per NIT and the annual turnover must be certified by a registered Chartered Accountant. This should be supported by the copy of the income tax return submitted by the firm for the last three previous years. In case of joint venture firms, the figures of average annual turnovers for each Joint Venture partners shall be added together to determine the bidder's compliance with the minimum average turnover requirement for the package. However, the lead partner must meet at least 40% and each of the other partners must meet at least 25% of the minimum average annual turnovers criteria required for each package as per NIT.
 - b. The bidder shall furnish latest GST Registration certificate, Service tax registration, Employee Provident fund and valid Labour License (wherever applicable), Electrical License.
 - c. Current solvency certificate or letter of comfort from the Baker that the Bidder can meet the cash flow requirements for the work he intends to participate from any nationalized Bank/Schedule bank of RBI
 - v) Details of manpower to be engaged for the assignments.
 - vi) Any other information, the vendor may feel facilitative in evaluating the bid.
 - vii) Copies of contractor and supervisor's license, etc.
 - viii) Certificate from Registered Chartered Accountant in support of Annual turn over
 - ix) Solvency certificate from Bank
 - x) Earnest money deposit along with Techno- Commercial bid
 - xi) Certificate in support of performance of the bidder
 - xii) PAN Card, GST Etc.
- b) During project execution**
- i) All documents for approval shall be submitted in 6 copies.
 - ii) All final documents to be submitted to statutory organizations will be furnished as per requirement of the authority.

21 Funding of the project. The proposed work is funded under Deposit Work of IIIT, Guwahati

22 Ceiling on acceptance of bid value

As a deterrent for cartel formation AEGCL at its discretion have the right to scrap the tender if values quoted by all the bidders is above 25% of the estimated cost. Also the price bids whose total quoted value is below 15% of the estimated cost, the bid is liable to be rejected by AEGCL.

23 Termination of contract on Contractor's default

If the Contractor shall neglect to execute the Works with due diligence and expertise or shall refuse or neglect to comply with any reasonable order given to him, in the Contract by the Engineer in connection with the works or shall contravene the provisions of the Contract, the owner may give notice in writing to the contractor to make good the failure, neglect or contravention complained of. Should the contractor fail to comply with the notice within thirty (30) days from the date of serving the notice, then and in such case the Owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the Contractor, may have neglected to do or if the owner shall think fit, without prejudice to any other right he may have under the Contract to take the work wholly or in part out of the contractor's hands and re-contract with any other person or persons to complete the works or any part thereof and in that event the Owner shall have free use of all Contractor's equipment that may have been at the time on the site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the contractor over the same, and the Owner shall be entitled to retain and apply any balance which may otherwise be due on the Contract by him to the contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of the work or of completing the Works as the case may be. If the cost of completing of Works or executing a part thereof as aforesaid shall exceed the balance due to the contractor, the contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the contractor shall have to pay if the completion of works' is delayed.

In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of works as defined in clause no.26 of GCSE

Such action by the Owner as aforesaid, the termination of the Contract under this clause shall neither entitle the contractor to reduce the value of the contract Performance Guarantee nor the time thereof. The contract Performance Guarantee shall be valid for the full value and for the full period of the contract including guarantee period.

24 Termination of contract on owners' initiative

The Owner reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled "Contractor's Default." The Owner shall in such an event give fifteen (15) days notice in writing to the Contractor of his decision to do so.

The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and contracts to the extent they are related to the work terminated and terms satisfactory to the Owner, stop all further sub-contracting or purchasing activity related to the work terminated, and assist the Owner in maintenance, protection, and disposition of the Works acquired under the Contract by the Owner.

25 This Section is intended to cover the requirements for supply, erection, testing & commissioning of following

equipments and materials:

- i) Towers with all accessories.
- ii) Power Conductors and Ground Wires.
- iii) Disc Insulators, Insulator String Hardware, Tension & Suspension Clamps and conductor and earth wire accessories.
- iv) Transmission line foundations
- v) Erection, testing and commissioning.

Bidders are required to submit the GTP of all the materials and equipment to be supplied and also the name of the firms from where the materials shall be procured including tower materials with proper authorization from the concerned manufacturer .

3.2.0 General

- 3.2.1. The details specifications given below are intended for general description of quality, workmanship etc for the items given above but do not cover minutes details of the work. In the absence of relevance details in the specifications the work shall be execute according to the prevailing practices and to the discretion of the site engineer.
- 3.2.2. This Section shall have precedence in case anything contrary to this is stated anywhere in this contract document. The contractor shall get clarified any doubts about the specifications etc. before tendering in respect pf interpretation of any portion of this document.
- 3.2.3. The code referred to in this specification correspond to the latest revision.

