

BIDDING DOCUMENT

FOR

Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28.

**ASSAM ELECTRICITY GRID CORPORATION LIMITED**



BID IDENTIFICATION NO:

AEGCL/MD/O&M/Kokrajhar-Bilasipara /Loc-28/CICA/2021/BID

**SECTION 1**

**TO BIDDERS**

**Corporate Office,  
Assam Electricity Grid Corporation Limited, Bijulee Bhawan,  
Paltan Bazar, Guwahati-781001**  
PHONE: 0361-2739520 FAX NO.0361-2739513  
Web: [www.aegcl.co.in](http://www.aegcl.co.in) Email: [managing.director@aegcl.co.in](mailto:managing.director@aegcl.co.in)

**1.1.0 INTRODUCTION:**

The Chief General Manager, O&M, LAR on behalf of Assam Electricity Grid Corporation Ltd(AEGCL), hereinafter referred to as AEGCL or Purchaser invites single stage two envelope e-bids for the following work from eligible firms/companies/ contractors.

**a) Name of work: Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28.**

**1.2.0 INTENT OF THE TENDER ENQUIRY:**

The intent of the Tender Enquiry is to invite proposals from the prospective and relevantly experienced and financially sound contractor(s) /firms to carry out the works as specified in this bidding document in conformity with CEA's guidance for adopting CICA technology.

**1.3.0 SCOPE OF WORK:**

Brief scope and specification of work is detailed in section 3 – purchaser's requirement. The major scopes of work are as follows:-

- a) Design, Supply, delivery of 132 KV TL tower with Composite Insulated Cross Arm including all hardware, clamps and connectors necessary for the job.
- b) Construction of foundation including supply of all material and labour.
- c) Lowering of conductor, dismantling of existing tower, erection of new tower, fitting of all hardware accessories, stringing of conductor to complete the job and make ready for charging.
- d) Arrangements of any permits required for transportation and movement of supplied materials.

**1.4.0 TIME SCHEDULE:**

The successful bidder shall have to complete the works within **4 (Four) months** from the date of contract commencement. Bidder must submit a completion schedule bar chart for activities to complete the work within this time schedule.

**1.5.0 ESTIMATE:**

**Rs. 26,35,825.00** (Rupees Twenty Six Lakh Thirty Five Thousand Eight Hundred Twenty Five) Only including taxes.

**1.6.0 ELIGIBILITY CRITERIA:**

**1.6.1. GENERAL**

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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Bidder may be manufacturer of the offered products or a firm/company having authorisation from a manufacturer. In case the bidder is not a manufacturer of the offered products, bidder must submit manufacturer's authorisation using for that purpose Form-MA provided in Section-2 Bidding forms.

### 1.6.2. EXPERIENCE

To be qualified for the bid the bidder must compulsorily meet the following minimum criteria specified in (i) and (ii) below:

- i. Bidder OR if the bidder is not a manufacturer, offered product's manufacturer must have at least **Three years of experience** in design, manufacture and supply of one 132 KV tower with Composite Insulated Cross Arm(CICA) technology. Bidder shall submit filled up form EXP-1 along with copy of past orders to establish its eligibility.
- ii. Bidder must have experience of construction of at least one 132 KV tower within past five years. Bidder shall submit filled up form EXP-2 along with copy of past orders and completion certificate from customer to establish its eligibility.

In case the Supplier/Manufacturer of Insulated Cross Arm is a wholly owned subsidiary or a joint venture company or special purpose vehicle (SPV), the technical capabilities and experience of its Parent/ Parent Subsidiaries or associate / Promoter Company/ affiliate shall be acceptable.

### 1.6.3. FINANCIALS:

- i. As a minimum, a Bidder's net worth calculated as the difference between total assets and total liabilities should be positive. As supporting document, bidder should submit audited balance sheets or other financial statements acceptable to the Purchaser, for last 3 (three) financial years to demonstrate the current soundness of the Bidders financial position and its prospective long-term profitability. Apart from audited balance sheet, bidder shall submit duly filled and signed **Form 'FIN-1'** given in Section 2. Using the 'Form LIT – 1' (Section 2, Bidding Form), bidder shall list all Pending Litigation. All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50% percent of the Bidder's net worth.
- ii. Bidder must have minimum **Average Annual Turnover (AAT) of Rs. 56,00,000.00 (Rupees Fifty Six Lakh)**. AAT shall be calculated by averaging total certified payments received for contracts in progress or completed, for the last 3 (three) years. The bidder shall furnish, along with its bid, audited balance sheets and duly filled up Form '**FIN-2**' in support of this Clause.
- iii. Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:
  - (a) the cash-flow requirement, **Rs. 28,00,000.00** for this project and
  - (b) the overall cash flow requirements for this contract and its current works commitment. .

Bidder must submit duly filled and signed **Form FIN-3 & FIN-4** of section 2 in support of this clause.

### 1.6.4. DESIGN OF OFFERED CICA TOWER AND FOUNDATION

Bidder must along with its techno-commercial bid submit the detailed design and drawings for the offered tower with CICA technology and foundation design. The tower design should be

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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suitable for the loading as per site condition, ground clearance etc. for conductor. The foundation design should be suitable for the loading as per site condition. **If the offered design is found to be not suitable for the site, the techno-commercial bid shall be rejected. If no design changes in the existing tower are proposed, the bidder may submit a declaration in this regard.**

### 1.6.5. TYPE TEST REPORT:

Bidder must submit full type test reports for the offered products along with the techno-commercial bid in line with clause **3.3.12.1 type test of section 3 – Purchaser's requirement.**

### 1.7.0 SITE VISIT:

The bidders are advised to visit and examine the sites of work and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid. The costs of visiting the Site shall be at the bidder's own expense. The GPS coordinate of location 28 of the Transmission line is N26°18'52 E90° 13 41The location of work is recoded in the TL plan from locaton 25-31 which is attached herewith.

### 1.8.0 QUANTUM OF WORK:

The quantum of work is stated in the PRICE SCHEDULE at the end of section 2 – bidding forms. Bidders are requested to read the Section 3 – Purchaser's Requirement for complete scope and volume of work.

### 1.9.0 QUERY ON THE BIDDING DOCUMENT:

Prospective bidder may submit queries, if felt necessary, requesting clarification of any bid clause. Such queries must be submitted in the etendering portal latest by the **Tender clarification end date and time** mentioned in the Bid Data Sheet. Purchaser shall clarify to the extent felt necessary or issue corrigendum for any amendment required in the bidding document. Such corrigendum/clarification shall be made available in the etendering portal and official website of AEGCL, [www.aegcl.co.in](http://www.aegcl.co.in) . Any query submitted outside the etender portal viz. email, or in physical letters, shall not be entertained.

### 1.10.0 CLARIFICATION OF BIDS

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

### 1.11.0 DEADLINE FOR SUBMISSION OF BIDS

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

### 1.12.0 SUBMISSION OF BID:

The bidder shall submit the techno commercial & price bid through e-tendering portal <https://assamtenders.gov.in>. All documents as required by this bidding document shall be scanned and uploaded in the portal. Price schedule should be submitted in the format provided in the online

## **Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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portal. Bidder must go through the document checklist provided in this bidding document and submit all required document. Bidders are also requested to submit the informations in the format provided in this bidding document where applicable.

