

Standard Bidding Document

PMU-209/26-27 Procurement of Circuit Breakers (Goods)

National

Single Stage-One Envelope



September 02, 2026

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REQUEST FOR BIDS

PROCUREMENT OF GOODS

1. The **PMU HESCO (Hyderabad Electric Supply Company (HESCO))** has reserved Funds for the procurement planned for FY **2026-27**. The **PMU HESCO (Hyderabad Electric Supply Company (HESCO))** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**PMU-209/26-27 Procurement of Circuit Breakers**" with the reference of "**P104806**"
2. The **PMU HESCO (Hyderabad Electric Supply Company (HESCO))** invites sealed 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, Call at Deposit, Bank Guarantee, Demand Draft** or all bids must be accompanied by bid securing declaration in the format specified in the Bidding documents
5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at **<https://epads.gov.pk/opportunities/federal/procurements/104806>** for all the interested bidders registered on **EPADS v2.0**. Bidders are required to get themselves registered on **EPADS v2.0** to participate in Bidding process.
6. The e-bids, prepared in accordance with the instructions in the e-Bidding Documents, must be submitted through **EPADS v2.0** on or before **Tuesday, September 22, 2026 10:00 AM**. E-bids will be opened using **EPADS v2.0** on the same day at **Tuesday, September 22, 2026 10:30 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 Rule 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

3.1 A 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.

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

3.3 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.

3.4 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).

3.5 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.

3.6 A 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.

3.7 A 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.

3.8 As 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.

3.9 Bidders 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

4.1 All 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

5.1 A 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.

5.2 The 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

6.1 Any 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**.

9.3 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.

9.4 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.

1. Documentary evidence established in accordance with ITB that the Bidder is eligible and/or qualified for the subject bidding process;
2. Documentary evidence establish 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;
3. Documentary evidence establish that the goods and related services to be supplied by the Bidder are eligible goods and services, and conform to the Bidding Documents;
4. 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

13.1 The 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

14.1 The 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

15.1 The 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.

15.2 All 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.

15.3 Items 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).

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

15.5 The 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.

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

16. Bids Currencies

16.1 Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS in accordance with Rule 30 (2) of the Public Procurement Rules, 2004.

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.

17.2 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.

17.3 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 Rule 25 of the Public Procurement Rules, 2004.

18.2 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.

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

18.4 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**.

18.5 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.

18.6 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.

18.7 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:

- a. the expiry of the Bid Security;
- b. 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;
- c. the rejection by the Procuring Agency of all Bids;
- d. 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.

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

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

- a. if a Bidder:
- b. 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
- c. does not accept the correction of errors; or
- d. in the case of a successful Bidder, if the Bidder fails:
- e. to sign the contract; or
- f. 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.

23.4 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.

23.5 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.

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

25.3 A 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 Bids 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.

26.2 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 25.2**, 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.

1. 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.

2. 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.

3. 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.

31.2 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.

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

1. 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
2. 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.

31.4 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.

32.2 The Procuring Agency may reject an Abnormally low financial bids.

32.3 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.

32.4 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.

32.5 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.

32.6 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.

32.7 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.

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

36.1 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.

37. Notification of Award

37.1 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.

37.2 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).

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

38. Signing of Contract

38.1 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.

38.2 Immediately after the Redressal of grievance by the GRC (if any), mandatory standstill period in accordance with Rule 35 of the Public Procurement Rules, 2004 and **after fulfillment of all condition's precedent** of the Contract Form, the successful Bidder and the Procuring Agency shall sign the Contract.

39. Corrupt & Fraudulent Practices

39.1 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

40. Constitution of Grievance Redressal

40.1 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.

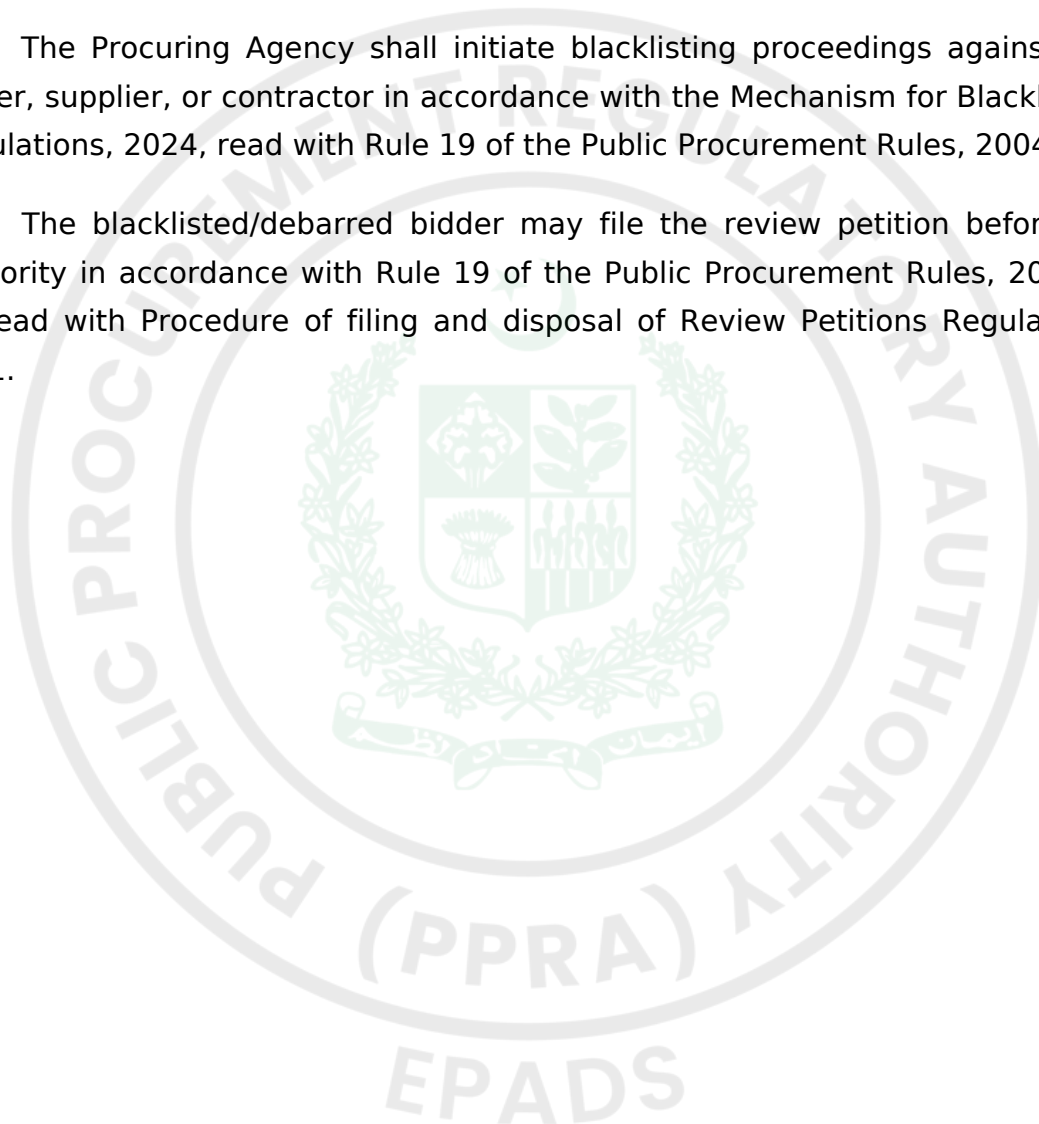
40.2 In case if any party or the bidder is not satisfied with the decision of the GRC or if it fails to decide within ten days, the bidder or the party may file an appeal before the Appellate Committee of the Authority in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

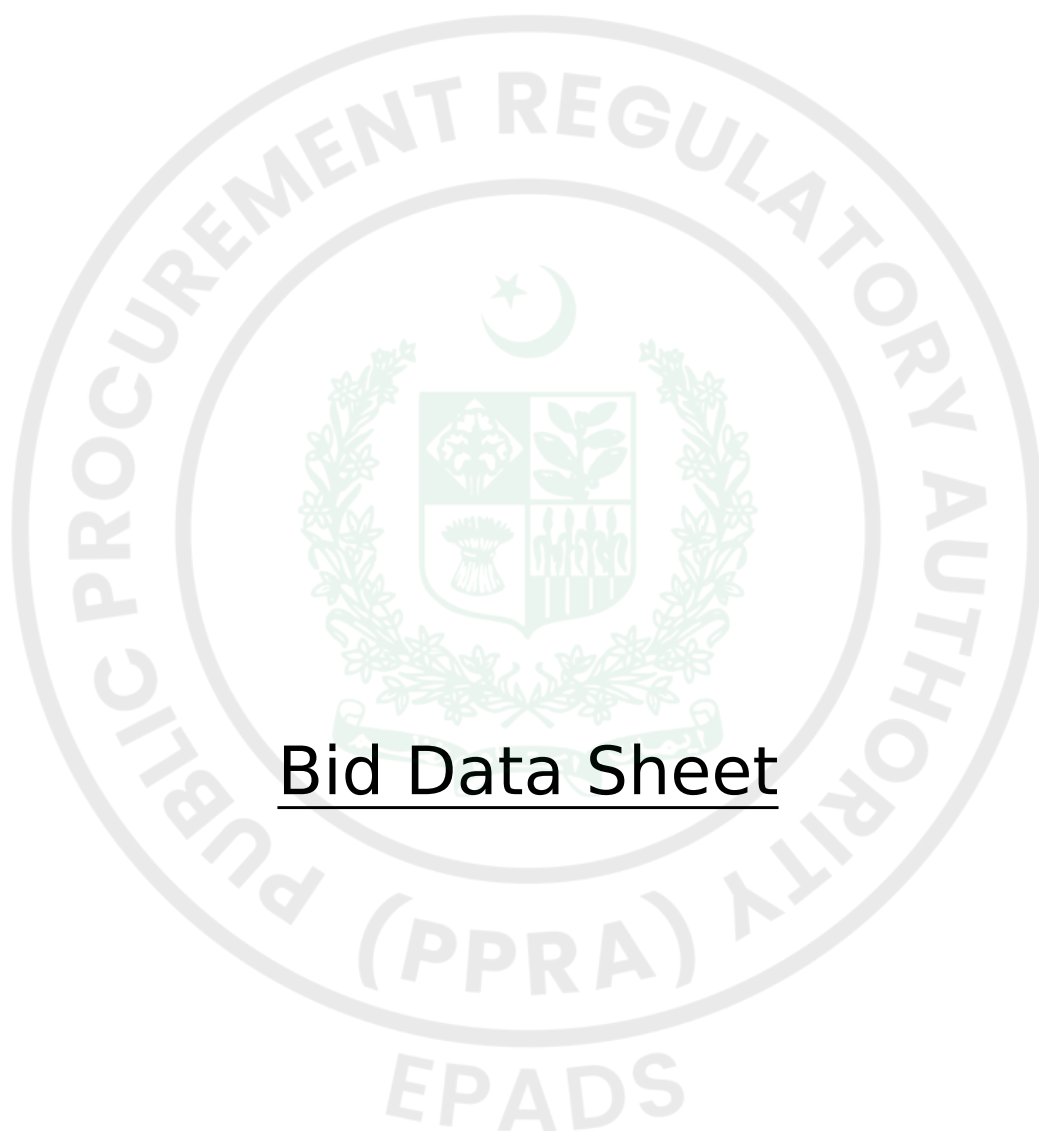
G. Mechanism of Blacklisting

41. Mechanism of Blacklisting

41.1 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.

41.2 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.





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

BDS Clause Number 1

ITB Number 1.1

Name of Procuring Agency: **PMU HESCO (Hyderabad Electric Supply Company (HESCO))**

The subject of procurement is: **PMU-209/26-27 Procurement of Circuit Breakers**

Expected commencement date: **Friday, October 30, 2026**

BDS Clause Number 2

ITB Number 2.1

Financial year for the operations of the Procuring Agency: **2026-27**

Name and identification number of the Contract: **P104806**

BDS Clause Number 3

ITB Clause Number 3.1

JV/Consortium or Association Allowed: **Yes**

Number of JV/Consortium Members: **3**

see section of eligibility criteria.

B. Bidding Documents

BDS Clause Number 4

ITB Number 8.1

The Bidders may seek clarifications through **EPADS v2.0** : Clarification Date:
Thursday, September 10, 2026

C. Preparation of Bids

BDS Clause Number 5

ITB Number 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:

1. Previous supply record (along with GRN/ supply Certificates etc
2. Technical data, drawings Brochures, and deviations if any

BDS Clause Number 6

ITB Number 11.1

Items/Lots and there related documents:

See section items and Lots

BDS Clause Number 7

ITB Number 12.1

Items / Lots Specifications:

see section of items specifications.

BDS Clause Number 8

ITB Number 15.6

The price shall be **Fixed**.

BDS Clause Number 9

ITB Number 16.1

Currency of the Bids shall be : **PKR**

BDS Clause Number 10

ITB Number 17.1

The Bids/Bid Validity period shall be: **120 Days**

BDS Clause Number 11

ITB Number 18.1

The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in **BDS 6**

The Bid Security shall be in the form of: **Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft**

D. Submission of Bids

BDS Clause Number 12

ITB Number 20.1

Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;

PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province). before bid submission deadline.

Bids that are not submitted on EPADS v2.0 shall be disqualified.

The deadline for Bids submission is: **Tuesday, September 22, 2026 10:00 AM**

E. Opening and Evaluation of Bids

BDS Clause Number 13

ITB Number 23.1

The Bids opening shall take place on **EPADS v2.0**.

Day : **Tuesday**

Date: **Tuesday, September 22, 2026**

Time : **10:30 AM**

BDS Clause Number 14

ITB Number 31.1

Selection technique adopted will be: **Least Cost Based Selection (LCBS)**
see Evaluation Criteria

F. Review of Procurement Decisions

BDS Clause Number 15

ITB Number 41.1

Grievence against this procurement shall be submitted online on EPADS v2.0.

