BIDDING DOCUMENT

FOR

Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL

ASSAM ELECTRICITY GRID CORPORATION LIMITED

BID IDENTIFICATION NO:
AEGCL/MD/Tech-343/O&M(LAR)/2024/Battery Bank/Bid (R)

SECTION 1

INSTRUCTION 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 Email: managing.director@aegcl.co.in

1.1.0 INTRODUCTION:

The Chief General Manager (O&M) LAR on behalf of Assam Electricity Grid Corporation Ltd. (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: **Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL**

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.

1.3.0 SCOPE OF WORK:

The major scopes of work are as follows: -

a) Design, Supply, delivery of Battery Bank and Charger.

b) Erection, Testing and commissioning of Battery Bank and Charger to AEGCL site.

c) Arrangements of any permits required for transportation and movement of supplied materials. However, AEGCL shall assist as far as practicable in the process.

d) Transit insurance and insurance during storage at site till commissioning shall be in the scope of the contractor.

1.4.0 TIME SCHEDULE:

The successful bidder shall have to complete the works within **6 (Six) 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:

₹ 90,88,555.00 (Rupees Ninety Lakh Eighty-Eight Thousand Five Hundred Fifty-Five only) including taxes.

1.6.0 ELIGIBILITY CRITERIA:

1.6.1. GENERAL

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 product(s), 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), (ii) and (iii) below.

i. Bidder OR if the bidder is not a manufacturer, offered product's manufacturer must have least 10 (ten) years of experience in design, manufacture and supply of 110 V and 220V DC battery bank and Charger. Bidder shall submit filled up form EXP-1 along with copy of past orders to establish its eligibility.

ii. The Bidder or if the Bidder is not a manufacturer, his supplier must have designed, manufactured, type tested, supplied 110V or above class Battery Bank and Charger which are in successful operation for at least 05 (Five) years. The Bidder shall submit filled up form EXP-2 to furnish a list of such works executed along with Client's Recent Performance Certificates to substantiate the requirement. Performance certificates should not be older than three (03) years as on the date of opening of the technical bid.

iii. Bidder must have experience of executing a supply order of electrical items in a Transmission/Generation/Distribusion utility in past five years. Bidder shall submit filled up form EXP-3 along with copy of past orders and completion certificate/delivery Challan with customer signature to establish its eligibility.

Joint venture is not allowed for this bid.

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. 30,00,000.00 (Rupees Thirty Lakh Only)**. AAT shall be calculated by averaging total certified payments received for contracts in progress or completed, for the last 3 (three) years. The bidder shall furnish, along with its bid, audited balance sheets and duly filled up Form '**FIN-2'** in support of this Clause.

iii. Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:

(a) the following cash-flow requirement, **Rs. 25,00,000.00**, 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. TYPE TEST REPORT:

The offered product(s) must be type tested at CPRI or NABL accredited laboratory for critical performance at the time of bid submission as per CEA guidelines. Bidder must submit full type test reports for the offered products along with the techmno-commercial bid.

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.

1.8.0 QUANTUM OF WORK:

The quantum of work is stated in the PRICE SCHEDULE at the end of section 2 – bidding forms. Details of consignee, destination of delivery and contact nos. etc shall be intimated at the time of dispatch clearance.

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 . 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 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 **Online EMD payment receipt**, (ii) Duly filled and signed **tender submission form** 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):

EMD amount mentioned in BDS must be submitted online through e-tendering portal. Copy of the EMD payment receipt should be submitted along with Techno-Commercial bid. Alternatively, if allowed bidders may submit EMD BG from schedule banks in favour of Managing Director, AEGCL The earnest money will be released to the unsuccessful bidders on finalization of the tenders. The EMD to the successful bidder will be released on submission of 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 biding 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.**

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 submission form** 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.

c) The following methodology will be practiced for identification and treatment of the Abnormally Low Bids (ALB) in this tender process of AEGCL:

i. Absolute Approach is to be considered when there is fewer than five substantially responsive bidders and if the bid price is 20% or more below AEGCL's cost estimate then AEGCL's tender evaluation committee should obtain clarification from the bidder to determine whether the Bid is Abnormally low.

ii. Relative approach is to be considered when there are at least 5(five) nos. of substantially responsive bids and the lowest bid price is 20% or more below AEGCL's cost estimate. In this approach, first the Average bid price is determined and then by deducting the standard deviation from the Average bid price, potentially ALB may be determined.

d) In case of an ALB, the tender evaluation committee/appropriate authority of the respective tenders shall undertake the following three stage review process which is as below:

i. To identify ALB as per the steps mentioned in Sl no. 1.20.a.(i) and 1.20.b.(ii) Whichever is applicable.

ii. To seek and analyse the clarifications from the abnormally low Bidder in terms of resource inputs and pricing, including overheads, contingencies and profit margins. In that respect, the committee may refer to guideline of World Bank, AIIB, ADB etc. prescribed for ALB.

iii. To decide whether to accept or reject the bid.

iv. On acceptance of the bid, whether Additional Performance Security is to imposed on the bidder supplemented by adequate justification.

e) In case of acceptance of ALB with Additional Performance Security:

I. If any abnormally low bid is accepted under point 1.20.d.(iii) with additional performance security, it is to be noted that the total performance security should not exceed 20% of the total contract value.

II. The additional performance security shall be treated as part of the original performance security and shall be valid for a period similar to that applicable for defect liability period of the contract.

III. Non submission of the additional performance security shall constitute sufficient ground for rejection of the bid and similar assessment shall then be initiated for next ranked bidder if that bidder is also identified as ALB.

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.

