POWER TRANSMISSION CORPORATION OF UTTARAKHAND LTD.

7-B, STREET NO. 1, VASANT VIHAR ENCLAVE,

DEHRADUN-248001

PTCUL

POWER TRANSMISSION CORPORATION
OF UTTARAKHAND LIMITED

TENDER DOCUMENT

FOR

Construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis.

TENDER DOCUMENT No. PTCUL/SS-02/2007-08

INDEX

TENDER NOTICE

POWER TRANSMISSION CORPORATION OF UTTARAKHAND LTD.

7-B, STREET NO. 1, VASANT VIHAR ENCLAVE,

DEHRADUN-248001

Tender for construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis against tender document No. PTCUL/SS-02/2007-08

DOWNLOADED BY: M/s / Shri _____-
_____

Sr. No.	DESCRIPTION	WORKS DETAILS
1.	Tender Document No.	PTCUL/SS-02/2007-08
2.	Name of Work	Construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis
3.	Route Km (*Details of Substation in Voltage/MVA etc.*)	NA
4.	EMD	Rs. 1.5 Lacs
5.	Time Limit	6 Months
6.	Starting date of downloading of Bid documents	27.03.08
7.	Date of Pre-Bid Conference	16.04.08 at 11:00 Hrs
8.	Last Date of submission of Bid	25.04.08 upto 15: 00 hrs
9.	Date and Time of Opening of Part-I (Technical Bid) of tender	25.04.08 at 15:30 hrs
10.	Price of Tender *Document*	Rs.11,250 Rs. {10,000 + 1,250(T.T)}
11.	Type of Tender	Domestic Competitive Bidding

DY. GENERAL MANAGER (C&P-II)
PTCUL

Seal & Signature of Bidder

Note:

The Tender document shall only be downloaded from PTCUL website www.ptcul.org

SECTION II – ITB - PART – 1

INSTRUCTIONS TO BIDDERS

A. INTRODUCTION

1.0 General Particulars

1.1 The Power Transmission Corporation of Uttarakhand Ltd. (PTCUL), Dehradun hereinafter called 'PTCUL'/'OWNER' (the term would include PTCUL)) for construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis against tender document No. PTCUL/SS-02/2007-08 detailed in the accompanying document in accordance with Terms and Conditions herein. The bids shall be prepared and furnished as per these Instructions.

2.0 Qualification Requirements of Bidders

2.1 To be qualified for award, the bidder shall provide following satisfactory evidence to the Owner of his capability and adequacy of resources:

a) He is a qualified manufacturer/contractor who regularly manufactures/executes projects involving the equipments of the type specified and has adequate technical knowledge and practical experience (the Bidder shall submit documents defining legal status, registration and principal place of business; written power of attorney of the signatory of the bid to commit the bidder, performance record as manufacturer/contractor for supply and installation of materials and equipments similar nature even the last five years and details of works on hand in the past five years & contracts on hand.

b) He has adequate financial capability and stability to meet the financial obligations arising out of the scope of works (the Bidder shall submit minimum five years of their Profit & Loss Account and Balance sheet).

c) He has adequate field services organization to provide necessary filed installation and management services required to install, test and commission equipments/materials as required, in these documents and documents.

d) He has established organization and quality assurance programs to achieve the levels of performance and reliability during manufacturing and installation activities (The Bidder has to furnish details of key personnel in the organization, quality assurance plans & procedures and wherever applicable sources of supply for all equipments & materials bought out supported by documents supporting their technical capability).

e) In addition, the Qualifying Requirements if any, in the 'Special Conditions of Contracts' shall also be applicable.

2.2 Joint Venture Firms

(a) In case a bid is submitted by a Joint Venture (JV) the partners of Joint Venture should collectively meet all above Qualifying Requirements.

(b) Incase of Joint Venture, the following conditions shall also apply :

(c) One of the partners shall be nominated as lead Partner, and this authorization shall be evidenced by submitting a Power of Attorney signed by legally authorized signatories of both the partners.

(d) The Lead Partner shall be authorized to incur liabilities and receive instructions for and on behalf of any partners of the Joint Venture, and the entire execution of the Contract, including payment, shall be done exclusively with the Lead PARTNER

(e) All partners of the Joint Venture shall be liable jointly and severally for the execution of the Contract in accordance with the contract terms , and a statement to this effect shall be included in the authorization mentioned under (ii) above as well as in the Bid Form and in the Contract Form(in case of a successful Bid)

(f) Agreement entered into by the joint venture partners shall be submitted with the bid and will remain in force during the tenancy of contract and Guarantee Period thereafter.

2.3 The above cited requirements are only indicative. The owner reserves the right to requisition any other relevant information and also reserves the right to reject the Bid proposal of any Bidder, if in the Owner's opinion the Qualification data is incomplete and Bidder is not qualified to perform the Contract satisfactorily.

3.0 Bidding Costs

All costs/expenses in the preparation and submission of the Bid (including any post Bid discussions/presentations) shall be fully borne by the Bidder. Owner will not be responsible/liable for these costs irrespective of the course and conclusion of this Bidding.

B. BID DOCUMENTS

4.0 Details of Documents

4.1 The following Bid documents apart from Invitation to Bid detail the material and equipment documents/characteristics, the bidding procedures and the terms & conditions of contract:

a. Instructions to Bidders (ITB-Part I)
b. General Conditions of Contract (GCC-Part I)
c. Erection Conditions of Contract (ECC-Part I)
d. Special Conditions of Contract (SCC-Part I)
e. Technical Documents (TSP-Part II)
f. Technical Data Sheets (TDS-Part II)
g. Bid Form and Price Schedules (BF/PS-Part III)

5.0 Knowing the Bid Documents

5.1 Every intending Bidder is to examine and understand all instruction, forms, terms, conditions and documents in the Bid Documents and fully know himself all the conditions and contents therein, which may in any manner, affect the scope & content of work and the costs thereof. Submission of a Bid not substantially responsive to the Bid Document in all respects and/or failure to furnish all information required by the Bid Document may entail rejection of the Bid at the Bidder's risk.

6.0 Clarifications on Bid Documents

6.1 In case an intending Bidder finds any discrepancy or omission in the documents and documents or is in doubt as to the true meaning of any part, he shall make a request, in writing not later than fifteen (15) days of the date of Bid Documents, to the owner in triplicate. The owner will issue explanations, interpretations and clarifications as deemed fit in writing as a response to this request. On receipt of such interpretations/clarifications, the Bidder may submit his Bid within the date and time stipulated in the Bid invitation. All such explanations, interpretations and clarifications from the Owner shall be deemed as part of Bid Documents and shall invariably accompany the Bidder's proposal.

6.2 Any verbal/telephonic clarifications and information given by the Owner or his employee(s) or his representative(s) will not anyway be binding on the Owner.

7.0 Amendment of Bidding Document

7.1 At any time prior to the deadline for submission of Bids the Owner may, for any reasons, whether at his own initiative or in response to a clarification requested by the intending Bidder, modify the Bidding Document with amendments(s).

7.2 The amendment will be notified in writing of Fax to all intending Bidders who have received the Bidding Document at the address contained in the letter of request for issue of bidding document from the Bidders. Owner will bear no responsibility or liability arising out of non-receipt of the same in time or otherwise.

7.3 In order to afford prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Owner may, at his discretion, extend the deadline for the submission of bids.