Arbitrator shall be appointed by mutual consent of the both parties.



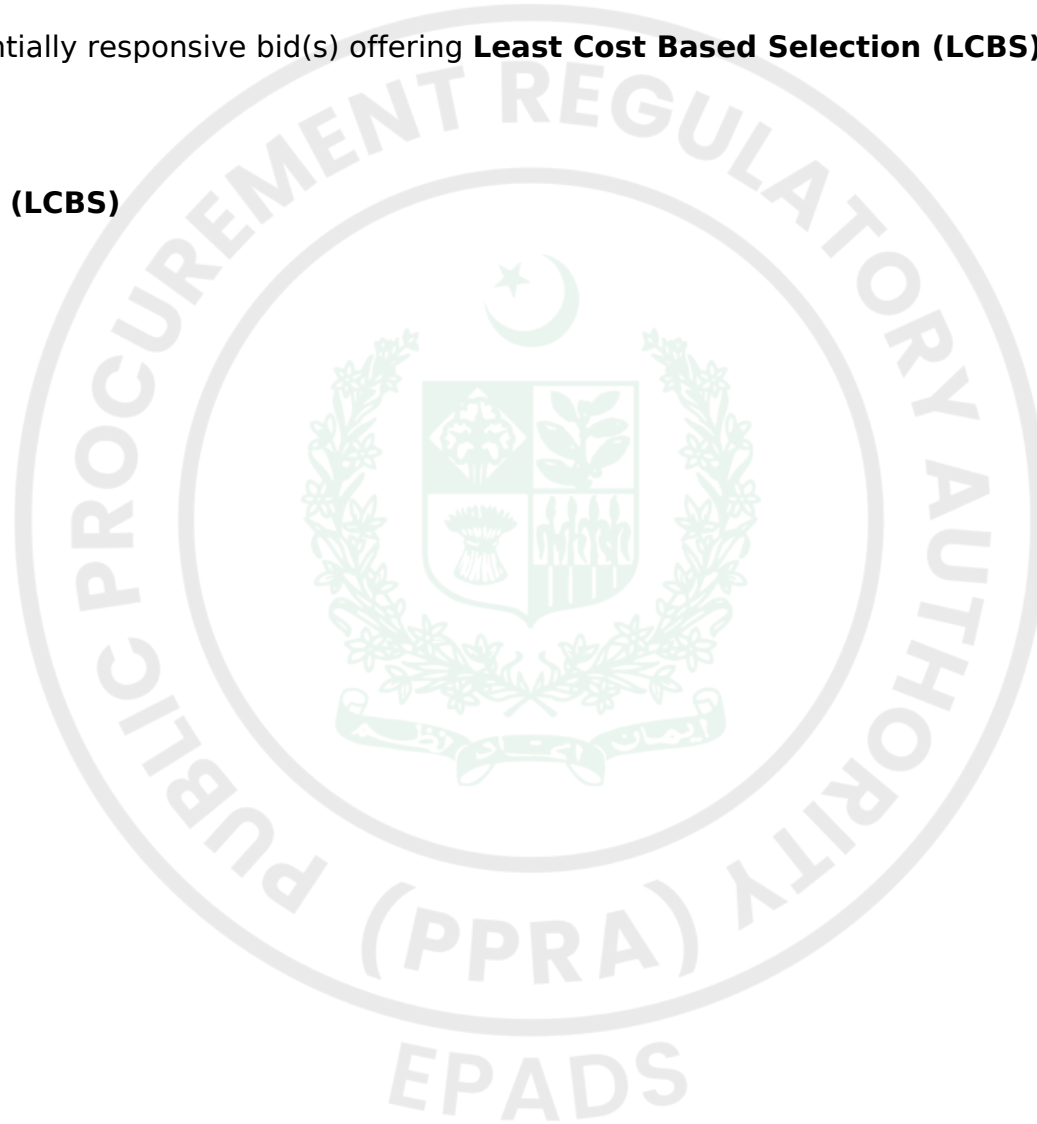
Eligibility Criteria

Bidder's Type	Required Registration
Sole Proprietorship	NADRA CITIZENSHIP (CNIC/NICOP)
Partnership Firm	FBR (NTN)
Company (Private Limited)	FBR (GSTN)
Company (Public Limited)	

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)



Items/Lots

Items Without Lots :

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
145KV SF6 Circuit Breaker	Circuit breakers	Address: PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province). Schedule: 180 Days Quantity: 23/Qty	23/Qty	6500000 PKR	Manufacturer Authorization form	2 Years

Related Services of Goods:

No



Items/Lot Specification

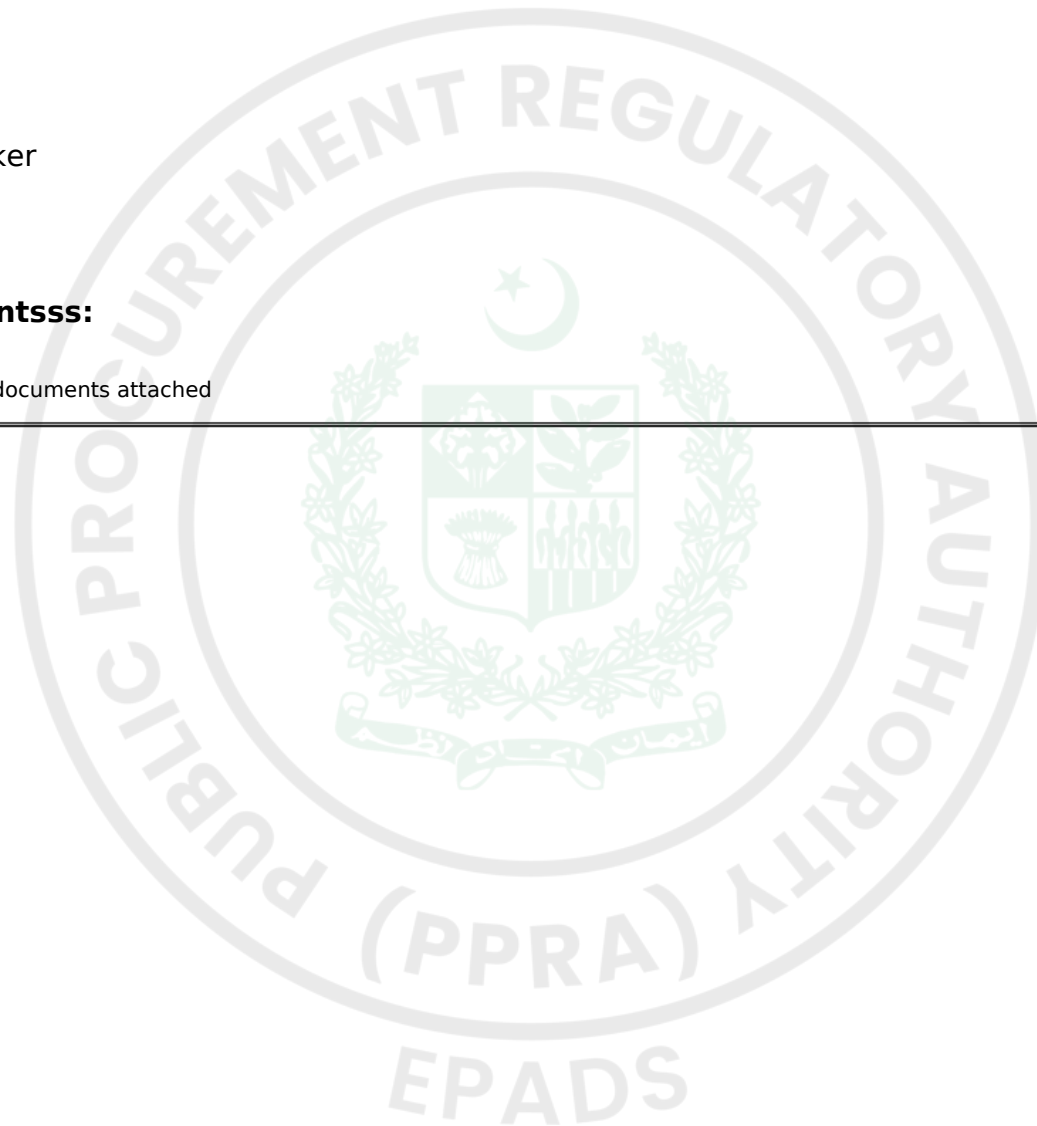
Items Without Lots :

Item: 145KV SF6 Circuit Breaker

UNSPSC: Circuit breakers

Specifications / Requirementss:

As per NTDC SPECIFICATION P-193:2010 documents attached



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

- a. "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;
- b. "Procuring Agency" means:-
 - a. any Ministry, Division, Department or any Office of the Government;
 - b. any authority, corporation, body or organization established by or under a Law or which is owned or controlled by the Government;
- c. "The Contract" means an agreement enforceable by law;
- d. "The Contract Price" means the price payable to the Bidder under the Contract for the full and proper performance of its contractual obligations;
- e. "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;
- f. "GCC" means the General Conditions of Contract contained in this section;
- g. "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented;
- h. "Day" means calendar day unless indicated otherwise.
- i. "Effective Date" means the date on which this Contract comes into force and effect.
- j. "The Bidder" means the individual or corporate body whose Bids to provide the Goods has been accepted by the Procuring Agency;
- k. "The Project Site," where applicable, means the place or places named in Bids Data Sheet and technical Specifications;
- l. "Government" means the Government of Pakistan;
- m. "Subcontractor" means any entity to which the Bidder subcontracts any part of the Goods.
- n. "Service" means any object of procurement other than goods or works;
- o. "Party" means the Procuring Agency or the Bidder, as the case may be, and "Parties" means both of them;
- p. "Foreign Currency" means any currency other than the currency of the country of the Procuring Agency;

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

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

s. "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);

- a. If the Bidder fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;
- b. 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;
- c. If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings;
- d. 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;
- e. 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.

- a. 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.
- b. 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.
- c. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration.
- d. 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:

- a. 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;
- b. 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 15**.

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.

23.4 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 Public Procurement Rules, 2004.

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

Number of GC Clause 1

Definitions

The Procuring Agency is: PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province).

The Supplier is:

The title of the subject procurement is: PMU-209/26-27 Procurement of Circuit Breakers

Number of GC Clause 3

Applicable/Governing Law:

The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan

Number of GC Clause 4

Language:

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**.

Number of GC Clause 5

Notices:

The addresses for the notices are:

Procuring Agency:

PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province).
+92-337-219-2717
amprocpmu@hesco.gov.pk

Contractor/ Bidder:

[Name, address and telephone number].

The Contractor/ Bidder's Representative(s)

[Name, address, telephone number and e-mail address]

Number of GC Clause 7.1

The Authorized Representatives are:

For the Procuring Agency:

PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement
PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District),
Hyderabad (Division), Sindh (Province).
+92-337-219-2717
amprocpmu@hesco.gov.pk

For the Bidder:

Name:

Designation:

Address:

Number of GC Clause 8

Effectiveness of the contract

Number of GC Clause 9

Commencement of Contract:

Number of GC Clause 11.2

Expiration of Contract:

Number of GC Clause 15

Termination

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.

Number of GC Clause 17

Conflict of Interest:

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.

Number of GC Clause 22

Liquidated Damages

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 **0.06%** 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.

Number of GC Clause 23

Performance Guarantee:

The amount of performance guarantee shall be **10.00%** of the contract price in acceptable form of **Bank Guarantee**

Number of GC Clause 32

Payment terms:

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.

Number of GC Clause 33

Currency of Payment:

All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.

Number of GC Clause 34

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 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)

Two authorized representatives of Director General (Procurement) will carry out pre delivery inspection at manufacturer works at supplier expenses including travelling (return air tickets for places of inspection located out of Hyderabad), local transportation, boarding & lodging in any A class accommodation and daily allowance (including travel time), as per Govt. of Pakistan Policy. The said payment will be made to the inspectors before issuance of Inspection Certificate.

Delivery & Documents

Supplier's invoice in triplicate showing Goods' description, quantity, unit price, and total amount

Delivery Challan duly acknowledged and signed by the consignee.

GRN issued by concerned Deputy Manager, Regional Store HESCO MCPL Workshop Jamshoro.

Warranty Certificate as per warranty clause.

Inspection Certificate as per inspection clause

Confirmation letter of acceptance of performance Bond/Security by the Manager (Procurement) PMU HESCO.

Certificate to the effect that the billed amount has not been claimed or received earlier (Non-payment certificate).

Professional Tax paid certificate by the firm (if applicable).

All Federal & Provincial Taxes will be applied as per prevailing laws.

Copy of General Sales Tax/Excise Duty Invoice.

The manufacturer/supplier in its invoices shall also give an undertaking, in case of omission of any deductible amount; HESCO's claim at any later stage (through pre-audit / post audit) shall be acceptable to them.

As per directions of FBR dated. 3.9.2015 conveyed vide C.E (Operation) PEPCO vide letter No. 1918-28 dated. 17.09.2015, the payment to the registered persons may be linked with the active taxpayer status of the suppliers as per FBR database.

Integrity pact (if applicable) on prescribed Performa duly signed and stamp.

Visual inspection certificate issued by inspector at the time of delivery in store.

Visual inspection certificate confirming the quantity, accessories (if any), packaging etc are consistent with relevant contract Clauses issued by Deputy Manager Regional Store at the time of delivery in store.

Sales Tax return cum payment Challan for the month of delivery of material.

Copy of GRN duly stamped and signed by the respective consignees.

Sales Tax Invoice as per GRN above.

Any increase/decrease in the existing tariff of custom duty/Sales tax or any other tax is imposed or charged by the Government of Pakistan/Provincial Government, the same will be adjusted by the Manager Project Financing PMU on production of documentary evidence.

Number of GC Clause 37

Following is the guidance for Dispute Resolution

- i. 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.

ii. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.

iii. 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.

iv. 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.

v. 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.: **P104806**

To: **PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province).**

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 **PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province).**

(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., **PMU-209/26-27 Procurement of Circuit Breakers (P104806)** 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.