Annexure to SECTION 1
BID DATA SHEET

Name of Work	Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL
Location of Work	Lower Assam Region of AEGCL as per BoQ
NIT No.	AEGCL/MD/Tech-343/O&M(LAR)/2024/Battery Bank/30, dtd- 19.06.2025
Bid Identification No.	AEGCL/MD/Tech-343/O&M(LAR)/2024/Battery Bank/Bid(R)
Estimate (In Indian Rupees)	**₹ 90,88,555.00 (Rupees Ninety Lakh Eighty-Eight Thousand Five Hundred Fifty-Five only) including taxes.**
Earnest Money Deposit (EMD)	**Rs. 1,85,000.00** (Rupees One Lakh Eighty-Five Thousand) Only
Purchase'sAddress for correspondance	**The Chief General Manager(O&M), LAR, AEGCL** **1st Floor, Bijulee Bhawan, Paltanbazar** **Guwahati (Assam)** **781001** Telephone: 8473894987 (AGM, O&M, LAR) Facsimile number: +91 361 2739513 Electronic mail address: cgmom.lar@aegcl.co.in
Pre-bid date	Shall be notified, if any, in due course.
Bid submission mode	E-tenders shall be accepted through online portal **https://assamtenders.gov.in** only)
Address for bid opening	**The Chief General Manager(O&M), LAR, AEGCL** Floor/Room number: **First Floor** Street Address: **Bijulee Bhawan, Paltanbazar** City: **Guwahati (Assam)** PIN Code: **781001** Country: **India**
Key dates	**Tender publishing date: 10:00 Hrs., 20.06.2025** **Tender submission start date: 10:00 Hrs., 20.06.2025** **Tender clarification end date: 17:00 Hrs., 27.06.2025** **Tender submission end date and time: 12:00 Hrs., 10.07.2025** **Techno-commercial bid opening date: 17:00 Hrs., 11.07.2025**

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.	Copy of EMD payment receipt		
4.	Bidders company/firm registration certificate/certificate of incorporation		
5.	Manufacturer's authorization for Battery Bank and Battery Charger (Form MA) (Applicable for bidder who is not manufacturer of offered product)		
6.	GST registration		
7.	Filled up Form ELI-1		
8.	Filled up Form LIT		
9.	Filled up Form FIN-1		
10.	Filled up Form FIN-2		
11.	Filled up Form FIN-3		
12.	Filled up Form FIN-4		
13.	Audited Balance sheet for last three years		
14.	Bank solvency certificate/ other supporting document		
15.	Filled up Form EXP-1		
16.	Filled up Form EXP-2		
17.	Filled up Form EXP-3		
18.	Order/Contract copies establishing supplying offered product in past as per clause 1.6.2		
19.	Performance certificate of offered product as per clause 1.6.2 (ii)		
20.	Order/Contract copies establishing bidders experience in State/Central Utilities		
21.	Document establishing manufacturing unit details		
22.	GTP and drawings as per the BoQ		
23.	Type test reports		
24.	Completion schedule bar chart		
25.	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.**

(In bidders letterhead)

Form-2
Letter of technical bid

Date:

To

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

Bid Identification No: AEGCL/MD/Tech-343/O&M(LAR)/2024/Battery Bank/Bid(R)

Sir,

I/We the undersigned, declare that, we, [insert name of the bidder] having registered office at [insert address of the registerd office] are established manufacturer/supplier of _____.

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

Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL

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)
(NOT APPLICABLE. EMD TO BE SUBMITTED ONLINE THROUGH E_TENDER PORTAL)

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/Tech-343/O&M(LAR)/2024/Battery Bank/Bid(R)

To

The Chief General Manager (O&M) LAR
AEGCL, 1st 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. We also hereby declare that, we will furnish the Performance Guarantee in accordance with ***SCC Clause* 5.9.0.**

Further, we also hereby declare that we and *[insert: **name of the Bidder**]* have entered into a formal relationship in which, during the duration of the Contract (**including related services and warranty / defects liability**) we, the Manufacturer or Producer, will make our technical and engineering staff fully available to the technical and engineering staff of the successful Bidder to assist that Bidder, on a reasonable and best effort basis, in the performance of all its obligations to the Purchaser under the Contract.

For and on behalf of the Manufacturer

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

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:

Form – LIT
Pending Litigation

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

(Signature and common seal)
Name:
Designation:
Date:

Form FIN – 1
Financial Situation

Information from Balance Sheet

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

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

Note: To be supported by audited financial documents

(Signature and common seal)
Name:
Designation:
Date:

Form FIN – 2
Average Annual Turnover

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

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

(Signature and common seal)
Name:
Designation:
Date:

Form 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.

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

(Signature and common seal)
Name:
Designation:
Date:

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.

Current Contract Commitments						
No.	Name of Contract	Employer's Contact (Address, Tel, Fax)	Contract Completion Date	Outstanding Contract Value (X)[a]	Remaining Contract Period in months (Y)[b]	Monthly Financial Resources Requirement (X/Y)
1						
2						
3						
4						
	Total Monthly Financial Requirements for Current Contract Commitments (CCC)					. . . . .

[a] Remaining outstanding contract values to be calculated from 14 days prior to the bid submission deadline.
[b] Remaining contract period to be calculated from 14 days prior to bid submission deadline.

[The availability of Financial Resources of the Bidder shall be assessed as follows:
Total Available Financial Resources from FIN – 3 **minus** the Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 must be equal or greater than the Financial Resource Requirement for the Subject Contract as per Clause 1.6.3].

Form – EXP-1

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

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

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

(Signature and common seal)
Name:
Designation:
Date:

Form – EXP-2

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

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No. . . . . .**of**.	**Contract Identification**		
Award Date		**Completion Date**	
Role in Contract	❑ **Contractor**		❑ **Subcontractor**
Total Contract Amount	**(Rupees)**		
Purchaser's Name **Address** **Telephone/Fax Number** **E-mail**			
1. Brief Specification of Goods supplied **2. Date of commissioning.**			
Attached are copies of the following original documents. ❑ 1. Type Test Certificates. (as per clause 1.6.4) ❑ 2. Recent performance certificates (as per clause 1.6.2 (ii)) ❑ 3. Copy of the Contract Document/ Work order			

(Signature and common seal)
Name:
Designation:

Date:

Form – EXP-3

Bidder must fill this form to establish eligibility as per clasue 1.6.2(iii)

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:

Price schedule - 1

All prices are in Indian Rupees

Sl. No	Item Description	Qty	Unit Price (Rs)	Unit F&I (Rs)	Unit Erection, Testing & Commissioning (Rs)	Total (D+E+F) (Rs)
A	B	C	D	E	F	G
1	110V 300 Ah VRLA Battery with battery stand & all other fittings and accessories as per specification (Joyma GSS, Capital GSS, Narengi GSS, Rangia GSS, Barpeta GSS, Azara GSS and Baghjap GSS)	7				
2	220V 400 Ah VRLA Battery with battery stand & all other fittings and accessories as per specification (Salakati GSS)	1				
3	48V 150 Ah VRLA Battery with battery stand & all other fittings and accessories as per specification (Sarusajai)	1				
4	48V Battery charger along with all fittings and accessories as per specification (Sarusajai GSS)	1				
5	110V Battery charger along with all fittings and accessories as per specification (Joyma GSS, Capital GSS, Narengi GSS, Rangia GSS, Barpeta GSS and Baghjap GSS)	6				
6	220V Battery charger along with all fittings and accessories as per specification (Salakati GSS)	1				

1. Input voltage for 48V chargers shall he 415V AC.
2. The 48V, 110V and 220V chargers shall be of Dual FCBC type which will have output connectivity to single battery bank and load.
3. The ratings of the charger shall be as under:
a. 110V DC System: 85A
b. 220V DC System: 110A
c. 48V DC System: 50A

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

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

a) Design, manufacture, supply and delivery of Battery Bank and Charger as per BoQ

b) Erection, Testing and commissioning of Battery Bank and Charger to AEGCL site as per BoQ

c) Arrangements of any permits required for transportation and movment of supplied materials. However, AEGCL shall assist as far as practicable in the process.

d) Transit insurance and insurance during storage at site till commissioning shall be in the scope of the contractor.

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			: Below1000 M above MSL
f)	Maximum wind pressure			: As per IS: 802 latest code.
g)	Seismic Intensity			: ZONE-V as per IS 1893.

3.3: TECHNICAL SPECIFICATION FOR 110V, 220V and 48V DC BATTERY AND CHARGER

A. VALVE REGULATED LEAD ACID BATTERY

3.3.1. **SCOPE:**

(i)The scope covers the design, manufacture, assembly, testing at the manufacturer's works, delivery at site, installation, testing and commissioning of 110V and 220 V D.C. Maintenance free Valve regulated Lead Acid Battery and associated battery charger with provisions of both float and boost charging of battery along with necessary accessories, fittings, etc for 400kV, 220kV and 132 kV sub-stations.

Each battery shall have sufficient capacity considering continuous emergency and intermittent loads for the periods specified below and for all bays with the charger out of service:

a) Continuous DC load for protection, control, indications, alarms and interlock for 10 hours.
b) Emergency lighting loads for 10 hours.
c) Intermittent DC load for closing and tripping operation of Circuit Breakers, Isolators and Earth Switches.

This load shall be determined considering simultaneous tripping of breakers on bus-bar protection. Duration of intermittent load shall be considered as one minute when the battery has reached the end cell voltage. Battery shall be of 2X100% capacity and shall have 20% spare capacity with matching 2x 100% battery charger. Supplier shall furnish characteristic curve for satisfactory operation and maintenance of battery under service condition.

Bidder shall select number of cells, float & boost voltage to achieve following system requirement:

System Voltage During Float	Maximum Voltage During Float operation	Minimum Voltage available when no charger working and battery fully discharged upto 1.85V per cell.	Minimum no of cells.
110V 220V 48V	123.75V 242V 52.8V	99V 198V 43.2V	55 109 24

Bidder shall furnish calculation in support of selection of capacity as well as number of Cells, Float & Boost charger current / Voltages.

(ii)The scope also covers the design, manufacture, assembly, testing at the manufacturer's works of 48 V D.C. Maintenance free Valve regulated Lead Acid Battery, having minimum capacity of 150 AH and associated battery charger with provisions of both float and boost charging of battery along with necessary accessories, fittings etc.
Each battery shall have sufficient capacity for continuous DC supply to PLCC Terminals, Protection Coupler Units, Fiber Optic Terminals, EPAXes, Remote Terminal Unit (RTU) etc. as and when required as well as float charging current of the battery. **Input voltage for 48V chargers shall he 415V AC.**
The battery shall consist of 24 number of cells, float & boost voltage to achieve a system voltage 48V. Battery shall be of 2x100% capacity andshall have 20% spare capacity with matching 2x 100% battery charger. Supplier shall furnish characteristic curve for satisfactory operation and maintenance of battery under service condition.

3.3.2. RATING OF BATTERY AND FUNCTION OF CHARGER:

D.C. Power Supply shall comprise a set of Battery (110V/220V) of desired capacity, Dual Float cum Boost Battery Charger (minimum 60A) in parallel operation. In this mode the charger shall be required not only to continuously feed a variable load but also deliver trickle/boost charging current for the battery. Charger shall have 20% spare capacity. Battery will be capable of feeding the DC load requirement of the Sub-station in case of failure of the charger. Ampere-hour capacity of the battery shall be designed considering the current load and expected future load due to extension of the Sub-Station (if not specified, then minimum 3 nos of future bays are to be considered for each voltage class). A detailed design calculation for both battery & charger are to be submitted for approval.

3.3.3. TRICKLE / BOOST CHARGE VOLTAGE:

The trickle and Boost charge voltage per cell shall be as follows:

a) 220V Battery Bank, 110V Battery bank, 48V battery bank

i) TRICKLE CHARGE: Per Cell Voltage 2.2 V to 2.25±0.02 V

ii) Boost charge voltage should vary between 2.23 to 2.3V/cell.

3.3.4. VOLTAGE / CURRENT REGULATION OF CHARGER:

Output voltage for float charging from battery charger shall be auto controlled by adjusting the firing angle of thyristor for float charger to keep the voltage variation within ± 1% from no load to full load and AC supply voltage variation of ±10% and frequency variation of ± 3% of 50 Hz. Manual control of output voltage shall also be possible through Auto/Manual selector switch.
The Boost / Quick charger shall be similar type as Float / Trickle charging equipment, but shall be provided with control arrangement for 'auto/manual' current regulation features with current adjustment setting up to 150%, necessary for quick charging. An automatic VOLTAGE controller for boost charging shall control the output VOLTAGE WITH CURRENT LIMIT AS LIMITED FOR RESPECTIVE BATTERY CAPACITY by adjusting the firing angle of the thyristor.

