

Standard Bidding Document

PROCUREMENTS OF BATTERY BANKS 220V DC-300AH (02Nos.) &
110V DC-150AH (03Nos.) ALONG WITH ALL ALLIED ACCESSORIES
FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP,
ISLAMABAD
(Goods)

National

Single Stage-One Envelope



March 11, 2026

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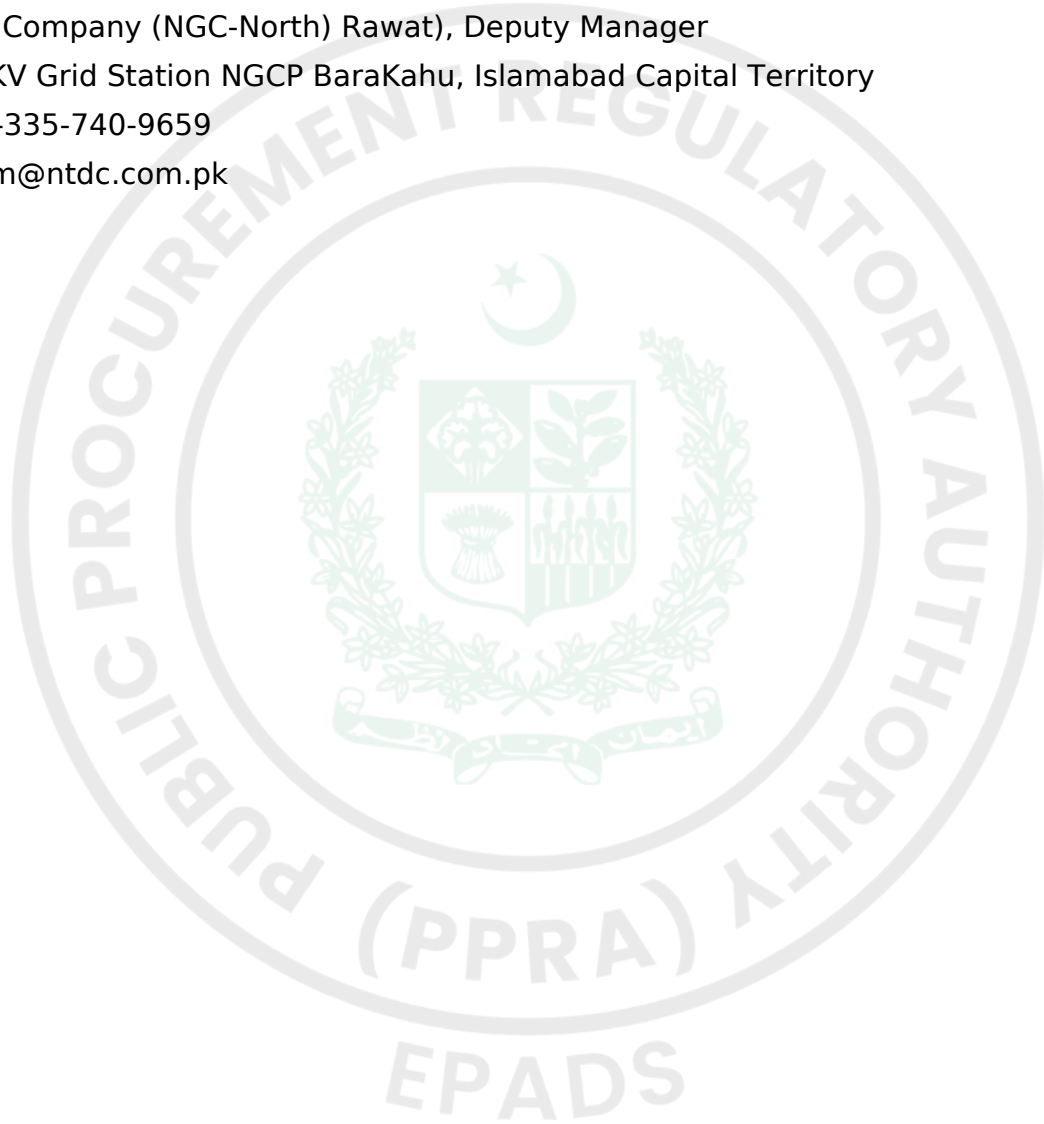
INVITATION TO BIDS PROCUREMENT OF GOODS

1. The **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat)** has reserved Funds for the procurement planned for FY **2025-26**. The **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat)** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**PROCUREMENTS OF BATTERY BANKS 220V DC-300AH (02Nos.) & 110V DC-150AH (03Nos.) ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP, ISLAMABAD**".
2. The **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat)** invites E-bids from eligible Bidders for procurement of goods described in the bidding documents on **EPADS v2.0**.
3. **Single Stage-One Envelope** will be used by adopting **Least Cost Based Selection (LCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2004 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.
4. All Bids must be accompanied by a Bid Security amounting described in Bid Security Section in Bidding Document in the form of **Pay Order, Banker's Cheque, Demand Draft**. Where **Bid Security** is not required by the **Procuring Agency**, Bidders are required to furnish **Bid Security Declaration** as specified in Bidding Document.
5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at <https://vendors.epads.gov.pk/>.
6. Bidder(s) are required to get themselves registered on **EPADS v2.0** on or before **Tuesday, April 14, 2026 11:00 AM**. E-bids will be opened using **EPADS v2.0** on the same day at **Tuesday, April 14, 2026 11:30 AM**. Manual submission of Bids shall not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0**, may register

themselves on <https://vendors.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>

In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (www.ppra.org.pk).

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Instructions to Bidders

A. Introduction

1.Scope of Bids

1.1 The Procuring Agency (PA), as indicated in the **Bids Data Sheet (BDS)** invites Bids **through EPADS v2.0** for the provision of Goods for as specified in the BDS and **in Section V - Evaluation Criteria, Specifications & Schedule of Requirements**. The name, identification, and number of items/deliverables are provided in the **BDS**. The successful Bidders will be expected to provide the goods within the specified period and timeline(s) as stated in the **BDS**.

2. Source of Funds

2.1 Source of funds is referred in Clause-1 of Invitation for Bids.

3. Eligible Bidders

3.1A Bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture, consortium, or association shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the Bidding process, and in case of award of contract, during the execution of the contract.

Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

The appointment of Lead Member in the joint venture, consortium, or association shall be confirmed by submission of a valid Power of Attorney to the Procuring Agency.

Any bid submitted by the joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with any

instructions issued by the Authority.

(The limit on the number of members of JV or Consortium or Association may be prescribed in BDS, in accordance with the guidelines issued by the PPRA).

3.2 The invitation for Bids is open to all prospective suppliers, manufacturers, or authorized agents / dealers subject to any provisions of incorporation or licensing by the respective national incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidders keeping in view the requirement of that business.

3.3A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the Goods to be purchased under this Invitation for Bids.
2. have controlling shareholders in common; or
3. receive or have received any direct or indirect subsidy from any of them; or
4. have the same legal representative for purposes of this Bid; or
5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bids of another Bidder, or influence the decisions of the Procuring Agency regarding this Bidding process; or
6. Submit more than one Bid in this Bidding process.

3.4A Bidder may be ineligible if -

1. he is declared bankrupt or, in the case of company or firm, insolvent;
2. payments in favor of the Bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3. the Bidder is convicted, by a final judgment, of any offence involving professional conduct;

4. the Bidder is blacklisted locally or by international organizations and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of Bid securing declaration.

3.5As and when required, bidders shall provide to the Procuring Agency evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

3.6Bidders shall submit Bids relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to more than ten (10) percent of the Bid price is envisaged.

4. Eligible Goods and Related Services

4.1All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services. For purpose of this Bid, ineligible countries are the countries declared ineligible by the Federal Government.

5. One Bid per Bidder

5.1A bidder shall submit only one Bid, in the same bidding process, either individually as a Bidder or as a member in a joint venture or any similar arrangement.

5.2The Bidder shall not engage a subcontractor for any portion of the contract if the value of such subcontracting exceeds thirty percent (30%) of the total contract amount.

6. Cost of Bidding

6.1Any cost incurred by the bidder relating to the preparation and submission of its Bid shall be borne by the bidder, and the Procuring Agency shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. Bidding Documents

7. Contents of Bidding Document

7.1 The Goods required, Bidding procedures, and terms and conditions of the contract are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding documents which should be read in conjunction with any addenda issued in accordance with **ITB 9.1** include:

Section I - Invitation to Bids

Section II Instructions to Bidders (ITB)

Section III Bid Data Sheet (BDS)

Section IV Evaluation Criteria, Specifications, Schedule of Requirements

Section V Bid Forms

Section VI General Conditions of Contract (GCC)

Section VII Special Conditions of Contract (SCC)

Section VIII Contract Forms

7.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding documents. Failure to furnish all the information required in the Bidding documents through **EPADS v2.0** will be at the Bidder's risk and may result in the rejection of his Bids.

8. Clarification of Bidding documents

8.1 A prospective Bidder requiring any clarification of the Bidding documents may notify the Procuring Agency through **EPADS v2.0**.

8.2 The Procuring Agency will within three (3) working days after receiving the request for clarification, respond to any request for clarification through **EPADS v2.0** provided that such request is received not later than three (03) days prior to the deadline for the submission of Bids as prescribed in **ITB 22**

8.3 Copies of the Procuring Agency's response will be forwarded to all identified Prospective Bidders through **EPADS v2.0**, including a description of the inquiry, but without identifying its source.

8.4 Should the Procuring Agency deem it necessary to amend the Bidding document as a result of a clarification, it shall do so following the procedure under **ITB 9**.

8.5 If indicated **in the BDS**, the Bidder's designated representative is invited at the Bidder's cost to attend a pre-Bid meeting at the place, date and time mentioned **in the BDS**. During this pre-Bid meeting, prospective Bidders may request clarification of the schedule of requirement, the Evaluation Criteria or any other aspects of the Bidding document.

8.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on **EPADS v2.0**. Any modification to the Bidding documents that may become necessary as a result of the pre-Bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to **ITB 9**. Non-attendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

9. Amendment of Bidding documents

9.1 Before the deadline for submission of Bids, the Procuring Agency for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder or Pre-Bid meeting may modify the Bidding documents by issuing addenda through **EPADS v2.0**.

9.2 The Procuring Agency shall promptly publish the addendum through **EPADS v2.0**.

Any addendum issued including the notice of any extension of the deadline shall also be communicated through EPADS v2.0 to all the bidders who have already submitted their bids. Such bidders shall have the right to withdraw their already submitted bid and re-submit the revised bid prior to the original or extended bid submission deadline.

9.3 To give prospective Bidders reasonable time in which to take an addendum/corrigendum into account in preparing their Bids, the Procuring Agency may, at its discretion, extend the deadline for the submission of Bids through **EPADS v2.0**:

Provided that the Procuring Agency shall extend the deadline for submission of Bids, if such an addendum is issued within last three (03) days of the Bids submission deadline.

C. Preparation of Bids

10. Language of Bid

10.1 The Bid prepared by the bidder, as well as all correspondence and documents relating to the Bids exchanged by the Bidder and the Procuring Agency shall be written in the English language unless otherwise specified in the BDS. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless otherwise specified in the **BDS**, in which case, for purposes of interpretation of the Bidder, the translation shall govern.

11. Documents and samples Constituting the Bid

11.1 The Bid prepared by the Bidder shall constitute the documents required in the **BDS**.

Details of sample(s) where applicable and requested in the BDS.

Documentary evidence established in accordance with ITB that the Bidder is eligible and/or qualified for the subject bidding process;

Documentary evidence established in accordance with **ITB** that the Bidder has been authorized by the manufacturer to deliver the goods into Pakistan, where required and where the supplier is not the manufacturer of those goods;

Documentary evidence established in accordance with ITB that the goods and related services to be supplied by the Bidder are eligible goods and services, and conform to the Bidding Documents;

Bid security or Bid Securing Declaration furnished in accordance with **ITB 18**.