7.4 Such amendments, clarifications etc. shall be binding on bidders and will be given due consideration by the Bidders while they submit their bids and shall invariably enclose such documents as a part of the Bid.

C. PREPARATION OF BIDS

8.0 Language of Bid

8.1 The Bid prepared by the Bidder and all correspondence and documents relating to the Bid, exchanged by the Bidder and the Owner, shall be written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages. Failure of comply with this may disqualify a bid. For purposes of interpretation of the bid, the English translation shall govern.

8.2 Bid Format

Bidders have to make the Bid in the formats furnished with this Document verbatim without adding any printed/typewritten text of their own.

9.0 Local Conditions

9.1 It will be imperative on each Bidder to fully inform himself of all local conditions and factors which may have any effect on the execution of the Contract covered under these documents and documents. The Owner shall not entertain any request for clarifications from the bidder, regarding such local conditions.

9.2 It must be understood and agreed that such factors have properly been investigated and considered while submitting the proposals. No claim for financial adjustment to the Contract awarded under these documents and documents will be entertained by the owner. Neither any change in the time schedule of the Contract nor any financial adjustments arising thereof shall be permitted by the Owner, which are based on the lack of such clear information or its effect on the cost of the works to be Bidder.

10.0 Documents Comprising the Bid:

10.1 The Bidder shall complete the Bid form inclusive of Price Schedules, Technical Data Requirements etc. furnished in the Bidding Documents, indicating, for the goods to be supplied and services to be rendered, a brief description of goods and services, quantity and price.

10.2 The Bidder shall also submit documentary evidence to establish that the Bidder meets the Qualification Requirements as detailed in Clause 2.0 above and Special Conditions of Contract (including Clause 11 of ITB).

10.3 All Tender Documents/formats are to be returned completed and filled in all respects and signed by the Company Authorised Signatory wherever specified.

10.4 The Bid Guarantee shall be furnished in a separate cover in accordance with clause specific ITB.

11.0 Scope of the Proposal

11.1 The Scope of the proposal shall be on the basis of a single Bidder's responsibility, completely covering all the equipments and installation services specified under the accompanying Technical Documents. It will include among others as specified therein the following:

a) Detailed Engineering.
b) Complete manufacture including shop testing.
c) Providing engineering drawings, data, operation manual etc. for the Owner's approval.
d) Packing and transportation from the manufacturer's works to the Site.
e) Pre-assembly, if any, erection, testing and commissioning of all the equipments.
f) Pre-assembly, if any, erection, testing and commissioning of all the equipments.
g) Reliability tests and performance and guarantee tests on completion of commissioning.

11.2 As specified in the Special Conditions of Contract, no deviation whatsoever to certain conditions of the bidding documents permitted by the Owner and therefore, the Bidders are advised that while making Bid Proposals and quoting prices these conditions may appropriately be taken into consideration. Bidders are required to furnish a certificate in this regard as per the format provided in Special Conditions of Contract in a separate sealed envelope containing Bid security, which shall accompany the Technical Bid. Any Bid not accompanied by such certificate shall be rejected by the Owner and shall not be opened.

11.3 Bids not covering the above cited entire scope of works may be treated as incomplete and hence rejected.

11.4 The Bidder shall complete all the schedules & annexure in the Bid Proposal sheets, Technical Data Sheets and specified elsewhere. The Qualifying Data should be filled in the required schedule of Bid Proposal Sheets.

12.0 Bid Price

12.1 The Bidder shall indicate, in the appropriate price schedules, enclosed in bid proposal sheets, the unit prices inclusive of duties and taxes of the goods, the price for erection, testing and commissioning, price for associated civil, structural works and other services it proposes to furnish under the contract, along with the total bid price. The details of taxes and duties in case of direct transaction materials between the bidder and owner only shall be clearly indicated for each item in the prescribed format of price bid in the prescribes format of price bid.

12.2 Detailed break up, covering all the price components of unit prices as well as total bid price, as stipulated in the appropriate price schedules of bid proposal sheet shall be provided by the bidder. This break up shall be entered separately for each item in the prescribed format of price bid.

A) For all goods offered:

i The price of the goods quoted ex-factory/ex-works/ex-warehouse as applicable, inclusive of all duties, taxes and levies paid or payable on components, sub-assemblies and raw materials.

ii. Sales tax, excise duty, *Cess,* which will be payable by, the owner on the goods if this contract is awarded.

iii. Inland transportation charges including handling charges and other costs involving to delivery of the goods to their final destination, & insurance charges.

iv. The cost of erection, testing and commissioning as well as associated civil, structural works.

12.3 The bidder's separation of price components in accordance with clause 12.2 supra will be solely for the purpose of the facilitating the comparison of Bids by the owner, for the contract price amendment due to quantity variation and for on account payments (in case of award) and shall not in any way limit the Owner's rights.

12.4 The Bidder shall specifically note that the Tenders are invited on percentage rate increase/decrease based in relation to unit rates of tender price schedule.

13.0 Price Basis

13.1 The Price shall be quoted on firm basis.

13.2 The *firm* Price quoted by the bidder shall remain fixed during the bidder's performance of the contract and shall not be subject to variation on any account save for change in quantity. A bid submitted with an adjustable price quotation shall be treated as non-responsive and rejected.

14.0 Taxes and Duties

14.1 Bought out items from vendors/sub-suppliers

All levies, duties, sales tax etc. payable on equipment/material components, sub-assemblies, raw materials and any other items used for the bidder's consumption or dispatched directly to the owner from its sub-supplier shall be included in the Bid price and any such taxes, duties levies additionally payable shall be to bidders account and no separate claim on this behalf shall be entertained by the owner.

14.2 Material supplied by the bidder from his own manufacturing units to the owner:

Sales tax/ *VAT*, but not surcharge in lieu of sales tax, other taxes and other levies and duties including excise duty, custom duty solely in respect of the direct transaction between the owner and the contractor under this contract, if any, shall be included in the bid price. These shall also be indicated separately wherever applicable as mentioned in clause 12.0 supra.

14.2.1 Owner shall however, issue requisite sales tax declaration forms for all the equipments supplies by the contractor.

14.3 Works contract-tax:

The Civil, structural and architectural portion of the contract shall be treated as works contract Consequently, any sales tax payable on the cost of these items of supply under the works contract shall also be included by the bidder in his total bid price and the owner shall have no liability whatsoever in respect of such works contract tax. However, the owner will deduct works contract tax out of the suppliers bills as per statutory rules.

14.4 As regards the income Tax, surcharge on income tax and any other corporate tax *etc*, the owner shall not bear any tax liability whatsoever. The bidder shall be liable and responsible for payment of such taxes as attracted under the provisions of the law.

14.5 Notwithstanding the tax liabilities as per the sub-clause 14.1 to 14.4 above the owner shall have the right to make deduction at source form the amounts payable to the contractor in respect of Income Tax (on the cost of items of supply included in the works contract) as may be mandatory in terms of the law. The owner shall not bear any liability in this regard but shall issue necessary certificate in respect of such deduction made.

14.6 Whenever concessional rate of Excise Duty/Sales Taxes indicated by the bidders, it shall be confirmed whether any increase in the rates that becomes applicable during the performance of the contract would be absorbed by the supplier. Bidder shall note that in case of absence of such confirmation, the tenders will be evaluated taking into account the maximum rate of excise duty/sales tax applicable.