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

### **1.13.0 BID VALIDITY**

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

### **1.14.0 OPENING OF TECHNO-COMMERCIAL BIDS**

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

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

### **1.15.0 EARNEST MONEY DEPOSIT (EMD):**

The bid must be accompanied with earnest money as mentioned in the **Bid Data Sheet** against the works to be deposited in the form of Bank Guarantee (BG) of Nationalized or scheduled Bank **OR** FD/Term Deposit pledged in favour of "The Managing Director, AEGCL". The EMD should be submitted along with Techno-Commercial bid. The earnest money will be released to the unsuccessful bidders on finalization of the tenders. The EMD to the successful bidder will be released on submission of Security Deposit after execution of the contract agreement.

### **1.16.0 PRICE BASIS:**

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

### **1.17.0 DEVIATIONS, RESERVATIONS, AND OMISSIONS:**

During the evaluation of bids, the following definitions apply:

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

### **1.18.0 PRELIMINARY EXAMINATION OF TECHNICAL BIDS:**

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

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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

- (a) Original copy of **EMD/Online EMD payment receipt**,
- (b) Duly filled and signed **tender of technical bid** and
- (c) **Authorization letter of bid signatory**

**Bidder should submit hard copies of the documents mentioned above in (a), (b) and (c) in a physical envelope prior to deadline for technical bid submission. Techno-commercial bids shall be summarily rejected if these three documents are not submitted in hard copy deadline for technical bid submission.**

### 1.19.0 RESPONSIVENESS OF TECHNO-COMMERCIAL BID:

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

- a) if accepted, would:
  - (i). Affect in any substantial way the scope, quality, or performance of the plant and services specified in the Contract; or
  - (ii). Limit in any substantial way, inconsistent with the Bidding Document, the Purchaser's rights or the Bidder's obligations under the proposed Contract; or
- b) If rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

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

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

### 1.20.0 EVALUATION OF PRICE BIDS:

The Purchaser shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be used.

To evaluate a Price Bid, the Purchaser shall consider the following:

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

### 1.21.0 AWARD CRITERIA:

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

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

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

**1.23.0 NOTIFICATION OF AWARD:**

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

**1.24.0 PERFORMANCE SECURITY:**

**Within 15 (five) days** of receipt of the Notification of Award from AEGCL, the successful bidder shall furnish to AEGCL a performance security in an amount of 10 (ten) percent of the Contract Price in accordance with the Conditions of Contract. The form of performance security provided in Section 3 of the bidding documents may be used or some other form acceptable to AEGCL. The performance guarantee BG shall be valid through 30 days beyond the guarantee period.

**1.25.0 SIGNING OF CONTRACT AGREEMENT:**

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

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

**Annexure to SECTION 1  
BID DATA SHEET**

<b>Name of Work</b>	Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28.
<b>Location of Work</b>	Assam. (See clause 1.7.0 of section 1)
<b>NIT No.</b>	AEGCL/MD/TL-252/Bongaigaon/T&T/2018/Part-II/19, dated: 18.06.2021
<b>Bid Identification No.</b>	AEGCL/MD/O&M/Kokrajhar-Bilasipara /Loc-28/CICA/2021/BID
<b>Estimate(In Indian Rupees)</b>	<b>Rs. 26,35,825.00</b> (Rupees Twenty Six Lakh Thirty Five Thousand Eight Hundred Twenty Five) Only including taxes.
<b>Earnest Money Deposit(EMD)</b>	<b>Rs. 52,000.00</b> (Rupees Fifty Two Thousand) Only
<b>Purchase'sAddress for correspondence</b>	<b>The Chief General Manager(O&amp;M), LAR, AEGCL</b> 1 <sup>st</sup> Floor, Bijulee Bhawan, Paltanbazar Guwahati(Assam) 781001  Telephone: +91 361 2739520 Facsimile number: +91 361 2739513 Electronic mail address: cgmom.lar@aegcl.co.in
<b>Pre-bid date</b>	Shall be notified, if any, in due course.
<b>Bid submission mode</b>	E-tenders shall be accepted through online portal <a href="https://assamtenders.gov.in">https://assamtenders.gov.in</a> only)
<b>Address for bid opening</b>	<b>The Chief General Manager(O&amp;M), LAR, AEGCL</b> Floor/Room number: <b>First Floor</b> Street Address: <b>Bijulee Bhawan, Paltanbazar</b> City: <b>Guwahati (Assam)</b> PIN Code: <b>781001</b> Country: <b>India</b>
<b>Key dates</b>	<b>Tender publishing date: 10:00 Hrs., 19.06.2021</b> <b>Tender submission start date: 10:00 Hrs., 03.07.2021</b> <b>Tender clarification end date: 17:00 Hrs., 30.06.2021</b> <b>Tender submission end date and time: 12:00 Hrs., 09.07.2021</b> <b>Techno-cmmmercial bid opening date: 14:00 Hrs., 10.07.2021</b>



**SECTION -2 BIDDING FORMS**

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

**Form – 1**  
**Document checklist**

SL. No.	Document to be submitted	Submitted (Yes/No)	Name of uploaded pdf
1.	Letter of technical bid(Form-2)		
2.	Notarised Power of attorney for the person signing the tender		
3.	Bank Gurantee for EMD (Form-3) (Only required if allowed offline EMD submission)		
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. In such case manufacturer is to submit a self declaration with supporting document)		
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 experience as per clause 1.6.2(i)		
18.	Completion certificate establishing experience as per clause 1.6.2(ii)		
19.	Document establishing manufacturing unit details		
20.	Detailed design and drawings for CICA tower and foundation		
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.**

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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(In bidders letterhead)

**Form-2**  
**Letter of technical bid**

Date:

To

The Chief General Manager (O&M), LAR  
AEGCL, 1<sup>st</sup> Floor, Bijulee Bhawan,  
Paltan Bazar, Guwahati-01

Bid Identification No: AEGCL/MD/O&M/Kokrajhar-Bilasipara /Loc-28/CICA/2021/BID

Sir,

I/We the undersigned, declare that, we, [insert name of the bidder] having registered office at [insert address of the registered office] hereby declare that,

I/we have read the bid document and do not have any reservation to any of the clause therein. We offer to execute the work of:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28.**

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

Common Seal and Signature of the authorised person:

Name:

Designation:

*Note:*

*i) Insert name and address in appropriate places.*

*ii) Strike out which is not applicable.*

Form - 3

**Format for Bank Guarantee (Earnest money deposit)**

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

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

Beneficiary: The Managing Director, AEGCL  
Name and Address of Purchaser

Bid Security No.:

We have been informed that . . . . . *name of the Bidder*. . . . . (Hereinafter called "the Bidder") intends to submit to you its bid against *Bid ref* . . . . . for Supply installation, testing & commissioning of solar street light system.

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

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

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

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

BG expiry date:  
BG clam date:

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

NOTE

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

Form 4

**Manufacturer's Authorization**

**(To be submitted in Manufacturer's Letterhead)**

Bid No.: AEGCL/MD/O&M/Kokrajhar-Bilasipara /Loc-28/CICA/2021/BID

To

The Chief General Manager (O&M), LAR  
AEGCL, 1<sup>st</sup> Floor, Bijulee Bhawan,  
Paltan Bazar, Guwahati-01

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.

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 during the entire period of execution period by assisting with adequate supervision.