12. Documents Establishing Eligibility of the Goods and Conformity to Bidding documents

12.1 To establish the conformity of the bidder to the Bidding document, the Bidder shall furnish as part of its Bids the documentary evidence that Goods provided conform to the technical specifications and standards.

13. Documents Establishing Eligibility and Qualification of the Bidder

13.1The Bidder shall furnish, as part of its Bid, all those documents establishing the Bidder's eligibility to participate in the Bidding process and/or its qualification to perform the contract if its Bid is accepted.

14. Form of Bids

14.1The Bidder shall fill the Form of Bid furnished in the Bidding documents. The Bids Form must be completed without any alterations to its format and no substitute shall be accepted.

15. Bids Prices

15.1The Bids Prices quoted by the Bidder in the Form of Bid and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the Bidding documents.

15.2All items in the Schedule of Requirement must be listed and priced separately in the Price Schedule(s). If a Price Schedule shows items listed but not priced and neither explicitly denied, their prices shall be construed to be included in the prices of other items.

15.3Items not listed in the Price Schedule shall be assumed not to be included in the Bid, and provided that the Bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive Bidder(s) shall be construed to be the price of those missing item(s)

15.4The Bid price to be quoted in the Form of Bid in accordance with **ITB 14.1** shall be the total price of the Bid.

15.5The Bidder shall indicate on the appropriate Price Schedule, the unit prices (where applicable) and total Bid price of the Goods it proposes to provide under the contract.

15.6Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as non-responsive and shall be rejected.

16. Bids Currencies

16.1Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS in accordance with Rule 42 (2) of the Public Procurement Rules, 2025.

17. Bids Validity Period

17.1 Bids shall remain valid for the period specified in the **BDS** after the Bid submission deadline prescribed by the Procuring Agency. A Bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive. The period of Bid validity will be determined from the complementary Bid securing instrument, i.e. the expiry period of Bid Security or Bids Securing Declaration as the case may be.

The procuring agency shall ordinarily be under an obligation to process and evaluate the bid and to issue letter of award within the stipulated bid validity period.

17.2 Under exceptional circumstances, prior to the expiration of the initial Bid validity period, the Procuring Agency may request the Bidders' consent to an extension of the period of validity of their Bids only once through **EPADS v2.0**, for the period not more than the period of initial bid validity. The Bid Security provided under **ITB 18** shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid security or causing to be executed its Bid Securing Declaration. A Bidder agreeing to the request will not be required nor permitted to modify its Bid, but will be required to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension.

18. Bid Security or Bid Securing Declaration

18.1 The Bidder shall furnish as part of its Bid, a Bid Security in accordance with the Public Procurement Rules.

The original Bid Security shall be enclosed within the sealed envelope and to be submitted physically before closing time for submission of bids. Whereas, scanned copy of bid security shall be uploaded electronically through EPADS v2.0 before closing hours for submission of bids.

The Bidder who failed to submit the original Bids security before the submission deadline shall be disqualified straightaway.

18.2 The Bid Security or Bid Securing Declaration is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to **ITB 18.7**.

18.3 The Bid Security shall be denominated in the local currency, and it shall be a Bank Draft in the name of the Procuring Agency and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period

for Bids/Bid Validity is extended. In either case, the form must include the complete name of the Bidder.

18.4 The Bid Security shall be payable promptly upon written demand by the Procuring Agency in case any of the conditions listed in **ITB 18** are invoked.

18.5 Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bids Validity prescribed by the Procuring Agency pursuant to **ITB 17**. The Procuring Agency shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest:

1. the expiry of the Bid Security;
2. the entry into force of a procurement contract and the provision of a Performance Guarantee, for the performance of the contract if such a guarantee, is required by the Bid documents;
3. the rejection by the Procuring Agency of all Bids;
4. the withdrawal of the Bids prior to the deadline for the submission of Bids, unless the Bids documents stipulate that no such withdrawal is permitted.

18.6 The successful Bidder's Bids Security will be discharged upon the Bidder signing the contract, or furnishing the Performance Guarantee.

18.7 The Bid Security may be forfeited or the Bid Securing Declaration executed:

1. if a Bidder:
2. withdraws its Bid during the period of Bid Validity as specified by the Procuring Agency, and referred by the Bidder on the Form of Bids except as provided for in **ITB 17.2**; or
3. does not accept the correction of errors; or
4. in the case of a successful Bidder, if the Bidder fails:
5. to sign the contract; or
6. to furnish Performance Guarantee.

19. Withdrawal, Substitution, and Modification of Bid

19.1 Before Bid submission deadline, any Bidder may withdraw, substitute, or modify its Bid after it has been submitted through EPADS v2.0. Bids requested to be withdrawn, shall be returned unopened to the Bidders through **EPADS v2.0**.

20. Format and Signing of Bid

20.1 The Bidder shall prepare and submit Bids with due diligence after carefully reading all the terms and condition **before bid submission deadline** through EPADS v2.0.

D. Submission of Bids

21. Submission of Bids through EPADS v2.0

21.1 The Technical and Financial Bids if required to submitted, shall be submitted on **EPADS v2.0**.

22. Deadline for Submission of Bids

22.1 Bids shall be received by the Procuring Agency through **EPADS v2.0** before bid submission deadline.

22.2 The Procuring Agency may, under exceptional circumstances, extend the deadline for the submission of Bids, after recording reasons in writing and in an equal opportunity manner.

In such case, all rights and obligations of the Procuring Agency and the Bidders that were previously governed by the original deadline shall thereafter be subject to the revised deadline.

E. Opening and Evaluation of Bids

23. Opening of Bids

23.1 The Bid Evaluation Committee of the Procuring Agency shall open all Bids through the EPADS v2.0, on the date and time specified in the Bid Data Sheet (BDS).

23.2 The Bid Evaluation Committee **shall generate minutes through EPADS v2.0 containing brief details of bid opening process.** The record of the Bid opening shall include, as a minimum: the name of the Bidder, the Bid price if applicable, and the presence or absence of a Bid Security or Bid Securing

Declaration.

23.3 The procuring agency shall live broadcast the opening of bids on national media or on their website or digital channels, if the volume of procurement exceeds five hundred million rupees in case of goods and services and one thousand million rupees in case of works.

In case the date of opening of bid has been declared as public holiday or the procuring agency fail to open bid due to any EPADS v2.0 related issues, the submission and opening of bids shall be shifted to the next working day on the same time.

23.4 In case of Single Stage One Envelope Procedure, the Bidders names, the Bid prices, the total amount of each Bid and, the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring Agency may consider appropriate, will be announced by the Bid Evaluation Committee.

24. Clarification of Bids

24.1 To assist in the examination, evaluation and comparison of Bids of the Bidders, the Procuring Agency may, ask any Bidder for a clarification of its Bid including breakdown of prices.

24.2 The request for clarification and the response shall be sought through EPADS v2.0 before **three days prior to the deadline for submission of bids.** No change in the prices or substance of the Bids shall be sought, offered, or permitted.

24.3 The alteration or modification in the BIDS which in any way affect the following parameters will be considered as a change in the substance of a Bids:

1. evaluation & qualification criteria;
2. required scope of work or specifications;
3. all securities requirements;
4. tax requirements;
5. terms and conditions of Bidding documents.
6. change in the ranking of the Bidder

24.4 From the time of Bids opening to the time of Contract award if any Bidder wishes to contact the Procuring Agency on any matter related to the Bids it should do so through **EPADS v2.0**.

25. Preliminary Examination of Bids

25.1 Prior to the detailed evaluation of Bids, the Procuring Agency will determine whether each Bid:

1. meets the eligibility criteria defined in **ITB 3**;
2. has been prepared as per the format and contents defined by the Procuring Agency in the Bidding documents;
3. is accompanied by the required securities; and
4. is substantially responsive to the requirements of the Bidding documents.

The Procuring Agency's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

25.2A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one that: -

1. affects in any substantial way the scope, quality, or performance of the Goods;
2. limits in any substantial way, inconsistent with the Bidding documents, the Procuring Agency's rights or the Bidders obligations under the Contract; or
3. if rectified, would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a Bid is not substantially responsive, it will be rejected by the Procuring Agency and may not subsequently be evaluated for complete technical responsiveness.

26. Examination of Terms and Conditions; Technical Evaluation

26.1 The Procuring Agency shall examine the Bids to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the Bidder without any material deviation or reservation.

The Procuring Agency shall evaluate the technical aspects of the Bids submitted, to confirm that all requirements specified in Schedule of Requirements and Technical Specifications of the Bidding documents have been met without material deviation or reservation.

26.3 If after the examination of the terms and conditions and the technical evaluation, the Procuring Agency determines that the Bid is not substantially responsive in accordance with **ITB**, it shall reject the Bid.

27. Correction of Errors

27.1 Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

1. if there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Procuring Agency there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;
2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and
3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.
4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bids, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

27.2 The amount stated in the Bid will, be adjusted by the Procuring Agency in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, its Bid will then be rejected, and the Bid Security may be forfeited or the Bids Securing Declaration may be executed.

28. Conversion to Single Currency

28.1 To facilitate evaluation and comparison, the Procuring Agency will convert all Bids prices expressed in the amounts in various currencies in which the Bids prices are payable. For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate prevailing on the date of opening of financial bids specified in the bidding documents, in accordance with weighted average customer exchange rates list issued by the State Bank of Pakistan on that day.

29. Evaluation of Bids

29.1 The Bids, quotations, or proposals shall be evaluated by the respective evaluation committees as per evaluation criteria described in the Bidding Documents in accordance with Rule 29 and 30 of the Public Procurement Rules, 2004.

Least Cost Based Selection (LCBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (technical) specifications/requirements and/or requisite quality threshold (if any), and having lowest evaluated cost (or financial proposal) shall be considered Successful Bid.

Quality and Cost Based Selection (QCBS)

In such combination, there shall be some specific weightage of both the technical features and financial aspects of the proposal. The financial marks shall be awarded on the basis of inverse proportion calculations. The successful bid shall be declared, on the basis of combined evaluation.

Quality Based Selection (QBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness the bid in compliance with all the mandatory (technical) specifications/requirements and attaining highest marks in the Technical Evaluation considering all other qualitative and/or quantitative parameters (or point rated criteria) for technical proposal(s) such as working methodology, implementation plan, resource allocation, additional functionalities, risk management approach, knowledge transfer techniques, post implementation methodology etc. shall be treated as highest ranked bid. Later on, the financial proposal of highest ranked bidder shall be opened, however, in case of failure to proceed further with such a bidder, the procuring agency may resort to second highest bidder and so on.

29.2 In case of tie of bids, the bidders shall be provided an opportunity to offer their best and final monetary offer through EPADS v2.0. However, in no case the rates shall be higher than the original financial bids.

30. Domestic Preference

30.1 The procuring agency shall evaluate and compare bids, allow for preference to domestic bidders, while competing with the international bidders in accordance with the policies of Federal Government.

The percentage of preference, to be accorded shall be clearly mentioned in the bidding documents under the bid evaluation criteria.

31. Determination of Successful Bid

31.1 Selection technique will be adopted for determining the Successful Bid in accordance with the criteria referred in the BDS or prescribed in the separate section titled as Evaluation Criteria.

In case where the Procuring Agency adopts the Cost Based Evaluation Technique and, the Bid with the lowest evaluated price from amongst those which are eligible, compliant and substantially responsive shall be the Successful Bid.

The Procuring Agency may adopt the Quality & Cost Based Selection Technique due to the following two reasons:

Where the Procuring Agency knows about the main features, usage and output of the products; however not clear about the complete features, technical specifications and functionalities of the goods to be procured and requires the bidders to submit their proposals defining those features, specifications and functionalities; or

Where the Procuring Agency, in addition to the mandatory requirements and mandatory technical specifications, requires parameters specified in Evaluation Criteria to be evaluated while determining the quality of the goods.