3.3.5. CLIMATIC CONDITIONS:

The equipment to be supplied against the specification shall be suitable for satisfactory continuous operation under the required climatic condition.

3.3.6. DESCRIPTION OF BATTERY:

3.3.6.1 Type:

The DC batteries shall be VRLA (Valve regulated Lead Acid) type & shall be Normal Discharge type and shall conform to IS 15549:2004/ IEC 60896-21 & 22:2004/ BS 6290- PART IV/ IEEE-1188 standard. These batteries are to be factory-filled, charged & shall be suitable for a long life under continuous float operations & occasional discharges. The 110V and 220V DC system is unearthed system. The offered battery shall be compact and shall require no maintenance. All safety equipment required for installation shall be provided by the manufacturer.

3.3.6.2 Constructional requirements:

The design of battery shall be as per field proven practices. Partial plating of cells is not permitted. Paralleling of cells externally for enhancement of capacity is not permitted. Protective transparent front covers with each module shall be provided to prevent accidental contact with live module/ electrical connections.

3.3.6.3 Plates:

Positive plates shall be made pasted type using high purity corrosion resistant alloy for deep discharge, durability, maintenance free, long life both in cyclic as well as in float applications. The Grids are of Semi Radial Squarish grid to reduce internal resistance and travel current in shorter time. Negative plates shall be heavy duty, durable flat pasted plate using lead alloy pasted Semi Negative Squarish Grid. Negative plates shall be designed to match the life of Positive plates & combination of positive & negative plates shall ensure long life, durability & trouble-free operation of battery. Computer controlled/ PLC operated in-house equipment should be deployed for preparation of lead oxide and paste to ensure consistency in paste quality & properties.

3.3.6.4 Containers:

The container material shall have chemical & electro-chemical compatibility & shall be acid resistant and shall conform to UL-94/ ASTM-D-2863 standard. The material shall meet all the requirements of liquid station lead-acid batteries and be consistent with the life of battery. The container shall be fire retardant and transparent. The porosity of the container shall be such as not to allow any gases to escapeexcept from the regulation valve. The tensile strength of the material of the container shall be such as to handle the internal cell pressure of the cells in the worst working condition. Cell shall not show any deformity of bulge on the sides under all working conditions. The container shall be capable of withstanding the rigorous of transport, storage and handling. The containers shall be enclosed in a steel painted tray/rack with minimum earthing provision.

For identification, each cell/module shall be marked in a permanent manner to indicate the following information:

(i) Cell Serial Number
(ii) Positive & Negative, embossed on the cover
(iii) Month & Year of Manufacturing

3.3.6.5 Cell Covers:

The cell covers shall be made of suitable material compatible with the container material and permanently fixed with the container by Hermetic Heat-Sealing technique. It shall be capable to withstand internal pressure without bulging or cracking. It shall also be fire retardant. Fixing of Pressure Regulation Valve & terminal posts in the cover shall be such that the seepage of electrolyte, gas escapes and entry of electro-static spark are prevented.

3.3.6.6 Separators:

The separators used in manufacturing of battery cells, shall be of glass mat or synthetic material having high acid absorption capability, resistant to sulphuric acid & shall have good insulating properties. Sufficient separator overlap & PVC shield protection in bottom edges of the plates is to be provided to prevent short circuit formation between the edges of adjacent plates. The design of separators shall ensure that there is no misalignment during normal operation & handling.

3.3.6.7 Pressure Regulation Valve:

Each cell shall be provided with a pressure regulation valve. The valve shall be self-re- sealable. The vent plug shall be made with suitable grade of fire-retardant plastic material. Each valve opening shall be covered with flame barrier capable of preventing the ingress of flame into the cell interior, when the valve opens & hydrogen/ oxygen gas mixture is released. The valve unit shall be such that it cannot be opened without a proper tool. The valve shall be capable to withstand the internal cell pressure specified by the manufacturer.

3.3.6.8 Terminal Posts:

Both the +ve & -ve terminals of the cells shall be capable of proper termination & shall ensure its consistency with the life of the battery. The terminals shall have lead plated adequate solid copper/ brass core cross-section to avoid overheating at maximum current load. The surface of the terminal post extending above the cell cover including bolt hole shall be coated with an acid resistant & corrosion retarding material. Terminal posts or any other metal part which is in contact with the electrolyte shall be made of the same alloy as that of the plates or of a proven material that does not have any harmful effect on cell performance. Both +ve & -ve posts shall be clearly and unambiguously identifiable.

3.3.6.9 Connectors, Nuts & Bolts, Heat Shrinkable Sleeves:

Where it is not possible to bolt the cell terminals directly to assemble a battery, separate non- corroding lead coated copper connectors of suitable size shall be provided to enable connection of the cells. Copper connections shall be suitably lead coated to withstand corrosion due to sulphuric acid/fumes at a very high rate of charge or discharge.
Nuts & bolts for connecting the cells shall be made of copper, brass or stainless steel. Copper or brass nuts & bolts shall be effectively lead coated to prevent corrosion. Stainless steel bolts & nuts can be used without lead coating.
All inter cell connectors shall be protected with heat shrinkable sleeves for reducing the environmental impact including a corrosive environment.
More than one cable may be required to be connected to the battery terminals. Suitable arrangement for termination of multiple cables shall be provided so as to avoid extra load on the battery terminals.
Necessary insulating supports for termination of these cables on batteries shall also be supplied by the bidder.

All cell connectors shall be capable of continuously carrying the 30 min. discharge current of the respective batteries and shall be capable to carry 4KA for 1 sec. **The inter-cell connectors shall be capable to carry minimum 10KA for 1 sec**.

3.3.6.10 Flame Arrestors:

Each cell shall be equipped with a Flame Arrestor to defuse the Hydrogen gas escaped during charge & discharge. Material of the flame arrestor shall not affect the performance of the cell.