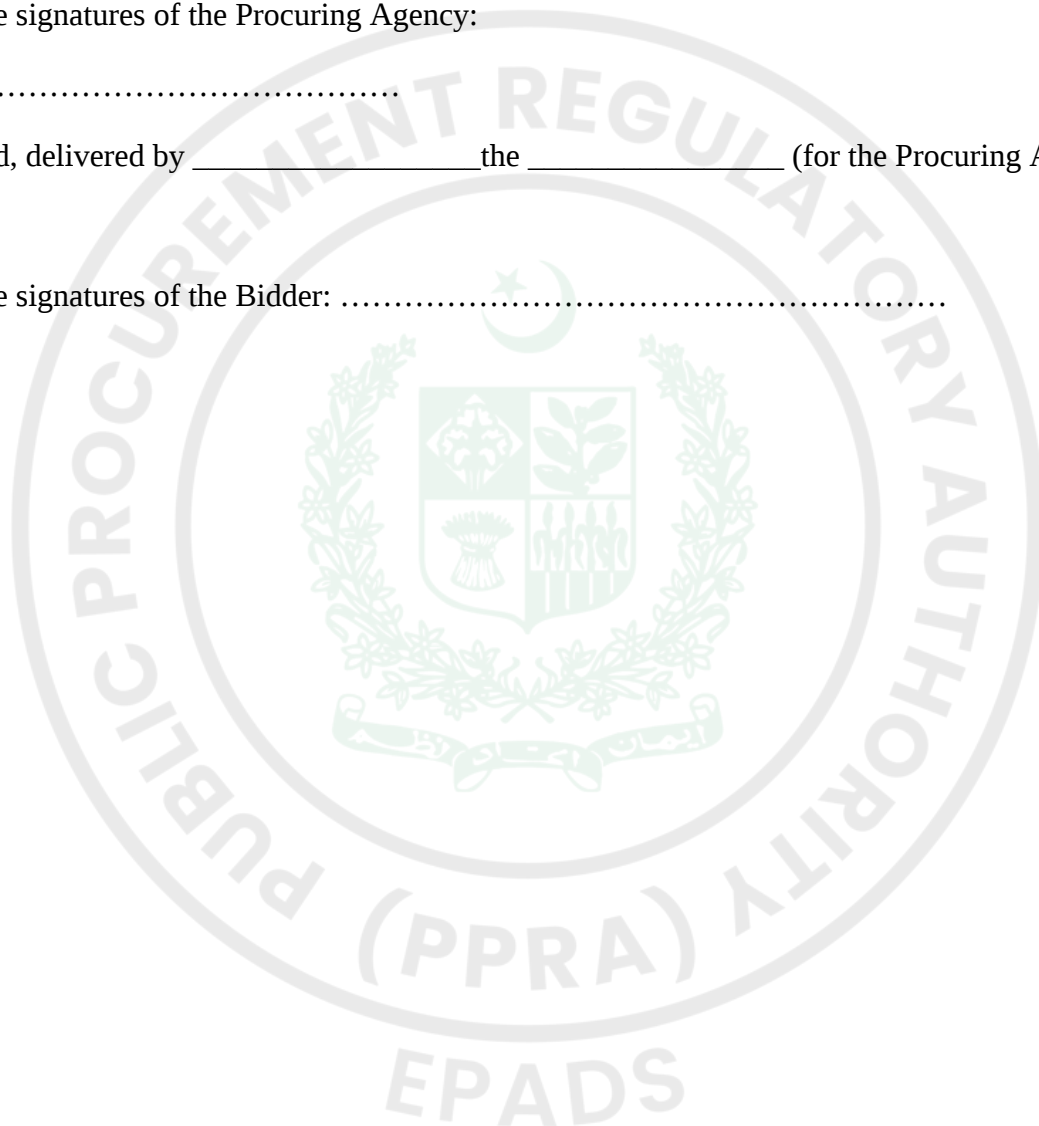
Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

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: **PMU HESCO (Hyderabad Electric Supply Company (HESCO)), Assistant Manager Procurement PMU Office, Banglow No. A-1, Power Wing Colony, Hussainabad., Hyderabad, Hyderabad (District), Hyderabad (Division), Sindh (Province).**

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

Technical Specifications/requirement

Bidder offer the material as per the specification/requirement attached.

Technical Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Technical Specifications/requirement** (page number: 68)

Price Schedule for Tender

The **Grand Total Price** must be same as the Bid Quoted Price

Financial Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Price Schedule for Tender** (page number: 114)

Past Experience and Completed Contracts

Technical Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 115)



Procurement Forms

Past Experience and Completed Contracts

For the qualification of the bidder regarding the past experience and completed contracts detailed document is attached in the Annexures attached at the end.

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 116)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

Bidders are requested to submit details of all litigation, arbitration and other claims whether pending, threatened or resolved in the last five years. The above stated information should be completed as per prescribed format and submitted along with required attachments.

The missing or incomplete information / documents may render the bid substantially non-responsive. In this regard, the Purchaser does not have an obligation to request any document / certificates.

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 117)

Financial Capacity and Net Worth Evaluation Form

Financial Criteria

-The bidder should have sound financial health. In order to determine the same, the bidder shall provide its up to date audited financial statements/ other financial statements acceptable to employer i.e. balance sheet, income statement, and cash flow statements for the last 3 years (three years). The bidder's Net worth for each last 3 years should be positive. In this context the bidder is required to fill in the relevant forms of this bidding document and submit the same with the bid.

-A bidder/or all partners combined in case of JV has to have sufficient financing sources, liquid assets, unencumbered real assets, lines of credit, available to meet the total cash flow demands of the contract. The cash flow availability be at least 25% of the estimated amount.

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 119)

Average Annual Turnover

The bidder shall have an *average annual turnover in the last 3 years equal to or more than that 1.5 times of the estimated price*. The annual turnover of partners in a JV shall be calculated by summing their individual turnovers. In case of JV, all JV partners shall combine meet the said requirement



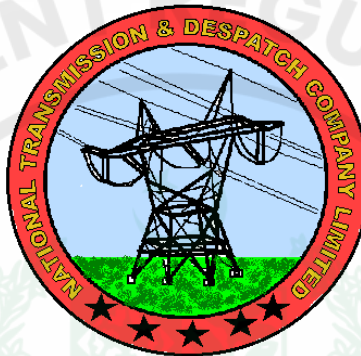




Additional Forms and Documents

NATIONAL TRANSMISSION AND DESPATCH COMPANY

NTDC SPECIFICATION P-193:2010



SF6 CIRCUIT BREAKERS 145kV, 72.5kV AND 36kV

DESIGN DEPARTMENT NTDC

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PRINTING HISTORY

First Edition	1983
Second Edition	1995
Third Edition	2010

NTDC SPECIFICATION P-193:2010

SF6 CIRCUIT BREAKERS 145 kV, 72.5 kV AND 36 kV.

0.0 FOREWORD

- 0.1 This specification has been prepared by Standards & Research Directorate of the Design Department NTDC. This third edition cancels and replaces the editions published in 1983 & 1995 and its amendments.
- 0.2 This specification is intended for the procurement of material but does not include all the necessary provisions of the contract.
- 0.3 This specification is subject to revision as and when required by S&R directorate of Design NTDC only. No other department is authorized to make/issue amendment in the said specification.

1.0 SCOPE

- 1.1 This specification is applicable to alternating current live tank 3-pole SF6 circuit breaker alongwith steel supporting structures, grounding bolts, terminal heads and connector for 600mm² aluminium conductor for outdoor installations and for operation on 3-phase system having voltages of 145 kV, 72.5 kV and 36 kV.

2.0 REFERENCE STANDARDS

- 2.1 The circuit breakers shall generally be designed, constructed and tested in accordance with the International Electro-technical commission publication 62271-100 "High Voltage Alternating Current Circuit Breakers" amended to-date.
- 2.2 The definitions given in the IEC Publication 62271-100 shall apply herein.
- 2.3 In case the requirements laid down herein differ from those given in the IEC Publication in any particular aspect, the requirements listed herein shall prevail.

3.0 DEFINITIONS

For the purpose of this International Standard, the definitions of IEC 62271-100 shall apply. Some of them are recalled here for ease of reference.

3.1 Out-of-Phase Conditions

Abnormal circuit conditions of loss or lack of synchronism between the parts of an electrical system on either side of a circuit-breaker in which, at the instant of operation of the circuit breaker, the phase angle between rotating vectors, representing the generated voltages on either side, exceeds the normal value and may be as much as 180° (phase opposition).

3.2 **Short-Line Fault (SLF)**

Short-circuit on an overhead line at a short, but significant, distance from the terminals of the circuit-breaker.

3.3 **External Insulation**

Distance in air and the surfaces in contact with open air of solid insulation of the equipment, which are subject to dielectric stresses and to the effects of atmospheric and other external conditions such as pollution, humidity, vermin, etc.

3.4 **Internal Insulation**

Internal solid, liquid or gaseous parts of the insulation of equipment which are protected from the effects of atmospheric and other external conditions.

3.5 **Self-Restoring Insulation**

Insulation which completely recovers its insulating properties after a disruptive discharge.

3.6 **Non-Self Restoring Insulation**

Insulation which loses its insulating properties, or does not recover them completely, after a disruptive discharge.

3.7 **Disruptive Discharge**

Phenomenon associated with the failure of insulation under electric stress, in which the discharge completely bridges the insulation under test, reducing the voltage between the electrodes to zero or nearly to zero.

3.8 **Restrike Performance**

Expected probability of restrike during capacitive current interruption as demonstrated by specified type tests.

3.9 **Circuit-Breaker Class E1**

Circuit-breaker designed so as not to require maintenance of the interrupting parts of the main circuit during its expected operating life, and only minimal maintenance of its other parts.

3.10 **Circuit-Breaker Class C2**

Circuit-breaker with very low probability of restrike during capacitive current breaking as demonstrated by specific type tests.

3.11 **Circuit-Breaker Class M2**

Frequently operated circuit-breaker for special service requirements and designed so as to require only limited maintenance as demonstrated by specific type tests (circuit-breaker with extended mechanical endurance, mechanically type tested for 10 000 operations).

3.12 **Circuit-Breaker Class S2**

Circuit breaker intended to be used in a line system or in a cable system with direct connection (without cable) to overhead lines.

3.13 **Terminal Head**

Component provided for the connection of a device to external connectors.

3.14 **Connector**

Component provided for the connection of terminal head to the external conductor.

3.15 **Making (or Breaking) Unit**

Part of a circuit-breaker which in itself acts as a circuit-breaker and which, in series with one or more identical and simultaneously operated making or breaking units, forms the complete circuit-breaker.

3.16 **MODULE**

Assembly which generally comprises making or breaking units, post-insulators and mechanical parts and which is mechanically and electrically connected to other identical assemblies to form a pole of a circuit breaker.

3.17 **Stored Energy Operation**

Operation by means of energy stored in the mechanism itself prior to the switching operation and sufficient to complete the specified operating sequence under predetermined conditions.

3.18 **Making-Current Release**

Release which permits a circuit-breaker to open, without any intentional time delay, during a closing operation, if the making current exceeds a predetermined value, and which is rendered inoperative when the circuit-breaker is in the closed position.

3.19 **Prospective Peak Current**

Peak value of the first major loop of the prospective current during the transient period following initiation.

3.20 **Peak Current**

Peak value of the first major loop of current during the transient period following initiation.

3.21 **(Peak) Making Current**

Peak value of the first major loop of the current in a pole of a circuit-breaker during the transient period following the initiation of current during a making operation.

3.22 **Critical (Breaking) Current**

Value of breaking current, less than rated short-circuit breaking current, at which the arcing time is a maximum and is significantly longer than at the rated short-circuit breaking current. It will be assumed that this is the case if the minimum arcing times in any of the test-duties T10, T30 or T60 is one half-cycle or more longer than the minimum arcing times in the adjacent test-duties.

3.23 **No-Load Line-Charging Breaking Capacity**

Breaking capacity for which the specified conditions of use and behaviour include the opening of an overhead line operating at no-load.

3.24 **No-Load Cable-Charging Breaking Capacity**

Breaking capacity for which the specified conditions of use and behaviour include the opening of an insulated cable operating at no-load.

3.25 **Capacitor Bank Breaking Capacity**

Breaking capacity for which the specified conditions of use and behaviour include the opening of a capacitor bank.

3.26 Capacitor Bank Inrush Making Capacity

Making capacity for which the specified conditions of use and behaviour include the closing onto a capacitor bank.

3.27 Out-of-Phase (making or breaking) Capacity

Making or breaking capacity for which the specified conditions of use and behaviour include the loss or the lack of synchronism between the parts of an electrical system on either side of the circuit-breaker.

3.28 Opening Time

- a) For a circuit-breaker tripped by any form of auxiliary power, the opening time is the interval of time between the instant of energizing the opening release, the circuit-breaker being in the closed position, and the instant when the arcing contacts have separated in all poles;
- b) For a self-tripping circuit-breaker, the opening time is the interval of time between the instant at which, the circuit-breaker being in the closed position, the current in the main circuit reaches the operating value of the over-current release and the instant when the arcing contacts have separated in all poles.

3.29 Arcing Time (of a multi pole switching device)

Interval of time between the instant of the first initiation of an arc and the instant of final arc extinction in all poles.

3.30 Break Time

Interval of time between the beginning of the opening time of a mechanical switching device and the end of the arcing time.

3.31 Closing Time

Interval of time between energizing the closing circuit, the circuit-breaker being in the open position, and the instant when the contacts touch in all poles.

3.32 Make Time

Interval of time between energizing the closing circuit, the circuit-breaker being in the open position, and the instant when the current begins to flow in the first pole.