In such cases, the Procuring Agency may allocate certain weightage to these factors as a part of Evaluation Criteria, and may determine the ranking of the bidders on the basis of combined evaluation in accordance with provisions of Rule 2(1)(h) of the Public Procurement Rules, 2004.

32. Abnormally Low Financial Bids

32.1 Where the Bid price is considered to be abnormally low, the Procuring Agency shall perform price analysis either during determination of Successful Bids or as a part of the post-qualification process.

The Procuring Agency may reject an Abnormally low financial bids.

In order to identify the Abnormally Low Bids (ALB) following approaches can be considered to minimize the scope of subjectivity:

1. Comparing the Bids price with the cost estimate;
2. Comparing the Bids price with the Bids offered by other Bidders submitting substantially responsive Bids; and
3. Comparing the Bids price with prices paid in similar contracts in the recent past either government- or development partner-funded.

32.2 The Procuring Agency will determine to its satisfaction whether the Bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily.

32.3 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Procuring Agency deems necessary and appropriate. Factors not included in these Bidding documents shall not be used in the evaluation of the Bidders' qualifications.

32.4 Procuring Agency may seek "Certificate for Independent Price Determination" from the Bidder and the results of reference checks may be used in determining an award of contract.

Explanation: The Certificate shall be furnished by the Bidder. The Bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.

32.5 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's Bids, in which event the Procuring Agency will proceed to the next ranked Bidder to make a similar determination of that Bidder's capabilities to perform satisfactorily.

F. Award of Contract

33. Criteria of Award

33.1 The Procuring Agency will award the Contract to the Bidder whose Bids has been determined to be substantially responsive to the Bidding documents and who has been declared as Most Advantageous Bidder.

34. Negotiations

34.1 The procuring agency shall not engage in negotiations with respect to scope and price with the bidder except when the procuring agency conducts a procurement using direct **or negotiated** contracting or a request for proposals with evaluation based on quality alone.

The procuring agency may negotiate with the most advantageous bid with a view to streamline the work or task execution, at the time of contract finalization on methodology, work plan, staffing, finalizing payment arrangements, delivery arrangements, minor amendments to the special conditions of the contract.

35. Procuring Agency Right to reject all bids

35.1 The Procuring Agency reserves the right to reject all bids or proposals at any time prior to the issuance of the Letter of Award, without incurring any liability, in accordance with Rule 33 of the Public Procurement Rules, 2004.

36. Cancellation of Procurement

36.1 The procuring agency reserves the right to cancel the procurement proceedings in accordance with Rule 33 of the Public Procurement Rules, 2004.

37. Procuring Agency's Right to Vary Quantities at the Time of Award

37.1 The Procuring Agency reserves the right at the time of contract award to increase or decrease the **quantity of** Goods originally specified in these Bidding documents provided this does not exceed **by** 15%, without any change in unit price or other terms and conditions of the Bids and Bidding documents.

38. Notification of Award

38.1 Prior to the award of contract, the procuring agency shall announce and publish the result of bid evaluation on **EPADS v2.0** in accordance with Rule 35 of the Public Procurement Rules, 2004.

The Bidder whose Bids has been accepted will be notified of the award by the Procuring Agency prior to expiration of the Bids/Bid Validity period. The Letter of Award will state the sum that the Procuring Agency will pay the successful Bidder in consideration for the delivery of Goods as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

38.2 The Letter of award will constitute the formation of the Contract, subject to the Bidder furnishing the Performance Guarantee and signing of the contract.

39. Signing of Contract

39.1 Promptly after issuance of Letter of award, Procuring Agency shall send the successful Bidder the draft Contract, incorporating all terms and conditions as agreed by the parties to the contract.

39.2 Immediately after the Redressal of grievance by the GRC (if any), and **after fulfillment of all condition's precedent** of the Contract Form, the successful Bidder and the Procuring Agency shall sign the Contract.

40. Corrupt & Fraudulent Practices

40.1 Procuring Agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

F. Grievance Redressal & Complaint Review Mechanism

41. Constitution of Grievance Redressal

41.1 The Grievance Redressal Committee shall address the grievance, if any submitted by any party, including the bidder, in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

In case if any party or the bidder is not satisfied with the decision of the GRC or if it fails to decide within ten days, the bidder or the party may file an appeal

before the Appellate Committee of the Authority in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

G. Mechanism of Blacklisting

42. Mechanism of Blacklisting

42.1 The Procuring Agency shall initiate blacklisting proceedings against any bidder, supplier, or contractor in accordance with the Mechanism for Blacklisting Regulations, 2024, read with Rule 19 of the Public Procurement Rules, 2004.

The blacklisted/debarred bidder may file the review petition before the Authority in accordance with Rule 19 of the Public Procurement Rules, 2004 to be read with Procedure of filing and disposal of Review Petitions Regulations, 2021.

43. Contract Management

43.1 For each procurement, the Procuring Agency shall designate a Contract Manager, who shall be duly responsible for the efficient management and administration of the contract in strict compliance with the provisions set forth under Rules 45 of the Public Procurement Rules, 2004 and in accordance with the condition of the contract.

44. Inspection of goods and evaluation of services.

44.1 The Inspection Committee or the Firm shall have the right to conduct inspections of the goods in accordance with condition of contract.



Bid Data Sheet

Bids Data Sheet (BDS)

The following specific data for the procurement of Goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

BDS Clause Number	ITB Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
A. Introduction		
1	1.1	<p>Name of Procuring Agency:220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat)</p> <p>The subject of procurement is:PROCUREMENTS OF BATTERY BANKS 220V DC-300AH (02Nos.) & 110V DC-150AH (03Nos.) ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP, ISLAMABAD</p> <p>Expected commencement date: Monday, May 11, 2026</p>
2.	2.1	<p>Financial year for the operations of the Procuring Agency:2025-26</p> <p>Name and identification number of the Contract: P12059</p>
3.	3.1	<p>JV/Consortium or Association Allowed: No</p> <p>Number of JV/Consortium Members: Nil</p> <p><i>see section of eligibility criteria.</i></p>

B. Bidding Documents

4.	8.1	The Bidders may seek clarifications through EPADS v2.0 : Clarification Date: Monday, March 30, 2026 Pre-Bid Meeting: Thursday, April 2, 2026 10:00 AM Venue: 220KV Grid Station NGCP BaraKahu
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C. Preparation of Bids

5.	10.1	The Language of all correspondences and documents related to the Bids shall be in: English List of documents required along with the bid: No
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6.	11.1	Items/Lots and there related documents: <i>See section items and Lots</i>
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7.	12.1	Items / Lots Specifications: <i>see section of items specifications.</i>
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8.	13.1	Price schedule will be provided according to the format defined and acquired. <i>see section price schedule.</i>
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9.	15.6	The price shall be Fixed .
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10.	16.1	Currency of the Bids shall be : PKR
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11.	17.1	The Bids/Bid Validity period shall be: 90 Days
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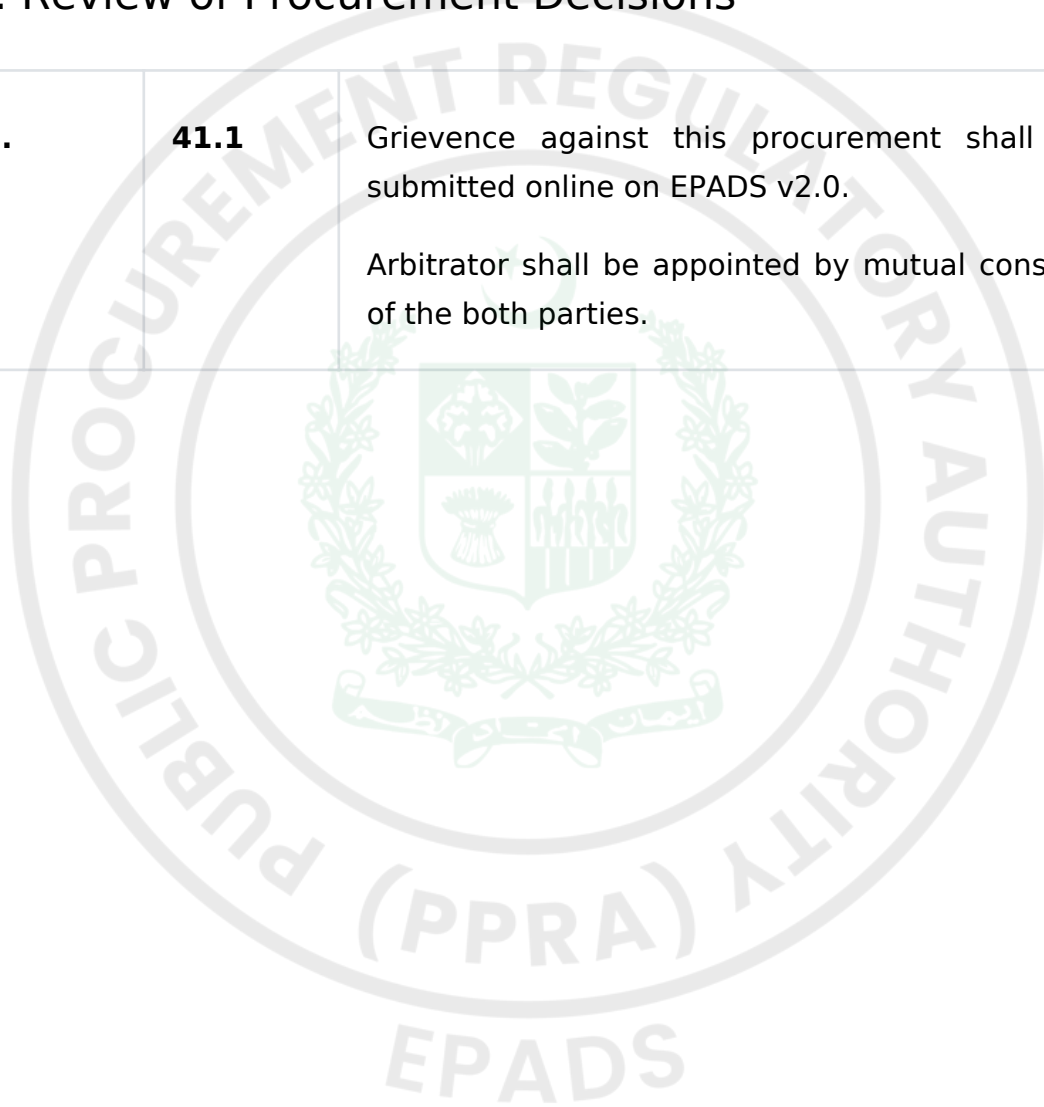
12.	18.1	<p>The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in BDS 6</p> <p>The Bid Security shall be in the form of: Pay Order, Banker's Cheque, Demand Draft</p>
<p>D. Submission of Bids</p>		
13.	20.1	<p>Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;</p> <p>220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory</p> <p>Bids that are not submitted on EPADS v2.0 shall be disqualified.</p> <p>The deadline for Bids submission is: Tuesday, April 14, 2026 11:00 AM</p>
<p>E. Opening and Evaluation of Bids</p>		
14.	23.1	<p>The Bids opening shall take place on EPADS v2.0.</p> <p>Day : Tuesday</p> <p>Date: Tuesday, April 14, 2026</p> <p>Time : 11:30 AM</p>
15.	31.1	<p>Selection technique adopted will be: Least Cost Based Selection (LCBS) <i>see Evaluation Criteria</i></p>

F. Award of Contract

16.	38.2	<p>The Performance guarantee shall: 0%.</p> <p>The Performance Guarantee shall be acceptable in the form of:Nil</p>
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G. Review of Procurement Decisions

18.	41.1	<p>Grievence against this procurement shall be submitted online on EPADS v2.0.</p> <p>Arbitrator shall be appointed by mutual consent of the both parties.</p>
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Eligibility Criteria

Bidder's Type	Required Registration
Partnership Firm	NADRA CITIZENSHIP (CNIC/NICOP)
Company (Private Limited)	FBR (NTN)
Company (Public Limited)	FBR (GSTN)
	Punjab (PRA)
	PEC
	KPK (KPRA)

Eligibility Criteria	Document
FOR NEW PRODUCTS, TYPE TEST (ONE TIME VALIDITY FOR 10 YEARS) IS MANDATORY (NOT INCLUDED IN THE NATIONAL GRID COMPANY APPROVED LIST)	Yes
TYPE TEST MUST BE CONDUCTED BY ANY APPROVED LAB. FAT TEST MUST BE PERFORMED IN THE FACTORY	Yes

Evaluation Criteria

Eligible bidder(s) with substantially responsive bid(s) offering **Least Cost Based Selection (LCBS)** shall be consider for the award of contract(s).