3.3.6.11 Battery Bank Stand:

All batteries shall be mounted in a suitable metallic stand/ frame. The frame shall be properly painted with the acid resistive paint & should have protection against harmful effects due to tropical environment. The suitable insulation shall be provided between stand/ frame and floor to avoid the grounding of the frame/ stand. The jointing of the frames should not leave crevices and ensure proper and tight fit.
Numbering tags for each cell shall be attached to the racks. Provision for clamping outgoing cables shall be kept.

3.3.7. CAPACITY REQUIREMENTS:

When the battery is discharged at 10-hour rate, it shall deliver 80% of Rated Capacity (corrected at 27°C) before any of the cells in the battery bank reaches 1.85 V/cell.
The battery shall be capable of being recharged from the fully exhausted condition (1.75 V/cell) within 10hrs up to 90% state of charge. All the cells in a battery shall be designed for continuous float operation at the specified float voltage throughout the life.
The capacity (corrected at 27°C) shall also not be less that Rated capacity & not more that 120% of Rated capacity before any cell in the battery bank reaches 1.75 V/cell. The battery voltage shall not be less than the following values, when a fully charged battery is put to discharge at a rate of 1/10th of the Rated Capacity:

(a) After SIX minutes of discharge: 1.98V/cell
(b) After SIX hours of discharge: 1.92V/cell

(c) After EIGHT hours of discharge:1.85V/cell
(d) After TEN hours of discharge: 1.75V/cell

Loss in capacity during storage at an average ambient temperature of 35°C for a period of 6 months shall not be more than 60% and the cell/battery shall achieve 85% of its rated capacity within 3 charge/discharge cycles and full rated capacity within 5 cycles, after the storage period of 6 months. Voltage of each cell in the battery set shall be within 0.05V of the average voltage throughout the storage period. Ampere hour efficiency shall be better than 90% and watt-hour efficiency shall be better than 80%. However, the battery to be manufactured and to be delivered at site in such a way that load can be connected with the battery within 15 days from date of installation, date of initial charging is to be mentioned on the battery.

3.3.8. EXPECTED BATTERY LIFE

The battery shall be capable of giving 1200 or more charge/discharge cycles at 80% Depth of Discharge at an average temperature of 27°C. Depth of Discharge is defined as the ratio of the quantity of electricity (in Ampere Hour) removed from a cell or battery on discharge to its rated capacity. The battery sets shall have a minimum expected life of 20 years at Float operation.

3.3.9. ASSOCIATED EQUIPMENTS & ACCESSORIES (For each set of battery):

a)	Best quality metallic stand/frame	as per Clause 18.6.
b)	Stand insulators	+5% extra
c)	Inter row connectors	Appropriate quantity
d)	Inter tier connectors	Appropriate quantity
e)	Centre-zero (3-0-3) volts DC Voltmeter	: 1 No
f)	Torque wrench/ Spanners	: 1 No
g)	Connection hardware, such as strips, bolts, nuts	(with 5% extra)
h)	Cable clamps with hardware	
g)	Connection hardware, such as strips, bolts, nuts	(with 5% extra)
i)	Cell numbering tags with fixing arrangement	
j)	Two sets of special tools and tackles for connecting terminals of the battery	
k)	Any other accessories not specified but required for satisfactory operation.	**Free-standing portable eye wash equipment, etc.**

3.3.10. TYPE TEST OF BATTERY:

The Bidder/ Supplier shall supply type tested battery as per IS 15549:2004/ IEC 60896-21 & 22 over the range of at least one capacity per design. The Bidder/ Supplier shall submit necessary evidences enclosed during detailed engineering.

Sr. No.	DESCRIPTION
1	Gas Emission
2	High Current Tolerance
3	Short Circuit Current & DC Internal resistance
4	Protection against Internal Ignition from External Spark source
5	Protection against Ground Short Propensity
6	Content & Durability of required marking

7	Material Identification
8	Valve Operation
9	Flammability Rating of Material
10	Intercell Connector Performance
11	Discharge Capacity
12	Charge Retention during Storage
13	Float Service with Daily Discharge for reliable mains power
14	Recharge behavior
15	Service Life at an operating temperature of 40°C for brief duration exposure Time
16	Impact of Stress Temperature of 60°C for brief duration exposure time with 3hrs discharge test
17	Abusive Over Discharge
18	Thermal Runaway Sensitivity
19	Low Temperature Sensitivity
20	Dimensional Sensitivity at Elevated Internal Pressure & Temperature
21	Stability against Mechanical abuse of units during installation

3.3.11. Routine Test:

(i) Physical Examination Test
(ii) Visual Inspection
(iii) Dimensions, Mass & Layout
(iv) Marking & Packing

3.3.12. ACCEPTANCE TEST OF BATTERY

(i) Polarity Marking
(ii) Verification of Dimensions
(iii) Test of AH Capacity

LIST OF FACTORY & SITE TESTS FOR BATTERY

Sr. No	TEST	FACTORY TESTS	SITE TESTS
1	Physical Verification	YES	YES
2	Capacity Test on the cell at 1/10th of Rated Capacity, corrected at 27°C	YES	

3	8hrs Charge & 15mins Discharge Test at Full Rated Load		YES

B. BATTERY CHARGERS

3.3.13. SCOPE:

Battery Charger for 220V/110V/48V DC Battery Bank:

(i) **The 48V, 110V and 220V chargers shall be of Dual FCBC type which will have output connectivity to single battery bank and load.**

(ii) The DC system for 110V and 220V DC is unearthed. The Battery Chargers as well as their automatic regulators shall be of static type and shall be compatible with liquid station lead-acid batteries. All battery chargers **shall match with the battery** and shall be capable of continuous operation at the respective rated load in float charging mode while supplying the DC load. The chargers shall also be capable of Boost charging the associated DC battery at the desired rate.

Under normal operating conditions the charger should give a D.C. output equal to the steady demand load for signal lamps, auxiliary relays etc. plus an output to trip coils and closing coils of the circuit breakers and relays as and when required as well as float charging current of the battery. Charger shall have 20% spare capability.