3.33 **Pre-Arcing Time**

Interval of time between the initiation of current flow in the first pole during a closing operation and the instant when the contacts touch in all poles for three-phase conditions and the instant when the contacts touch in the arcing pole for single-phase conditions.

3.34 **Open-Close Time (during auto-reclosing)**

Interval of time between the instant when the arcing contacts have separated in all poles and the instant when the contacts touch in the first pole during a reclosing cycle.

3.35 **Dead Time (during auto-reclosing)**

Interval of time between final arc extinction in all poles in the opening operation and the first re-establishment of current in any pole in the subsequent closing operation.

3.36 **Re-closing Time**

Interval of time between the beginning of the opening time and the instant when the contacts touch in all poles during a reclosing cycle.

3.37 **Re-Make Time (during reclosing)**

Interval of time between the beginning of the opening time and the first re-establishment of current in any pole in the subsequent closing operation.

3.38 **Close-Open Time**

Interval of time between the instant when the contacts touch in the first pole during a closing operation and the instant when the arcing contacts have separated in all poles during the subsequent opening operation.

3.39 **Make-Break Time**

Interval of time between the initiation of current flow in the first pole during a closing operation and the end of the arcing time during the subsequent opening operation.

3.40 **Pre-Insertion Time**

Interval of time during a closing operation in any one pole between the instant of contact touch in the closing resistor element and the instant of contact touch in the main breaking unit of that pole.

3.41 Minimum Trip Duration

Minimum time the auxiliary power is applied to the opening release to ensure complete opening of the circuit-breaker.

3.42 Minimum Close Duration

Minimum time the auxiliary power is applied to the closing device to ensure complete closing of the circuit-breaker.

3.43 Normal Current

Current which the main circuit of a circuit-breaker is capable of carrying continuously under specified conditions of use and behaviour.

3.44 Peak Factor (of the line transient voltage)

Ratio between the maximum excursion and the initial value of the line transient voltage to earth of a phase of an overhead line after the breaking of a short-line fault current.

3.45 First-Pole-to-Clear Factor (in a three-phase system)

When interrupting any symmetrical three-phase current the first-pole-to-clear factor is the ratio of the power frequency voltage across the interrupting pole before current interruption in the other poles, to the power frequency voltage occurring across the pole or the poles after interruption in all three poles.

3.46 Amplitude Factor

Ratio between the maximum excursion of the transient recovery voltage to the crest value of the power frequency recovery voltage.

3.47 Minimum Functional Pressure for Operation

Pressure, referred to the standard atmospheric air conditions of +20 °C and 101.3 kPa, which may be expressed in relative or absolute terms, at which and above which rated characteristics of a circuit-breaker are maintained and at which a replenishment of the operating device becomes necessary. This pressure is often designated as interlocking pressure.

3.48 Minimum Clearing Time

Sum of the minimum operating time, minimum relay time (0.5 cycle) and the minimum arcing time at current interruption after the minor loop of the first pole to clear, during test duty T-100a, as declared by the manufacturer.

4.0 **SERVICE CONDITIONS**

The circuit breakers and all accessories shall be suitable for satisfactory operation under the following service conditions:-

4.1 **Climatic Conditions**

4.1.1 **Ambient Temperature**

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

4.1.2 **Relative Humidity**

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

4.2 **Altitude**

The circuit breakers shall be suitable for installation upto 1000 m above sea level.

4.3 **Atmospheric Conditions**

It may be assumed that the air is not normally heavily polluted by dust, smoke, aggressive gases, vapours or salt spray. However, at certain times of the year severe dust storms may be experienced.

4.4 **Wind Load**

The maximum wind load shall be taken as 122 kg/sq. m. (corresponding to wind speed of 44.2 m/s).

4.5 **Supply System**

The circuit breakers shall be suitable for installation in 132 kV, 66 kV and 33 kV 3-phase A.C. supply system of the following characteristics:

Rated Voltage	145 kV	72.5 kV	36 kV
Nominal Voltage	132 kV	66 kV	33 kV
Frequency	50 Hz	50 Hz	50 Hz

4.6 Control and Auxiliary Voltage.

The nominal control and auxiliary supply voltages shall have the following values:

D.C. Voltage	110 V or 220 V as applicable
A.C. Voltage	240 V single phase and 415 V three-phase, 50 Hz

5.0 RATINGS AND CHARACTERISTICS

- 5.1 The circuit breakers and their accessories shall be so designed as to comply with the following ratings, characteristics and to meet all test requirements laid down herein with respect to insulation strength, current carrying capacity, making and breaking currents and mechanical & electrical operations etc.

<u>Description</u>				
i.	Nominal Voltage (kV)	132	66	33
ii.	Rated Voltage, U_r (kV)	145	72.5	36
iii.	Class w.r.t. Mechanical Operation	M2	M2	M2
iv.	Class w.r.t. Electrical Endurance	E1	E1	E2
v.	Class w.r.t. Capacitive Current Breaking	C2	C2	C2
vi.	Class w.r.t. Connection to overhead line	S2	S2	S2
vii.	Rated insulation level:			
a.	Lightning impulse Withstand voltage (kV)			
	i) Phase to Phase	650	325	170
	ii) Phase to Earth	650	325	170
b.	One minute power frequency withstand voltage (kV)			
	i) Phase to Phase	275	140	70
	ii) Phase to Earth	275	140	70
viii.	Rated frequency (Hz)	50	50	50
ix.	Rated normal current at 50°C Ambient Temperature (A)	2000	1250	630
x.	Rated short circuit breaking current (kA)	40	25	25
xi.	Rated short circuit making current (kA)	100	63	63
xii.	Rated duration of short-circuit (Sec.)	3	3	3
xiii.	First pole to clear factor	1.5	1.5	1.5
xiv.	Initial transient recovery voltage (kV)	As Per IEC 62271-100		

xv.	Rated transient recovery voltage (TRV) for Terminal faults. (kV)	As Per IEC 62271-100		
xvi.	Rated TRV of the supply circuit for short-line faults(kV)	As Per IEC 62271-100		
xvii.	Rated TRV for out of phase breaking (kV)	As Per IEC 62271-100		
xviii.	Single Capacitor Bank breaking current (A)	As Per IEC 62271-100		
xix.	Rated back to back capacitor bank breaking Current (A)	As Per IEC 62271-100		
xx.	Rated line charging breaking current (A)	As Per IEC 62271-100		
xxi.	Rated out of phase breaking current (kA)	As Per IEC 62271-100		
xxii.	Rated cable charging breaking current (A)	As Per IEC 62271-100		
xxiii.	Rated operating sequence	0-0.3 Sec-CO-3min-CO		
xxiv.	Rated capacitor bank inrush making current (kA)	As Per IEC 62271-100		
xxv.	Rated Short time withstand current (kA)	40	25	25
xxvi.	Rated peak withstand current (kA)	100	63	63
xxvii.	Rated D.C. voltage (V)	110	110	110
xxviii.	Rated D.C. time constant (ms)	45	45	45
xxvix.	Total max. break time for 0 to 100 percent of the rated breaking current (ms)	60	100	100
xxx.	Rated dead time (ms Max.)	300	300	300
xxxi.	Rated opening time (ms Max..)	30	30	30
xxxii.	Max. Radio Interference Level $1.1U_T/\sqrt{3}$ (RIV) (μV)	≤ 2500	-	-
xxxiii.	No. of Mechanical switching operations	10000		
xxxiv.	No. of switching operations at:			
	i) 100% short circuit breaking current	20		
	ii) 60% short circuit breaking current	50		
	iii) 30% short circuit breaking current	200		
	iv) 10% short circuit breaking current	4000		
	v) Max. continuous current carrying capacity	6000		

6.0 **GENERAL PERFORMANCE REQUIREMENTS**

- 6.1 The circuit breakers shall be single pressure sulphur hexafluoride (SF6) three pole outdoor type with self contained power operated spring charged operating mechanism. The performance requirements include high breaking capacity, low switching over-voltages, re-strike free capacitive switching, high operational reliability and low maintenance and suitable to withstand the seismic stress/magnitude according to Richer-scale ≥ 7 (horizontal acceleration up to 5m/s^2 (0.5g) for safety of equipment under heavy earth quake conditions.
- 6.2 The circuit breakers shall suitable for automatic tripping and automatic reclosing and complete with safety interlocks and all necessary accessories to make a complete operating unit. The circuit breakers shall be suitable for single shot, 3-pole rapid auto re-closing. For three pole operation, the poles of the breaker shall be electrically as well as mechanically coupled. The quality of SF6 gas shall conform to relevant IEC standard.
- 6.3 The circuit breakers shall be capable of breaking any current from zero to its rated breaking current at any voltage upto the rated voltage in a predominantly resistive, inductive and capacitive circuit. The total break time at all currents less than the rated current shall not exceed the maximum breaking time. No restrikes at the main contacts shall be permitted under any operating duty.
- 6.4 The circuit breakers shall be capable of switching covered by transients over or under voltage and/or over-currents in the system i.e. switching the no load currents of power transformer, switching of shunt capacitor banks and the charging current of overhead lines/ cables up to values indicated in IEC 62271-100. The switching unit enables synchronisation of the switching in both closing & opening conditions. The switching over voltage to earth, measured at the breaker terminals, shall not exceed 2.5 times the maximum rated voltage to earth. No re-strikes at the main contacts shall be permitted under these conditions.
- 6.5 The circuit breakers shall be capable of breaking the rated out of phase interruption of current upto 25% of the rated short circuit breaking current and rated out of phase making current shall be the crest value of the rated out of phase breaking current. The power frequency recovery voltage shall be $2\sqrt{3}$ times the rated voltage for effectively earth neutral system. The control scheme of pole discrepancy is a part of circuit breaker.
- 6.6 The maximum noise level of the breaker when operated to close or open the three poles simultaneously shall be less than 140 dB at 1 m horizontal distance at the perimeter of circuit breaker with cabinet closed.
- 6.7 The circuit breaker shall be designed and constructed to operate mechanically without replacement of parts due to breakage or excessive wear or adjustments for 10000 operations each consisting of a complete opening and closing of the circuit breaker.

- 6.8 The power carrying circuits shall be capable of carrying its rated current at rated frequency continuously without excessive maintenance. The terminals and the connections between parts shall be designed to ensure permanently low resistance contacts.
- i. The temperature-rise if carried out at 40°C ambient temperature of contacts, connections, terminals and all other material used as an insulation and metal parts of the circuit breaker shall be in accordance with the values given in Table-3 of IEC 62271-1 with a reduction of 10°C(K). For carrying the temperature-rise at other ambient conditions, the normal current may be increased by multiplying the necessary correction factor as per temperature versus current curve of the circuit breaker to ascertain whether the offered current rating comply with the requirements of said specification or not when actually work at 40°C ambient condition.
 - ii. The quality of contacts shall be such that a continuous layer of coating material remains in the contact area after making & breaking test, short time withstand test and mechanical endurance test, otherwise the contacts may be considered “bare” for consideration in temperature-rise test.
 - iii. The maximum temperature of the auxiliary circuits and devices, when the circuit breaker is carrying rated currents and voltages and when tested in accordance with the relevant clauses of IEC 62271-1 shall not exceed the values given in Table-3 of IEC 62271-1 with the exception that the reference ambient temperature shall be taken as 50 deg. C.

7.0 **GENERAL CONSTRUCTIONAL REQUIREMENTS**

- 7.1 The design shall be such that installation, replacement and general maintenance may be undertaken with a minimum of time and all parts are easily assemble and protected from rusting or corrosion.
- 7.2 The pole column shall rest on a common circuit breaker base. The pole columns shall be filled with SF6 for arc quenching and insulating purposes. The arc interrupting mechanism shall be designed with ample mechanical and electrical factors of safety in all of its parts.
- 7.3 It shall be possible to make independent adjustment to each pole of the circuit breaker. In the event of any phase failing to complete a closing operation, provisions shall be made for automatic tripping of the circuit breaker.
- 7.4 Circuit breakers shall be so constructed that the interval between the instants when the contacts of the individual poles touch or separate shall not exceed 10 ms during a closing or opening operation.

- 7.5 To facilitate transport, lifting lugs, jacking pads or other handling devices, capable of supporting each unit when fully erected and ready for service, shall be provided.
- 7.6 Each circuit breaker shall be equipped with two earthing terminals capable of accommodating bare stranded copper earthing conductors of 95 sq.mm cross-section. The earthing terminals shall be capable of carrying the rated short time current of the breaker and shall be distinctly marked.
- 7.7 Provision shall be made in the design of breakers to ensure that the proper operation of circuit breakers and accessories is not impaired by vermin, insects, small animals and birds etc.
- 7.8 All exposed surfaces of frames, tanks, operating mechanism etc., which would normally be painted when in service, shall be given one rust-protective coat of paint and at least one coat of a synthetic resin having excellent weather resistant properties. The total paint thickness shall not be less than 0.08mm (80 microns). All exposed parts of circuit breakers shall be weather-proof.
- 7.9 No leakage for gas shall occur under specified conditions of operation and there shall be no entrance of moisture or other gases. The maximum annual leakage of SF₆ gas shall be 0.5% of the total volume of SF₆ in a pole of circuit breaker. The quantity of SF₆ gas shall comply with the acceptance level of relevant IEC standard.
- 7.10 All moving parts shall be suitably covered and expulsion vents shall be oriented to prevent any hazards to personnel or adjacent equipment.
- 7.11 No current transformers shall be built into the circuit breakers.
- 7.12 **External Insulation / Insulators**
- 7.12.1 External insulation shall be provided by means of glazed, non-hygroscopic porcelain insulators and shall conform to relevant IEC Standard. All porcelain insulators shall be wet process, homogeneous and free from cavities and other defects.
- 7.12.2 Circuit breaker porcelain unit & support column, shall be designed to withstand internal pressure of three times the maximum operating pressure and shall have the same Insulation Level as the breaker. These shall be airtight under pressure and shall have adequate mechanical strength to withstand the wind loads, seismic stress, static and dynamic forces from conductor.