3.3.0 Special Conditions of Contract

- 3.3.1. The Bidder should note that the fabrication of tower materials and construction of tower foundations shall be carried out as per existing design of the line. The drawings related to the line shall be handed over to only the successful Bidder. However, intending Bidder, if so wishes may inspect the drawings at the office of the MD, Assam Electricity Grid Corporation Limited.
- 3.3.2. The Bidder should also note that the towers and foundations of the line was designed with ACSR Panther conductors as per IS: 802, 1977, IS: 5613, 1980 and CBIP Publication No 2, 1977.

3.4.0 Towers with all Accessories

3.4.1. GENERAL

- 3.4.1.1. The AEGCL shall provide drawings for G.I. towers to the successful bidder at the time of award of contract. The Contractor has to regenerate three copies of drawings for approval

3.4.2. DRAWING TO BE PREPARED BY CONTRACTOR

- 3.4.2.1. The contractor shall prepare fresh drawings of the tower structures based on the drawings furnished by AEGCL and shall submit the same along with the detail bill of materials for AEGCL's approval/reference. The fabrication work shall be started only after the approval of detail bill of materials and shall strictly conform to the approved drawings supplied by AEGCL. It is the responsibility of the Contractor to reproduce the drawings and The Site Engineer reserves the right to make changes to drawings supplied to the contractor for revisions to reflect more updated requirements. Revisions to drawings and any new drawings made to include additional works by the contractors shall be considered as a part of this specification and AEGCL shall entertain no extra claim on this account.
- 3.4.2.2. In the case of variations in drawings and specifications the decisions of the site Engineer shall be final. If the contractor found discrepancies in the execution of his work he shall refer such discrepancies to the site Engineer before proceedings with such works.

3.4.3. MATERIALS

- 3.4.3.1. Materials for steel structure including bolts, anchor bolts, washers etc shall be of tested quality and shall conform to IS: 226 and IS: 2062 (for plates over 20mm thick) Dimensions of all bolts and nuts shall conform to IS 6639 and their mechanical properties shall conform to property class 4.6 and class 4 of IS: 1367 for bolts and nuts respectively. Dimensions and mechanical properties of all washers shall conform to IS: 6610 and IS: 3063 respectively. Other materials used in the construction of steel structure shall conform to appropriate IS specification for the materials wherever they exist. All members of the steel structures, bolts, nuts and washers shall be galvanized.

3.4.4. FABRICATION

3.4.4.1. The workmanship shall conform to the best practice in modern structural shops and to the provisions of IS: 802 (Part-II) and IS: 800 as applicable.

3.4.4.2. Connections

All connections shall be designed for the full strength and properties of the members. The fabrication, in general shall be bolted type. Bolts shall also be used for field connections unless otherwise specified in the drawings or permitted by the site engineer for any special circumstances. Bolting shall be conforming to IS: 802 (Part-I & II) and IS: 800 as applicable.

Welding where required shall be generally done in accordance with the relevant IS standards. Selection of electrodes shall conform to IS: 815. MS electrodes for welding shall conform to IS 814. Welding procedure shall conform to IS: 816 and IS 823.

3.4.4.3. Tolerances.

Fabrications tolerances shall conform to IS: 802 (Part-II) and IS: 800 as applicable.

3.4.4.4. Marking

The marking procedure shall conform to IS: 802 and IS: 800 as applicable.

3.4.4.5. Shop Assembly

All steelworks (one in each type) shall be temporarily shop assembled complete or as directed by the site engineer before commencing mass fabrication to ensure proper field erections. Reaming of untrue holes will not be allowed. A reasonable amount of drifting will be allowed in assembling. Shop assembled parts shall be dismantled for shipment.

3.4.4.6. Galvanizing Bolts and other fasteners shall be galvanized in accordance with IS: 5358. Galvanizing members of structures shall conform to IS: 4759 and spring washers shall be galvanized in accordance IS; 1573.

The recommendation given in IS: 2629 and IS: 6159 shall be complied with in respect of surface preparations, safety and applications of coating.