For and on behalf of the Manufacturer

Common Seal and Signature of the authorised person:

Name:

Designation:

**NOTE:**

This MA should be signed by a person having either of the following-

- 1) Valid Power of attorney
- 2) Authorised by Managing Director
- 3) Member of Board of Directors

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form-ELI-1**  
**Bidder's information Sheet**

Sl. No.	Particulars	Bidders response
1	Bidders name and registered address	
2	Bidders authorised representative, designation and contacts	
3	GST registration no.	
4	MSME/SSI registration Udyog Adhaar/NSIC registration available?	Yes/No
5	EMD exemption claimed	Yes/No

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form – LIT  
Pending Litigation**

<b>Year</b>	<b>Matter in Dispute</b>	<b>Value of Pending Claim in Rupees</b>	<b>Value of Pending Claim as a Percentage of Net Worth</b>

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form FIN – 1  
Financial Situation**

**Information from Balance Sheet**

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

**Information from Income Statement**

<b>Total Revenues</b>			
<b>Profits Before Taxes</b>			
<b>Profits After Taxes</b>			

Note: To be supported by audited financial documents

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form FIN – 2  
Average Annual Turnover**

<b>Annual Turnover Data for the Last 3 Years</b>	
<b>Year</b>	<b>Amount (Rupees)</b>
<b>Average Annual Turnover</b>	

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

(Signature and common seal)

Name:

Designation:

Date:



**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**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 with necessary supporting documents.

<b>Financial Resources</b>		
<b>No.</b>	<b>Source of financing</b>	<b>Amount (Rupees)</b>
1		
2		
3		

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form FIN- 4  
Current Contract Commitments**

Bidders should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

<b>No.</b>	<b>Contract No., Customer and name of work</b>	<b>Contract value(Rs.)</b>	<b>Estimated Completion Date</b>	<b>Value of Outstanding Work (Rs.)</b>
1				
2				
3				
4				
5				

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form – EXP-1**

**Bidder must fill this form to establish eligibility as per clause 1.6.2(i)**

<b>Sl. No.</b>	<b>Customer name</b>	<b>Contract No. and date</b>	<b>Work order value</b>	<b>Contractor/supplier</b>	<b>Brief description of work</b>

Note: Order/contract copies are to be submitted as supporting document.

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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**Form – EXP-2**

**Bidder must fill this form to establish eligibility as per clause 1.6.2(ii)**

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

Note: Following documents are to be submitted as supporting document:

- i) Relevant order/contract copies.
- ii) Completion certificate or Delivery Challan with customer signature.

(Signature and common seal)

Name:

Designation:

Date:

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

**Price schedule - 1**

All prices are in Indian Rupees

Sl. No	Items/Particulars	Unit	Qty	Unit Rate	Total
	<b>Design</b>				
1.1	Design of 132 KV Tower with Composite insulated cross arm as per bid specification and site condition.	LS	2		
1.2	Design of foundation suitable for 132 KV CICA tower as per site condition.	LS	2		

Sl. No	Items/Particulars	Unit	Qty	Unit Rate (Supply)	Unit Rate(F&I)	Total
	<b>Supply</b>					
1.1	Supply 132 KV Tower with Composite insulated cross arm along with all hardware, calmps, fittings and accessories required for the job as per bid specification and approved design	Nos	2			

Sl. No	Items/Particulars	Unit	Qty	Unit Rate	Total
<b>1</b>	<b>Civil works and erection</b>				
1.1	Construction of foundation for 132 KV Tower with Composite insulated cross arm as per bid specification, approved design and site condition including supply of all materials and labour.	No.	2		
1.3	Lowering of conductor and Dismantling of old 132 KV Tower at location 88	Job	1		
1.1	Erection of 132 KV Tower with Composite insulated crossarm, stringing of conductor and making the line ready for charging.	Job	1		

**Note: The price schedule presented here is for reference only. Bidders must submit the price using the price schedule available in e-tendring portal. This is not to be submitted in the techno-commercial envelope.**

**Section - 3**

**Purchaser's Requirements**

**3.1.0 SCOPE**

Tower location 28 of the 132 KV Kokrajhar – Bilasipara Transmission line is near the rivercourse of Gaurang river. It is intended to shift the tower location 28 away from the river course. It is also expected that the tower location 27/26 needs to be relocated to maintain the required span.

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

- a) Design, Supply, delivery of 132 KV TL tower with Composite Insulated Cross Arm including all hardware, clamps and connectors necessary for the job.
- b) Construction of foundation including supply of all material and labour.
- c) Lowering of conductor, dismantling of existing tower, erection of new tower, fitting of all hardware accessories, stringing of conductor to complete the job and make ready for charging.
- d) Arrangements of any permits required for transportation and movement of supplied materials. However, AEGCL shall assist as far as practicable in the process.

**3.2.0 SERVICE CONDITIONS**

Bidder should note the following climatic and other conditions prevailing in the location of work:

- |  |            |                             |
|--|------------|-----------------------------|
| a) Peak ambient day temperature in still air | :          | 45°C                        |
| b) Minimum night temperatures                | :          | 0°C                         |
| c) Ground temperatures                       | :          | 40°C                        |
| c) Reference ambient day temperature         | :          | 45°C                        |
| d) Relative Humidity                         | a) Maximum | : 100 %                     |
|  | b) Minimum | : 10 %                      |
| e) Altitude                                  | :          | Below 1000 M above MSL      |
| f) Maximum wind pressure                     | :          | As per IS: 802 latest code. |
| g) Seismic Intensity                         | :          | ZONE-V as per IS 1893.      |

**3.3.0 TECHNICAL SPECIFICATION**

**3.3.1. General Requirements of Composite Insulators**

3.3.1.1. The Insulated cross-arm shall consist of Post Insulator and Line Insulator along with all the required hardware fittings, which shall be suitably modified to install on the existing 132kV towers.

3.3.1.2. Composite Insulators (FRP Insulators) need to be light in weight as specified in Cl.1.5, and suitable for highly polluted/ saline and wet environments. They should be practically unbreakable and have superior anti-tracking properties by way of the exterior composite material insulation. It should not accumulate solid pollutants with retention of water which leads to flash over of the insulators and

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

breakdown. Composite insulators must have good hydrophobic properties & should be most consistent in highly polluted atmospheres.

- 3.3.1.3. The specially designed FRP material used in these Insulators needs to have a self-cleaning property, achieved by molecular migration making it possible to maintain anti-tracking performance over an extended period. Tests as per Annexure A for Surface hydrophobicity as well as Aging test results as per type tests like "Accelerated aging tests" should be submitted along with the bid proving long lifetime period of more than 20 years and proving suitability in a polluted & wet environment.
- 3.3.1.4. The composite Insulator weights needs to be 25-30% less than that of an equivalent ceramic/porcelain Insulator ensuring easy installation. These Insulators should be able to be used at temperatures ranging from -50 deg C to +60 deg C.
- 3.3.1.5. The insulators of the strings shall consist of composite materials for a three phase, 50 Hz, effectively earthed 132kV transmission system application in a polluted environment. Couplings shall be ball and socket type.
- 3.3.1.6. Bidder shall quote composite insulators which have proven use under foggy/humid operational conditions in polluted industrial environment combined with smoke and dust particles. The Bidder shall furnish evidence in the form of certification from the power utilities that the similar type of product supplied to them had been performing satisfactorily. The Bidder shall also submit certified test report for an accelerated ageing test of 5000 hours such as that described in Appendix-C of IEC-61109.
- 3.3.1.7. Insulators shall have sheds of the "open aerodynamic profile without any under ribs" with good self-cleaning properties. Insulator shed profile, spacing projection etc. shall be strictly in accordance with the recommendation of IEC-60815.
- 3.3.1.8. The size of composite insulators, minimum creepage distance, the number to be used in different type of strings, their electromechanical strength and mechanical strength of insulator string along with hardware fittings shall be as follows:

### PARTICULARS OF COMPOSITE INSULATORS FOR INSULATED CROSS-ARM

Sr. No.	Type	Size of Composite Insulator (mm)	Min. Creepage Distance (mm)	No. of Individual units per string (Nos.)	EM strength of Insulator Unit (kN)	Mechanical strength of Insulator string along with Hardware fittings (kN)
1	Post Insulators	90X1800	4495	1X1	1000	120
2	Line Insulators	18X1700	4495	1X1	120	120

Note: **\*The core dia. of composite insulators mentioned at column No.1 is minimum requirement.** The bidder shall offer composite insulators of suitable core dia. to meet specified E&M strength requirements. However, the overall string length shall be within the limits specified in the drawing.

### 3.3.2. Pin and Cap

## **Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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3.3.2.1. Pin and cap shall be designed to transmit the mechanical stress and develop uniform mechanical strength in the insulator. The cap shall be circular with the inner and outer surfaces concentric of such design that it will not yield or distort under load conditions.

3.3.2.2. The design shall be such as to permit easy removal of replacement of either insulator units or fittings under the live line conditions.

### **3.3.3. Ball and Socket Designation**

The dimensions of the Ball and Socket shall be of 20mm for 120kN Insulators in accordance with the standard dimensions stated in IEC:120/ IS:2486 (Part-II).

### **3.3.4. Dimensional Tolerance of Composite Insulators**

The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows:

$\pm (0.04d+1.5)$  mm when  $d \leq 300$  mm.

$\pm (0.025d+6)$  mm when  $d > 300$  mm.

Where, d being the dimensions in millimeters for diameter, length or creepage distance as the case may be. However, no negative tolerance shall be applicable to creepage distance.

### **3.3.5. Interchangeability**

The composite insulators inclusive of the ball & socket connection shall be standard design suitable for use with the hardware fittings of any make conforming to relevant IEC standards.

### **3.3.6. Corona and RI Performance**

All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and shall not generate any radio interference beyond specified limit under the operating conditions.

### **3.3.7. Maintenance**

The composite insulators offered barely need any maintenance due to their advantage of material properties over its lifetime. However, they shall be suitable for employment of hot line maintenance technique so that usual hot line operation shall be carried out with ease, speed and safety if required.

### **3.3.8. Materials**

#### **3.3.8.1. Core**

It shall be a Fibre Reinforced Composite (FRP rod) excellent anti-bending & anti-seismic resistance. The rod shall be electrical grade corrosion resistant (ECR), boron free glass and shall exhibit both high electrical integrity and high resistance to acid corrosion.

#### **3.3.8.2. Housing & Weather sheds**



## **Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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The FRP rod shall be covered by a seamless sheath of a High Temperature Vulcanized (HTV) silicone rubber compound of a thickness of minimum 3mm. The housing & weather sheds should have silicon content of minimum 30% by weight. It should protect the FRP rod against environmental influences, external pollution, and humidity. It shall be extruded or directly moulded on the core. The interface between the housing and the core must be uniform and without voids. The strength of the bond shall be greater than the tearing strength of the composite. The manufacturer shall follow non-destructive technique (N.D.T.) to check the quality of jointing of the housing interface with the core. The technique being followed with detailed procedure and sampling shall be furnished along with the bid. The details for this shall be finalized during detailed engineering and finalization of MQP.

The weather sheds of the insulators shall be of alternate shed profile. The weather sheds shall be vulcanized to the sheath (extrusion process) or molded as part of the sheath (injection moulding process) and free from imperfections. The vulcanization for extrusion process shall be at high temperature and for injection moulding shall be at high temperature & high pressure. Any seams / burrs protruding axially along the insulator, resulting from the injection moulding process shall be removed completely without causing any damage to the housing. The track resistance of housing and shed material shall be class 1A4.5. according to IEC:60587. The strength of the weather shed to sheath interface shall be greater than the tearing strength of the composite. The composite insulator shall be capable of high pressure washing.

### **3.3.8.3. End Fittings**

End fittings transmit the mechanical load to the core. They shall be made of malleable cast iron spheroidal graphite or forged steel. They shall be connected to the rod by means of a controlled compression technique. The manufacturer shall have in-process Acoustic emission arrangement or some other arrangement to ensure that there is no damage to the core during crimping. This verification shall be in-process and done on each insulator. The gap between fitting and sheath shall be sealed by a flexible silicone rubber compound. The system of attachment of end fitting to the rod shall provide superior sealing performance between housing and metal connection. The sealing must be humidity proof and durable with time.

### **3.3.8.4. Grading Rings**

Grading rings shall be used at both ends of each composite insulator unit for reducing the voltage gradient on and within the insulator and to reduce radio and TV noise to acceptable levels. The size and placement of the metallic grading rings shall be designed to eliminate dry band arcing/corona cutting/ exceeding of permissible electrical stress of material. The bidder shall furnish calculations along with the proposed placement and design of corona ring in support of the above. Grading rings shall be capable of installation and removal with hot line tools without disassembling any other part of the insulator assembly. The bidder should supply the grading rings also.

### **3.3.9. Workmanship**

- 3.3.9.1. **All the materials shall be of latest design and conform to the best modern practices** adopted in the extra high voltage field. Bidders shall offer only such insulators as are guaranteed by him to be satisfactory and suitable for transmission lines specified and will give continued good service.
- 3.3.9.2. The design, manufacturing process and material control at various stages shall be such as to give maximum working load, highest mobility, best resistance to corrosion, good finish and elimination of sharp edges and corners to limit corona and radio interference.

## **Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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- 3.3.9.3. The design of the insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration.
- 3.3.9.4. The core shall be sound and free of cracks and voids that may adversely affect the insulators.
- 3.3.9.5. Weather sheds shall be uniform in quality. They shall be clean, sound, smooth and free from gross defects and excessive flashing at parting lines.
- 3.3.9.6. End fittings shall be free from cracks, seams, shrinks, air holes and rough edges. End fittings should be effectively, sealed to prevent moisture ingress, effectiveness of sealing system must be supported by test documents. All surfaces of the metal parts shall be perfectly smooth with the projecting points or irregularities which may cause corona. All load bearing surfaces shall be smooth and uniform so as to distribute the loading stresses uniformly.
- 3.3.9.7. All ferrous parts should be hot dip galvanized to give a minimum average coating of zinc equivalent to 600 gm/sq.m. and shall be in accordance with the requirement of ISO:1461 (E) and shall satisfy the tests mentioned in ISO:1460 (E). The zinc used for galvanizing shall be of purity of 99.95%. The zinc coating shall be uniform, adherent, smooth, reasonably bright continuous and free from imperfections such as flux, ash rust stains, bulky white deposits and blisters. The galvanized metal parts shall be guaranteed to withstand at least six successive dips each lasting for one (1) minute duration under the standard preece test. The galvanizing shall be carried out only after any machining.