14.7 In case any tax or duty is newly introduced by the Government applicable for this contact with effect from the next day of the date submission of the bid and if the contractor is required to pay additional tax or duty, then the owner shall reimburse the contractor the additional tax or duty so paid by the contractor against submission by the contractor against submission by the contractor of documentary evidence to the satisfaction of the owner. This provision will not be applicable to transaction between the contractor and his sub-suppliers, sub-contractors for raw materials, for bought out items etc and will be applicable only to the direct transactions between the contractor for the material supplies from his own manufacturing units. Besides the said statutory variation, no other statutory variation shall be payable by the owner.

14.8 The owner's liability for *all* taxes and duties under the contract shall be limited to those indicated by the Bidder in the Bid Proposals Sheets, subject to the statutory variations and variations as per Clause No. 14.7 supra.

If the cost to the Contractor during the performance of the 'Contract' shall be increased or reduced by reasons of the making, passing or promulgation of any law after the date of submission of bid or by any order, regulation or by-law having the force of law the amount of such increase or reduction shall be added to or deduced from the "Contract Price" as the case may be for direct transactions between contractor & owner, and not

for bought out items. It is the Bidders responsibility to furnish details of taxes, duties, levies etc. applicable as on the date of submission of the bid.

14.9 No claim for any increase towards the statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty applicable shall be entertained by the Owner during the extended period of contract, if any, provided the of the contract is required by causes attributable to the contractor.

14.10 The provision of statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty will be applicable only to the direct transaction between the contractor and the owner.

14.11 Before quoting, the bidder may ascertain from the concerned tax authorities of Government of *Uttarakhand* the applicability of Work Contract Tax. Entry Tax, Service Tax, etc. in respect of this work and include the same in the quoted price. No separate claim in this regard will be entertained by the Owner, as it is the responsibility of the Bidder to pay all these taxes.

14.12 In addition, the conditions detailed under Special Conditions of Contract shall apply.

15.0 Time Schedule

15.1 The basic consideration and the essence of the Contract shall be strict adherence to the time schedule for performing the specified works *or supply of plant*, *equipment, material goods*.

15.2 The Owner's requirements of completion schedule for the Works *or supply/supply of plant* are mentioned in the accompanying Special Conditions of Contract

15.3 The completion schedule as stated in the special conditions of contract shall be one of the major factors in consideration of the bids.

15.4 The owner reserves the right to request for a change in the work schedule during pre-award discussions with successful bidder.

15.5 The successful bidder will be required to prepare detailed PERT Network/detailed Bar chart and finalize the same with the owner as per the requirement of Clause 12.0 Section GCC.

16.0 Contract Quality Assurance

16.1 The Bidder shall include in his proposal the Quality Assurance Programme containing the overall quality management and procedures which he proposes to follow in the performance of the Works during various phases as detailed in relevant clause of the General Technical Conditions.

16.2 At the time of Award of Contract, the detailed Quality Assurance Programme to be followed for the execution of the Contract will be mutually discussed and agreed and such agreed Programme shall form a part of the Contract.

16.3 The Bidder shall clearly specify the list of sub-vendors from whom the bought out items are being supplied. Such details shall be accompanied by their list of previous supplies made performance reports etc. However, in case of orders are placed, specific approval shall be obtained from the owner for the vendor supplied materials. The quality assurance program shall be furnished for each material separately for approval.

17.0 Insurance

The Bidder's insurance liabilities pertaining to the scope of Works*/ supply/supply of plant* are detailed out in Clauses titled Insurance, in General Terms and Conditions of Contract

and in Erection Conditions of this Part-I. Bidder's attention is specifically invited to these clauses. Bid price shall include all the costs in fulfilling all the insurance liabilities under the Contract.

18.0 Erection Tools and Tackles

The Bidder under a separate schedule, in his proposal shall include a list of all-special equipment tools & tackles etc. which he proposed to bring to site for the purpose of erection, handling, testing and commissioning including performance and guarantee tests of the equipment. If any such equipment is listed anywhere else in the proposal and not specially mentioned in the above schedule, it shall be deemed to have been included in the Bidder's proposed scope of supply.

19.0 Brand Names

19.1 The specific reference in these documents and documents to any material/equipment by brand name make or catalogue number shall be construed as establishing standards of quality and performance and not as limiting competition. However, Bidders may offer other similar material/equipment provided they meet the specified standard, design and performance requirements. The Bidder shall furnish adequate technical information about such alternative material equipment to enable the Owner to determine its acceptability. The Owner shall be the sole judge on the acceptability or otherwise of such alternatively material/equipment.

19.2 The bidder shall note that standards for workmanship material and equipment, and reference to brand name of catalogue numbers designed by the Owner in its Technical Documents are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand name and/or catalogue numbers in its bid, provided that it demonstrates to the Owner's satisfaction that the substitutions are substantially equivalent or superior to those designed in the Technical Document.

20.0 Bid Security/EMD

20.1 The bidder shall furnish, as a part of its bid EMD, bid security for an amount of one percent of estimated cost, *as per estimates given by company,* to be paid as per the clause 3.0 of Special Conditions of Contract.

20.2 The bid security is required to protect the owner against the risk of Bidder's conduct, which would warrant the guarantee forfeiture, pursuant to relevant paras elsewhere. The bid guarantee shall be made payable to the Owner without any condition whatsoever.

20.3 Any bid not secured in accordance with Para 20.1 above will be rejected by the Owner as non-responsive. No exemptions are made in the furnishing of the security.

20.4 Unsuccessful Bidder's bid security/EMD will be returned/refunded on finalization of tender or three months from the date of submission of tender whichever is later.

20.5 The successful bidder's Bid Security will be discharged upon, furnishing the contract performance guarantee.

20.6 The bid guarantee may be forfeited:

a) If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form.
b) If a bidder refuses to accept the contract or fails to commence the works (including supplies within thirty days of letter of award of contract).

21.0 Format of Bid

21.1 The Bidder shall prepare two copies of the bid, clearly marking each "Original bid" and "Copy of Bid", as appropriate. In the event of any discrepancy between them the original shall govern. All the documents furnished in original document shall be furnished in other copies of Bids.

21.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized by the Bidder to sign the Contract. The letter of authorization shall be indicated by written power-of-attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

21.3 The Bidders must submit the qualifying data in one original and one duplicate copy as required in these Instructions to Bidders in separate envelopes sealed and enclosed in the envelope submitting proposals, superscribed as under:

QUALIFYING DATA FOR CONSTRUCTION OF 33 KV BAYS AT 220/132/33 KV SUBSTATION, PANTNAGAR & HARDWAR ON TURNKEY BASIS AGAINST TENDER DOCUMENT NO. PTCUL/SS-02/2007-08

21.4 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

21.5 Bids shall be submitted as under:

Cover-I Earnest Money Deposit (Bid-Security), Annexure (A), as per relevant clause of SCC duly signed and Contractor's covering letter.

Cover-II Qualifying Requirements

Cover-III Technical Bid

(Must contain conditions and schedules without prices and Technical Data Requirement Sheets (Cover I, II and III will collectively be called Technical Bid.)

Cover-IV Price Bid

(Price offer including Form of Tender (with three copies of Price schedule).

22.0 Signature of Bids

22.1 The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

22.2 Bid by a partnership must be furnished with full names of all partners and be signed with the partnership name, followed by the signature(s) and designation(s) or the authorized partner(s) or other authorized representative(s).