- 7.12.3 Circuit breaker porcelain insulators shall have following minimum creepage distance from live to earthed parts for operation under the prevailing atmospheric conditions:

<u>Circuit Breaker Rated Voltage (kV)</u>	<u>Minimum Creepage Distance (mm)</u>
145	3900
72.5	1960
36	970

- 7.12.4 The colour of insulators shall be chocolate brown and tested in accordance with IEC-60273. Manufacturer's type & routine Test reports shall be submitted at the time of pre-delivery inspection.

8.0 LOCAL & REMOTE CONTROLS AND INDICATIONS

- 8.1 Circuit breakers shall be suitable for operation by electrical means either from the local operating cubicle or remotely from the control room. The operation selector switch (Remote-Neutral-Local) shall be a key operated switch provided in each operating cubicle for operation of the circuit breaker. Provision shall also be made to lock the cubical doors with padlocks.

- 8.2 A multiple, hand operated lockable change-over switch labelled 'Remote' and 'Local' shall be provided in each operating cubicle for establishing the point of control.

- 8.3 A reliable, easily readable, mechanically operated indicator shall be provided on each circuit breaker to show the position of the circuit breaker. The marking of indicator plates shall be "ON" and "OFF".

9.0 ELECTRICAL CONTROL FEATURES

9.1 Functional Requirements

The circuit breaker control scheme shall comply with the following essential control requirements.

- 9.1.1 The circuit breaker shall be mechanically and electrically trip-free.
- 9.1.2 The circuit breaker mechanism shall make one complete closing operation including automatic cut off of the closing power after an initiating control device has operated and the first device in the control scheme has responded, even though the contacts of the initiating control device are opened before the circuit breaker closing operation is completed.
- 9.1.3 The circuit breaker shall incorporate anti-pumping feature. Anti pumping relay shall be integral part of the circuit breaker to ensure that the circuit breaker shall

- not repeatedly opened & closed in the event of simultaneous ON & OFF commands and also to avoid continuously energizing of circuit breaker closing coil, once the circuit breaker has already closed. Only one closing operation of the circuit breaker mechanism shall result from each closing operation of a manually operated initiating control device, even though the circuit breaker trips while the initiating control device is being held in the closed position. The control scheme needs not provide against re-closure in the event that control power is removed by casual and entirely random occurrences, such as the opening of a control circuit to check for grounds, while the initiating control device remains closed.
- 9.1.4 When power is removed from the closing control circuit after or during an incomplete closing operation, all electrically operated devices in the control circuit shall reset to the normal circuit breaker open position, except for those devices which require a supply of control power in order to assume their normal circuit breaker open position.
 - 9.1.5 When the circuit breaker is in the closed position, a closing operation of an initiating control device shall not result in an operation of the circuit breaker closing mechanism.
 - 9.1.6 When a closing operation of a circuit breaker cannot be completed successfully because of the absence of an adequate supply of stored energy, all actuating devices in the control circuit shall remain in the normal circuit breaker open position when the initiating control device is operated.
 - 9.1.7 Electrical tripping facilities for the operating mechanism of each pole of circuit breaker shall be duplicated. These shall include atleast the following:-
 - i. Two electrically independent and identical trip coils for each pole of the circuit breaker shall be provided and so arranged that failure of one trip coil shall not affect the operation of second trip coil. Both the coils shall be physically separated and magnetically complied. In the event of three pole operation, control system shall include circuitry to trip the circuit breaker by energizing both sets of trip coils if pole – disagreement occurs.
 - ii. Two electrically independent and identical sets of wiring, terminals and protecting equipment shall be provided for connection to independent control of closing and tripping circuits.
 - 9.1.8 Low and high SF6 gas pressure interlocking devices shall be fitted. Temperature compensated SF6 Gas density monitor shall be provided with two level alarms. First stage alarm shall be actuated when SF6 gas pressure drops below the normal operating pressure as specified by the manufacturer and second stage alarm shall cause opening/closing lockout in the event of gas pressure falling below the minimum value prescribed for the successful interruption of the current. It shall also give annunciation on control panel.
 - 9.1.9 Provision shall be made by placing all the shut valves in the control mechanism to measure the SF6 gas pressure of each pole by closing the valves of other two poles in the operating mechanism.

- 9.1.10 Interlocking features both electrical & mechanical and related equipment alongwith their signalling and annunciation as required for reasons of safety and convenience of operation shall be provided. Electrical interlocking shall also be provided in the control & protection circuits of individual pole and the complete circuit breaker. Interlocking design shall also prevent closing operation when the circuit breaker is already in closed position and closing operation during an opening operation.

9.2 Auxiliary Circuits

The auxiliaries provided as part of each circuit breaker assembly, shall be as described herein.

- 9.2.1 Extra auxiliary switches, four normally open and four normally closed, in addition to those normally provided as part of the circuit breaker operation and indication functions, shall be provided.
- 9.2.3 All auxiliary equipment including wiring shall be adequately protected against rain and humidity. A thermostatically controlled anti condensation heaters/heating resistors shall be provided in each control cubical and shall be protected through a two-pole miniature circuit breaker to protect sensitive components from condensed water during rapid temperature changes.
- 9.2.4 When individual compressor motors are used, a two-pole miniature circuit breaker shall be connected in the supply to the compressor motor.
- 9.2.5 The auxiliary switch and circuits shall be able to carry 10A current continuously and rated short time withstand current of 100A for 50m sec.

10.0 OPERATING MECHANISM

The operating mechanism unit contains all components required for operation, monitoring and control of circuit breaker. The operating mechanism shall be motor operated spring charged and meet the following requirements.

- 10.1 The mechanism shall be designed such that the failure of spring will not prevent tripping and will not cause tripping or closing.
- 10.2 The circuit breaker operating mechanism and all accessories shall operate satisfactorily at 50°C ambient temperature within the following range of voltages:

Rated Voltage	Control Voltage	Operating Mechanism Voltage	Tripping Voltage
110 V DC	90 – 130	90 – 130	77 - 130
220 V DC	180 – 260	180 – 260	154 – 260
240 V AC		200 – 260	
415 V AC		345 – 450	

- 10.3 The closing mechanism shall not prevent or delay the opening of the circuit breaker beyond the standard interrupting time and the energy shall be removed automatically from the closing mechanism when the closing operation is completed.
- 10.4 A conveniently located purely mechanical manual tripping device shall be provided. Latches shall be so designed as not to require delicate or frequent adjustments.
- 10.5 The mechanism shall be designed and constructed to operate mechanically without replacement of parts due to breakage or excessive wear or adjustments for 10000 operations each consisting of a complete opening and closing of the circuit breaker. The mechanically operation counter without resetting facility provided inside the cubicle shall be visible and readable from outside and shall count one full count on the closing cycle of circuit breaker.
- 10.6 The closing mechanism shall be recharged automatically for further operation as soon as the circuit breaker has completed a closing operation. If the closing mechanism is not fully recharged within a pre-determined time, the mechanism shall be locked out and an alarm initiated.
- 10.7 Each part of the mechanism shall be of substantial construction, utilizing such materials as stainless steel, brass or gunmetal, where necessary, to prevent sticking due to rust or corrosion. The overall design shall be such as to reduce mechanical shock to a minimum and shall prevent inadvertent operation due to fault current stresses, vibrations or other causes. A convenient means for applying lubricant shall be provided where required.
- 10.8 All permanently fixed bolts, nuts and studs shall be securely locked in place to prevent loosening during operation. Blind tapped holes shall be avoided where practicable.
- 10.9 The auxiliary switch shall be mechanically coupled with circuit breaker mechanical operating arrangement.
- 10.10 The energy required for switching the circuit breaker shall be stored in closing spring common to all three poles and opening spring. In closed position of the circuit breaker, the energy stored in motor compressed spring shall be sufficient for an Open-Close-Open operation at rated short circuit current.
- 10.11 The charging motor shall be 110V DC motor. No diode/bridge circuit is allowed for converting AC to DC. The motor shall not require more than 15 seconds to re-charge the closing springs after a close-open operation. If the closing mechanism is not fully recharged, the mechanism shall be locked out and an alarm initiated.

- 10.12 Means shall be provided to prevent operation of the mechanism when maintenance work is being done.
- 10.13 The mechanism shall be so designed that emergency manual spring charging shall be made by using hand crank and release of the springs is possible without electrical operation.
- 10.14 Operating mechanism shall be provided with the indicator to show the charged/discharged state of spring.

11.0 OUTDOOR CONTROL CUBICLE

- 11.1 Circuit breaker operating mechanism, auxiliary switches and associated relays, control switches, control cable terminations and other ancillary equipment shall be accommodated in vermin-proof, dust-proof and weather proof cubicles. The cubicles shall be preferably free standing with front and rear access. The degree of protection shall be IP55 in accordance with IEC-62271-1.
- 11.2 Cubicles shall be made of galvanized steel sheet of 2.0 mm minimum thickness or corrosion free painted aluminium alloy sheet of 3.0 mm minimum thickness and shall be of rigid construction and shall include any supporting steel work necessary for mounting on the circuit breaker or on concrete foundations. Access to all compartments shall be provided by either removable panels or doors with lift off hinges. Bolts or carriage keys shall not be used to secure the panels or doors. All fastenings shall be integral with the panel or door and provision shall be made for pad locking.
- 11.3 Cubicles shall be well ventilated through vermin-proof louvers comprising a brass/aluminium gauze screen attached to a frame and secured to the inside of the cubicle. Divisions between compartments within the cubicle shall be perforated to assist air circulation.
- 11.4 Arrangement of equipment within the cubicle shall be such that access for maintenance or removal of any item shall be possible with the minimum disturbance. Suitable door gaskets made of neoprene rubber shall be provided to prevent ingress of moisture etc.
- 11.5 Circuit breaker cubicles shall be provided with a 240 V, 5A single phase three pin socket outlet protected by MCB shall be mounted within the cubicle. Means for interior lighting shall be provided within each cubicle assembly. Lamps shall be 240 V.A.C. and shall be automatically switched on when the door is opened.
- 11.6 An approved schematic diagram, of installations, identifying the various components within the cubicle and on the circuit breaker instructions shall be affixed to the inside of the cubicle access door. The diagram shall be marked on durable non-fading material suitable for the specified climatic conditions.

11.7 All incoming auxiliary supply cables shall be terminated directly into switch fuse isolators without intermediate terminals and provision shall be made for looping these supplies into similar cubicles in the switchyard. The entrance of cables in the cubicles shall be accomplished having brass glands with neoprene gaskets.

11.8 In case, the cubicles are mounted separately on concrete foundations, the same shall be equipped with one earthing terminal for earth conductor of 95 sq. mm.

11.9 **Wiring**

11.9.1 The wiring shall be such that individual components of the applicable control circuits of closing power devices, closing control devices and tripping devices shall be electrically grouped and terminated in physically separate groups.

11.9.2 The terminals of the control circuit components as stated above and the heater circuits and the individual compressor or spring charge motor circuits shall be readily accessible, closely grouped, and conveniently arranged for making connections between control circuits grouped and for external wiring.

11.9.3 Wiring between devices and terminal blocks shall be carried in troughs or in neatly formed packs which shall be tied or otherwise secured at appropriate intervals to prevent undue stress on equipment or connections. Connections across portions which are hinged or otherwise movable shall be made with flexible wire, formed to distribute the bending motion. No connections shall be made with wire smaller than 2.5mm². The cable used in wiring shall conform to relevant IEC standard.

11.9.4 Both ends of each wire shall be identified by a closed ring type ferrule of plastic label having weather resistant properties securely attached to the wire with no possibility of detachment under normal handling. The ferrules for closing circuits shall be of a colour preferably green and marked “close”. The ferrules on all wiring directly connected to circuit breaker trip coils, tripping switches etc. shall be of a colour, preferably red, different from that of the remainder and marked “Trip”.

Alternatively both ends of each wire shall be identified by machine lettered permanent fiber printed at least 50mm from the end of wire. Ground wire has no number and identified by cable colour. Following colour identification shall be applied:

<u>3 PHASE AC</u>	<u>1 PHASE AC</u>	<u>DC</u>	<u>COLOUR</u>
Phase 1	Phase	Positive	Red
Phase 2	-	-	Yellow
Phase 3	-	-	Blue
Neutral	Neutral	Negative	Black
Ground	-	-	Green

- 11.9.5 No. wires shall be tied or jointed between terminal points. Electrical wiring and instruments shall be so located that leakage of oil or water cannot affect them. Bus wiring between control panels etc. shall be fully insulated and completely segregated from the main panel wiring. Stacking of more than two wires on a terminal will not be permitted.
- 11.9.6 All metallic cases of instruments, control switches, relays etc. mounted on control panels or in cubicles, shall be provided with an accessible copper tail to facilitate connection by means of bare copper conductors of not less than 2.5mm^2 section to the nearest earth bar.
- 11.9.7 All the auxiliary relays, gauges and terminals blocks shall conform to relevant IEC/International standards and shall be so located as to permit easy access and ample room for repair/replacement of the components and every component shall have its location No. properly labelled as per schematic diagram.
- 11.10 **Terminal Blocks.**
- 11.10.1 Terminal blocks shall be mounted at an easily accessible position and shall be equipped with barriers, terminal strips and colour coded strips. The AC, DC, and current and potential transformer circuits shall be physically segregated in groups. The AC 415/240 volt circuit terminals will be fitted with non inflammable transparent plastic covers to prevent accidental contact with live parts.
- 11.10.2 Each incoming and outgoing cable shall be connected to an individual terminal. Each terminal block shall have an individual marking strip which shall be machine lettered or engraved with the circuit designations of the terminals which shall also be shown on the wiring diagram. One spare marking strip shall be provided for each terminal block. Approximately 10 percent extra terminals shall be provided on each block for terminating spare conductors and for future changes. In case of hinged panels matching terminal blocks shall be provided on both sides of the hinged section.