Least Cost Based Selection (LCBS)

Technical Marks	40
Passing Marks	24
Technical Evaluation Criteria	
60 (Qualitative)(Doc Required)	40

Items/Lots

Lot Title : PROCUREMENTS OF BATTERY BANKS 220V DC-300AH & 110V DC-150AH ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP ISLAMABAD

Bid Security : 1

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Procurement of 220V DC 300AH Battery Banks	Lead acid batteries	Address: 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory Schedule: 30 Days Quantity: 02	2	Manufacturer Authorization form	1 Years
Procurement of 110V DC 150AH Battery Banks	Lead acid batteries	Address: 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory Schedule: 30 Days Quantity: 03	3	Manufacturer Authorization form	1 Years

Related Services of Goods:

No

PROCUREMENTS OF BATTERY BANKS 220V DC-300AH & 110V DC-150AH ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP ISLAMABAD

Item	UNSPSC	Related Services
Procurement of 220V DC 300AH Battery Banks	Lead acid batteries	Installation & commissioning Technical support (e.g. minimum 1 year) Warranty and after-sales service On-site testing Transportation (if specified)
Procurement of 110V DC 150AH Battery Banks	Lead acid batteries	Installation & commissioning Technical support (e.g. minimum 1 year) Warranty and after-sales service On-site testing Transportation (if specified)

Items/Lot Specification

Lot Title : PROCUREMENTS OF BATTERY BANKS 220V DC-300AH & 110V DC-150AH ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP ISLAMABAD

Item: Procurement of 220V DC 300AH Battery Banks

UNSPSC: Lead acid batteries

Specifications / Requirements:

According to NTDC Specifications P-132:2019

Item: Procurement of 110V DC 150AH Battery Banks

UNSPSC: Lead acid batteries

Specifications / Requirements:

According to NTDC Specifications P-132:2019

Price Schedule

For Individual Items

#	Item Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		





General Conditions of Contract

A. General

1. Definitions

1.1 Unless the context otherwise requires, the following terms whenever used in this Contract shall have the same meaning and shall be interpreted as indicated

1. "Applicable Law" means the laws and any other instruments having the force of law in the Government's Country, or in such other country as may be specified in the Special Conditions of the Contract (SC), as they may be issued and in force from time to time;
2. "Procuring Agency" means:-
 - 2.1. any Ministry, Division, Department or any Office of the Government;
 - 2.2. any authority, corporation, body or organization established by or under a Law or which is owned or controlled by the Government;
3. "The Contract" means an agreement enforceable by law;
4. "The Contract Price" means the price payable to the Bidder under the Contract for the full and proper performance of its contractual obligations;
5. "Ancillary Services" means those services ancillary to the provision of Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Bidder covered under the Contract;
6. "GCC" means the General Conditions of Contract contained in this section;
7. "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented;
8. "Day" means calendar day unless indicated otherwise.
9. "Effective Date" means the date on which this Contract comes into force and effect.
10. "The Bidder" means the individual or corporate body whose Bids to provide the Goods has been accepted by the Procuring Agency;
11. "The Project Site," where applicable, means the place or places named in Bids Data Sheet and technical Specifications;
12. "Government" means the Government of Pakistan;
13. "Subcontractor" means any entity to which the Bidder subcontracts any part of the Goods.
14. "Service" means any object of procurement other than goods or works;
15. "Party" means the Procuring Agency or the Bidder, as the case may be, and "Parties" means both of them;
16. "Foreign Currency" means any currency other than the currency of the country of the Procuring Agency;

17. "Completion Date" means the date of completion of the contract by the Bidder as certified by the Procuring Agency;

18. "In Writing" means communicated in written form with proof of receipt;

19. "Local Currency" means the currency of Pakistan;

2. Application and Interpretation

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.

2.2 In interpreting these Conditions of Contract headings and marginal notes are used for convenience only and shall not affect their interpretations unless specifically stated; references to singular include the plural and vice versa; and masculine include the feminine. Words have their ordinary meaning under the language of the Contract unless specifically defined.

3. Applicable Law

3.1 The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.

4. Governing Language

4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged between the Bidder and the Procuring Agency, shall be written in the **English language** unless otherwise stated in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5. Notices

5.1 Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the **SCC**.

6. Delivery/Location

6.1 The Goods shall be delivered to such locations as the Procuring Agency may approve and as specified in **SCC**.

7. Authorized Representatives / Authority of Member in charge

7.1 Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Procuring Agency or the Bidder may be taken or executed by the officials specified in the **SCC**.

B. Commencement, Completion, Modification, and Termination of Contract

8. Effectiveness of Contract

8.1 This Contract shall come into effect on the date the Contract is signed by both parties and such other later date as may be stated in the SCC.

9. Commencement of Services

9.1 The Bidder shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

10. Program

10.1 Before commencement of the Services, the Bidder shall submit to the Procuring Agency for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.

11. Starting Date/Expiration Date

11.1 The Bidder shall start carrying out the Services Five (05) days after the date the Contract becomes effective, or at such other date as may be specified in the SCC.

11.2 Unless terminated earlier pursuant to Clause **GCC 15** hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

12. Entire Agreement

12.1 This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

13. Modification

13.1 Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any Bids for modification or variation made by the other Party.

13.2 In cases of any modifications or variations, the prior written consent of the Procuring Agency is required.

14. Force Majeure

14.1 Definition

For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

14.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

14.3 Extension of Time

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

14.4 Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Bidder shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

15. Termination

15.1 By the Procuring Agency

The Procuring Agency may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (e) of this Clause. In such an occurrence the Procuring Agency shall give at least thirty (30) calendar days' written notice of termination to the Bidder in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e);

1. If the Bidder fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;
2. If the Bidder becomes (or, if the Bidder consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
3. If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings;
4. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;
5. If the Procuring Agency, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

15.2 By the Bidder

The Bidder may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Procuring Agency, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

1. If the Procuring Agency fails to pay any money due to the Bidder pursuant to this Contract and not subject to dispute within forty-five (45) calendar days after receiving written notice from the Bidder that such payment is overdue.
2. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.
3. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration.
4. If the Procuring Agency is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Bidder may have subsequently approved in writing) following the receipt by the Procuring Agency of the Bidder's notice specifying such breach.

C. Obligations of the Bidder

16. General

16.1 Standard of Performance

1. The Bidder shall deliver the product and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Procuring Agency, and shall at all times support and safeguard the Procuring Agency's legitimate interests in any dealings with the third parties.

16.2 Law Applicable to Goods

The Bidder shall deliver the goods in accordance with the Contract and in accordance with the Law of Pakistan and shall take all practicable steps to ensure that any of its Experts and Sub-Bidders, comply with the Applicable Law.

17. Conflict of Interests

17.1 Bidder Not to Benefit from Commissions and Discounts.

The remuneration of the Bidder shall constitute the Bidder's sole remuneration in connection with this Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

17.2 Bidder and Affiliates Not to be Otherwise Interested in Project

The Bidder agree that, during the term of this Contract and after its termination, the Bidder and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing Goods for any project resulting from or closely related to the Services.

17.3 Prohibition of Conflicting Activities

Neither the Bidder nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

1. during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;
2. during the term of this Contract, neither the Bidder nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;

18. Confidentiality

18.1 Except with the prior written consent of the Procuring Agency, the Bidder and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

19. Insurance to be Taken Out by the Bidder

19.1 The Bidder(a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Procuring Agency, insurance against the risks, loss or damage, and for the coverage, as shall be specified in the SCC; and (b) at the Procuring Agency's request, shall provide evidence to the Procuring Agency showing that such insurance has been taken out and maintained and that the current premiums have been paid.

20. Bidder's Actions Requiring Procuring Agency's Prior Approval

20.1 The Bidder shall obtain the Procuring Agency's prior approval in writing before taking any of the following actions:

- (a) appointing such members of the Personnel not provided by the Bidder;
- (b) changing the Program of activities; and
- (c) any other action that may be specified in the SCC.

21. Reporting Obligations

21.1 The Bidder shall submit to the Procuring Agency the reports and documents in the numbers, and within the periods as prescribed by the Procuring Agency.

22. Liquidated Damages

22.1 If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring Agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the performance security (or guarantee) specified in SCC. Once the said maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to **GCC Clause 14**.

22.2 Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Procuring Agency shall correct any overpayment of liquidated damages by the Bidder by adjusting the next payment certificate. The Bidder shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in SCC.

22.3 Lack of performance penalty

If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, a penalty for Lack of performance will be paid by the Bidder. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as specified in the SCC.

23. Performance Guarantee

23.1 Within Seven (07) days from the issuance of acceptance letter from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in shape of ----- at the discretion of the PA in the amount **specified in SCC**. In case the amount of Bids security is equal or greater than

23.2 The proceeds of the Performance Guarantee shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

23.3 The Performance Guarantee shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring agency and shall be in the acceptable form as specified in SCC.

24.3 The Performance Guarantee will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.

24. Fraud and Corruption

24.1 The Procuring Agency requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

25. Sustainable Procurement

25.1 The Bidder shall conform to the sustainable procurement contractual provisions, if and as specified in the SCC.

D. Bidder's Personnel

26. Description of Personnel

26.1 The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Bidder's Key Personnel. The Key Personnel listed by title as well as by name are hereby approved by the Procuring Agency.

27. Removal and/or Replacement of Personnel

27.1 Except as the Procuring Agency may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Bidder, it becomes necessary to replace any of the Key Personnel, the Bidder shall provide as a replacement a person of equivalent or better qualifications.

27.2 If the Procuring Agency finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Bidder shall, at the Procuring Agency's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Agency.

27.3 The Bidder shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

E. Obligations of the Procuring Agency

28. Assistance and Exemptions

28.1 The Procuring Agency shall use its best efforts to ensure that the Government shall provide the Bidder such assistance and exemptions as specified in the SCC.

29. Change in the Applicable Law

29.1 If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the related Services rendered by the Bidder, then the remuneration and reimbursable expenses otherwise payable to the Bidder under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred in the SCC.

30. Services and Facilities

30.1 The Procuring Agency shall make available to the Bidder and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described, at the times and in the manner specified in the SCC or terms of reference.

30.2 In case that such services, facilities and property shall not be made available to the Bidder, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Bidder for the performance of the Services, (ii) the manner in which the Bidder shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Bidder as a result thereof.

F. Payments to the Bidder

31. Contract Price

31.1 The price payable shall be in Pakistani Rupees unless otherwise specified in the SCC. Prices charged by the Supplier for Goods delivered under the Contract shall not vary from the prices quoted by the Supplier in its Bid.

32. Terms and Conditions of Payment

32.1 Payments will be made to the Bidder according to the payment schedule stated in the SCC and as per actual invoice submitted by the Bidder.