3.4.5. INSPECTION AND PACKING

3.4.5.1. The recommendation given in IS: 802 (Part-II) and IS 800 for inspection and packing shall be complied with.

3.4.6. TESTING

3.4.6.1. The material used for fabrication of towers shall be tested for quality.

3.4.7. FIELD ERECTION

3.4.7.1. Erection work shall be done strictly according to the provisions of IS: 802.

3.7.0 Insulators and Hardware

3.7.1. STANDARDS

3.7.1.1. The tension string assemblies, insulator discs and hardware offered, material and processes adopted in the manufacture of insulator discs and hardware shall conform to the provision of the following standards or equivalent other international standards:

- (1) IS: 731 Specification of porcelain insulators for overhead power lines.
- (2) IS: 2486 Specification of insulator fittings for overhead power lines.
- (3) IS: 2026 Specification for recommended practice for hot dip galvanising of steel
- (4) IS: 2633 Specification for method for testing uniformity of coating on zinc coated articles.
- (5) IS: 2107 Specification for white hearth malleable iron castings.
- (6) IS: 2108 Specification for black hearth malleable iron castings.

3.7.2. Insulator Discs and Strings

3.7.2.1. TYPE OF INSULATORS:

All suspension and tension strings shall consist of standard centre ball and socket type porcelain insulators with all the exposed porcelain parts fully glazed, unless otherwise specified.

3.7.2.2. QUALITY AND STRENGTH OF THE INSULATORS:

The insulators and their hard wares used in the lines shall comply with requirement of relevant IS or other equivalent international standards.

MATERIALS USED

The porcelain used in the manufacture of the insulators shall be of the best quality and shall be manufactured by the wet process. It shall be homogeneous, free from lamination;

flaws etc. and well finished making it impervious to moisture. The glaze shall be brown colour and shall cover all the porcelain parts of the insulator except these areas necessarily left unglazed for the purpose of assembly. The

cement used in the construction of the insulators shall not cause fracture by expansion or loosening and shall not give rise to any chemical reaction with the metal fittings.

3.7.3. **Hardware fittings for Insulator**

3.7.3.1. *HARDWARE*

Each insulator string assembly shall generally include the following hardware:

Anchor shackle for attachment of suspension string assembly to the tower hanger and tension string assembly to the tower strain plate. Suitable top and bottom yoke assemblies with the arrangement of fixing a set of arcing horns.

- Set of arcing horns
- Suspension or tension clamp
- Bolts, nuts, washers, split pins etc.

- Other fittings necessary to make the strings complete such as ball clevis, socket clevis, chain links etc.

The tenderer shall be responsible and satisfy himself that all the hardware included in strings are entirely suitable for the conductor offered.

3.7.3.2. *SUSPENSION CLAMP*

The suspension clamps shall be made of malleable iron or aluminium alloy, hot dip galvanised and shall be suitable to accommodate the conductor together with one set of preformed armour rods. Suitable sheet aluminium liners shall be provided. The suspension clamps shall be designed to avoid any possibility of deforming or damaging the conductor. The lips shall be rounded off and the seating and the bell mouths shall be smooth to avoid corona and radio interference noises. The suspension clamps shall be suitable to carry the bottom part of the arcing horn and to receive the fittings of the insulator string.

The suspension clamps shall be such that the conductor should not slip at a load of 25% of the breaking load of the conductor. The ultimate strength of the clamp for vertical load shall not be less than the failing load of the Disc Insulators.

3.7.3.3. *STRAIN CLAMP*

The bolted strain clamps shall also be made of malleable iron or aluminium alloy; hot dip galvanised, lined with sheet aluminium liners and shall be suitable to accommodate the conductor with necessary binding tapes etc. The lips shall be rounded off carefully and conductor seating and the ball mouth shall be smooth to avoid corona and radio interference noises. Suitable attachment for receiving one side of arcing horns and for connecting to the insulator strings shall be provided.

The strain clamps shall be such that the conductor should not slip at a load of 90% of the breaking load of the conductor. The ultimate strength of the clamp for horizontal load shall not be less than the ultimate strength of the conductor.

Arcing horns of approved size and dimensions shall be provided for every string of insulators. The performance data for arcing horns to be supplied shall be made available to the Employer.

3.7.3.4. **OTHER INSULATOR STRING HARDWARE**

The strength of other string hardware namely anchor shackle, yoke plates, socket-clevis etc. shall be co-ordinated with insulator disc strength.

3.7.3.5. **Interchangeability**

The hardware together with ball and socket fittings shall be of standard design, so that this hardware are interchangeable with each other and suitable for use with disc insulators of any make conforming to relevant Indian/International Standard

3.7.3.6. **Ball and Socket Designation**

The dimensions of the ball and socket shall be of 20 mm designation for 120 KN discs, in accordance with the standard dimensions stated in IS : 2486-(Part-II) /IEC:120. The dimensions shall be checked by the appropriate gauge after galvanising only.