12.0 **ELECTROMAGNETIC COMPATIBILITY (EMC)**

The control & auxiliary circuit including components used in control cubical mounted on or adjacent to circuit breaker shall be able to withstand electromagnetic disturbances without damage and malfunctioning both under normal operation, switching conditions and interruption under fault conditions.

13.0 **CIRCUIT BREAKER SUPPORTING STRUCTURE**

- 13.1 Each circuit breaker shall be supplied alongwith two leg steel supporting structures by the circuit breaker manufacturer, its foundations/grouting bolts etc. on which the type tests of circuit breaker were performed. Supply of steel supporting structure from other sources/local representative will not be accepted.

All structural material shall be hot dip galvanized. Drawings and data such as dynamic forces, static forces, impact loading and terminal load of circuit breaker shall be provided. The foundation drawings shall be designed using the soil bearing capacity of 1 kg/cm² and suitable to withstand the seismic stress/magnitude according to Richer-scale ≥ 7 (horizontal acceleration up to 5m/s² (0.5g) for safety of equipment under heavy earth quake conditions unless otherwise specified in the tender. Design calculations and guidelines shall also be supplied.

- 13.2 The dimensions indicated in drawing No.PDW/TS-3217 are minimum values and for guidance only. The manufacturer shall submit their own drawings without affecting the interchangeability requirement of the foundation bolts as indicated in detail B of the drawing. The circuit breaker manufacturer may design the steel supporting structure according to their requirements and fulfilling the wind load, wind speed and other forces involved at the time of opening/closing of the circuit breaker under fault condition. The change in dimensions of foundation arrangement is not allowed.

- 13.3 The steels shall conform to the requirements as to tensile properties prescribed below:

	<u>Mild Steel</u>	<u>High Tensile Steel</u>
Tensile strength kg/mm ²		
Minimum	40	50
Maximum	56	80
Yield points kg/mm ²		
Minimum	26	35
Elongation in 200mm guage		
Length percent, minimum		
Upto 8mm Thickness	16	15
Over 8mm Thickness	20	18

- 13.4 All bolts and nuts shall be hexagonal type made from mild steel. The bolts shall be provided with one flat washer under each nut.
- 13.5 All grouting bolts for fixing the structures to the foundation shall be from High Tensile Steel. Washers shall not be less than 5 mm thickness and only one thickness of washer shall be used. The diameter of the washer and bolt holes shall be 1.5mm larger than the bolt diameter and the outside diameter of washer shall not be less than 1.5mm larger than the diagonal of the nut.
- 13.6 All connection bolts nuts, lock nuts and washers shall be furnished in excess of actual number required in quantity at least 5% greater than actual requirements sufficient to compensate for normal field losses.

- 13.7 All main legs/ structural material shall be coupled with foundation arrangement & top plate with nuts & bolts only. No connection with welding at the base and top is allowed.
- 13.8 All members with its identification marks shall be coupled with main structural members/legs through nuts & bolts only. Welding of members with legs is not allowed.
- 13.9 Prior to galvanizing, material shall be drilled, punched, cut or otherwise fabricated as required, free from burrs, cleaned so that zinc coating shall be adherent, dense, smooth, continuous and uniform. It shall also be completely free from lumps, blisters, uncoated or porous spots, black spots, dross, flux or any other imperfection.
- 13.10 The weight of zinc coating and thickness of zinc coating on angles shall not be less than 600gm/mm^2 and 0.010 mm respectively.
- 13.11 The weight of zinc coating and thickness of zinc coating on nuts & bolts shall not be less than 380gm/mm^2 and 0.035 mm respectively. The brinell hardness of bolts & nuts shall be between 120 to 200 HB. The ultimate strength and other properties of the nuts & bolts not listed above shall conform to relevant International standard viz British/ASTM/IEC etc.

13.12 Acceptance Tests:

The following acceptance tests shall be carried out on one complete structure out of lot offered for inspection.

For Section and Plates

1. Visual examination
2. Verification of dimensions and weights
3. Assembly tests
4. Tensile tests
5. Bend Tests
6. Impact tests
7. Galvanizing tests
 - Weight of zinc coating
 - Uniformity of zinc coating
 - Adherence of zinc coating
 - Embitterment test

For Nuts and Bolts

1. Verification of dimensions
2. Visual inspection
3. Proof load test
4. Ultimate tensile strength test
5. Hardness test

6. Galvanizing tests
 - Weight of zinc coating
 - Uniformity of zinc coating
 - Adherence of zinc coating
 - Embitterment test

Test reports shall be furnished by the manufacturer as per relevant international standard and conforming to above requirements.

14.0 **TERMINAL HEAD AND TERMINAL CONNECTOR**

- 14.1 Provision for four Nos., suitable size, two way terminal head shall be provided so that the breaker can be connected in any configuration to other allied equipment viz: disconnectors, current transformers etc.

- 14.2 Mono-metallic or Bimetallic terminal connector as per requirement of terminal head alongwith stainless steel nuts and bolts suitable for connection between terminal heads and 600mm² Aluminium conductor shall be provided with each pole of the circuit breaker. The connectors shall be bolted type having nuts & washers. The connectors with single bolt technology are not acceptable.

- 14.3 The material and composition of the Aluminium alloy used on monometallic connectors and the Aluminium portion of the bimetallic connectors shall be properly heat treated. Keepers and components which are subjected to high forces during services, will be obtained by gravity die casting with following characteristics:

Ultimate tensile strength, min	=	24 kg/ mm ²
Yield strength, 0.2% off set, min	=	15.5 kg/mm ²
Elongation, min	=	3% on 50 mm scale
Electrical conductivity, min	=	38% IACS
Brinell hardness, min	=	100 HB

- 14.4 The copper alloy shall be from the Copper/Nickel base family of alloys with a minimum of 96.4% of copper in order to guarantee high conductivity properties as well as high strengths characteristics. Copper alloy shall be heat treated. Bronze or Brass alloys are not acceptable.

The copper alloy shall have the following characteristics:

Ultimate tensile strength R _m , min	=	20 kg/ mm ² , (196.2) N/mm ² , (196.2) MPa
Yield strength R _e 0.2% ,min	=	10 kg/mm ² , (98.1) N/mm ² , (98.1) MPa
Elongation (min)	=	18% on 50 mm scale
Electrical conductivity at 20 ⁰ C	=	32% IACS (min)

14.5 The bolts, nuts and washers shall be of stainless steel having following properties:

Breaking strength, min	=	65 kg/ mm ²
Yield strength, min	=	40 kg/mm ²
Brinell hardness, min	=	140 HB

14.6 **Type Tests**

The type test reports for the following tests from on connector bodies, keepers shall be furnished by the connector manufacturer as per relevant international standard and conforming to above requirements.

- a. Material composition test
- b. Tensile strength test
- c. Elongation test
- d. Brinell hardness test
- e. Heat cycle test
- f. Conductivity test
- g. Radio interference voltage and corona tests
- h. Short circuit test

15.0 **NAME PLATE DATA**

15.1 A stainless steel name plate shall be placed on the operating mechanism cubicle and shall include at least the following with engraved text in accordance with valid IEC 62271-100 which shall be visible in position of nominal service and installation.

- a. Contract No./P.O. & date
- b. Manufacturer's name.
- c. Manufacturer's type designation and serial number.
- d. Year of manufacture
- e. Standard to which manufactured
- f. Rated voltage, U_r (kV)
- g. Rated frequency, (Hz)
- h. Rated normal current, (A)
- i. Rated operating Sequence.
- j. Rated lightning impulse withstand voltage, (kV)
- k. Rated symmetrical breaking capacity, (kA)
- l. Rated short time current (1 sec.) (kA)
- m. Making capacity, (kA)
- n. Rated out of phase breaking current, (kA)
- o. Rated line charging breaking current, (kA)
- p. Rated cable charging breaking current, (kA)
- q. First pole to clear factor
- r. Total break time at rated breaking current in ms. (cycles).
- s. Reclosing time, (msec).
- t. Maximum RIV level at 500 KHz, 110% of rated voltage, (μ V)

- u. Rated supply voltage of auxiliary circuit, (V)
- v. Rated supply voltage of closing & opening devices and ranges of operating voltages.
- w. Type of operating mechanism
- x. Weight per pole, (kg)
- y. No. of trip coils per pole
- z. Volume and weight of SF6 gas per pole, (litre/kg)
- za. Rated pressure of SF6 gas at 20°C (bars)
- zb. Mass per pole with SF6 gas, (kg)
- zc. Total mass of complete circuit breaker, (kg)

16.0 SPARE PARTS

- 16.1 The following mandatory spare parts shall be supplied free of charge for each group of five sets of circuit breakers of same characteristics and ratings:-

Sr. No.	Description	Quantity
1.	Single Pole circuit breaker complete with support insulator but excluding operating mechanism, base frame steel supporting structure	1 No.
2.	Closing coils	1 No.
3.	Trip coils	1 Nos.
4.	SF6 gas in standard container of 40kg.	1 container
5.	Complete set of control and shut off valves alongwith seals.	1 Set
6.	Gas density monitors	1Nos.
7.	SF6 Gas filling kit containing control valve for connection to gas container and 20m gas filled hose with connector	1 Set
8.	Handles for Manual Charging of closing springs	5 Nos.

- 16.2 The bids offering circuit breakers without above spare parts will be loaded @ five percent of the bid price for comparison purpose.

17.0 SPECIAL TOOLS

- 17.1 A set of standard tools required for the purpose of maintenance and over-hauling of circuit breakers shall be supplied free of charge for each lot of five circuit breakers. The list of standard tools shall be furnished with the bid and also at the time of approval of drawings.
- 17.2 The bids offering circuit breakers without above tools will be loaded @ one percent of the bid price for comparison purpose.

18.0 **TESTS**

18.1 All type and routine tests shall be performed in accordance with the IEC Publication 62271-100 amended to date.

18.2 **Type Tests**

18.2.1 Identification of Circuit Breakers for Type Test

The type test reports shall incorporate design information and details sufficient to identify the design of the tested circuit breaker with that of other circuit breakers proposed to be of the same design and construction. Such information shall include, but is not restricted to the following:

- i) Drawing of circuit breaker general assembly.
- ii) Details of arc control devices, contacts and operating and coupling mechanism of the breaker.
- iii) The outline and other important dimensions such as the travel of moving contacts etc.
- iv) The details of mountings, fixings and insulators.
- v) The working details of operating mechanisms such as operating voltage and pole pieces for operating coils, etc.
- vi) The resistance of main circuit measured before and after the type tests

18.2.2 The following type tests in accordance with IEC 62271-100 shall be made on a complete three pole circuit breaker having same current & voltage ratings to be supplied in presence of two representatives one from Design, NTDC and other from purchaser at an STL approved Lab at the cost and arrangement of the manufacturer including travel expenses, boarding, lodging and daily allowance for the representatives to prove compliance with the requirements as listed in this specification after every ten years. However, duly certified and complete type test reports for tests carried out by an independent lab like KEMA Lab Holland, CESI Lab Italy on the complete three pole circuit breaker having same design, current & voltage ratings shall be acceptable in lieu of actual tests provided the dates of testing shall not be more the 10 years from the date of opening of the bid. The test report having higher current carrying capacity shall be acceptable only if the bidder shall undertake to supply the exactly the same higher current rating breaker in lieu of the lower current rating breaker as ordered, otherwise the bidder shall have to perform all the type tests on the offered current rating circuit breakers. Test carried out at manufacturer's own/approved lab will not be accepted if not witnessed by the NTDC representative.

- 1- Dielectric tests.
- 2- Radio Interference Voltage Test.
- 3- Measurement of the resistance of the main circuit.
- 4- Measurement of Temperature and Temperature-Rise.
- 5- Temperature rise test of control and auxiliary circuit.
- 6- Short-time withstand current and peak withstand current tests.
- 7- Verification of IP coding test.
- 8- Tightness test.
- 9- Electromagnetic Compatibility (EMC) tests.
- 10- Mechanical operation test at ambient temperature including extended mechanical endurance test.
- 11- High Temperature test.
- 12- Static terminal load test.
- 13- Short-circuit current making and breaking tests.
- 14- Critical current test.
- 15- Earth fault test.
- 16- Capacitive current switching tests.
- 17- Short-line fault test.
- 18- Out of phase making & breaking test.
- 19- Electrical Endurance test.

The type test report for the above tests alongwith complete drawings of tested circuit breaker duly stamped by the lab shall be submitted with the bid.

18.3 Routine Tests

18.3.1 The manufacturer shall perform routine tests on all circuit breakers according to respective clauses of IEC-62271-100 and test reports shall be submit at the time of pre-delivery inspection. The following routine tests shall be witnessed by the two representatives one from Design, NTDC and other from purchaser at the cost and arrangement of the manufacturer including travel expenses, boarding, lodging and daily allowance for the representatives to prove compliance with the requirements as listed in this specification on 10% of the quantity of ordered circuit breakers to be selected randomly from the total lot of circuit breakers.

- a.
 - i) Verification of name plate data.
 - ii) Check of constructional and performance requirement.
 - iii) Visual & dimensional verification of circuit breaker assembly, steel supporting structures, terminal head and terminal connectors.
 - iv) Check earth terminal and quality of paint.
 - v) Check all wiring in accordance with the approved drawing
 - vi) Verification of all components/devices used in operating mechanism/control cabinet according to the approved drawing.
 - vii) Checking of motor & spring charging requirements.
 - viii) Checking of anti pumping function.
 - ix) Checking of spare auxiliary contacts.
 - x) Check function of SF6 gas density monitor.

- xi) Measurement of creepage distance.
 - xii) Verify all components/devices are correctly labelled.
 - xiii) Check all interlocking arrangements/functions.
 - xiv) Verification of Technical Data values.
 - xv) Verification of manufacturer's type & routine test reports of insulators, steel supporting structures, terminal head and terminal connectors according to relevant IEC standards.
- b. Inspection of spare parts & special tools as mentioned in clause No.16 & 17. A list of the same shall be included in the inspection certificate.
- c. Measurement of the resistance of the main circuit. The measured resistance should not exceed the resistance of the type tested circuit breaker and approved by Design, NTDC.
- d. Mechanical operating tests.