32.2 Unless otherwise stated in the SCC, the advance payment shall be made against the provision by the Bidder of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Bidder have submitted an invoice to the Procuring Agency specifying the amount due.

33. Currency of Payment

33.1 Any payment under this Contract shall be made in the currency(ies) specified in the SCC.

G. Quality Control

34. Identifying Defects

34.1 The principle and modalities of Inspection of the Goods by the Procuring Agency shall be as indicated in the SCC. The Procuring Agency shall check the Bidder's performance and notify him of any Defects that are found. Such checking shall not affect the Bidder's responsibilities. The Procuring Agency may instruct the Bidder to search for a Defect and to uncover and test any service that the Procuring Agency considers may have a Defect. Defect Liability Period is as defined in the SCC.

35. Correction of Defects, and

Lack of Performance Penalty

35.1 The Procuring Agency shall give notice to the Bidder of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice a Defect is given, the Bidder shall correct the notified Defect within the length of time specified by the Procuring Agency's notice.

35.3 If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, the Procuring Agency will assess the cost of having the Defect corrected, the Bidder will pay this amount, and a Penalty for Lack of Performance.

36. Taxes and Duties

36.1 A Supplier shall be entirely responsible for all taxes, duties, fees, etc., incurred until delivery of the contracted Goods to the Procuring Agency.

H. Settlement of Disputes

37. Alternate Dispute Resolution

37.1 The disputes between the parties to the contract may be settled in accordance with Rule 66 of the Public Procurement Rules, 2025.

37.2 The procuring agency shall refer the matter to the Chief Justice Islamabad High Court or Managing Director PPRA or the Secretary Ministry of Law & Justice for appointment of Arbitrator.

37.3 The fee for the Arbitrator shall be specified in Pak Rupees as determined by the appointing authority which shall be borne and shared equally by the contracting parties.





Special Conditions of Contract

SECTION VIII. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	<p>Definitions</p> <p>The Procuring Agency is:220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat),Deputy Manager220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory</p> <p>The Supplier is:</p> <p>The title of the subject procurement is: PROCUREMENTS OF BATTERY BANKS 220V DC-300AH (02Nos.) & 110V DC-150AH (03Nos.) ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP, ISLAMABAD</p>
GCC 2	<p>Applicable/Governing Law:</p> <p>The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan</p>
GCC 3	<p>Language:</p> <p>The language of the Contract, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be in English.</p>

<p>GCC 5</p>	<p>Notices:</p> <p>The addresses for the notices are:</p> <p>Procuring Agency:</p> <p>220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat),Deputy Manager 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory +92-335-740-9659 rahim@ntdc.com.pk</p> <p>Contractor/ Bidder:</p> <p>[Name, address and telephone number].</p> <p>The Contractor/ Bidder’s Representative(s)</p> <p>[Name, address, telephone number and e-mail address]</p>
<p>GCC 6.1</p>	<p>The Authorized Representatives are:</p> <p>For the Procuring Agency:</p> <p>220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat),Deputy Manager 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory +92-335-740-9659 rahim@ntdc.com.pk</p> <p>For the Bidder:</p> <p>Name:</p> <p>Designation:</p> <p>Address:</p>
<p>GCC 7</p>	<p>Effectiveness of the contract</p>
<p>GCC 8</p>	<p>Commencement of Contract:</p>
<p>GCC 10.2</p>	<p>Expiration of Contract:</p>

<p>GCC 15</p>	<p>Termination</p> <p>In the event of termination of the contract due to any reason as already defined in the General Conditions of Contract, the Bidder shall be responsible for providing to the Authority the Goods till the time of alternate arrangements.</p>
<p>GCC 17</p>	<p>Conflict of Interest:</p> <p>The Procuring Agency reserves the right to determine on a case-by-case basis whether the Bidder should be disqualified from providing goods or services due to a conflict of a nature described in Clause GCC 17.</p>
<p>GCC 23</p>	<p>Liquidated Damages</p> <p>If the Bidder fails to provide services as required under the contract or in case of any data loss/data breach or any incident compromising the data security or other such failures related to any services, the Bidder shall pay to the Procuring Agency as Liquidated Damages at a rate of 10.00% to 10.00% of the Contract value, in accordance with the extent of performance failure & the cost of investigating such incidents as judged by the Authority.</p>
<p>GCC 24</p>	<p>Performance Guarantee:</p> <p>The amount of performance guarantee shall be 0% of the contract price in acceptable form of Nil</p>
<p>GCC 35</p>	<p>Payment terms:</p> <p>Payment will be made to the Bidder against the procured Goods and services according to the actual invoice or running bills submitted by the Bidder against the services provided within the time given in the conditions of the contract.</p>
<p>GCC 38</p>	<p>Currency of Payment:</p> <p>All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.</p>

GCC 39**Identifying Defects:**

The Authority reserves the right at any time to inspect the premises of the provider to inspect the goods and monitor the goods being provided.

Inspections & Tests Requirements

For being Brand New, bearing relevant reference numbers of the equipment (Certificate from supplier)

For Physical Fitness having No Damages (Certificate from supplier)

For the Country of Origin as quoted by the Supplier (Certificate from manufacturer)

For conformance to specifications and performance parameters, through Prior to delivery inspection (Inspection Report by Procurement Committee / Inspection Team)

For successful operation at site after complete installation, testing and commissioning of the equipment (Installation, Testing and Commissioning Report by Procurement Committee / Inspection Team)

TYPE TEST MUST BE CONDUCTED BY ANY APPROVED LAB. FAT TEST MUST BE PERFORMED IN THE FACTORY.

Delivery & Documents

Copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

Original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;

Copies of the packing list identifying contents of each package;

Insurance Certificate;

Manufacturer's or Supplier's Valid Warranty Certificate;

Inspection Certificate issued by the Nominated Inspection Agency (if any), and the Supplier's Factory Inspection Report;

Certificate of Origin.

The above documents would be required even if the equipment has already been imported and is available with the supplier ex-stock

Following is the guidance for Dispute Resolution

1. If any dispute of any kind whatsoever shall arise between the Authority and the Bidder in connection with or arising out of the Contract, including without prejudice to the generality of foregoing, any question regarding its existence, validity, termination and the execution of the Contract – whether during developing phase or after their completion and whether before or after the termination, abandonment or breach of the Contract – the parties shall seek to resolve any such dispute or difference by mutual diligent negotiations in good faith within 14 (fourteen) days following a notice sent by one Party to the other Party in this regard.
2. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.
3. At the event of failure of mediation to resolve the dispute relating to this contract such dispute shall finally be resolved through binding Arbitration by sole arbitrator in accordance with Arbitration Act 1940. The arbitrator shall be appointed by mutual consent of the both parties. The Arbitration shall take place in Islamabad, Pakistan and proceedings will be conducted in English language.
4. The cost of the mediation and arbitration shall be shared by the parties in equal proportion however the both parties shall bear their own costs and lawyer's fees regarding their own participation in the mediation and arbitration. However, the Arbitrator may make an award of costs upon the conclusion of the arbitration making any party to the dispute liable to pay the costs of another party to the dispute.
5. Arbitration proceedings as mentioned in the above clause regarding resolution of disputes may be commenced prior to, during or after completion of the contract.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree that the Authority shall pay the Bidder any monies due to the Bidder.

Rules of procedure for arbitration proceedings:

Any dispute between the Authority and a Bidder who is a national of the Islamic Republic of Pakistan arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Islamic Republic of Pakistan including Arbitration Act 1940, however above provision shall prevail in referring the case to the Arbitrator.

Place of Arbitration and Award:

The arbitration shall be conducted in English language and place of arbitration shall be at Islamabad. The award of the arbitrator shall be final and shall be binding on the parties.



Bid Securing Declaration

Form 9: Bid Securing Declaration

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

Bid No.: **P12059**

To: **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat), Deputy Manager 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

1. have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;
2. Disagreement to arithmetical correction made to the Bid price; or
3. having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid Validity, (i) failure to sign the contract if required by Procuring Agency to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

We understand this Bid Securing Declaration shall expire if we are not the successful

Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight (28) days after the expiration of our Bid.



Contract Form

SECTION IX: CONTRACT FORMS

THIS AGREEMENT made the _____ day of _____ 20____ between **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat), Deputy Manager 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory**

(hereinafter called “the Procuring Agency”) of the one part and [name of Bidder] of [city and country of Bidder] (hereinafter called “the Bidder”) of the other part:

WHEREAS the Procuring Agency invited Bids for provision of goods, viz., **PROCUREMENTS OF BATTERY BANKS 220V DC-300AH (02Nos.) & 110V DC-150AH (03Nos.) ALONG WITH ALL ALLIED ACCESSORIES FOR 220KV GRID STATION BHARA KAHU UNIVERSITY NGCP, ISLAMABAD (P12059)** and has accepted a Bids by the Bidder for the provision of Goods in the sum of [contract price in words and figures] (hereinafter called “the Contract Price”).

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

1. This form of Contract;
2. the Form of Bids and the Price Schedule submitted by the Bidder;
3. the Schedule of Requirements;
4. the Technical Specifications;
5. the Special Conditions of Contract;
6. the General Conditions of the Contract;
7. the Procuring Agency’s Letter of Acceptance; and
8. [add here: any other documents]

3. In consideration of the payments to be made by the Procuring Agency to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Procuring Agency to provide the Goods related services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Agency hereby covenants to pay the Bidder in consideration of the provision of Goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Procuring Agency:

.....

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Bidder:





Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: Contract Value: Contract Title:

Dated:

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.



Performance Guarantee Form

Performance Guarantee Form

To: **220KV Grid Station NGCP BaraKahu (Manager Asset Management Circle National Grid Company (NGC-North) Rawat), Deputy Manager 220KV Grid Station NGCP BaraKahu, Islamabad Capital Territory**

WHEREAS *[name of Bidder]* (hereinafter called “the Bidder”) has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for provision of Goods (hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that the Bidder shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Bidder’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Bidders guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Contract 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 or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]



Annexure

VENTED TYPE LEAD ACID STATION BATTERIES

Upload Document

Document Required

See Form Under Additional Forms and Documents: **VENTED TYPE LEAD ACID STATION BATTERIES** (page number: 65)





Procurement Forms

Past Experience and Completed Contracts

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 91)







Additional Forms and Documents

NATIONAL TRANSMISSION AND DESPATCH COMPANY

NTDC SPECIFICATION P-132:2019



VENTED TYPE LEAD ACID STATION BATTERIES

SUBSTATION DESIGN DEPARTMENT NTDC



FOREWORD

This specification has been prepared by Substation Design Department of NTDC.

This specification is intended for the procurement of material and does not include necessary provisions of a contract.

This specification is subject to revision as and when required by Substation Design Department of NTDC. No other department is authorized to issue any change/amendment in it.