(iii) Battery Charger for 48V DC Battery Bank:

The charger shall be suitable for charging the battery and supplying the load simultaneously. The entire charger scheme shall be divided in two sections, "float charger section" and "float-cum-boost charger section". The float-cum-booster charger shall be suitably operated either in float mode or in boost-cum-standby float charger mode. The float charger and the float-cum-Boost Charger shall have adjustable output current 60 Amps D.C. for 150 AH for float charging and 60 Amps DC for boost charging. Charger shall have 20% spare capability.

Under normal operating condition, with the input AC supply present, the float charger section' shall supply the DC load and also float the battery by trickle charging and the "float cum boost charger section" shall be kept off. The maximum demand load on the charger shall be 60A for 150AH Battery.

(v) **The ratings of the charger shall be as under:**

a. 110V DC System: 85A

b. 220V DC System: 110A

c. 48V DC System: 50A

3.3.14. GENERAL DESCRIPTION FOR CHARGERS:

a) The battery chargers shall be provided with facility for both automatic and manual control of output voltage and current. A selector switch shall be provided for selecting the mode of output voltage/current control, whether automatic or manual. When on automatic control mode during float charging, the chargers output voltage shall remain within + 1% of the set value, for AC input voltage variation of + 10%, frequency variation of + 5% a combined voltage and frequency variation of + 10% and a DC load variation from zero to full load.

b) The battery chargers shall have constant voltage characteristics throughout the range (from zero to full load) at the floating value of the voltage so as to keep the battery fully charged but without harmful overcharge and designed to provide fully automatic voltage stabilization and current limitation for charging.

c) The chargers shall have load limiters having drooping characteristics, which shall cause, when the voltage control is in automatic mode, a gradual lowering of the output voltage when the DC load current exceeds the Load limiter setting of the Charger. The Load- limiter characteristics shall be such that any sustained overload or short circuit in DC system shall not damage the Charger nor shall it cause blowing of any of the Charger fuses. The Charger shall not trip on overload or external short circuit.

d) Uniform and step less adjustments of voltage setting (in both manual and automatic modes) shall be provided on the front of the Charger panel covering the entire float charging output range specified. Step less adjustments of the Load-limiter setting shall also be possible from 80% to 100% of the rated output current for charging mode.

e) During Boost Charging, the Battery Charger shall operate on constant voltage with current limit mode (when automatic regulator is in service) to restrict battery charging current as specified. After completion of boost charging this float cum boost converter section either goes standby mode or float mode as desired by the system.

f) The Charger manufacturer may offer an arrangement in which the voltage setting device for Float charging mode is also used as output voltage limit setting device for Boost charging mode and the Load-limiter of Float charging mode is used as current setting device in boost charging mode for Float cum Boost Converter section. For Float charger section shall provide separate arrangement.

g) Suitable filter circuits shall be provided in all the chargers to limit the ripple content (Peak to Peak) in the output voltage to 1% irrespective of the DC load level, when they are not connected to a battery.

h) **MCCB**

All Battery Chargers shall have sufficient MCCBs on the input side to receive cables from two sources.

Mechanical interlock should be provided such that only one source shall be closed at a time. It shall be of P2 duty and suitable for continuous duty with breaking capacity minimum 25KA at 415V AC. MCCB's should have auxiliary contacts for annunciation.

i) **Rectifier Transformer**

The rectifier transformer shall be continuously rated, dry air cooled (A.N) an of class F insulation type. The rating of the rectifier transformer shall have 10% overload capacity. The transformer shall be of suitable rating to comply with maximum output with minimum input voltage.

j) **Rectifier Assembly**

The rectifier assembly shall be fully/half-controlled bridge type and shall be designed to meet the duty as required by the respective charger. The rectifier shall be provided with heat sink having their own heat dissipation arrangements with natural air cooling. Necessary surge protection devices and rectifier type test acting HRC fuses shall be provided in each arm of the rectifier connections.

k) **Instruments**

One AC voltmeter and one AC ammeter along with selector switches shall be provided for all chargers. One DC voltmeter and DC ammeter (with shunt) shall be provided for all chargers. The instruments shall be of 96 mm X 96 mm square dial & shall be flush type, dust proof and moisture resistant. The instruments shall have easily accessible means for zero adjustment. The instruments shall be of 1.5 accuracy class. In addition to the above a centre zero voltmeter with selector switch shall also be provided for 220 V Chargers for testing purpose.

l) **Air Break Switches**

One DC output switch shall be provided in all chargers. They shall be air break type suitable for 500 Volts AC/ 250 V DC. The contacts of the switches shall open and close with a snap action. The operating handle of the switch shall be fully insulated from circuit. 'ON' and 'OFF' position on the switch shall be clearly indicated. Rating of switches shall be suitable for their continuous load. Alternatively, MCCB's of suitable ratings shall also be acceptable in place of Air Break Switch.

m) **Fuses**

All fuses shall be HRC Link type. Fuses shall be mounted on fuse carriers which are in turn mounted on fuse bases. Wherever it is not possible to mount fuses on carriers, fuses shall be directly mounted on plug-in type base. In such case one insulated fuse pulling handle shall be supplied for each charger. Fuse rating shall be chosen by the Bidder depending on the circuit requirement. All fuses in the chargers shall be monitored. Fuse failure annunciation shall be provided on the failure of any fuse.

n) **Blocking Diode**

Blocking diode shall be provided in the positive pole of the output circuit of each charger to prevent current flow from the DC battery into the charger. All the semiconductor devices shall be protected with power transient suppressor circuit.

o) **Annunciation System**

Audio-visual indications through bright LEDs shall be provided in all Chargers for the following abnormalities: -

(i) AC Power failure.
(ii) Rectifier/chargers fuse blown (separate for Float & Float cum boost).
(iii) Over voltage across the battery when boost charging.
(iv) Abnormal DC Bus voltage (High/Low)
(V) Charger Failure
(v) Any other annunciation if required

Potential free NO contacts of above abnormal conditions shall also be provided for common remote indication "CHARGER TROUBLE" in Owner's Control Board. Indication for charger in float mode and boost mode through

indication lamps shall be provided for chargers. A Potential free contact for float/boost mode shall be provided for external interlocks.

p) **Name Plates and Marking**

The name plates shall be white with black engraved letters. On top of each Charger, on front as well as rear ides, larger and bold name plates shall be provided to identify the Charger. Name plates with full and clear inscriptions shall also be provided on and inside of the panels for identification of the various equipment and ease of operation and maintenance.

q). The power factor shall be better than 0.8 lagging at full load and minimum efficiency at half-load is not less than 85% at rated line voltage. It shall be ensured that the harmonics due to Silicon controlled Rectifier commutation are not reflected back into the AC power supply.