22.3 Bids by Corporation/Company must be signed with the legal name of the Corporation/Company by the President/Managing Director or by the Secretary or other person or persons authorized to bid on behalf of such Corporation/Company in the matter.

22.4 A bid by a person who affixes to his signature the word 'President', Managing Director', 'Secretary', 'Agent' or other designation without disclosing his Principal will be rejected.

22.5 If it is found that two or more persons who are connected with one another either financially or as a principal and agent have bid under different names without disclosing their connection then such bids will be liable for rejection. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

22.6 The Bidder's name stated on the proposal shall be the exact legal name of the firm.

22.7 Bids not conforming to the above requirements of signing may be disqualified and EMD forfeited.

23.0 Sealing and marking of bids

23.1 Cover-I
1. Bid No
2. Due date for opening
3. Reference of earnest money deposit

Cover-II
1. Bid No..
2. Due date for opening
3. Qualifying Requirements

Cover-III
1. Bid No
2. Due date for opening
3. Technical bid & reference and certificate as per Cl. 17.00 of SCC.

Cover-IV
1. Bid No
2. Price Bid and reference

Cover-I, Cover-II & Cover-III shall be individually sealed and superscribed as indicated above and should be enclosed in the main cover duly sealed and superscribed as **"Tender for construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis against tender document No. PTCUL/SS-02/2007-08"** due on …….. containing Cover-I, Cover-II, Cover-III & Cover IV of this tender.

The original Bid and accompanying documents clearly marked "Original" plus one copy for Cover I, II & III and *three* copies for Cover IV shall be submitted by the Bidder at the date, time and place specified. In the event of any discrepancy between the original and the copies, the original shall govern.

The Bid shall be submitted by RPAD or through speed post services at the Office of the General Manager(C&P)/Dy. General Manager(C&P-II), PTCUL, Bids submitted should be posted with due allowance for any postal delay. The Bids received after the Due Date and Time of opening are liable to be rejected. Telegraphic/Telex/Fax/e-mail Bids shall not be entertained.

23.2 The Bidders shall seal the original and each copy of the bid in an inner and an outer envelope, duly making the envelopes as "original" and "copy".

23.3 a. Addressed to the Owner at the following address:

Dy. General Manager (C&P-II) PTCUL
7-B, Street No. 1, Vasant Vihar Enclave,
Dehradun-248001

b. Bear the name of package bid enquiry number, name of the work and the words. "DO NOT OPEN BEFORE ……

23.4 The inner envelope shall indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late" or "rejected".

23.5 The Bid Security conditions must be submitted in a separate sealed envelope.

24.0 Deadline for Submission of Bids

24.1 The Bidders have the option of sending the bid by **REGISTERED POST/ *SPEED POST***. Bids submitted by telex/telegram will not be accepted. No request from any Bidder to the Owner to collect the proposals from airlines, cargo agent etc. shall be entertained by the Owner.

24.2 Bids must be received by the Owner at the address specified under para 23.3, not later than the time & date mentioned in the Invitation to Bid.

24.3 The Owner may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Document in which case all rights and obligations on the Owner and Bidders previously subject to *the* deadline will thereafter be subject to the deadline as extended.

25.0 Late Bids

25.1 Any bid received by the Owner after the time and date fixed or extended for submission of bids prescribed by the Owner, will be rejected and not considered for evaluation.

26.0 Modification and Withdrawal of Bids

26.1 The Bidder may modify or withdraw its bid after the bid's submission provided that written notice of the modification or withdrawal is received by the Owner prior to the deadline prescribed for submission of bids.

26.2 The bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of clause 23.0. The envelope should clearly indicate whether the modification is for the Technical bid or the Price bid. No bid modifications notice by Telex/Grams/Fax shall be entertained by the Owner.

26.3 No bid shall be modified in any manner, whatsoever subsequent to the deadline for submission of bids.

26.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal/modification of a bid during this interval may result in the Bidder's forfeiture of its bid security.

27.0 Information required with the proposal

27.1 The bids must clearly indicate the name of the manufacturer, the type and/or model of each principal item of equipment proposed to be furnished and erected. The bid should also contain drawings and descriptive materials indicating general dimensions, materials from which the parts are manufactured, principles of operation, the extent of pre-assembly involved, major construction equipment proposed to be deployed, method of erection and the proposed erection organizational structure.

27.2 The above information shall be provided by the Bidder in the form of separate sheets, drawings, catalogues, etc. in three copies.

27.3 Any bid not containing sufficient descriptive material to describe accurately the equipment proposed may be treated as incomplete and hence rejected. Such descriptive materials and drawings submitted by the Bidder will be retained by the Owner. Any major departure from these drawings and descriptive material submitted will not be permitted during the execution of the contract without specific written permission of the Owner.

27.4 Oral statements made by the Bidder at any time regarding quality, quantity or arrangement of the equipment or any other matter will not be considered.

27.5 Standard catalogue pages and other documents of the Bidder may be used in the bid to provide additional information and data as deemed necessary by the Bidder.

27.6 The Bidder, along with his Proposal, shall submit a list of recommended erection equipment and materials which will be required for the purpose of erection of equipment and materials supplied under the Contract.

27.7 In case the 'Proposal' information contradicts document requirements, the document requirements will govern, unless otherwise brought out clearly in the technical commercial deviation schedule.

D. BID OPENING AND EVALUATION

28.0 Opening of bids by owner

28.1 The Owner will open the bids in the presence of Bidder's representatives who choose to attend on the date and time mentioned for opening of bids in the Invitation to Bid or in case any extension has been given thereto, on the extended bid opening date and time notified to all the Bidders who have *downloaded and submitted* the bidding document. The Bidder's representatives who are present shall sign a register evidencing their attendance.

28.2 The Bidder's names, Technical modifications, Bid withdrawal and such other details as the Owner, at his discretion may consider appropriate, will be announced in the Technical Bid Opening.

28.3 The price bids of all the "Techno-Commercial" Responsive Bidders shall be opened in the presence of representatives (up to two per firm) of such bidders who choose to be present. The date & time of opening the Price Bid shall be intimated to all such qualified bidders by Fax/Telex, at least one week in advance besides inviting final price bid if found appropriate after evaluation of Technical bids.

28.4 The Bidder's name, lump sum Bid Price, all discounts if any, modification in the Price Bid and any such other details as the Owner, at his discretion, may consider appropriate, will be announced/furnished in the Price Bid Opening.

28.5 No electronic recording/transmitting devices will be permitted during Bid opening.

29.0 Purpose of Evaluation of Bids

29.1 The Bids received/accepted/opened will be evaluated by the Owner to ascertain the technical responsiveness of the bid for the complete scope of the proposal, as covered under these documents and documents. All technically responsive bids shall then be examined to determine the LOWEST EVALUATED COMMERCIALLY AND TECHNICALLY RESPONSIVE BIDS.

30.0 Policy for Bids under consideration

30.1 Bids shall be deemed to be under consideration immediately after opening of Technical Bid and until such time official intimation of award/rejection is made by the Owner to the Bidders. While the Bids are under consideration, Bidders and/or their representatives and other interested parties are advised to refrain from contacting by any means, the owner and/or his employee's representatives on the matters related to Bids under consideration.

30.2 Clarification of Bids

To assist in the examination evaluation and comparison of Bids the owner may on his own ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.