### **3.3.10. Equipment Marking**

- 3.3.10.1. Each composite unit shall be legibly and indelibly marked with the trademark of the manufacturer, month & year of manufacture. The guaranteed combined mechanical and electrical strength shall be indicated in kilo Newton followed by the word 'kN' to facilitate easy identification and to ensure proper use.
- 3.3.10.2. One 10 mm thick ring or 20 mm thick spot of suitable quality of paint shall be marked on the cap/end fitting of each composite insulator of particular strength for easy identification of the type of insulator. The paint shall not have any deteriorating effect on the insulator performance.

### **3.3.11. Bid Drawings**

- 3.3.11.1. The Bidder shall furnish full description and illustration of the material offered.
- 3.3.11.2. The Bidder shall furnish along with the bid the outline drawing of each insulator unit including a cross sectional view of the insulator unit. The drawing shall include but not limited to the following information :
- a) Rod diameter and ball to ball spacing with manufacturing tolerances
  - b) Minimum Creepage distance with positive tolerance
  - c) Protected creepage distance
  - d) Eccentricity of the FRP rod unit
    - i. Axial run out
    - ii. Radial run out
  - e) Unit mechanical and electrical characteristics
  - f) Size and weight of ball and socket parts
  - g) Weight of composite units
  - h) Materials

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

- i. Identification mark
- ii. Manufacturer's catalogue number

3.3.11.3. After placement of award, the bidder shall submit full dimensioned insulator drawings containing all the details as given in Clause No. 3.3.11.2 above, in four (4) copies to AEGCL for approval.

3.3.11.4. After placement of award the Bidder shall also submit fully dimensioned insulator crate drawing for different type of insulators.

3.3.11.5. After placement of award, the Bidder shall submit full dimensioned manufacturing drawing of composite insulator unit in six (6) copies to AEGCL for reference and record.

### 3.3.12. Tests and Standards

#### 3.3.12.1. Type Tests

The bidder shall submit type test reports for all the Type Tests that have been specified in the specifications and that have previously been performed. The type test should have been performed on equipment or material that are identical or have higher parameters than the equipment being offered. Test reports should not be more than seven years old reckoned from the date of bid opening and should have been carried out in accredited laboratories (based on ISO/IEC) by a reputed accredited body or any other electric power utility. The list of tests is specified below:-

##### (a) On the complete composite Insulators with Hardware Fittings

a)	Power frequency voltage withstand test with corona control rings/grading ring and arcing horns under wet condition	IEC:383-1993/ Annexure A
b)	Switching surge voltage withstand test under wet condition Um>300	IEC:383-1993
c)	Impulse voltage withstand test under dry condition	IEC:383-1993
d)	Corona and RIV test under dry condition	Annexure-A
e)	Mechanical Strength test	Annexure-A
f)	Vibration test	Annexure-A
g)	Salt-fog pollution withstand test	Annexure-A

##### (b) On Composite Insulator Units

a)	Tests on interfaces and connections of metal fittings (Tests to be performed on the same samples in the sequence given below) i. Dry power frequency voltage test ii. Sudden load release test iii. Thermal mechanical test iv. Water immersion test v. Steep front impulse voltage test vi. Dry power frequency voltage test	IEC: 61109
b)	Assembled core load time test i. Determination of the average failing load of the core of the assembled MAV ii. Verification of the 96 hours withstand load	IEC: 61109
c)	Brittle fracture resistance test	Annexure-A
d)	Test of housing, Tracking and erosion test	IEC: 61109

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

e)	Tests for the core material i. Dye penetration test ii. Water diffusion test	IEC: 61109
f)	Flammability test	IEC:61109
g)	Recovery of Hydrophobicity test	Annexure-A
h)	Damage limit proof test and test of tightness of interface between end fittings and insulator housing	IEC:61109
i)	Silicone content test	Annexure-A
j)	High Pressure washing test	Annexure-A

All the type tests mentioned in Clause No. 3.3.12.1(a) shall be conducted on Single Post insulator, Single Tension line insulator string along with hardware fittings.

**3.3.12.2. Acceptance Tests**

For Composite Insulators

a)	Verification of dimensions	IEC: 61109
b)	Galvanising test	IEC : 60383
c)	Verification of locking system	IEC : 60383
d)	Verification of tightness of interface between end fittings and insulator housing and of specified mechanical load	IEC: 61109
e)	Recovery of Hydrophobicity	Annexure-A
f)	Tests on interfaces and connections of metal fittings (Tests to be performed on) the same samples in the sequence given below i. Dry power frequency voltage test ii. Sudden load release test iii. Thermal mechanical test iv. Water immersion test v. Steep front impulse voltage test	IEC:61109
g)	Recovery of Hydrophobicity test	Annexure-A
h)	Silicone content test	Annexure-A

The test 12.2.1.(e) & (f) shall be done against one sample of each order or against every 500 nos. of insulators whichever is less.

In the event of failure of the sample to satisfy the acceptance test(s) specified in 3.3.12.2 above, the retest procedure shall be as per clause 7.6 of IEC 61109.

**3.3.12.3. Routine Tests:**

For Composite Insulators

- a) Visual Inspection As per IEC:61109
- b) Mechanical routine test As per IEC:61109

**3.3.12.4. Tests During Manufacture**

On all components as applicable

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

a)	Chemical analysis of zinc used for galvanising	As per Annexure-A
b)	Chemical analysis, mechanical, metallographic test and magnetic particle inspection for malleable castings	As per Annexure-A
c)	Chemical analysis hardness tests and magnetic particle inspection for forgings	As per Annexure-A
d)	Tracking and erosion test on insulating material	IEC 60587

**3.3.13. Standards**

3.3.13.1. The insulator strings and its components shall conform to the following Indian/ International Standards which shall mean latest revision, with amendments/ changes adopted and published, unless specifically stated otherwise in the Specification.

3.3.13.2. In the event of supply of insulators conforming to standards other than specified, the Bidder shall confirm in his bid that these standards are equivalent or better to those specified. In case of award, salient features of comparison between the standards proposed by the Bidder and those specified in this document will be provided by the Bidder to establish equivalence.

Sl. No.	Indian Standard	Title	International Standard
1.	IS:209-1992	Specification for zinc	BS:3436
2.	IS:406-1991	Method of Chemical Analysis of Slab Zinc	BS:3436
3.	IS:2071 Part (I)-1993 (Part(II)-1991 Part(III)-1991	Methods of High Voltage Testing	IEC:60060-1
4.	IS:2486 Part-I-1993 Part-II-1989 Part-III-1991	Specification for Insulator fittings for Overhead Power Lines with a nominal voltage greater than 1000V General Requirements and Tests Dimensional Requirements Locking Devices	BS:3288 IEC:60120 IEC:60372
5.	IS:2629-1990	Recommended Practice for Hot, Dip Galvanisation for iron and steel	ISO-1461(E)
6.	IS:2633-1992	Testing of Uniformity of Coating of zinc coated articles	
7.	IS:3188-1988	Dimensions for Disc Insulators	IEC:60305
8.	IS:6745-1990	Determination of Weight of Zinc Coating on Zinc coated iron and steel articles	BS:433-1969 ISO:1460-1973
9.	IS:8263-1990	Methods of RI Test of HV insulators	IEC:60437 NEMA Publication No.07/ 1964/ CISPR
10.	IS:8269-1990	Methods for Switching Impulse test on HV insulators	IEC:60506
11.		Thermal Mechanical Performance test and mechanical performance	IEC: 60575