REVISIONS & AMENDMENTS

Sr. No.	Description	Date
1.	First Approval	14-02-1980
2.	First Revision	24-10-1988
3.	Amendment No.1	22-10-1989
4.	Amendment No. 2	21-07-1995
5.	Second Revision	



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(Handwritten signatures in blue ink)



NTDC SPECIFICATION P-132:2019

VENTED TYPE LEAD ACID STATION BATTERIES

1. SCOPE

- 1.1 This specification describes indoor vented type lead-acid batteries of Tubular, Plante or Flat pasted type positive plates for stationary service in floating system. Unless otherwise indicated in the bidding document, the bidders may offer any type of battery.
- 1.2 For purpose of bid evaluation, the quoted price of plante type battery shall be compared with "weighted price" of pasted and tubular type batteries, which shall be taken as follows:

Battery Type	Scaling Factor
Pasted Type	1.7 times of its quoted price
Tubular Type	1.4 times of its quoted price

2. REFERENCE STANDARDS

- 2.1 The battery banks/cells and all allied accessories shall be designed, manufactured and tested in accordance with following international codes/standards

IEC 60896 - 11	Vented Types – General Requirements and methods of tests
IEEE 450	IEEE Recommended Practice for Maintenance, Testing and Replacement of Vented Lead – Acid Batteries for Stationary Applications
IEEE 485	Recommended Practice for sizing Lead – Acid Batteries for Stationary Applications
DIN 40736 -1	Lead Acid batteries – Stationary vented gas with positive tubular plates in plastic containers EN
BS 6290-2&3	Lead Acid Stationary cells and batteries - Specification for the high-performance Plante /Pasted positive type
DIN 40738	Lead Storage batteries; stationary cells with positive Plante plates, narrow plate distance; rated capacities, main dimensions

- 2.2 The latest revisions/amendments of above-mentioned standards shall be applicable for the equipment/material mentioned in this specification. In case specifications/requirements given herein differ from those given in above international standards in any particular, the



battery banks shall comply with the requirements indicated herein in regard to that particular item.

3. DEFINITIONS

3.1 Battery

A battery is a group of cells interconnected to produce the system nominal voltage.

3.2 System Nominal Voltage

It is the voltage by which the DC power system of a substation is designated.

3.3 On-Load Voltage

The difference of potential existing between the terminals of cell or battery when it is delivering current.

3.4 Open-Circuit Voltage

The difference of potential existing between the terminal of a cell or battery when the external circuit is open.

3.5 End-Point Voltage

The minimum on-load voltage at which discharge of a cell or battery is considered to be complete.

3.6 Discharge Capacity

It is the ability (expressed in ampere hours) of a cell or battery to deliver to an external circuit a given current for a specified period (called the rate of discharge) at a specific temperature of the electrolyte while maintaining the on-load voltage above the end-point voltage.

3.7 Plate Group

An assembly consisting of either positive or negative plates together with group bar.

3.8 Group Bar

A lead alloy bar to which are burned the plate lugs of a plate group.

3.9 Plate Lug

A projection of a plate used for connecting it to the group bar.

3.10 Element

An assembly in which positive and negative plate groups are interleaved such that plates of opposite polarity are electrically separated from each other by micro-porous material.

3.11 Terminal Post

A projection of a plate group which protrudes through the cover and is used for connecting a plate group of a cell to that of adjacent cell.



3.12 Intercell Connector

A metal bar or link used to join externally the terminal posts of cells in series or parallel arrangement.

3.13 Terminal Connector

A lug provided on the terminal posts constituting battery's main positive and negative terminals for making connection to external electric circuit.

3.14 Electrolyte Reserve

It is the volume of electrolyte between minimum and maximum level indication.

3.15 Vent Plug

Plug, provided with a gas vent or vents and baffled to arrest acid spray, which is fitted in the vent hole in the cover of an enclosed cell. A vent plug normally also provide access for filling.

3.16 Gauntlet

A tubular bag used in positive plate of tubular type lead acid battery to retain/compress the active material against its series of lead alloy vertical spines with the help of end caps.

3.17 Thermal runaway

A critical Condition arising during constant voltage charging in which the current and the temperature of the battery produce cumulative, mutually reinforcing effect which further increases them and, which may lead to the destruction of the battery.

4. SERVICE CONDITIONS

The batteries shall be installed indoor on steel racks under the following service condition

4.1 Ambient Temperature

Maximum	50°C
Maximum mean over any 24 hours	45°C
Mean in any year	30°C
Minimum	-10°C

4.2 Relative Humidity

Relative humidity may range from 0 to 100 percent. The maximum values of ambient temperature and humidity, however, do not occur simultaneously. During monsoon, high humidity may persist for many days at a time along with temperature from 30°C to 40°C.

4.3 Altitude

Installation up to 1000m above sea level.

(Handwritten signatures and initials)



5. RATINGS

5.1 The batteries shall be designated as types A, B & C by their voltage and ampere-hour ratings which shall be as follows:

Sr. No.	Description/Type	Type (A)	Type (B)	Type (C)
1.	System nominal voltage (V)	110	220	220
2.	Nominal voltage of cell (V)	2.0	2.0	2.0
3.	Cell Open-circuit voltage at full charge (V)	2.055	2.055	2.055
4.	Number of cells in battery	55	110	110
5.	Rated discharge capacity @ 10-hour rate at electrolyte temperature of 25°C to end-point voltage of 1.85V per cell (Ah)	150	300	600

Note: In case of required rating above 600Ah, the required Ah capacity shall be mentioned explicitly in the bidding document at the time of procurement.

5.2 The specific gravity of fully charged battery corrected to 25°C shall not exceed the following:

Battery Type	Specific Gravity
Plante & Pasted	1.215±0.01
Tubular	1.240±0.005

And it shall be available after not more than 5 cycles of charge and discharge. For battery operating on full float routine, the rated discharge capacity shall be consistently attained within two years.

6. CONSTRUCTION

6.1 General

6.1.1 The batteries and racks shall be manufactured in compliance with this specification and approved drawings.

6.1.2 The batteries shall be assembled in shock-proof containers made of translucent/transparent material, designed to withstand mechanical stresses during normal transportation & handling and shall be supplied complete with electrolyte, intercell connectors, terminal



connectors, steel racks with inter-tier and inter-row connections, and the accessories as listed in clause 8.

- 6.1.3 The batteries shall be of compact design. The construction shall ensure **minimum self-discharge not exceeding 3% per month at 25°C** and low internal resistance. After a period of six months the loss of electrolyte shall not exceed 50 percent of the volume between minimum and maximum levels. Adequate measures shall be taken for prevention of internal short-circuits and protection of the element against mechanical damage.
- 6.1.4 The batteries shall be designed to prevent cracking/warping/bulging of containers/terminals due to plate growth/expansion during normal service life.
- 6.1.5 The batteries shall be provided with suitable dust-tight access for specific gravity measurement. Oxygen Index of material used for construction of container and cover shall be such that they come under category of fire retardant/resistant material.
- 6.1.6 The material used in the construction of the batteries shall be new and free from all defects which may affect the reliability, impair performance, shorten their life expectancy or render them unserviceable.
- 6.1.7 The positive active material shall be essentially lead-dioxide and the negative active material shall be sponge lead. The batteries shall not contain any reclaimed active material.
- 6.1.8 End springs or packing pieces of suitable material shall be provided to hold plate groups in position. They shall be so deigned to hold the plate groups throughout the anticipated life of cells.
- 6.1.9 The construction shall be such as to facilitate inspection, testing and maintenance during service. The maintenance shall be limited to infrequent topping up with pure water.
- 6.1.10 The average service life of the batteries shall not be less than fifteen (15) years. There will be no fall-off in the rated discharge capacity during the lifetime. End of service life shall be the time when the battery is no longer able to deliver at least 80% of its rated discharge capacity.
- 6.1.11 The batteries shall be of a design for which authenticated tests data can be made available by the manufacturer in sufficiency to show that batteries of like design have been on test for at least 10 years and that the condition of the test battery at the present time would indicate that the battery will reach a useful life of 15 years.

6.2 Positive Plates

- 6.2.1 The positive plate of the cells shall be of Plante, pasted or tubular type. They shall be casted from pure lead (99.9 %) free from impurities.



- 6.2.2 The plante type battery shall conform to relevant standards referred in clause 2 and shall be from Ultra-pure lead (99.99%) to ensure least open circuit loss and no fall-off in capacity throughout their long life.
- 6.2.3 For pasted type batteries, the weight of active material on positive plate shall neither be less than 12gm / Ah nor shall constitute more than 35% (by weight) of the finished dry plate. The grid weight shall be approximately 52% of the total weight of the plate. They shall conform to relevant standards referred in clause 2.
- 6.2.4 The tubular type plates shall comprise a frame structure consisting of a series of special lead alloy vertical spines connected to a common bus bar. The spines shall be surrounded by non-woven gauntlets/ woven polyester gauntlets fixed by acrylic resin filled with active material. The gauntlets shall be of finest pore structure, highest porosity and electrolyte retention, lowest electrolyte resistance, good mechanical resistance & elasticity and high short circuit resistance. The positive plates shall also be provided with end caps/end buffers of suitable material to provide lateral support at each end of the element, ensuring compact assembly to prevent plates from splaying. The lead weight and total weight with electrolyte in tubular type battery shall conform to Table - 1 of DIN-40736 as minimum and must meet the complete performance/functional requirements of this specification.
- 6.2.5 If antimony is used in alloy formation of positive plates, the antimony contents shall be less than 2%.
- 6.2.6 The arrangement of plates in the cells shall ensure that all the surfaces of plates are worked equally so that there is no distortion or buckling of the plates. The Plante and pasted type plates shall invariably be covered with glass wool mats/porous fiber mats of uniform thickness to minimize the shedding of active material in normal use. The fiber mat shall be in contact with the face of positive plate.

6.3 Negative Plates

- 6.3.1 The negative plates of the cells shall be of pasted grid type designed to give balanced performance with the positives and have a useful life commensurate with that of the later.
- 6.3.2 The plate grids shall be cast from corrosion resistant lead alloy and be of such design as to securely hold and retain the active material paste in place and in complete electrical contact with the grids and to ensure uniform distribution of the current throughout the mass of active material. If antimony is used in alloy formation of negative plates, the same shall be less than 2%.
- 6.3.3 The plates shall have rugged construction free from defects such as bends, cracks, surface pits and summary gaps between the active material and the grid mesh.



6.4 Separators

- 6.4.1 The separators shall be made of high quality micro-porous non-corrosive rubber or plastic free from all harmful organic impurities. They shall have good insulation, mechanical strength and be strongly resistant to the action of electrolyte and the temperature prevailing in the cell and retain their properties throughout the battery life.
- 6.4.2 They shall be chemically inert, have excellent oxidation resistance and offer high degree of porosity to ensure minimum internal resistance.
- 6.4.3 They shall permit free diffusion of the electrolyte to the active materials of the plates and may be ribbed or corrugated on the side adjacent to the positive plates to add to the free circulation of electrolyte.
- 6.4.4 The height and width of the separators shall be greater than those of the plates to prevent short circuit due to formation of lead moss across edges of adjacent plates.
- 6.4.5 Adequate provision shall be made below the filling hole of the cells to avoid damage to separators likely to be caused by the insertion of hydrometer.

6.5 Group Bars

- 6.5.1 Plates of like polarity in each cell shall be burned integrally to the respective group bar; the group bars shall be of such design, size, and strength as to be adequate electrical conductors and mechanical supports for the respective plate groups. Group bars shall be made of lead alloy compatible with the grid material.

6.6 Containers

- 6.6.1 The containers shall be molded in strong, impact-resistant and heat-resistant transparent plastic of high insulating strength. The material shall be completely impervious to the corrosive effects of the electrolyte.
- 6.6.2 They shall be large enough to enclose the element while providing ample space above and below the element. The space above the element must be adequate to ensure long intervals between topping-ups.
- 6.6.3 They shall be deeply ribbed in the base to provide a support for the element as well as sediment space enough to collect all the active material which will settle therein during the life of cell so that during this period there will be no contact between the deposited sediment and the plate.



6.7 Covers

6.7.1 The covers shall be molded in strong, impact-resistant and heat-resistant material of high insulating strength commercially approved for the application. The same shall be acid resistant and strong enough to prevent cracking or warping during the life of the battery.

6.7.2 The joints between the covers and container and all covering openings other than the vents shall be gas-tight and effectively sealed against leakage of electrolyte. The seals between the terminals posts and the cover shall be made either by pressing against a vulcanized rubber gasket or by burning the terminal posts to lead inserts in the holes. The sealing shall be designed to prevent the corrosion of the posts above the lid. The joint between the cover and the walls of container shall be filled with bituminous or equivalent acid-resistant sealing compound to provide an effective acid-proof seal. The compound shall adhere well to the parts applied and shall maintain perfect seal without cracking or deformation throughout the life of cell/battery at a temperature range of 0° to 60°C.