31.0 Preliminary Examination

31.1 The Owner will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

31.2 Arithmetical errors will be rectified on the following basis:

If there is discrepancy between the unit price 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. If there is a discrepancy between the total bid amount and the sum of total costs, the latter shall prevail and the total bid amount will be corrected accordingly. If there is a discrepancy between words and figures, the amount advantageous to the Owner will prevail. If the Bidder does not accept the correction of the errors as above, his Bid will be rejected and the amount of Bid Security will be forfeited. The Bidder should ensure that the prices furnished in various price schedules are consistent with each other. In the case of any inconsistency in the prices purpose, the Owner shall be entitled to consider the highest price for the purpose of evaluation and for the purpose of award of Contract use the lowest of the prices in these schedules.

31.3 Prior to the detailed evaluation, the Owner will determine the substantial responsiveness of each bid to the Bidding Document. For purpose of these Clauses, a substantially responsive bid is one which conform to all the terms and conditions of the Bidding Document without material deviations. A material deviation is one which affects in any way the prices, quality, quantity or delivery period of the equipment, completion of works/ *supply of plants* or which limits in any way the responsibilities or liabilities of the Bidder of any right of the Owner as required in these documents and documents. The Owner's determination of a bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

31.4 A bid determined as not substantially responsive will be rejected by the Owner and may not subsequently be made responsive by the Bidder by correction of non-conformity.

31.5 The Owner may waive any minor informality or non-conformity or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of the any Bidder.

32.0 Evaluation of Price Bids

32.1 Definitions and Meanings

For the purpose of the evaluation and comparison of bids, the following meanings and definition will apply:-

a) 'Bid Price' shall mean the price quoted by each Bidder in his proposal for the complete scope of works.

b) 'Differential Price' shall mean the summation of the equalizing elements of price for parameter differential or deficiencies in the equipment and services determined from the Bidder's proposal.

c) 'Cost compensation for Deviations' shall mean the rupee value of deviations from the bidding document as determined from the Bidder's proposal.

d) 'Evaluated Bid Price' shall be summation of 'Bid Price', 'Differential Price' and 'Cost Compensation for Deviations'.

33.0 Calculation of differential Price & Cost Compensation for Deviations

The Differential Price to be added to the Bid Price of each bid during evaluation and comparison shall be derived as under:

Differential Price (DP)=n1F1+n2F2…….where F1, F2…...Fn are the various factors in Indian Rupees per unit of parameter differential or deficiency in the equipment and services offered as stipulated in these documents: n1, n2…,nn are the respective parameter differential or deficiency in the corresponding units to be determined form the Bidder's proposal. The above factors and corresponding units of parameter differential are derived from the Technical Documents, Date sheets and/or Special Conditions of Contract.

Deviations from the Bidding Documents in so far as practicable will be converted to a Rupee value (D) and the Bidding Document while evaluating the bids. In determining the Rupee value of the deviations the Owner will use parameters consistent with those specified in the documents and documents and or other information as necessary and available to the Owner.

33.1 Comparison of Bids

The bids shall be compared on the basis of lumpsum prices (I, e, for supply portion and price for services & civil works to be rendered as quoted by the Bidder) for the entire scope to the proposal as defined in the Bidding Document.

For comparison purposes all the evaluated bid prices shall be in Indian Rupees as under:

W = Q + DP + D

Where

W = Bid Price quoted by the bidder in Indian Rupees (Value of equipments/materials Including taxed and duties plus components. Of erection cost including civil engineering works & mandatory spars and other components if any.)

DP = Different price in Indian Rupees calculated as above.

D = Cost compensation for deviations calculated as above.

All evaluated bid prices of all the bidders shall be compared among themselves to determine the lowest evaluated bid and, as a result of this comparison, the lowest bid will be selected for the award of the Contract.

E. AWARD OF CONTRACT

34.0 Award Criteria

34.1 The owner will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, providing further that the Bidder is determined to qualified to perform the contract satisfactorily. The Owner shall be the sole judge in this regard.

34.2 In case of award of Contract on a bidder there shall be separate contracts one for supply of goods, the second for erection & services (and third for civil engineering works in substations).

34.3 Further, the Owner reserves the right to award separate contracts to two or more parties in line with the terms and conditions specified in the accompanying Technical Documents,

35.0 Owner's right to accept any bid and to reject any or all bids :

35.1 The Owner reserves the right to accept or reject any bid, and to annual the bidding process and reject all bids at time prior to award of contract, any without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Owner's action.

36.0 Notification of award

36.1 Prior to the expiration of the period of bid Validity and extended validity period, if any, the Owner will notify the successful Bidder in writing by registered letter or cable or telex of FAX, to be confirmed in writing by registered letter, that is bid has been accepted.

36.2 The notification of award will constitute that formation of the Contract.

36.3 Upon the successful Bidder's furnishing of performance guarantee pursuant to relevant clause 38.0, the Owner will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause 20.0.

37.0 Signing of Contract

37.1 At the same time as the Owner notifies the successful Bidder that his bid has been accepted, the Owner will send the Bidder the detailed of Award, incorporation all agreements between the parties.

37.2 Within 15 days of receipt of the detailed of Award, the successful bidder shall sign the same with date and return it to the Owner,

37.3 The Bidder will prepare the Contract Agreement as per the proforma prescribed and the same will be signed within 30 (Thirty) days of notification of Award.

38.0 Contract Performance Guarantee:

38.1 *As a contract performance security, the successful bidder, to whom the work is awarded, shall be required to furnish a Performance Guarantee, in form of Bank Guarantee on prescribed proforma. The Guarantee amount shall be equal to ten percent (10%) of the Contract price and it shall guarantee the faithful performance of the Contract in accordance with the terms and conditions specified in these documents and documents. The guarantee shall be valid up to 90 days after the end of Warranty Period.*

38.2 The Performance Guarantee shall cover additionally the following guarantees to the Owner:

a) The successful Bidder guarantees the successful and satisfactory operation of the equipment furnished and erected under the Contract, as per the documents and documents.

b) The successful Bidder further guarantees that the equipment provided by him/his sub-vendors installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the Owner fully remedy free of expenses to the Owner such defects as developed under the normal use of the said equipment within the period of guarantee specified in the relevant clause of the General Terms and Conditions in the Part-I/Special Conditions of Contract.

38.3 The Contract Performance Guarantees is intended to secure the performance of the entire contract. However, it is not to be construed as limiting the damages under clause entitled “Equipment Performance Guarantee” in Technical Documents, Part-II and damages stipulated in other clauses in the Bid documents

38.4 The performance guarantee will be discharged without any interest any interest at the end of guarantee period, unless otherwise specified in Special Conditions of Contract.

39.0 *Splitting of Order:*

The purchaser reserves the right to split the order among various successful tenders in any manner he chooses without assigning any reasons whatsoever.

40.0 Delivery Schedule/ Completion Period:

The construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis against tender document No. PTCUL/SS-02/2007-08 *shall be completed within 6 months from the date of issue of LOI (Letter of Intent).*

41.0 QUANTITY VARIATION:

The quantity can vary up to that extent only so that total contract value remains within 25% on either side.

SECTION –GCC

GENERAL TERMS & CONDITIONS OF CONTRACT

A. INTRODUCTION

1.0 Definitions of Terms

1.1 The 'Contract' means the agreement entered into between the Owner and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.2 'Owner' shall mean the Power Transmission Corporation of Uttarakhand Ltd., Dehradun or any of its subsidiaries and shall include its legal representatives, successors and assigns.