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

Sl. No.	Indian Standard	Title	International Standard
		test on string insulator units	
12.		Salt Fog Pollution Voltage Withstand Test	IEC:60507
13.		Composite insulators for A.C. Overhead lines with nominal voltage greater than 1000V – Definitions, test methods and acceptance criteria	IEC:61109
14.		Guide for the selection of insulators in respect of polluted conditions	IEC:60815
15.		Tests on insulators of Ceramic material or glass or glass for overhead lines with a nominal voltage greater than 1000V	IEC:60383
16.		Characteristics of string insulator units of the long rod type	IEC:60433

**3.3.14. Packing and Marking**

3.3.14.1. Bidders should ensure in packing the insulators in suitable PVC/ plastic tubes/any other suitable packing along with temporary wrap-on shields/shrouds for each insulator unit. The packing shall provide protection against rodent. The shields/shrouds shall be for protection during transport and for preventing bird pecking during erection. Further, the shields/shrouds shall be made of opaque, weatherproof material of adequate strength and shall be colour coded. The shields/shrouds shall have smaller diameter than the insulator to stay in place against winds & weather and shall be designed so as to leave only the end fittings exposed for attachment of insulator to tower and line hardware until line construction is complete.

The shield/shroud shall have suitable pull off loop for easy detachment just prior to charging of the line without causing any damage to the insulator. The bidder shall furnish detailed design of the packing and shield/shroud along with attachment and detachment procedure in this regard. For marine transportation, crates shall be palletted.

3.3.14.2. The packing shall be of sufficient strength to withstand rough handling during transit, storage at site and subsequent handling in the field.

3.3.14.3. Suitable cushioning, protective padding, or dunnage or spacers shall be provided to prevent damage or deformation during transit and handling.

3.3.14.4. The Bidder shall guarantee the adequacy of the packing and shall be responsible for any loss or damage during transportation, handling, storage and installation due to improper packing.

3.3.14.5. All packing cases shall be marked legibly and correctly so as to ensure safe arrival at their destination and to avoid the possibility of goods being lost or wrongly dispatched on account of faulty packing and faulty or illegible markings. Each case/crate shall have all the markings stencilled on it in indelible ink.

**ANNEXURE-A**

**A). Tests on Complete Strings with Hardware Fittings**

**A). 1. Corona Extinction Voltage Test (Dry)**

The sample assembly when subjected to power frequency voltage shall have a corona extinction voltage of not less than 320 kV (rms) line to ground under dry condition. There shall be no evidence of corona on any part of the sample. The atmospheric condition during testing shall be recorded and the test results shall be accordingly corrected with suitable correction factor as stipulated in IEC: 383.

**A). 2. RIV Test (Dry)**

Under the conditions as specified under (A.1) above, the insulator string along with complete hardware fittings shall 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 condition. The test procedure shall be in accordance with IS:8263 /IEC:60437.

**A). 3. Mechanical Strength Test**

The complete insulator string along with its hardware fitting excluding arcing horn, corona control ring, grading ring and suspension assembly/dead end assembly shall be subjected to a load equal to 50% of the specified minimum ultimate tensile strength (UTS) which shall be increased at a steady rate to 67% of the minimum UTS specified. The load shall be held for five minutes and then removed. After removal of the load, the string components shall not show any visual deformation and it shall be possible to disassemble them by hand. Hand tools may be used to, remove cotter pins and loosen the nuts initially. The string shall then be reassembled and loaded to 50% of UTS and the load shall be further increased at a steady rate till the specified minimum UTS and held for one minute. No fracture should occur during this period. The applied load shall then be increased until the failing load is reached, and the value recorded.

**A). 4. Vibration Test**

The suspension string shall be tested in suspension mode, and tension string in tension mode itself in laboratory span of minimum 30 metres. In the case of suspension string, a load equal to 600 kg shall be applied along the axis of the suspension string by means of turn buckle. The insulator string along with hardware fittings and the sub-conductors each tensioned at 43 kN shall be secured with clamps. The system shall be suitable to maintain constant tension on each sub-conductors throughout the duration of the test. Vibration dampers shall not be used on the test span. All the sub-conductors shall be vertically vibrated simultaneously at one of the resonance frequencies of the insulators string (more than 10 Hz) by means of vibration inducing equipment. The peak to peak displacement in mm of vibration at the antinode point, nearest to the string, shall be measured and the same shall not be less than  $1000/f^{1.8}$  where  $f$  is the frequency of vibration in cycles/sec. The insulator string shall be vibrated for not less than 10 million cycles without any failure. After the test the insulators shall be examined for looseness of pins and cap or any crack in the cement. The hardware shall be examined for looseness, fatigue failure and mechanical strength test. There shall be no deterioration of properties of hardware components and insulators after the vibration test. The insulators shall be subjected to the Mechanical performance test followed by mechanical strength test as per relevant standards.

**A). 5. Salt-fog pollution withstand test**

This test shall be carried out in accordance with IEC: 60507. The salinity level for composite insulators shall be 160 Kg/m<sup>3</sup> NaCl.



**B). Composite Line Insulator Units**

**B). 1. Brittle Fracture Resistance Test**

Assembled core load time test with container that contains 1n-HNO<sub>3</sub> concentric acid that is applied at the naked rod. The rod should be held at 80% of SML for the duration of the test.

The rod should not fail within the 96 hour test duration.

**B). 2. Recovery of Hydrophobicity Test**

- 1) The surface of selected samples shall be cleaned with isopropyl alcohol. Allow the surface to dry and spray with water. Record the HC classification. Dry the sample surface.
- 2) Treat the surface with corona discharges to destroy the hydrophobicity. This shall be done utilizing a high frequency corona tester, Holding the electrode approximately 3mm from the sample surface, slowly move the electrode over an area approximately 1" x 1". Continue treating this area for 2 – 3 minutes, operating the tester at maximum output.
- 3) Immediately after the corona treatment, spray the surface with water and record the HC classification. The surface should be hydrophilic, with an HC value of 6 or 7. If not, dry the surface and repeat the corona treatment for a longer time until an HC of 6 or 7 is obtained. Dry the sample surface.
- 4) Allow the sample to recover and repeat the hydrophobicity measurement at several time intervals. Silicone rubber should recover to HC 1 – HC 2 within 24 to 48 hours, depending on the material and the intensity of the corona treatment.

**B). 3. Silicone content test**

Minimum content of silicone as guaranteed by bidder shall be verified through FTIR spectroscopy & TGA analysis or any other suitable method mutually agreed between Employer & Bidder in Quality Assurance Programme.

**B). 4. High Pressure washing test**

The test is to be carried out at 3800 kPa with nozzles of 6 mm diameter at a distance of 3m from nozzles to the insulator, followed by a dry power frequency voltage test as per IEC 61109.

**C). Tests on All Components (As Applicable)**

**C). 1. Chemical Analysis of Zinc used for Galvanizing**

Samples taken from the zinc ingot shall be chemically analysed as per IS:209-1979. The purity of zinc shall not be less than 99.95%.

**C). 2. Tests for Forgings**

The chemical analysis hardness tests and magnetic particle inspection for forgings, will be as per the internationally recognised procedures for these tests. The sampling will be based on heat number and heat treatment batch. The details regarding test will be as discussed and mutually agreed to by the Bidder and Employer in Quality Assurance Programme.