3.7.3.7. **Security Clips and Split Pins**

Security clips for use with ball and socket coupling shall be R-shaped, hump type which provides positive locking of the coupling as per IS: 2486-(Part-III)/IEC: 372. The legs of the security clips shall be spread after assembly in the works to prevent complete withdrawal from the socket. The locking device should be resilient, corrosion resistant and of suitable mechanical strength. There shall be no risk of the locking device being displaced accidentally or being rotated when in position. Under no circumstances shall the locking devices allow separation of fittings.

The hole for the security clip shall be countersunk and the clip should be of such design that the eye of clip may be engaged by a hot line clip puller to provide for disengagement under energised conditions. The force required to pull the security clip into its unlocked position shall neither be than 50 N (5 kg) nor more than 500 N (50 kg).

Split pins shall be used with bolts & nuts.

3.7.3.8. **Arcing Horn for EHV Strings**

The arcing horn shall be provided on tower side of the hardware fittings. The same shall be either ball ended rod type or tubular type.

The spark gap shall be so adjusted to ensure effective operation under actual field conditions.

3.7.3.9. **Dead End Assembly**

The dead end assembly shall be suitable for Conductor as detailed in the document.

The dead end assembly shall be compression type with provision for comprising the jumper terminal at one end. The angle of the jumper terminal to be mounted should be 300 with respect to the vertical line. The area of bearing surface on all the connections shall be sufficient to ensure positive electrical and mechanical contact. The resistance of the clamp when compressed on Conductor shall not be more than 75% of the resistance of equivalent length of Conductor.

The assembly shall not permit slipping of, damage to, or failure of the complete conductor or any part thereof at a load less than 95% of the ultimate tensile strength of the conductor.

3.7.4.0 The Hardware Fittings, conductor and earth wire accessories shall conform to the following Indian Standards or equivalent International Standards, which shall mean latest revisions, amendments/changes adopted and published unless specifically stated otherwise in the specification.

1. IS: 209 Specification for Zinc.
2. ~~IS: 398 Specification for Aluminum Conductors.~~
for Overhead Transmission Purposes,
3. IS: 1327 Method of Determination of Weight of
Zinc Coating on Tin Plate.
4. IS: 1573 Electroplated Coating of Zinc on Iron and Steel
5. IS: 2121 Specification for Conductors and Earthwire
Accessories for Overhead Power Lines
(Part-1) Armour Rods, Binding Wires and Tapes for
Conductors
(Part-2) Mid-span joints and Repair Sleeves for
Conductors
6. IS : 2486 Specification for Insulator Fittings for Overhead Power Lines
With a Nominal Voltage Greater than 1 000 V
(Part 1) General Requirements and Tests
7. IS:2629 Recommended Practice for Hot Dip
Galvanizing of Iron and Steel
8. IS:2633 Method of Testing Uniformity of Coating
on Zinc Coated Articles
9. IS:4826 Galvanized Coating on Round Steel Wires
10. IS : 6639 Hexagonal Bolts for Steel Structures
11. IS: 6745 Methods for Determination of Weight of Zinc Coating on
Zinc Coated Iron and Steel Articles

12. IS : 8263 Method for Radio Interference Tests on High Voltage Insulators
 13. IS : 9708 Specification for Stock Bridge vibration Dampers for Overhead
 Power Lines

3.7.4.1 TESTS

The insulator discs and hardware fittings shall be subjected to the tests before dispatch, in

accordance with the relevant standards. The successful contractor shall submit the test results in quadruplicate to the Employer.

BOQ

Sl. No.	Item Description	Unit	Qty.	Rate in Rs.	Amount in Rs.
1	Supply of structural steel (ISMB 250) in single section including cutting, hoisting, fixing in position and applying a coat of red paint including drilling holes, supply, fitting & fixing with bolts and nuts or welding, if necessary as per direction of site engineers.				
	Qty:- 4x4.1x37.30= 611.72Kg	MT	0.611		
2	Supply of 200x200x10mm MS Plate including welding with Stub and MS Joist for stub setting work	Kg	36.48		
	12x3.04Kg/plate= 36.48 Kg				
3	Fabrication & supply of Glv. Steel super structure of different type of tower complete with Nuts & Bolts, Stubs etc.				
	i)Stub:-"A+0" type tower—1 set.	MT	0.276		
	(ii) Superstructure:- "A+0"—1 No.	MT	3.659		
	iii)Glv. Nuts & Bolts, spring washer, Step bolt etc.	MT	0.28		
4	Adjustable template for "A+0" type	MT	0.58		
5	Vibration damper.	No	12		
6	Insulator 90 KN (6x13) =78 Nos.	No	78		
7	Single Suspension hardware fittings including suspension clamp for AAA Zebra conductor .	No	6		
8	PA Rod	Sets	6		