1.3 'Contractor' or 'Manufacturer' shall mean the *Bidder* whose bid is accepted by the Owner for the award of the Works and shall include such successful Bidder's legal representatives, successors and permitted assigns.

1.4 'Sub-Contractor' shall mean the person named in the Contract for any part of the Works or any person to whom any part to the Contract has been sublet by the Contractor with the consent in writing of the Engineer and will include the legal representatives, successors and permitted assigns of such person.

1.5 'Engineer' shall mean the officer appointed in writing by the Owner to act as Engineer from time to time for the purpose of the Contract.

1.6 The terms 'Equipment', 'Stores' and 'Materials' shall mean and include equipment, stores and materials to be provided by the Contractor under the Contract.

1.7 'Works' shall mean and include the furnishing of equipment, labour and services, as per the Documents and complete erection, testing and putting and putting into satisfactory operation including all transportation, handling, unloading and storage at the Site as defined in the Contract.

1.8.1 'Documents' shall mean the Documents and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed upon.

1.9.1 'Site shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Owner or Contractor in the performance of the Contract.

1.10 The term 'Contract Price' shall mean the lump-sum price quoted by the Contractor in his bid with additions and/or deletions as may be agreed and incorporated in the Letter of Award and the contract agreement for the entire scope of the works.

1.11 The term 'Equipment Portion' of the Contract price shall mean the ex-works value of the equipment/Materials supplied include structures, town materials insulators, conducting etc.

1.12 The term 'Erection Portion' of the Contract price shall mean the value of field activities of the works including erection, testing and putting into satisfactory operation including successful completion of performance and guarantee tests to be performed at Site by the Contractor including cost of insurances.

1.13 'Manufacturer's Works' or 'Contractor's Works', shall mean the place of work used by the manufacturer, the Contractor, their collaborators/associates or Sub-Contractors for the performance of the Contract.

1.14 Site Engineer 'Inspector' shall mean the Owner owner's Engineers or any person nominated by the time to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Owner.

1.15 'Notice of Award of Contract'/'Letter of Award'/'Telex of Award' shall mean the official notice issued by the Owner notifying the Contractor that his bid has been accepted.

1.16 'Order' shall mean the official letter issued by the Owner informing the acceptance of the bid.

1.17 'Date of Contract' shall mean the date on which Notice of Award of Contract/Letter of Award has been issued.

1.18 *'Month'* shall mean the calendar moth. 'Day' or 'Days' unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each.

A *'Week'* shall mean continuous period of seven (7) days.

1.19 'Writing' shall include any manuscript, type written or printed statement, under or over signature and/or seal as the case may be.

1.20 When the words 'Approved', 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As Directed', 'Where Directed', 'When Directed', 'Determined by', 'Accepted', 'Permitted', or words and phrases of like importance are used the approval, judgment, direction etc. is understood to be a function of the Owner/Engineer.

1.21 Test on completion shall mean such tests as prescribed in the Contract to be performed by the Contractor before the work is taken over by the Owner.

1.22 'Performance and Guarantee Tests', shall mean all operational checks and tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the Contract Documents.

1.23 The term 'Final Acceptance'/Taking Over' shall mean the Owner's written acceptance of the Works performed under the Contract, after successful commissioning/ completion of Performance and Guarantee Tests, as specified in the accompanying Technical Documents or otherwise agreed in the Contract.

1.24 'Guarantee period'/'Maintenance Period' shall mean the period during which the Contractor shall remain liable for repair or replacement of any defective part of the works performed under the Contract.

1.25 'Latent Defects' shall mean such defects caused by faulty designs, material or work-man-ship which cannot be detected during inspection, testing etc, based in the technology available for carrying our such tests.

1.26 'Drawing', 'Plans, shall mean all:

a) Drawings furnished by the owner/Consultant as a basis of Bid/Proposals.

b) Supplementary drawings furnished by the Owner/Consultant to clarify and to define in greater detail the intent of the Contract.

c) Drawings submitted by the Contractor with his bid provided such drawings are acceptable to the Owner/Consultant.

d) Drawings furnished by the Owner/Consultant to the Contractor during the progress of the work; and

e) Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are acceptable to the Engineer/Owner.

1.27 'Codes' shall mean the following including the latest amendments and/or replacements, if any:

a) Indian Electricity Act, 1905 and Rules and Regulations made thereunder.

b) Electricity Act 2003 and Rules & Regulations made there under.

c) Indian Factory Act, 1948 and Rules and Regulations made thereunder.

d) Indian Factory Act, 1884 and Rules and Regulations made thereunder.

e) Indian Explosives Act, 1934 and Rues and Regulations made thereunder.

f) A.S.M.E Test Codes

g) A.I.E.E Test Codes.

h) American Society of Materials Testing Codes.

i) Standards of the Indian Standards Institution.

j) Other Internationally approved standards and/or rules and regulations touching the subject matter of the Contract.

1.28 Words imparting the singular only shall also include the plural and vice-versa where the context so requires.

1.29 Words imparting 'Person' shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

1.30 Terms and expression not herein defined shall have the same meaning as are assigned to them in the Indian Sale of Goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.

Or

1.31 In addition to the above the following definitions shall also apply.

a) 'All equipment and materials' to be supplied shall also mean 'Goods' *and 'plants'*.

b) 'Constructed' shall also *mean* 'erected and installed'.

c) 'Contract Performance Guarantee' shall also mean 'Contract Performance Security'.

2.0 Application

The General Conditions shall apply to the extent that they are not superceded by provisions in other parts of the Contract.

3.0 Standards

The goods supplied under this Contract shall conform to the standards mentioned in the Technical Documents, and, when no applicable standard in mentioned, to the

authoritative standard appropriate to the goods and such standards shall be the latest issued by the concerned institution.

4.0 Language and Measures

All documents pertaining to the Contract including documents, schedules, notices, correspondences, operating and maintenance instruction, drawing or any other writing shall be written in English language. The Metric System of measurement shall be used exclusively the Contract.

5.0 Contract Documents

5.1 The term Contract Documents shall mean and include the following which shall be deemed to form an integral part of the Contract:

a) Invitation to Bid including letter forwarding the Bidding Documents, Instructions Bidders, General Terms and Conditions of Contract and all other documents included under volume-I and the Special Conditions of Contract.

b) Documents of the equipment to be furnished and erected under the Contract as brought out in the accompanying Technical Documents.

c) Contractor's Bid Proposal and the documents attached there to including the letters of clarifications thereto between the Contractor and the Owner prior to the Award of Contract except to the extent of repugnancy.

d) All the materials, data and information of any sort given by the Contractor along with his bid, subject to the approval of the Owner/Consultant.

e) Letter of Award and any agreed variation to the conditions to the documents and special terms and conditions of Contract, of the Owner/Consultant.

5.2 In the event of any conflict between the above mentioned documents the matter shall be referred to the Engineer whose decision shall be considered as final binding upon the parties.

6.0 Use of Contract Documents and Information

6.1 The Contractor shall not, without the Owner's prior written consent, disclose the Contract, or any provision thereof, or any document, plan, drawing, pattern, sample or information furnished by or on behalf of the Owner in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for the purpose of such performance.

6.2 The Contractor shall not, without the Owner's prior written consent, make use of any document or information enumerated in various Contract documents except for the purpose of performing the Contract.