6.7.3 Apart from vent holes, the complete cells shall be sufficiently sealed to withstand the internal pressure of at least 1961 Pa (202 mmH₂O).

6.8 Vent Plugs

6.8.1 Vent plugs shall be flame retardant / flame arrestor type suitable for intended application.

6.8.2 They shall be of the non-spray type i.e. they shall effectively return all acid spray to the cell but allows free exit/escape of gases (Hydrogen and Oxygen generated towards the end of charging) to escape freely. The required baffling may be provided in the cell, vent or plug. They shall be explosion proof to ensure safe operation in service free from danger of ignition of internal gases by external flame or spark.

6.9 Terminal Posts

6.9.1 The terminal posts shall be cast in corrosion-resistant lead alloy compatible with the material of group bars, plate grids and electrochemical conditions within the cell. They shall have ample cross section for the current duties incident to the intended application. They shall have smooth surface finish, free from porosity and other defects. These shall be sealed in a manner to prevent fumes from the cell. The terminal post shall not carry any part of weight of either plate group.

6.10 Inter-cell Connectors

6.10.1 Inter-cell connectors shall be bolted type made of corrosion resistant lead alloy or lead-plated copper and be covered with plastic insulating sheaths. They shall not obstruct the filling vent.

6.10.2 They shall be designed to carry current in amperes equal to five times the rated discharge capacity without any significant voltage drop or heating.



6.10.3 The bolts, nuts and washers shall be made of lead plated brass or acid-resistant stainless steel.

6.11 Inter-tier Connections

6.11.1 Inter-tier connections and jumpers etc., shall be well protected against corrosion and be of a type, flexibility and current carrying capacity suitable for the service intended.

6.12 Terminal Connectors

6.12.1 Suitable solderless terminal connectors made of lead-plated copper and having approved dimensions shall be supplied for connection of the battery's main positive and negative terminals to the cable.

7. ELECTROLYTE

7.1 Sufficient quantity of the electrolyte shall be supplied for first filling of the batteries. The electrolyte shall be aqueous solution of Sulfuric acid & free from arsenic, and other impurities that will give rise to mis-indication of specific gravity, impair the battery performance or shorten its life.

7.2 Owing to the tropical climate, the electrolyte of lower specific gravity shall be used and for satisfactory operation, the batteries shall not require electrolyte having full charge specific gravity measured at 25°C of more than 1.215±0.01 for Plante & pasted type and 1.24±0.005 for tubular type battery.

7.3 Following temperature correction shall be applied to the specific gravity value at a temperature different from 25°C.

$$S_c = S_t + (t - 25) * 0.0007$$

where,

S_c is the Sp. gravity corrected to reference temperature of 25°C

S_t is the Sp. Gravity observed at a temperature of t°C

t is the temperature of electrolyte (°C)

8. ACCESSORIES

8.1 The following maintenance accessories and tools shall be supplied with each battery.

1. Portable hydrometer syringe, Two No. (Sp. Gravity range 1.000 to 1.280 in steps of 0.005)



2. Thermometer, -10°C to 60°C, One No.
3. D.C. Voltmeter 0 - 3V, One No.
4. Anti-corrosive grease (10 Packets of 100 gram each)
5. Plastic jug – 2 liter, Two Nos.
6. Funnel – 180mm dia, Two Nos.
7. Syringe – 180mm dia Two Nos.
8. Accessories Box, One Nos.
9. Wrench with insulated handle, Two Nos.
10. Service Manual, One No.
11. Separate mechanical lifting device of adequate capacity for large cells above 25kg weight with each bank. Alternatively, suitable provision for lifting these cells may also be provided.
12. Safety equipment including pair of acid resistant rubber gloves, protective apron, face shield, wall mounted medical kit containing all items necessary to attend battery related accidents.
13. Spare 5 No. of Vent plugs / 55 Cells
14. Supply of 01 No. flexible cable of adequate size with each battery bank to bypass the cell for its maintenance/replacement
15. Logbook containing all manufacturing information of battery, for recording periodic maintenance and other useful information like operating temperature, condition, charging and outage etc. (as per TSG NTDC Manual)

8.2 Besides above, any other tool or accessory which is required for use with or maintenance of the batteries shall also be supplied.

9. RACKS

- 9.1 Suitable modular steel racks of sufficient strength shall be supplied with the batteries. They may either be floor stand type or tier-stand type. Step stands may not be used. The steel racks shall be of welded construction with provision for anchoring to the floor. They shall be provided with grounding pad or lug for bare copper grounding conductor of minimum size equivalent to the size of inter-cell connectors. The manufacturer shall submit the details and drawings of the proposed arrangements for mounting the cells for approval of Substation Design NTDC.
- 9.2 The racks shall have adequate rigid construction suitably stiffened by supports and braces etc., to support the weight of the mounted cells without undue vibration bending or loosening of the parts. They shall be simple and easy to assemble at site. Adjustable insulating pads shall be provided for precise leveling of the lugs.
- 9.3 The configuration of the cells on the racks shall be such as to afford free and full access to the service personnel to every individual cell. Minimum head room of 250mm between tiers shall be provided for access and maintenance. In any case the cells shall not be arranged in more than two tiers/rows on one rack.



- 9.4 An inter-cell spacing of about 10mm shall be provided between the cells in a row by means of intercell spacers. The spacing between two rows may not be less than 30mm. Minimum height to the bottom tier bottom surface not less than 150mm from floor level. The top of the cells in the highest tier/row shall not be over 1.5 meter above the floor level. Arrangements shall be provided to restrict the movement of the cells on the rack. Side and end rails shall be provided to prevent the cells from falling off the rack.
- 9.5 For batteries of type B & C, two separate racks may be used with a clear space between them of not less than 0.6 meter.
- 9.6 The racks shall be made acid resistant and shall provide adequate insulation and protection throughout the life of battery. In this regard, the racks shall be treated with at least two coats of acid resistant, heat resistant and impact proof epoxy coatings finished in grey color. The rails shall further be provided with preferably black acid-resistant polyethylene tubing/sleeves for insulation purposes. The material used for this purpose shall be of excellent quality and durable enough for the entire life of battery. They shall be additionally treated for protection against fire and vermin. The workmanship shall be first class and the finish shall conform to good commercial practice.

10. MARKING

- 10.1 A nameplate shall be supplied for each battery. The nameplate shall be made of lead or other corrosion-resistant material and be suitable for attaching to the battery rack or hanging on the wall. It shall have at least the following legibly marked on it in English. The markings shall be durable.
1. Name or trademark of the manufacturer
 2. Manufacturer's type designation of the cells
 3. Number of cells.
 4. Rated discharge capacity with reference to discharge rate, temperature, specific gravity and the end-point voltage.
 5. Recommended float voltage
 6. Recommended boost voltage/maximum finishing charge current.
 7. Month and year of manufacture
 8. Name of Purchaser along with Purchase Order No. and date
 9. Quantity of Electrolyte per cell.
- 10.2 Items at Sr. No. 1 & 2 mentioned in clause 10.1 shall also be marked on individual cell permanently. Items at Sr. No. 7 & 8 in clause 10.1 shall be embossed or indented on the covers of containers of individual cells.
- 10.3 A set of acid-resistant numeral stickers having an adhesive coating on their back shall be supplied for identifying cells 1 to 55 or 1 to 110 depending upon the type of battery.



- 10.4 Each cell shall be indelibly marked with two electrolyte level markings (min & max) such that, with cells mounted on rack, the level can be seen by the service personnel.
- 10.5 The polarity of the terminal posts shall be plainly and durably marked on the cover as '+' & '-' or 'POS' and 'NEG'.

11. TESTS

The batteries supplied under this specification shall be a product regarding which the manufacturer can make available complete records of tests to establish the fact that batteries of like design and rating manufactured by them under exactly similar conditions of manufacture have successfully met all test requirements laid down in this specification and proved satisfactory for the intended duty.

11.1 Type Tests

Following type tests shall be performed on one (01) of the batteries of same type/designation as per clause 5.1.

1. Discharge capacity test (clause 11.1.1)
2. Efficiency test (clause 11.1.2)
3. Self-discharge/Charge Retention test (clause 11.1.3)
4. Float Current test (clause 11.1.4)
5. Endurance in discharge-charge cycles (clause 11.1.5)
6. Chemical composition test (clause 11.1.6)
7. Over-charge endurance test (clause 11.1.7)
8. Test of Suitability for Floating Battery Operation (clause 11.1.8)
9. Short Circuit current and internal resistance measurement test (clause 11.1.9)

The validity of type test reports shall be 10 years.

11.1.1 Discharge Capacity Test

11.1.1.1 The cells selected for discharge capacity test shall be assembled into a battery as in service, prepared and fully charged in accordance with clause 13 of IEC 60896 (amended to date). At the end of the charge, the level and specific gravity of the electrolyte of each cell shall be checked and, if necessary adjusted.

11.1.1.2 After standing on open-circuit for one to two hours from the end of the charge (the steady open-circuit voltage of the cells shall not be below 2.0V), the battery shall be discharged at 10-hour rate, i.e. a continuous current numerically equal (in amperes) to one-tenth



(1/10th) of the rated discharge capacity shall be drawn from the battery, and the discharge shall be terminated when the voltage across the terminals of any one cell has fallen to 1.85V. During test, the temperature of electrolyte in each cell shall be maintained as close as reasonably practicable to 25°C and shall be within limits of 10°C & 40°C.

- 11.1.1.3 The voltage across individual cells and the temperature and specific gravity of the electrolyte shall be measured during discharge (at intervals not exceeding 1 hour) and at the completion of discharge. When the voltage at battery terminals has fallen below 1.9V per cell, the voltage may be checked at 15-minute intervals.
- 11.1.1.4 The test discharge as mentioned above shall be taken as first discharge and the discharge capacity in Ampere hours obtained on this discharge and corrected to an equivalent capacity at reference temperature of 25°C as per clause 11.1.1.7 shall not be less than 95% of the specified/rated discharge capacity.
- 11.1.1.5 Upon discharge to the end-point voltage of 1.85 volts, the difference in voltages of individual cells shall not exceed plus 0.1V.
- 11.1.1.6 The battery shall be immediately recharged in accordance with manufacturer's instructions and subsequent four more discharge tests shall be carried out as described above. The discharge capacity obtained on the last discharge test and corrected to 25°C shall not be less than the specified rated discharge capacity.
- 11.1.1.7 In case when the average temperature of the electrolyte during discharge differs from 25°C, the actually developed discharge capacity shall be reduced/corrected to the discharge capacity at 25°C by the following formula:

$$C_{25} = \frac{C_t}{1 + 0.008(t - 25)}$$

where,

C_{25} is the discharge capacity reduced/corrected to the reference temperature of 25°C.

C_t is the actually developed discharge capacity.

t is the average temperature (°C) of the electrolyte during discharge, which shall be determined as the arithmetical mean of the temperature measurements carried out during the discharge.

0.008 is the assumed temperature coefficient of discharge capacity.

- 11.1.1.8 The hydrometer used for measurements of specific gravity of electrolyte shall be provided with a graduate scale, one division of which shall represent at the most 0.005 unit of specific gravity. The accuracy of the calibration shall not be less than 0.005 unit of specific gravity.



- 11.1.1.9 The ammeters and voltmeters used for measurements of current and voltages shall be permanent magnet moving coil type of an accuracy class not below 0.5 and the measuring range such that the readings can be taken in the last third of the scale.
- 11.1.1.10 The thermometer used for measurements of temperature of electrolyte shall have graduate scale, one division of which shall represent at the most 1°C. The accuracy of calibration shall not be less than 0.5°C.
- 11.1.1.11 Complete type test report incorporating the necessary details of the above test shall be supplied.