3.3.15. Charger Construction

The Chargers shall be indoor, floor-mounted, self-supporting sheet metal enclosed cubicle type. The Contractor shall supply all necessary base frames, anchor bolts and hardware. The Chargers shall be fabricated from 2.0mm cold rolled sheet steel and shall have folded type of construction. Removable gland plates for all cables and lugs for power cables shall be supplied by the Contractor. The lugs for power cables shall be made of electrolytic copper with tin coat. Power cable sizes shall be advised to the Contractor at a later date for provision of suitable lugs and drilling of gland plates. The Charger shall be tropicalized and vermin proof. Ventilation louvers, if provided shall be backed with screens. All doors and covers shall be fitted with synthetic rubber gaskets. The chargers shall have hinged double leaf doors provided on front and on backside for adequate access to the Charger's internals. All the charger cubicle doors shall be properly earthed. The degree of protection of enclosure shall be at least IP-42 as per IS: 13947 Part-1.

All indicating instruments, control switches and indicating lamps shall be mounted on the front side of the Charger.

Each Charger shall be furnished completely wired up to power cable lugs and terminal blocks and ready for external connections. The control wiring shall be carried out with PVC insulated, 1.5 sq.mm. Stranded copper wires. Control terminals shall be suitable for connecting two wires, with 2.5 sq.mm stranded copper conductors. Each wire shall be continuous from end to end and shall not have any joint within itself. The insulation grade of the wiring shall be 1100 V grade. The colour of 3 Phase, 4 Wire AC. supply shall be red, yellow, blue and black for phases and neutral. The D.C. wiring shall be of the colour other than the above (preferably grey) with the +ve and -ve marking in the ferrule. All terminals shall be numbered for ease of connections and identification. Each wire shall bare a ferrule or tag on each end for identification. At least 20% spare terminals shall be provided for control circuits.

The insulation of all circuits, except the low voltage electronic circuits shall withstand test voltage of 2 KV AC for one minute. An air clearance of at least ten(10) mm shall be maintained throughout for such circuits, right up to the terminal lugs. Whenever this clearance is not available, the live parts shall be insulated or shrouded.

3.3.16. Painting of Charger

The Panels shall be pre-treated using 7-Tank process and then Epoxy Powder Coated with Paint shade of RAL 7032.

The inside of the chargers shall be glossy white. Each coat of finishing synthetic enamel paint shall be properly staved. The paint thickness shall not be less than fifty (70) microns.

3.3.17. TESTS ON CHARGER

Battery Chargers shall conform to all type tests as per relevant Indian Standard. Performance test on the Chargers shall also be carried out on each charger as per specification. Rectifier transformer shall conform to all type tests in IS: 4540 and short circuit test as per IS: 2026. Following type tests shall be carried out for compliance of specification requirements: -

a. Voltage regulation test.
b. Load limiter characteristics test
c. Efficiency tests
d. High voltage tests
e. Temperature rise test
f. Short circuit test at no load and full load at rated voltage for sustained short-circuit.
g. Degree of protection test
h. Measurement of ripple by oscilloscope.

i. Temperature compensation feature demonstration

The contractor may be required to demonstrate to the OWNER that the chargers conform to the specification particularly regarding continuous rating, ripple free output, voltage regulation and load limiting characteristic, before dispatch as well as after installation at site. At site the following tests shall be carried out: -

(i) Insulation resistance test
(ii) Checking of proper annunciation system operation

If a Charger fails to meet the specified requirements, the Contractor shall replace the same with appropriate Charger without affecting the commissioning schedule of the Sub- Station, and without any extra cost to the OWNER.

The Contractor shall present for inspection, the type and routine test certificates for the following components whenever required by the OWNER.

(i) Switches
(ii) Relays/MCCBs
(iii) Instruments
(iv) DC fuses
(v) SCR
(vi) Diodes
(vii) Condensers
(viii) Potentiometers
(ix) Semiconductor
(x) Annunciator
(xi) Control wiring
(xii) Push buttons and contactors

Makes of above equipment shall be subject to Owner's approval.

3.3.18. DOCUMENTATION

The successful bidder shall submit four sets of drawings for approval.

The following drawing shall be supplied with the tender: -

Outline drawings of all apparatus showing sufficient details to enable the purchaser to determine whether the design proposed can be installed satisfactorily or not. Wiring diagram of battery charger.

3.3.19 TECHNICAL PARAMETERS

Sl. No	DESCRIPTION	PARTICULARS
1	Type	VRLA
2	Conforming Standards	IS 15549:2004/ IEC 60896-21 & 22:2004/ BS 6290- PART IV/ IEEE-1188
3	System Voltage	220V
4	Maximum Voltage During Float operation	242V
5	Minimum Voltage available when no charger working and battery fully discharged upto 1.85V per cell	198V
6	Minimum no. of cell	109
7	Trickle charge voltage	2.2 V to 2.25±0.02V/cell
8	Boost charge voltage	2.23 to2.3V/cell
9	When a fully charged, battery is put to discharge at a rate of 1/10th of the Rated Capacity, the battery voltage shall not be less than:	
	After SIX minutes of discharge	1.98 V/cell

Sl. No	DESCRIPTION	PARTICULARS
	After SIX hours of discharge	1.92 V/cell
	After EIGHT hours of discharge	1.85 V/cell
	After TEN hours of discharge	1.75 V/cell
10	Battery life	1200 or more charge/discharge cycles at 80%Depth of Discharge at an average temperature of 27°C