Mechanical operating tests shall include the following:

- i) At maximum supply voltage of operating devices and of auxiliary and control circuits and maximum pressure for operation:
 - Five closing operations and Five opening operations;
- ii) At specified minimum supply voltage of operating devices and of auxiliary and control circuits and minimum functional pressure for operation:
 - Five closing operations and Five opening operations;
- iii) At rated supply voltage of operating devices and of auxiliary and control circuits and rated pressure for operation:
 - Five closing operations and Five opening operations;
 - Five close-open operating cycles with the tripping mechanism energized by the closing of the main contacts;
 - Five open close operating cycles O – t - C where t shall be not more than the time interval specified for the rated operating sequence (t = 0.3 seconds/dead time for circuit-breakers intended for rapid auto-reclosing).
- vii) For all required operating sequences the following shall be performed and records made of the closing and opening operations:-
 - Mechanical characteristics for opening & closing operations
 - Measurement of closing time.
 - Measurement of Opening time.
 - Time travel Chart
 - Stored energy operations tests.

v) After completion of the required operating sequences, the following tests and inspections shall be performed:-

- Connections shall be checked;
- The control and/or auxiliary switches shall correctly indicate the open and closed positions of the circuit-breaker;
- All auxiliary equipment shall operate correctly at the limits of supply voltage of operating devices and of auxiliary and control circuits and/or pressures for operation.

vi) Furthermore the following tests and inspections shall be made:-

- Measurement of the resistance of heaters and of the control coils;
- Inspections of the wiring of the control, heater and auxiliary equipment circuits and checking of the number of auxiliary contacts, in accordance with the order specification;
- Inspection of control cubicle
- Recharging duration(s);
- Operation of electrical, mechanical interlocks and signalling devices;
- Operation of anti-pumping device;
- General performance of equipment within the required tolerance of the supply voltage;
- If adjustments are required during the mechanical operating tests, the complete test sequence shall be repeated following the adjustments.

e. Power frequency voltage with-stand dry tests on the main circuit.

f. Tests on control and auxiliary circuits.

This includes dry short duration power frequency voltage withstand test, inspection of auxiliary & control circuits, verification of conformity to the circuit diagram and wiring, components, functional tests, verification of protection against electric shock and degree of protection (IP Code)

18.3.2 The acceptance/inspection certificate clearly indicate the performance of above tests during pre-delivery inspection/testing and test results shall be submitted to the Purchaser.

19.0 **DRAWINGS AND DESCRIPTIVE DATA**

19.1 **Data to be submitted with the bid**

19.1.1 Supply record of offered type, current & voltage rating circuit breaker for last five years on the following format:

Sr. No.	Contract/Purchase Order No. & date	Quantity	Current rating	Delivery period	Client Address/ Phone/ Fax No./ E-mail, etc.
---------	------------------------------------	----------	----------------	-----------------	--

19.1.2 The schedule of technical data duly filled-in attached hereto. The word indicating “as per specification/standard” will not be acceptable.

19.1.3 The module indicating the equipment in the circuit breaker assembly and components used in the operating mechanism, control cubicle, etc.

19.1.4 Manufacturer’s catalogues/drawings as required in the schedule of technical data.

19.1.5 Non submission of completely filled-in schedule of technical data and supply record on the above format or submission of incomplete information/data as mentioned above with the bid, may render the bid non-responsive.

19.2 **Approval Drawings and Data to be submitted after Award of Contract/Purchase Order**

The following drawings/descriptive data shall be submitted for approval of Design Department NTDC before manufacturing the equipment:

- i. Schedule of technical data duly filled-in along with supporting documents.
- ii. Instruction Manual for installation indicating site test procedure before energizing/operation, maintenance/replacement of components procedure and storing requirements of the Circuit breaker.
- iii. Name plate data of the circuit breaker and charging mechanism.
- iv. Dimensional & outline drawing of circuit breaker showing dimensions of each individual part including terminal studs for high voltage connections and size of terminals for earthing.
- v. Foundation/grouting drawings showing static and dynamic loading of circuit breaker during the opening and closing operation and other design data.
- vi. Schematic and wiring diagrams of control scheme including closing, tripping, auxiliary circuits, alarm & Interlocking circuits, and operating mechanism shall be furnished on individual page with cross reference. Trip-1 & Trip-2 circuit shall be segregated.

- vii. Description & quantity of components/ equipments/ devices indicating the symbols with their manufacturer's name & country of origin and electrical characteristics, etc.
- viii. Dimensional drawings of outdoor control cubicle.
- ix. The chart or the curve and the procedure for showing the breaker rating factors for evaluating the breaking capacity on various auto-reclosing duty cycles of the offered circuit breakers.
- x. Drawing of steel supporting structures, terminal head and connectors with type test report.
- xi. List of spare parts and tools to be supplied.
- xii. Earth quake simulation test and response calculations.

20.0 **PACKING**

The circuit breaker and all allied material including steel supporting structures shall be supplied in packing suitable for transport by rail/road and sea as per international practice. Special precaution may be essential for protection of insulation during transport to prevent moisture absorption due, for instance, to rain, snow or condensation. In every package of equipment for shipment one number installation, erection, maintenance and operation instruction book enclosed in water proof material shall be provided. Bill of quantity shall indicate the quantity, size, length, weight and assembly mark of each member of structure including nuts & bolts, washers, plates, foundation bolts and all fittings complete for structure, circuit breaker including terminal head & connector etc.

21.0 **ENCLOSURES**

Following drawings and data sheets are attached herewith:

- | | | |
|----|--|---------------------------|
| 1. | Schedule of technical data for circuit breaker | |
| 2. | Circuit breaker supporting structure | Drawing No. PDW/TS/3217 |
| 3. | Mono-metallic terminal connector | Drawing No. PDW/DF-309(1) |
| 4. | Bimetallic terminal connector | Drawing No. PDW/DF-325 |

SCHEDULE OF TECHNICAL DATA FOR CIRCUIT BREAKER

GENERAL

1. Manufacturer's name & address
(Attach Manufacturer's catalogue/broucher with the bid) _____
2. Type/designation of offered circuit breaker _____
3. Offered Circuit Breaker Class
 - i. w.r.t Mechanical Endurance _____
 - ii. w.r.t Electrical Endurance _____
 - iii. w.r.t.Capacitive Current Breaking _____
 - iv. w.r.t Connection to Overhead Line _____
4. No. of poles of Circuit Breaker _____
5. Suitability for three phase/single phase operation and rapid reclosing _____
6. Is the offered circuit breaker conforms to all constructional & performance requirements of the specification (if not, give list of deviations) _____
7. Type Tests.
 - i. Report issuing lab with No. and Date
(Attach copy of type test reports) _____
 - ii. Current rating of tested circuit breaker _____
 - iii. Rated Short Circuit Breaking Current _____
 - iv. Rated duration of short circuit current _____
 - v. Resistance of Main circuit of tested circuit breaker. _____
 - vi. Whether complete type test as per IEC 62271-100 were carried out at an independent lab.(if not, give details). Yes/No
 - vii. Whether the details of circuit breaker for type tests as required in clause 18.2.1 have been attached with the bid Yes/No

RATINGS

1. Rated voltage(U_r), rms (kV) _____
2. Nominal voltage, rms (kV) _____
3. Highest operating voltage (kV) _____
4. Lowest operating voltage (kV) _____
5. Lightning Impulse withstand voltage
 - i) Phase to Phase (kV) _____
 - ii) Phase to Earth (kV) _____
6. One minute Power Frequency withstand voltage
 - i) Phase to Phase (kV) _____
 - ii) Phase to Earth (kV) _____
7. Rated Frequency (Hz) _____
8. Rated Continuous current of offered circuit breaker (A) _____
9. Max. continuous current of offered Circuit Breaker (A) _____
10. Rated short circuit breaking current for 1 sec, rms (kA) _____
11. Rated short circuit breaking current for 3 sec, rms (kA) _____
12. Rated D.C. component (%) _____
13. Rated short time withstand current for 1 sec, rms (kA) _____
14. Rated short time withstand current for 3 sec, rms (kA) _____
15. Rated peak withstand current, rms (kA) _____
16. Rated short-circuit making current (Peak) (kA) _____
17. Rated operating sequence _____
18. Rated out-of-phase breaking current at rated voltage (kA) _____

19. Line-charging breaking capacity:

- | | | |
|-------------------------|-------|-------|
| i) Rated current | (kA) | _____ |
| ii) Over voltage factor | (p.u) | _____ |

20. Cable charging breaking current at rated voltage	(kA)	_____
--	------	-------

21. Single capacitor bank breaking current	(A)	_____
--	-----	-------

22. Rated Back to back capacitor bank switching current	(A)	_____
---	-----	-------

23. Max. RIV at 1 MHz at 10% above rated voltage ($1.1U_r/\sqrt{3}$)	(μV)	_____
--	-------------	-------

24. First Pole to Clear Factor (FPCF)		_____
---------------------------------------	--	-------

25. Resistance of main circuit of the offered circuit breaker at 20°C ambient temperature	($\mu\Omega$)	_____
---	-----------------	-------

26. Transient recovery voltage for terminal faults (1.5 F.P.C. factor)		_____
--	--	-------

i) At 100% rated short circuit breaking current

- | | | |
|--|-----------------|-------|
| u_1 - first reference voltage | (kV) | _____ |
| t_1 - first time co-ordinate | (μ Sec) | _____ |
| u_c - TRV peak value | (kV) | _____ |
| t_2 - second time co-ordinate | (μ Sec) | _____ |
| t_d - time delay | (μ Sec) | _____ |
| u' - voltage co-ordinate | (kV) | _____ |
| t' - third time co-ordinate | (μ Sec) | _____ |
| u_1/t_1 - Rate of Rise of Recovery Voltage | (kV/ μ Sec) | _____ |
| K_{af} - Amplitude Factor | (p.u) | _____ |

ii) At 60% rated short circuit breaking current:

- | | | |
|--|-----------------|-------|
| u_1 - first reference voltage | (kV) | _____ |
| t_1 - first time co-ordinate | (μ Sec) | _____ |
| u_c - reference voltage TRV peak value | (kV) | _____ |
| t_3 - time to reach u_c | (μ Sec) | _____ |
| t_d - time delay | (μ Sec) | _____ |
| u' - delay line voltage co-ordinate | (μ Sec) | _____ |
| t' - delay line time co-ordinate | (kV) | _____ |
| t_3 - initial rate of rise | (μ Sec) | _____ |
| u_1/t_1 - Rate of Rise of Recovery Voltage | (kV/ μ Sec) | _____ |
| K_{af} - Amplitude Factor | (p.u) | _____ |

iii) At 30% rated short circuit breaking current

u_1 -	first reference voltage	(kV)	
t_1 -	first time co-ordinate	(μ Sec)	
u_c -	reference voltage TRV peak value	(kV)	
t_3 -	time to reach u_c	(μ Sec)	
t_d -	time delay	(μ Sec)	
u' -	delay line voltage co-ordinate	(μ Sec)	
t' -	delay line time co-ordinate	(kV)	
t_3 -	initial rate of rise	(μ Sec)	
u_1/t_1 -	Rate of Rise of Recovery Voltage	(kV/ μ Sec)	
K_{af} -	Amplitude Factor	(p.u)	

iv) At 10% rated short circuit breaking current

u_1 -	first reference voltage	(kV)	
t_1 -	first time co-ordinate	(μ Sec)	
u_c -	reference voltage TRV peak value	(kV)	
t_3 -	time to reach u_c	(μ Sec)	
t_d -	time delay	(μ Sec)	
u' -	delay line voltage co-ordinate	(μ Sec)	
t' -	delay line time co-ordinate	(kV)	
t_3 -	initial rate of rise	(μ Sec)	
u_1/t_1 -	Rate of Rise of Recovery Voltage	(kV/ μ Sec)	
K_{af} -	Amplitude Factor	(p.u)	

27. Transient Recovery Voltage for short line faults

u_1 -	first reference voltage	(kV)	
t_1 -	first time co-ordinate	(μ Sec)	
u_c -	TRV peak value	(kV)	
t_2 -	second time co-ordinate	(μ Sec)	
t_d -	time delay	(μ Sec)	
u' -	voltage co-ordinate	(kV)	
t' -	third time co-ordinate	(μ Sec)	
u_1/t_1 -	Rate of Rise of Recovery Voltage	(kV/ μ Sec)	
K_{af} -	Amplitude Factor	(p.u)	

28. Transient Recovery Voltage for out of phase

u_1 -	first reference voltage	(kV)	
t_1 -	first time co-ordinate	(μ Sec)	
u_c -	TRV peak value	(kV)	
t_2 -	second time co-ordinate	(μ Sec)	
t_d -	time delay	(μ Sec)	
u' -	voltage co-ordinate	(kV)	
t' -	third time co-ordinate	(μ Sec)	
u_1/t_1 -	Rate of Rise of Recovery Voltage	(kV/ μ Sec)	
K_{af} -	Amplitude Factor	(p.u)	

PERFORMANCE DATA

1. Maximum ambient temperature range (°C) _____
2. Whether circuit breaker is capable of switching of :
 - i) Power Transformers Yes/No
 - ii) Capacitor Banks Yes/No
 - iii) Charging current of over head lines/cables Yes/No
3. Resistance of main circuit at 20°C (μΩ) _____
4. Current carrying capacity of offered circuit breaker at different ambient temperatures (Attach Ambient Temperature Vs Current curve with the bid)
 - i. Max. Continuous Current at 50°C Ambient (A) _____
 - ii. Max. Continuous Current at 40°C Ambient (A) _____
 - iii. Max. Continuous Current at 30°C Ambient (A) _____
 - iv. Max. Continuous Current at 20°C Ambient (A) _____
 - v. Max. Continuous Current at 10°C Ambient (A) _____
5. Temperature rise at at 50°C Ambient Temperature:
 - i) Contacts (°C) _____
 - ii) Terminals (°C) _____
 - iii) Other metal parts (°C) _____
6.
 - i) Rated voltage of :
 - a) Closing coil (V DC) _____
 - b) Tripping coil (V DC) _____
 - ii) Rated power consumption of :
 - a) Closing coil (W) _____
 - b) Tripping coil (W) _____
7.
 - i) Heater voltage (V) _____
 - ii) Heater Power (Watts) _____