11.1.2 Efficiency Test

The battery which has been given full charge (clause 11.1.1.1) subsequent to a discharge shall be discharged at 10-hour rate to 1.85V per cell (clause 11.1.1.2). The battery shall be recharged at 10-hour rate until 111 percent of the capacity realized on previous discharge is returned to the battery. It shall then be discharged at 10-hour rate as before. The discharge capacity of this last discharge shall not be less than that obtained on previous discharge, corrections for temperature variations, if any, having been performed as mentioned in clause 11.1.1.7.

11.1.3 Self-discharge/Charge Retention Test

The test shall be performed in accordance with IEC 60896-11(amended to date). The self-discharge shall not exceed 3% per month at 25°C.

11.1.4 Float Current Test

The cell shall be fully charged and placed on a constant float voltage of 2.20V until the current into the cell has reached a constant minimum value over six (6) consecutive hourly readings. The charging current shall not exceed a value equal to 0.5 mA/Ah at 25°C for the new batteries and 0.5 mA/Ah to 0.75 mA/Ah throughout the battery lifetime.

11.1.5 Endurance in Discharge-charge cycles

The test shall be performed in accordance with IEC 60896-11 (amended to date). The cycling performance shall be at least 500 cycles.

11.1.6 Chemical Composition Test

The test shall be made in independent Laboratory to check the composition of material used in positive plates, negative plates and to verify the following:

1. Weight of lead used in grid of each plate.
2. Quantity of active material used in each plate.
3. Antimony & other materials used for making alloys of grid



4. Impurities in the electrolyte.
5. Material of Separators
6. Material of Gauntlet (if used)
7. Material of covers and container

11.1.7 Over-charge endurance test

11.1.7.1 The test shall be carried out according to IEC 60896-11 (amended to date).

11.1.7.2 Certified test results done by the manufacturer on batteries of the same type and rating may be accepted in lieu of actual performing the test.

11.1.8 Test of Suitability for Floating Current Operation

11.1.8.1 The test shall be carried out according to IEC 60896-11 (amended to date).

11.1.8.2 Certified test results done by the manufacturer on batteries of the same type and rating may be accepted in lieu of actual performing the test.

11.1.9 Short Circuit current and internal resistance measurement test

The test shall be carried out according to IEC 60896-11 (amended to date).

11.2 Sample Tests (Cells)

11.2.1 Following sample tests shall be carried out on 2 sample cells drawn at random from a lot consisting of up to 50 cells of same type/designation. If a sample cell is found defective the tests shall be repeated on a double number of samples drawn from the same lot and if any resampled cell gives unsatisfactory results, the whole lot shall be rejected.

11.2.2 Visual Examination

The material, construction and markings shall be inspected for checking conformance with clause 6 & 10. The cells showing any deviation which has not been approved, rough spots, absence of any of the component parts, loose or corroded terminal posts, loose or broken seals, un-satisfactory vent plugs, leaking or distorted containers or covers or any other signs of defects or damage inside or outside the cells shall be rejected.

11.2.3 Checking of Dimensions and Weight

The number of cell plates, the overall dimensions and weight of the cells shall be checked for their agreements with the approved drawings.

11.2.4 Heat Endurance Test

The cells with the electrolyte at the correct level shall be subjected to a temperature of 60°C for 24 hours. After cooling they will be examined and there shall be no evidence of the flow or deformation of the sealing compound, leakage of electrolyte or any other defective development.



11.2.5 Chemical Composition Test

11.2.5.1 The test shall be made on one cell, drawn at random from the offered lot to verify the following:

1. Weight of lead used in grids of the plates
2. Weight of the active material used in the plates
3. Weight of outer frame and lugs

11.2.5.2 In case, the measured weights are not in compliance to those indicated in approved data, two more cells shall be subjected to the test and the lot shall be accepted if both the cell qualify the test.

11.2.6 Discharge Capacity Test

The test shall be carried out on sample cells as detailed in clause 11.2.2 above. However, no. of charge discharge cycles may be limited to one (01).

11.2.7 Short Circuit current and internal resistance measurement test

The test shall be carried out according to IEC 60896-11 (amended to date).

11.3 Sample Tests (Racks)

Following sample tests shall be carried out on 4% of the racks offered for acceptance of same type and design, but minimum one. If a sample rack is found defective the tests shall be repeated on a double number of samples drawn from the same lot and if any resampled rack turns out to be un-satisfactory the lot shall be rejected.

11.3.1 Checking Dimensions

The dimensions and other details of the racks shall be checked to verify their conformance with the approved drawings.

11.3.2 Visual Examination

The racks shall be inspected visually for checking conformance with clause 9. The cells may be physically mounted on the rack in the approved arrangement scheme in order to ascertain that various requirements of clause 9 are fully met.

12. DRAWINGS & DATA

12.1 Bid Data

12.1.1 Following information shall be supplied with the offer. Failure to supply the information shall make the offer liable to rejection:

1. Complete technical description of the offered battery in the form of manufacturer's catalogues and brochures etc. covering material and construction of each part of the cell.



2. Drawings or pictures showing cutaway views of the cell with various parts duly labeled. Material of the parts shall also be indicated on the drawings.
3. Drawings showing necessary dimensions of cells, terminal posts, inter-cell connectors and weight etc.
4. Typical charge and discharge characteristics curves showing cell voltages versus time for various rates of charge and discharge, and corresponding changes in specific gravity. The curves shall also be supplied showing (a) discharge capacity as percentage of the nominal discharge capacity at different discharge rates from 1 second to 10 hours, and (b) state of charge as a percentage of ampere hours previously taken at different charging currents. Effect of temperature variation on the discharge capacity of the cell at various rates shall also be indicated.
5. Details of mounting arrangement along with drawings of rack indicating dimensions, weights, assembly details, material and finish. Details of treatment for protection against corrosion, vermin and fire etc., shall also be supplied.
6. A list of reference indicating the names of the countries to whom the batteries of the offered type and design have been supplied along with year of supply.
7. The particulars of battery mentioned below as applicable:

Technical Data Sheet			
1.	Name of manufacturer		
2.	Type/ Designation of cell		
3.	Number of cells		
4.	Discharge capacity at 25°C and;		
	i)	10-hour rate to end-point voltage of	VPC Ah
	ii)	5-hour rate to end-point voltage of	VPC Ah
	iii)	3-hour rate to end-point voltage of	VPC Ah
	iv)	1-hour rate to end-point voltage of	VPC Ah
	v)	30-minute rate to end-point voltage of	VPC Ah
	vi)	1-minute rate to end-point voltage of	VPC Ah
	vii)	1 second rate to end-point voltage of	VPC Ah
5.	Specific gravity of the electrolyte (25°C)		
	i)	At filling in the cells	
	ii)	Before commencement of discharge	
	iii)	at the end of discharge	



6.	Recommended starting rate of charge	Amps
7.	Recommended finishing rate of charge	Amps
8.	Recommended float charging voltage	VPC
9.	Float current of the fully charged battery with float voltage/cell as per (8) above	mA/Ah
10.	Float current of the fully charged battery Completed 5 years of service with float voltage/cell as per (8) above	mA/Ah
11.	Recommended boost charging voltage at finishing rate	VPC
12.	Ampere-hour efficiency based on 10-hour rate of discharge at 25°C	%
13.	Total internal resistance in fully charged condition: i. of battery at terminal connectors, i.e. including resistance of inter-cell connectors, inter-tier & inter-row connections ii. of cell iii. of all connectors	mΩ mΩ mΩ
14.	Cycle stability	cycles
15.	Type of cell construction, enclosed or open	
16.	Number of positive plates in a cell and overall dimensions (without plate lug)	
17.	Type of construction of positive plate	
18.	Number of negative plates in a cell and overall dimensions (without plate lug)	
19.	Type of construction of negative plate	
20.	Material of container with thickness of wall and base and whether transparent or not	
21.	Material of cover	
22.	Material of plate grids	
23.	Material of separators, and their height, width and thickness	
24.	Material of inter-cell connectors	
25.	Quantity of electrolyte per cell (Sp. gravity 1.215±0.01 or 1.24±0.005 as applicable)	Liters
26.	Electrolyte Reserve	



27.	Weight of assembled Cell:		
	i)	With electrolyte (Sp. Gravity 1.215±0.01 or 1.24±0.005 as applicable)	kg
	ii)	Without electrolyte	kg
28.	Total Weight of:		
	a)	Positive plate	
	b)	Negative plate	
	c)	i) Weight of lead in each plate along with purity	
		ii) Weight of grid in each plate without active material, with & without lug	
		iii) Weight of rod/spine frame in each plate (for tubular type)	
	d)	Weight of active material in each plate	
	e)	Active material per positive plate	gm/Ah
	f)	Impurities in the Electrolyte	
29.	Oxygen Index of Cover and Container		
30.	Maximum self - discharge per month at 25°C		
31.	Total dimensions of assembled cell:		
	i)	Height including terminal posts	mm
	ii)	Width	mm
	iii)	Depth	mm
	iv)	Drawing No.	
32.	Material of Gauntlets along with make/origin (if applicable)		
33.	Weight and dimensions of Gauntlets (if applicable)		
34.	Material of end caps/ end buffers (if applicable)		
35.	Material of plastic packing/end springs		
36.	Weight of plastic packing/end springs		
37.	Number of racks		
38.	Material of rack		
39.	Arrangement of cells on rack		Tiers x rows
40.	Color of rack		
41.	Overall dimensions of rack:		
	i)	Height	mm



ii)	Length	mm
iii)	Depth	mm
iv)	Drawing No.	
42.	Details of accessories	Please attach list
43.	Cross section of inter cell connectors	
44.	Battery terminal short circuit current	
45.	Maximum gassing rate at recommended boost charging	ml/AH/Cell/Month
46.	Voltage Variation on Float Operation (IEC 60896-11)	
47.	Electrolyte Density Variation on Float Operation (IEC 60896-11)	
48.	Electrolyte level Variation on Float Operation	
49.	Details of spare parts recommended to be order with the battery	Please attach list of item wise prices
50.	Whether delivered uncharged or dry- charged?	
51.	Guaranteed life expectancy	Years

12.2 Approval Data

12.2.1 Following Technical data/drawings shall be supplied for approval before mass production/delivery of the batteries and racks.

1. The information required vide paras 1, 2, 3, 4, 5 & 7 of clause 12.1
2. Drawings of nameplate indicating also the material of the plate and details of all markings
3. Dimensional drawings of the terminal connectors
4. Complete delivery/packing list per battery
5. Service manual containing instructions for installation, initial charging and maintenance during service etc.



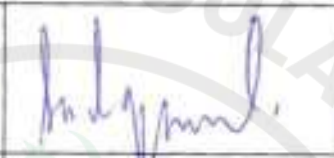


13. PACKING

13.1 The cells shall be delivered in "dry-charged" condition as complete battery sets. Each battery consignment shall be shipped with all the accessories required for complete assembling of the battery.

13.2 The individual cells and the accessories shall be packed in suitable packing boxes in accordance with manufacturer's standard packing for ocean shipment. The electrolyte shall be packed separately but shipped along with the consignment of the battery.



13.3 Each packing box shall bear name or trademark of the manufacturer and type of packed goods and contain a complete packing list indicating the names and quantities of packed items.

DATE OF APPROVAL:			
APPROVED BY:			
			
MAZHAR ALI			
CE (SSD) NTDC (Secretary)	GM (D&E) NTDC (Member)	GM (A.M) North NTDC (Member)	GM (P.D) North NTDC (Member)
			Engr. Danish Ahmad Bhatti GM (PO/GSC) North NTDC 219-Wapda House Lahore.
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General Manager (Technical) NTDC
 WAPDA House Lahore