6.3 The Contractor shall not communicate or us in advertising, publicity, sales releases or in any other medium, photographs or other reproduction of the Works under this Contract, or descriptions of the site, dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained form the Owner.

6.4 Any document, other than the Contract itself, enumerated in various Contract documents shall remain the property of the Owner and shall be returned (in all copies) to the Owner on completion of the Contractor's performance under the Contract if so required by the Owner

7.0 Construction of the Contract

7.1 Notwithstanding anything stated elsewhere in the bid documents, the Contract to be entered into will be treated as a divisible Supply and Erection Contract
Award shall be placed on the successful Bidder as follows:

i) First Contract: For Ex-works supply of all equipment and materials.

ii) Seconds Contract: For providing all other services like inland transportation, insurance for delivery at site, unloading, storage, handling at site, installation, testing and commissioning including performance testing in respect of all the equipment material supplied under the "First Contract" and other equipment/materials given by the owner for transport from owner's stores, insurance, unloading storage handling at site installation testing & commissioning.

7.2 In case of divisible supply and erection Contract, or where the Owner hands over his equipment to the Contractor for executing, then the Contractor shall at the time of taking delivery of the equipment/dispatch documents be required to execute an Indemnity Bond in favour to the Owner in the from acceptable to the PTCUL for keeping the equipment in safe custody and to utilize the same exclusive for the purpose of the said Contract. Simples of proforma for the Indemnity Bond will be furnished during award of Contract.

7.3 The Contract shall in all respects be construed and governed according to Indian Laws.

7.4 It is clearly understood that total consideration for the Contract(s) has been broken up into various components only for the convenience of payment under the Contract(s) and for the measurement of deviations or modifications under the Contract(s).

8.0 Jurisdiction of the Contract

8.1 The laws applicable to the Contract shall be the laws in force in India. The Courts of Dehradun shall have exclusive jurisdiction in all matters arising under this Contract.

9.0 Execution of Contract

9.1 The laws applicable to the issue of the Letter of Award to the Contractor will send one copy of the final agreement to the Contractor for his scrutiny and approval.

9.2 The Agreement, unless otherwise agreed to, shall be signed within 30 days of the acceptance of the Letter of Award, at the office the Owner at Dehradun on a date and time to be mutually agreed. The Contractor shall provide for signing of the Contract, Performance Guarantee, appropriate power of attorney and other requisite materials. In case the Contract is to be signed beyond the stipulated time, the Bid Guarantee submitted with Proposal will have to be extended accordingly.

9.3 The Agreement will be signed in copies to be specified and the Contractor shall be provided with one signed and the rest will be retained by the Owner.

9.4 The Contractor shall provide free of cost to the Owner all the Engineering data, drawing, and descriptive materials submitted with the bid, to form a part of the Contract immediately after issue of Letter of Award.

9.5 Subsequent to signing of the Contract, the Contractor at his own cost shall provide the Owner with copies of agreement within fifteen (15) days after the signing of the Contractor.

10.0 Enforcement of Terms

10.1 The failure of either party to enforce at any time any of the provisions of this Contractor or any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in anyway to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other it may have under the Contractor

11.0 Completion of Contract

11.1 Unless otherwise terminated under the provisions of any other relevant clause this Contract shall be deemed to have been completed on the expiry of the guarantee period as provided for under the clause entitled 'Guarantee' in this section of the Volume-I

B. GUARANTEES & LIABILITIES

12.0 Time – The Essence of Contract

12.1 The time and the date of completion of the Contract as stipulated in the Contract by the Owner without or with modifications, if any, and so incorporated in the Letter of Award, shall be deemed to be the essence of the Contract. The Contractor shall so organize his resources and perform his work as to complete it not late than the date agreed to. .

12.2 The Contractor shall submit a detailed PERT network/bar chart within the time frame agreed consisting of adequate number of activities covering various key phases of the work such as design, procurement, manufacturing, shipment and field erection activities within fifteen(15) days of the date of Notification of Award. This network shall also indicate the interface facilities to be provided by the Owner and the dates by which such facilities are needed. The Contractor shall discus the network so submit with the Owner and the agreed network shall form part of the Contract documents. During the performance of the Contract, if in the opinion of the Engineer, proper progress is not maintained, suitable changes shall be made in the Contractor's operations to ensure proper progress without any cost implication to the Owner. The interface facilities to be provided by the Owner in accordance with the agreed network shall also be reviewed while reviewing the progress of the Contractor.

12.3 Based on the above agreed network/bar chart fortnightly reports shall be submitted by the Contractor as directed by the Engineer.

12.4 Subsequent to the finalization of the network, the Contractor shall make available to the Engineer a detailed manufacturing programme in line with the agreed Contract network.

Such manufacturing programme shall be reviewed, updated and submitted to the

Engineer once every two months thereafter.

12.5 The above bar charts/manufacturing programme shall be compatible with the Owner's computer environment and furnished to the Owner on such media as may be desired by the Owner.

13.0 Effectiveness of Contract

The Contract shall be considered as having come into force from the date of the notification of award unless otherwise provided in the notification of award.

14.0 Penalty for Delay

14.1.1 If the Contractor fails to successfully complete the commissioning/*supply* within the time fixed under the Contract, the Contractor shall pay to the Owner as penalty a sum specified for each specified period of delay. The details of such penalty are brought out in the accompanying Special Conditions of Contract (SCC)

14.1.2 Equipment and materials will be deemed to have been delivered only when all its components, parts are also delivered. If certain components are not delivered in time the equipment and materials will be considered as delayed until such time the missing parts also delivered.

14.1.3 The total amount of penalty for delay under the Contract will be subject to a maximum of 10% of the Contract prices detailed in the Special Conditions of Contract (SCC).

15.0 Guarantee

15.1 The Contractor shall warrant that the equipment will be new, unused and in accordance with the Contract documents and free form defects in material and workmanship for a period of twenty four (24) calendar months commencing immediately upon the satisfactory commissioning. The Contractor's liability shall be limited to the replacement of any defectives parts in the equipment of his own manufacture or those of his Sub-Contractors under normal use and arising solely form faulty design, material and/or workmanship provided always that such defective parts are repairable at the equipment. Such replaced/defective part shall be returned to the Contractor unless otherwise arranged. No repairs or replacement shall normally be carried out by the Engineer when the equipment is under the supervision of the contractor's Supervisory Engineer.

15.2 In the event of any emergency where in the judgment of the Engineer, delay would cause serious loss or damages, repairs or adjustment may be made by the Engineer or a third party chosen by the Engineer without advance notice to the Contractor and the cost of such work shall be paid by the Contractor. In the event such action is taken by the Engineer, the Contractor will notify promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the Contractor of his liabilities under the terms and conditions of the Contract.

15.3 If it becomes necessary for the Contractor to replace or renew any defective portions of the works the provision of this clauses shall apply to portion of the works so replaced or renewed until the expiry of twelve (12) months from the date of such replacement or renewal. If any defects are not remedied within a reasonable time, the Engineer may proceed to do the work at the Contractor's risk and cost but without prejudice to any other rights which Owner may have against the Contractor in respect of such defects.

15.4 The repaired or new parts will be furnished and erected free of cost by the Contractor. If any repair is carried out on his behalf at the site, the Contractor shall bear the cost of such repairs.

15.5 The cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the equipment or defective work carried out by the Contractor, the same shall be borne by the Contractor.

15.6 The acceptance of the equipment by the Engineer shall in no way relieve the Contractor of his obligations under this clause.