8. Range of rated control and auxiliary supply viz:
- i) Control- Max./Min. (V DC) _____
 - ii) Charging Motor-Max./Min. (VDC) _____
 - iii) Tripping voltage – Max./Min. (V DC) _____
 - iv) Three phase AC system (VAC) _____
9. Tolerance in operating time (m sec) _____
10. Rated closing time (m sec) _____
11. Rated break time (m sec) _____
12. Rated make time (m sec) _____
13. Rated dead time (m sec) _____
14. Rated open-close time (m sec) _____
15. Rated close-open time (m sec) _____
16. Rated Arcing time (m sec) _____
17. Rated pre-arcing time (m sec) _____
18. Rated reclosing time (m sec) _____
19. Rated Re-make time (m sec) _____
20. Rated opening time (m sec) _____
21. Maximum clearing time during test duty T_{100a} (m sec) _____
22. No. of switching operations permissible at:
- i) 100% short circuit breaking current (No.) _____
 - ii) 60% short circuit breaking current (No.) _____
 - iii) 30% short circuit breaking current (No.) _____
 - iv) Max. continuous current carrying capacity (No.) _____
23. Max. time interval between first and last pole for 3 phase pole operation (m sec) _____
24. Make-break time (m sec) _____
25. Pre-Insertion time (m sec) _____
26. Min. close duration (m sec) _____

- | | | | |
|-----|--|---------|-------|
| 27. | Min. Trip duration | (m sec) | _____ |
| 28. | Electrical Endurance | (Nos.) | _____ |
| 29. | Mechanical endurance | (Nos.) | _____ |
| 30. | Max. noise at a distance of 10m from the breaker and 2meter from base during opening and closing operation | (dB) | _____ |

CONSTRUCTION

(Attach internal view of a pole of circuit breaker showing all the components with a detail legend with the bid)

- | | | | |
|-----|--|--------|--------|
| 1. | No. of breaks per pole | (No.) | _____ |
| 2. | No. of trip coils for pole | (Nos.) | _____ |
| 3. | Total length of break per pole | (mm) | _____ |
| 4. | No. of operating mechanism for 3-phase circuit breaker | | _____ |
| 5. | Whether two electrically independent & identical trip coils for each pole of the circuit breaker have been provided. | | Yes/No |
| 6. | Whether two electrical independent sets of wiring, terminals and protection equipment have been provided | | Yes/No |
| 7. | Whether circuit breaker is trip free | | Yes/No |
| 8. | Provision of anti pumping device | | Yes/No |
| 9. | Degree of protection of outdoor control cubical | | _____ |
| 10. | Thickness of control cubical sheet | | _____ |
| 11. | Material of sheet. | | _____ |
| 12. | Whether all the shut valves are provided in the operating mechanism | | Yes/No |
| 13. | Type of operating mechanism: | | _____ |
| | i) Opening mechanism | | _____ |
| | ii) Closing mechanism | | _____ |

14. i) Rated voltage of the charging motor in the operating mechanism (V) _____
 ii) Total power consumption of motor (Watts) _____
15. Whether thermal magnetic protection provided for the motor. Yes/No
16. Whether emergency manual charging & release of spring is possible without electrical operation Yes/No
17. Whether the indicator to show the charged/discharged state of spring has been provided in the operating mechanism Yes/No
18. Whether all the local & remote control indications as mentioned at clause 8 have been available. (If not, give details) Yes/No
19. Whether all functional requirements as listed in 9.1 have been complied. (If not, give details) Yes/No
20. No. of close open operation possible with the stored energy (No.) _____
21. Time required for the motor to recharge the closing spring _____
22. Description of safety alarms provided
 a) _____
 b) _____
 c) _____
 d) _____
 e) _____
23. i) Whether SF6 gas conforms to IEC 376 Yes/No
 ii) Normal SF6 gas Pressure at 20°C (Bars) _____
 iii) Maximum SF6 gas Pressure at 20°C (Bars) _____
 iv) Minimum SF6 gas Pressure at 20°C (Bars) _____
 v) SF6 gas Pressure alarm Stage-I (Bars) _____
 vi) SF6 gas Pressure alarm Stage-II (Bars) _____
 vii) Total volume of SF6 gas per pole (Litres) _____
 viii) Leakage of SF6 gas per year per circuit breaker (ml) _____
24. No. of earthing terminals for 95mm² copper conductor (Nos.) _____
25. Material of Earthing terminal _____

26. Capability of carrying rated short time current of earthing terminal (kA) _____
27. Contacts:
- i) Material _____
 - ii) Type of plating _____
 - iii) Thickness of plating material _____
 - iv) Contact pressure _____
 - v) Dimensions _____
 - vi) Current density at continuous current (A/mm²) _____
28. i) Total No. of auxiliary contacts:
- a) Normally Open _____
 - b) Normally Closed _____
- ii) No. of spare auxiliary contacts:
- a) Normally Open _____
 - b) Normally Closed _____
29. Thickness of galvanized steel sheet used for outdoor control cubical (mm) _____
30. Dimensions of inspection window of outdoor control cubicle (mm) _____
31. Whether all wiring comply with clause 11.9.4 Yes/No
32. Whether the outdoor control cubicle comply with the requirements of clause 11(if not, give detail) Yes/No
33. Type of gasket to prevent ingress of moisture _____
34. Whether the AC circuit of outdoor control cubicle is fitted with non-flammable transparent plastic cover to prevent accidental contact with lower part _____
35. No. of extra terminals for future termination _____
36. Size of cable used in wiring (mm²) _____
37. Minimum height of circuit breaker (mm) _____
38. Minimum phase spacing between poles (mm) _____
39. Minimum earth clearance of circuit breaker (mm) _____

40. Minimum clearance between moving and stationary parts when the circuit breaker in the open position (mm) _____
41. i) Minimum creepage distance between live terminals (mm) _____
 ii) Minimum creepage distance phase to earth (mm) _____
42. Size and section of terminal bolts (attach drawing) (mm) _____
43. Impact vertical loading per pole (kg/kN) _____
44. Horizontal loading of operating mechanism. (kg/kN) _____
45. Impact vertical loading of operating mechanism. (kg/kN) _____
46. Maximum shock load on foundation while opening on fault. (kg) _____
47. Dimensions for steel support:
 i) Height _____
 ii) Breadth _____
 iii) Width _____
 iv.) Structure fixing foundation details _____
48. Circuit breaker withstand capability
 i) Wind velocity m/sec _____
 ii) Wind Load m/sec _____
 iii) Earth quake
 a) Richer-scale
 b) Horizontal acceleration (g) _____
49. Foundation Loading details. _____
50. Terminal Connectors suitable for 600 mm² Al. Conductor (Attach manufacturer's broucher/drawings with the bid)
 i) Manufacturer's Name _____
 ii) Type _____
 iii) Weight _____
 iv) Current carrying capacity _____
 v) Short circuit withstand current _____
 vi) Tensile Strength _____
 vii) Elongation _____
 viii) Hardness _____
 ix) Type Tests (Attach copy) _____

51. Weight per pole of circuit breaker (kg) _____
52. Weight of complete circuit breaker (kg) _____

INSULATOR

1. Manufacturer/country of origin (Attach catalogue/broucher/drawing with the bid) _____
2. Type of insulator _____
3. Diameter of insulator _____
4. No. of units per column _____
5. Creepage distance (Phase to Earth) _____
6. Phase to phase clearance _____
7. Type test report issuing lab with No. & date (Attach copy of test report) _____
8. Power frequency withstand test voltage
 a) Dry 1 minute _____
 b) Wet 10 sec _____
9. Impulse withstand voltage _____
10. Max RIV at 1 MHz _____
11. Ultimate strength of column _____
12. Withstand Pressure
 i) Cantilever (N) _____
 ii) Tension (N) _____
 iii) Torsion (N) _____
 iv) Compression (N) _____
 v) Bending (N) _____
13. Material and colour _____

STEEL STRUCTURE

(Attach drawing/photograph with the bid)

1. Name of Manufacturer/Country of origin _____
2. Tensile Strength of angles, nuts & bolts Min./Max. Kg/mm² _____

- | | | | |
|-----|---|--------------------|-------|
| 3. | Yield point Min. | Kg/mm ² | _____ |
| 4. | Elongation in 200m guage | (%) | _____ |
| 5. | Weight of Zinc Coating of angles/nuts & bolts | | _____ |
| 6. | Thickness of zinc coating angles/nuts & bolts | | _____ |
| 7. | Hardness of nuts & bolts | | _____ |
| 8. | Total weight of supporting steel structure with foundation bolts | | _____ |
| 9. | Designed soil bearing capacity | | _____ |
| 10. | Seismic withstand stress/magnitude.
(Attach design calculations) | | _____ |

TERMINAL HEAD:

(Attach drawing/photograph with the bid)

- | | | |
|----|--|------------|
| 1. | Name of Manufacturer | _____ |
| 2. | Material of terminal head | _____ |
| 3. | Current Carrying Capacity of terminal head | _____ |
| 4. | Dimensions of terminal head | (mm) _____ |
| 5. | Material of terminal head | _____ |
| 6. | Weight of terminal head | _____ |
| 7. | Whether 4 Nos. two way terminal head are provided. | Yes/No |

CONNECTORS

(Attach drawing/photograph with the bid)

- | | | |
|----|--|-------|
| 1. | Name of Manufacturer/Country of origin | _____ |
| 2. | Material of connector (Whether Monometallic aluminium alloy or Bimetallic) | _____ |
| 3. | Material of keeper | _____ |
| 4. | Current Carrying Capacity of connector | _____ |

5. Tensile Strength (Aluminium/Copper) _____
6. Elongation (Aluminium/Copper) % _____
7. Hardness of Aluminium/Copper _____
8. Electrical conductivity of Aluminium/Copper _____
9. Short Circuit Rating _____
10. Material of Nuts & Bolts _____
11. Tensile Strength of Nuts & Bolts _____
12. Brinell Hardness of Nuts & Bolts _____

NAME PLATE DATA

1. Whether the data listed in clause 14 is engraved on the name plate _____
2. Material/Thickness of name plate _____

SPARES & SPECIAL TOOLS

1. Whether spares & tools as required at clause 15 will be provided with each lot of circuit breakers Yes/No
2. Whether special tools as per clause 16 been provided with each lot of circuit breaker for maintenance & repair (Attach detail list) Yes/No

PACKING AND SHIPPING

1. No. of packages to be shipped ((Nos.) _____
2. Weight of each package (kg) _____

PRICE SCHEDULE TENDER NO. PMU-209/26-27

Tender No.	Item No.	Description of Stores	Qty Req: (No)	FCS/DDP unit rate in PKR without GST	Applicable GST	FCS/DDP unit rate in PKR with GST	Total Amount in PKR
		1	2	3	4	5	6=2*5
PMU- 209/26-27	1	145KV SF6 Circuit Breaker	23				
						*Grand Total	

(IN WORDS: _____)

Note: The ***Grand Total Price** must be same as the Bid Quoted Price

Stamp & Sign: _____ Date: _____

Past Experience and Completed Contracts

Contractual Experience

Bidder/Manufacturer shall have successfully completed at least two (02) number of contracts of same nature/type. "Same nature/type" means material/equipment having comparable characteristics/features same rating or higher rating not lower rating within last 07 years. In this context, complete set of copies of the contract agreements/Purchase Orders along-with copy of GRN/ completion certificate (must be issued by the end user client) for the equipment indicated in the supply record pertaining to the specified and comparable equipment during the bid evaluation.

The bidders/JV, who are not manufacturers themselves, shall furnish a valid and fresh authorization from the concerned manufacturer to submit a bid from supply of their goods to Pakistan against the tender.

Manufacturing Experience

The manufacturer shall demonstrate designing and manufacturing experience of similar or higher rated equipment /material for at least five year and Two-year satisfactory operation performance of offered equipment.

Performance Criteria

The material manufactured/supplied by the manufacturer/ bidder must have satisfactory operational experience. The bidder / manufacturer shall submit at least two (2) operational certificate with the bid from the end user from Pakistan or from outside the country of offered equipment /goods to establish satisfactory operation for a continuous period of at least two years prior to deadline for submission of bids within the period of last 10 years.

Supply Capacity

The manufacturer shall provide the following information with the Bid to establish its capacity/capability to execute the order.

- Manufacturing Capacity
- Orders in hand

Past Experience / Contracts

Contracts over <i>[insert amount]</i> during the last three years:				
Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination



Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

☐ Not debarred due to deviation from commitment of Bid Securing Declaration- ☐ Not debarred due to non-performance			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and PKR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), US\$ PKR Equivalent (exchange rate)

<i>[insert year]</i>	<i>[insert amount]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i>	<i>[insert amount]</i>
☐ No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4. ☐ Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), PKR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Court/ arbitral award decision: <i>[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]</i>	<i>[insert amount]</i>

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: [insert full name]

Date: [insert day, month, year]

Joint Venture Member Name: [insert full name]

IFP No. and title: [insert IFP number and title]

Page [insert page number] of [insert total number] pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous [insert number] years, [insert in words] (amount in currency, currency, exchange rate*, PKR equivalent)				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for *[number]* years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

- (a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- ☐ Attached are copies of financial statements¹ for the *[number]* years required above; and complying with the requirements.

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	Amount Currency	Exchange rate* (If applicable)	PKR equivalent
<i>[indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.