**C). 3. Tests on Castings**

The chemical analysis, mechanical and metallographic tests and magnetic, particle inspection for castings will be as per the internationally recognised procedures for these tests. The samplings will be based on heat number and heat treatment batch. The details regarding test will be as discussed and mutually agreed to by the Bidder and Employer in Quality Assurance Programme.

**ANNEXURE-B**

**SYSTEM PARTICULARS**

**Electrical System Data**

**132kV LINE**

A. System Voltage	132 kV
B. Maximum Voltage	145 kV
C. BIL (Max.)	650 kVp
D. Power frequency withstand voltage (wet)	275kV rms

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

**GTPs OF COMPOSITE POST INSULATORS  
FOR 132kV TRANSMISSION LINE**

Sl. No.	Description	Unit	Minimum Requirement
1.	Type of Insulator		Composite
2.	Reference Standard		IEC 61952
3.	Material of Core Rod		FRP Rod
4.	Material of sheds		Silicon Rubber
5.	Type of metal end fittings		Flange
6.	Weight of single unit	Kg	100
7.	Size and designation of ball & socket assembly	mm	/
8.	Core diameter	mm	Φ133
9.	Tolerance on core diameter	±mm	0.15
10.	Nominal length (section length)	mm	1800
11.	Tolerance on Nominal length	±mm	2
12.	Dry arcing distance	mm	1580
13.	Number of sheds	Nos.	20
14.	Sheds profile (type)		Big-small-big
15.	Shed spacing	mm	72
16.	Sheds profile (regular alternating)		Alternate sheds
17.	Shed diameter	mm	-
18.	Tolerance on shed diameter	±mm	3
19.	Minimum creepage distance	mm	>4495
20.	Tolerance on Creepage distance	mm	(1%)
21.	Guaranteed mechanical strength Compression Strength Tension Strength	kN	1000 120
22.	Routine mechanical load Compression Strength Tension Strength	kN	500 60
23.	Material a) FRP rod b) Weather sheds with % contents of silicon c) Housing d) End fittings e) Grading rings		a) FRP b) 30% c) HTV d) Q345 Steel e) Galvanized aluminum
24.	Minimum thickness of sheath covering over the core	mm	3
25.	Power frequency withstand voltage of single unit a) Dry b) Wet	KV (rms) KV (rms)	/ /
26.	Power frequency flashover voltage of single unit a) Dry b) Wet	KV (rms) KV (rms)	/ /

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

Sl. No.	Description	Unit	Minimum Requirement
27.	Impulse withstand voltage of single unit (dry) a) Positive b) Negative	KV (peak) KV (peak)	/ /
28.	Impulse flashover voltage of single unit (dry) a) Positive b) Negative	KV (peak) KV (peak)	/ /
29.	Purity of zinc used for galvanizing end fittings	%	99.95
30.	Number of dips which the end fittings can withstand in standard preece test	Nos.	/
31.	Certified test report of accelerated ageing test of 5000 hours (enclosed) (appendix-C of IEC-61109)	Yes/No.	Yes
32.	Drawing enclosed	Yes/No.	/

**GTPs OF COMPOSITE LINE INSULATORS  
FOR 132KV TRANSMISSION LINE**

Sl. No.	Description	Unit	Minimum Requirement
1.	Type of Insulator		Composite
2.	Reference Standard		IEC 61109
3.	Material of Core Rod		FRP Rod
4.	Material of sheds		Silicon Rubber
5.	Type of metal end fittings		Ball & Socket
6.	Weight of single unit	Kg	75
7.	Size and designation of ball & socket assembly	mm	
8.	Core diameter	mm	18
9.	Tolerance on core diameter	±mm	2
10.	Nominal length (section length)	mm	1700
11.	Tolerance on Nominal length	±mm	10
12.	Dry arcing distance	mm	1500
13.	Number of sheds	Nos.	20
14.	Sheds profile (type)		Big-small-big
15.	Shed spacing	mm	72
16.	Sheds profile (regular alternating)		Alternate sheds
17.	Shed diameter	mm	-
18.	Tolerance on shed diameter	±mm	3
19.	Minimum creepage distance	mm	>4495
20.	Tolerance on Creepage distance	mm	(1%)
21.	Guaranteed mechanical strength	kN	120
22.	Routine mechanical load	kN	60

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

Sl. No.	Description	Unit	Minimum Requirement
23.	Material a) FRP rod b) Weather sheds with % contents of silicon c) Housing d) End fittings e) Grading rings		a) FRP b) 30% c) HTV d) Q345 Steel e) Galvanized aluminum
24.	Minimum thickness of sheath covering over the core	mm	
25.	Power frequency withstand voltage of single unit a) Dry b) Wet	KV (rms) KV (rms)	/ /
26.	Power frequency flashover voltage of single unit a) Dry b) Wet	KV (rms) KV (rms)	/ /
27.	Impulse withstand voltage of single unit (dry) a) Positive b) Negative	KV (peak) KV (peak)	/ /
28.	Impulse flashover voltage of single unit (dry) a) Positive b) Negative	KV (peak) KV (peak)	/ /
29.	Purity of zinc used for galvanizing end fittings	%	99.95
30.	Number of dips which the end fittings can withstand in standard preece test	Nos.	/
31.	Certified test report of accelerated ageing test of 5000 hours (enclosed) (appendix-C of IEC-61109)	Yes/No.	Yes
32.	Drawing enclosed	Yes/No.	/

Section - 4

General Conditions of Supply and Erection of AEGCL

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

## **Section - 5**

### **Special Conditions of Contract**

#### **5.1.0 DEFINITION OF TERMS**

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

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

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

“Day” means calendar day

“Year” means 365 days.

“Month” means calendar month.

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

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

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

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

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

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

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

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

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

#### **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.

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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### 5.4.0 LANGUAGE

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

### 5.5.0 SCOPE OF WORK

5.5.1. The Goods and Related Services to be supplied shall be as specified in section 3- Purchaser's requirement and quantity as stated in Schedule No. 1 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. Contract completion shall be **4(Four) months** from Contract commencement.

5.6.2. The Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Article 3 of the Contract Agreement (Contract Forms) or within such extended time to which the Contractor shall be entitled under SCC **Clause 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 scope or changes in applicable tax rates 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 supply of equipment and F&I shall be made as follows: -

1. Within 60 (sixty) days from the date of submission of the invoice against successful delivery, 80% (eighty percent) payment of the invoice value(without GST) would be made along with 100% GST on receipt and acceptance of materials in full and good condition.
2. In total 5 (five) Nos. of invoice/ bill would be entertained.
3. For payment upto 80% of the total contract value, maximum 4 (four) Nos. of progressive invoices/ bills would be entertained.
4. Final invoice/ bill of 20% would be entertained on completion work to the satisfaction of purchaser.

5.8.3. Documents required along with invoice: Following documents need to be submitted along with invoice –

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



5.8.4. ADVANCE PAYMENT

No advance payment is applicable for this contract.