3.3.19(A): TECHNICAL SPECIFICATION FOR 220V DC BATTERY AND CHARGER

Sl. No	DESCRIPTION	PARTICULARS
1	Type	VRLA
2	Conforming Standards	IEC 60146, IEC 60478, IEC 60529, IEEE C57.12.01, ANSI C63.4, IEEE 446, NEMA
		250, NEMA PE5, NFPA 70
3	System Voltage	415V AC +/- 10% for 220V, 110V DC Battery & 240V AC +/- 10% for 48V DC Battery
4	Name of the Manufacturer	To be furnished by Bidder
5	Location of the Factory	To be furnished by Bidder
6	Type & Model of charger	To be furnished by Bidder
7	Total Dimension of Float cum Boost Charger in mm	To be furnished by Bidder
8	Minimum thickness of sheet (mm)	To be furnished by Bidder
9	Charger Characteristics	To be furnished by Bidder
10	Type of Rectifier with Model	To be furnished by Bidder
11	Capacity of Battery Charger in Amps	As per requirement
12	Float/Trickle charger current in Amps	To be furnished by Bidder
13	Boost/Quick charger current in Amps	To be furnished by Bidder
14	Voltage Regulation of Float charger (%)	To be furnished by Bidder
15	Ripple content (%)	To be furnished by Bidder
16	Schematic & GA drawings submitted	Yes/No
17	List of Alarms	To be furnished by Bidder
18	Audible noise at any point 150 centimeters from any vertical surface	Not exceeding 65dBA
19	Any other relevant information	To be furnished by Bidder

3.3.19 (B): The Battery Charger shall have Dual Source AC Input (AC Input 1 and AC Input 2) with individual MCCB and shall be provided with Auto Changeover arrangement.

3.3.19 (C): The Battery Charger shall have an IP Rating of IP42 or better. The Charger shall be type tested for IP42 or better rating.

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.
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.

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 **6 (Six) 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.

For payment against Supply and F&I:

A. Progressive Payments for supply items within the country:

1. Within 60 (sixty) days from the date of submission of the supply invoice, not more than 60% (sixty percent) payment of the total supply invoice value would be made on receipt and acceptance of materials in full and good condition. However, GST amount on invoice would be paid 100% or as per Govt. Rules and subject to availability of Fund.
2. Maximum, 10 (ten) Nos. of progressive supply invoices would be entertained.
3. Remaining 40% (forty percent), retention amount would be released subject to fulfillment of the following conditions:
    a) 50% of balance supply amount would be paid on completion of 50% of the total erection works of the project.
    b) Remaining 50% of the supply amount would be paid on completion of 100% erection, testing and commissioning activities of the project, which should be certified by the project manager.

For payment against Installation and other services:

B. Progressive Payments for erection work:

1. Within 60 (sixty) days from the date of submission of invoice against foundation, erection and civil works, not more than 80% (eighty percent) of the total verified invoice would be made. However, GST amount on invoice would be paid 100% or as per Govt. Rules and subject to availability of Fund.
2. Maximum 8 (eight) Nos. of progressive erection invoice/ bills would be entertained during entire erection work.
3. The 1st progressive erection invoice/ bill would be entertained on completion of 30% of total erection cost of the project.

4. Maximum 6 nos. of additional progressive erection invoice/bills would be entertained. Minimum value of each invoice should be 10% of the total ordered value for foundation, erection and civil works.
5. Remaining 20% of the erection value would be paid on completion of 100% erection, testing and commissioning activities of the project, which should be certified by the project manager.

Further, Performance Guarantee as per clause 5.9 in the form of Bank Guarantee (BG)/Demand Draft (DD)/ Fixed Deposit (FD) from a nationalized bank or scheduled bank of RBI for a period of 60 (Sixty) Months from the date of supply or 54 (Fifty-Four) months from the date of commissioning of the project, whichever is later is to be submitted with acceptance of LOI and before signing of the contract agreement. However, BG period may be split up subject to the condition that BG would be extended from time to time to cover the warranty period. Moreover, before one month (i.e 30 days) of expiry of the BG, renewal is to be done by the contractor if required, otherwise revocation would be done by AEGCL within claim period.BG is to submitted strictly as per prescribed format of AEGCL. BG should be valid up to 60 (sixty) days beyond Warranty/ Performance Guarantee Period.

5.8.2. 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.

5.8.3. ADVANCE PAYMENT

No advance payment is applicable for this contract.

5.9.0 PERFORMANCE SECURITY DEPOSIT

5.9.1. The Supplier shall have to deposit to the extent of 10% (ten percent) of the total value of the order (or to the extent of 20% of the total value of order, in case of acceptance of Abnormally Low Bid as per Office Order MD/AEGCL/Board Agenda/2019/32 dated 18.04.2021) as performance security (Bank Guarantee), within fifteen (15) days of receipt of LoA, duly pledged in favor of the Purchaser and such security deposits shall be valid up to 30 days beyond the warranty period.

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

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

5.9.4. No interest shall be payable on such deposits.

5.10.0 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 and complete delivery and commissioning of materials at the final destination indicated in the Purchaser's Requirement.

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

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.

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 Purchaserwith 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 Purchasershall not attend thetest 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 damage 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 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 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 Agreementpursuant 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" reaches10% of the total contract price, the Purchaser may consider following actions:

(a) Procure the undelivered material/ equipment and/or complete the balance works from elsewhere giving notice to the Contractor and to recover any extra expenditure incurred thereby for having to procure these materials and works at higher price, at the risk and responsibility of the Contractor; or

(b) Cancel the contract wholly or in part and to complete the works at the full risk and cost of the Contractor and forfeit the security deposit.

(c) Declare it as a "Contractual Failure" and act in accordance with ***SCC Clause 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 Arbitration and Conciliation Act 1996 & its subsequent amendments, 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 decide to award on you the '**Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL**' 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 '***Supply, erection and commissioning of battery bank and battery charger at substations under Lower Assam Region in AEGCL'*** 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. 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 **6** (**Six)** 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.***