**5.9.0 PERFORMANCE SECURITY DEPOSIT**

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

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

5.9.3. No interest shall be payable on such deposits.

**5.10.0 RETENTION MONEY**

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

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

**5.11.0 WARRANTY**

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

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

5.11.3. The warranty shall remain valid for **18 (Eighteen) months** from the date of successful commissioning 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. Bidder may at its discretion offer extra warranty which shall be evaluated in the mark based evaluation system

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

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

**5.12.0 QUANTITY VARIATION**

5.12.1. "Purchaser" shall have the right to increase/decrease the ordered quantity by 25% within 50 days of the period of completion and the same shall be carried out at the same rates /prices and terms and conditions stipulated in the contract except in regard to completion schedule, which shall be mutually agreed upon in case of enhancement of the ordered quantity.

## **Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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### **5.13.0 INSPECTION AND TESTING**

- 5.13.1. The Contractor 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 shall generally be conducted on the premises of the Contractor/Manufacture. Subject to Sub-Clause 5.13.3, The Contractor shall furnish, all reasonable facilities and assistance, including access to drawings/process chart 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 Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice (not less than 21 days) of such test and/or inspection and of the place and time thereof to the Purchaser. The Contractor 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 Contractor/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 Contractor 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 Contractor that the Purchaser shall not attend the test and/or inspection, then the Contractor 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 Contractor 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 Contractor from any warranties or other obligations under the Contract.

### **5.14.0 INSURANCE**

- 5.14.1. The "Contractor" 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 "Contractor" 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 Contractor 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 Contractor 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 damaged equipment either in part or in full to be sent back to the manufacturer's works for repair, the manufacturers/ Contractors will furnish the Bank Guarantee for the full value of equipment needing repairs and such Bank Guarantee shall remain valid till such time, the

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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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 Contractor.

- 5.14.5. Unless, otherwise mutually agreed upon, in case of failure by the Contractor 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 “Contractor” 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 Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following:
- (a) war, hostilities or warlike operations whether a state of war be declared or not, invasion, act of foreign enemy and civil war
  - (b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts
  - (c) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority
  - (d) strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine and plague
  - (e) earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves or other natural or physical disaster
  - (f) shortage of labor, materials or utilities 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 Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:
- (a) any Change in the scope of works by the Purchaser; which justifies extension of completion time as provided in **SCC Clause 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 Contractor shall submit to the Purchaser’s Representative a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Purchaser and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Purchaser’s estimate of a fair and

## Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28

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reasonable time extension, the Contractor 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 Contractor guarantees that it shall attain Completion of the Works within the Time for Completion specified in the Contract Agreement pursuant to **SCC Sub-Clause 5.6.2**, or within such extended time to which the Contractor shall be entitled under **SCC Clause 5.16.0** hereof.
- 5.17.2. If the Contractor fails to attain Completion of the Works within the Time for Completion or any extension thereof under **SCC Clause 5.16.0**, the Contractor shall pay to the Purchaser liquidated damages at the rate of **1% (one percent)** of the total Contract Price per week or part thereof delay. The aggregate amount of such liquidated damages shall in no event exceed **10% (ten percent)** of the total contract price.
- However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Works or from any other obligations and liabilities of the Contractor under the Contract.
- 5.17.3. Once the aggregated "Liquidated damage" reaches 10% of the total contract price, the Purchaser may consider following actions:
- Procure the undelivered material/ equipment and/or complete the balance works from elsewhere giving notice to the Contractor and to recover any extra expenditure incurred thereby for having to procure these materials and works at higher price, at the risk and responsibility of the Contractor; or
  - Cancel the contract wholly or in part and to complete the works at the full risk and cost of the Contractor and forfeit the security deposit.
  - 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 Contractor, the Purchaser shall be entitled to operate security deposit or any deposit or any payment due to Contractor irrespective of whether his default relates to the particular orders or not towards the Purchaser's claim for damages arising out of the failure. In addition, the Purchaser may black-list or bans the "Contractor" or pending enquiry, suspend him or take any other steps considered suitable.

### 5.19.0 ARBITRATION

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

### **Section 6 - Contract Forms**

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

[AEGCL's letter head]

**Notification of Award**

[ date ]

To: [ Name and address of the Contractor ]

This is to notify you that your Bid dated [date] for execution of the [ name of the work] against [Bid identification number] for the Contract Price in the aggregate of Rupees [ amounts in numbers and words ] (as per Price Schedule-1), as corrected and modified in accordance with the Instructions to Bidders is hereby accepted, and it is decided to award on you the '**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**' covering inter-alia supply of all services specified in bidding document.

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

[ Authorized Signature ]  
[ Name and Title of Signatory ]  
Assam Electricity Grid Corporation Limited

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

**STAMP**

**1. Contract Agreement**  
(Supply and related services Contract)

THIS AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_,

BETWEEN

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

WHEREAS AEGCL desires to engage the Contractor to the 'Ex-works Supply Contract' (also referred to as the 'First Contract') covering inter-alia supply of all equipment and materials for the complete execution of '**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28.**' as detailed in the Contract Document ("the Facilities"), and the Contractor has agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

NOW IT IS HEREBY AGREED as follows:

**Article 1**  
**Contract Documents**

- 1.1 **Contract Documents** (Reference SCC Clause 5.2.0)  
The following documents shall constitute the Contract between the Purchaser and the Contractor, and each shall be read and construed as an integral part of the Contract:
- (a) This Contract Agreement and the Appendices hereto
  - (b) Letter of Price Bid and Price Schedules submitted by the Contractor
  - (c) Letter of Technical Bid and Technical Proposal submitted by the Contractor
  - (d) Special Conditions of Contract
  - (e) General Conditions of Supply and Erection.
  - (f) Specification(Purchaser's Requirements)
  - (g) Drawings (Purchaser's Requirements)
  - (h) Other completed Bidding Forms submitted with the Letters of Technical and Price Bids
  - (i) Guaranteed and other Technical Particulars (as submitted with the Bid).
  - (j) Any other documents shall be added here
- 1.2 **Order of Precedence** (Reference SCC Clause 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**  
**Terms of Payment**

- 2.1 **Contract Price** (Reference SCC Clause 5.7.0)  
The Purchaser hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder.

**Construction of new tower replacing flood affected tower of 132 KV Kokrajhar-Bilasipara Transmission line at location 28**

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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.**

**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 Contractor 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 Works shall be counted from is the date when this Contract Document is signed.

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

The whole works under the scope of this Contract shall be completed within **4 (Four)** months from Contract Commencement Date.

**Article 4. Appendices**

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

**4.2** Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

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

Signed by, for and on behalf of the Purchaser

Signed by, for and on behalf of the Contractor

[ **Signature** ]

[ **Signature** ]

[ **Title** ]

[ **Title** ]

in the presence of

in the presence of

[ **Signature** ]

[ **Signature** ]

[ **Title** ]

[ **Title** ]



**APPENDICES**

- Appendix 1 - Special Conditions of Contract
- Appendix 2 - Completion schedule (bar chart)
- Appendix 3 - List of delivery destinations
- Appendix 4 - Performance Security.
- Appendix 5 - Price Schedule.
- Appendix 6 - Guaranteed Technical Particulars

**Appendix 4 - Form of Performance Security  
Bank Guarantee**

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

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

**Beneficiary: Managing Director, AEGCL**  
**Name and Address of Purchaser**

**Bid Security No.:**

WHEREAS \_\_\_\_\_ [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of LoA No. \_\_\_\_\_ dated \_\_\_\_\_ to execute \_\_\_\_\_ [name of Contract and brief description of Works] (hereinafter called "the Contract");

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

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

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

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

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

BG expiry date:  
BG clam date:

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

**NOTE**

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