15.7 In the case of those defective parts, which are not repairable at site but are essential for the commercial operation of the equipment, the Contractor and the Engineer shall mutually agree to a programme of replacement or renewal, which will minimize interruption to the maximum extent in the operation of the equipment.

15.8 At the end of the guarantee period, the Contractor's liability ceases except for latent defects. For latent defects, the Contractor's liability as mentioned in Clause Nos. 15.1 through 15.7 above shall remain till the end of 5 years from the date of completion of guarantee period.

In respect of goods supplied by Sub-Contractors to the Contractor where a longer guarantee (more than 24 months) is provided by such Sub-Contractor, the Owner shall be entitled to the benefits of such longer guarantee.

15.9 The provisions contained in this clause will not be applicable:

a) If the Owner has not used the equipment according to generally approved industrial practice and in accordance with the conditions of operations specified and in accordance with operating manuals, if any.

b) In cases of normal wear and tear of the parts to be specifically mentioned by the Contractor in the offer.

16.0 Taxes, Plants & Licenses

The Contractor shall be liable and pay all non-Indian taxes, duties, levies lawfully assessed against the Owner or the Contractor in pursuance of the Contract. In addition the Contractor shall be responsible for payment of all Indian duties, levies and taxes lawfully assessed against the Contractor for his personal income & property only.

17.0 Replacement of Defective Parts and Materials

17.1 If during the performance of the Contract, the Engineer shall decide and inform in writing to the contractor that the Contractor has manufactured any equipment, material or part of equipment unsound and imperfect or has furnished any equipment inferior to the quality specified, the Contractor on receiving details of such defects or deficiencies shall at his own expenses within seven (7) days of his receiving the notice, or otherwise, within such time as may be reasonably necessary or making it good, proceed to alter, reconstruct or remove such works and furnish fresh equipment/materials upto the standards of the documents. In case, the Contractor fails to do so, the Engineer may on giving the Contractor seven (7) days notice in writing of his intentions to do so, proceed to remove the portion of the works so complained of and at the cost of the Contractor perform all such Works or furnish all such equipment/ material provided that nothing in this clause shall be deemed to deprive the Owner of or affect any rights under the Contract which the Owner may otherwise have in respect of such defects and deficiencies.

17.2 The Contractor's full and extreme liability under the clause shall be satisfied by the payment to the Owner of extra cost, such replacement procured including erection as provided for in the Contract, such extra cost being the ascertained difference between the price paid by the Owner for such replacements and the Contract Price by portion for such defective equipment/materials/work and repayments of any sum paid by the Owner to the Contractor in respect of such defective equipments/materials. Should the Owner not so replace the defective equipment/materials the Contractor's extreme liability under this clause shall be limited to repayment of all sums paid by the Owner under the Contractor for such defective equipment/materials.

18.0 Patent Rights and Royalties

Royalties and fees for patents covering materials, articles, apparatus, devices, equipment or processes used in the works shall be deemed to have been included in the Contract Price. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees and he alone shall be liable for any damages or claims for patent infringements and shall keep the Owner indemnified in that regard. The Contractor shall, at his won cost and expenses, defend all suits or proceedings that may be instituted for alleged infringement of any patents involved in the Works, and, in case of an award of damages, the Contractor shall pay for such award. In the event of any suit or other proceedings instituted against the Owner, the same shall be defended at the cost and expense of the contractor who shall also satisfy/comply with any decree, order or award made against the Owner. But it shall be understood that no such machine, plant, work, material or thing has been used by the Owner for any purpose or any manner other than that for which they have been furnished and installed by the Contractor and specified under these documents. Final payment to the Contractor by the Owner will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment, or any part thereof furnished by the Contractor, is in such suit or proceedings held to constitute infringement, and its use is procure for the Owner, the right to continue the use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so it becomes non-infringing.

19.0 Defense of Suits

If any action in court is brought against the Owner or Engineer or an officer or agent of the Owner, for the failure, omission or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his Sub-Contractors, or in connection with any claim based in lawful demands of Sub-Contractors , workmen, suppliers or employees, the Contractor shall in all such cases indemnify and keep the Owner, and the Engineer and or his representative, harmless form all losses, damages, expenses or decrees arising of such action.

20.0 Limitation of Liabilities

The final payment by the Owner in pursuance of the Contract shall mean the release of the Contractor from all his liabilities under the Contract. Such final payment shall be made only at the end of the Guarantee/Warranty period, and till such *time* as the Contractual liabilities and responsibilities of the Contractor, shall prevail. All other payments made under the Contract shall be treated as on-account payment.

21.0 Engineer's Decision

21.1 In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.

21.2 If, in the opinion of the Contractor, a decision made by the Engineer is not in accordance with the meaning and intend of the Contract, the Contractor may file within the Engineer, within fifteen (15) days after receipt of the decision, a written objection to the decision.

Failure to file an objection within the allotted time will be considered as an acceptance of the Engineer's decision and the decision shall become final and binding.

21.3 The Engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to request arbitration. It is the intent of the Agreement that there shall be no delay in the execution of the works and the decision of the Engineer as rendered shall bed promptly observed.

22.0 Power to Vary of Omit Work

22.1 No alterations, amendments, omission, suspensions or variations of the Works (hereinafter referred to as 'variation') under the Contract as detailed on the Contract Documents, shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full powers subject to the provisions hereinafter contained, from time to time during the execution of the Contract, by notice in writing to instruct the Contractor to make such variation without prejudice to the Contract. The Contractor shall carry out such variation and be bound by the same conditions as far as application as though occurred in the Contract Documents. If any suggested variations

would, in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the Engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the Engineer confirms his instructions, the Contractor's obligations and guarantees shall be modified to such an extent as may be mutually agree. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the Contract Price as the case may be.

22.2 In the event of Engineer requiring any variation, a reasonable and proper notice shall be given to the Contractor to enable him to work his arrangement accordingly, and in cases where goods or materials are already prepared or any design, drawing or pattern made or work done as per the contract requires to be altered, a reasonable and agreed sum in respect thereof shall be paid to the Contractor.

22.3 In any case in which the Contractor has received instructions from the Engineer as to the requirement of carrying out the alterations or additional or substituted work which either then or later on, will in the opinion of the Contractor, involve a claim for additional payment, the Contractor shall immediately and in no case later than thirty (30) days, after receipt of the instructions aforesaid and before carrying out the instructions, advise the Engineer to that effect. But the Engineer shall not become liable for payment of any charges in respect of any such variations, unless the instructions for the performance of the same shall be confirmed in writing by the Engineer.

22.4 If any variation in the Works results in reduction of Contract Price, the parties shall agree, in writing, so to the extent of any change in the price, before the Contractor proceeds with the change.

22.5 In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the Engineer shall prevail.

22.6 Notwithstanding anything stated above in this clause, the Engineer shall have the full power to instruct the Contract, in writing, during the execution of the Contract to vary the quantities of the items or groups of items in accordance with the provisions of clause entitled 'Change of Quantity' in section GCC of this Volume-I. The Contractor shall carry out such variations and be bound by the same conditions as though the said variations occurred in the Contract Documents. However, the Contract Price shall be adjusted at eh rates and the prices provided for the original quantities in the Contract.

23.0 Assignment and Sub-Letting of Contract

23.1 The Contractor may, after informing the Engineer and getting his written approval, assign or sub-let the Contract or any part thereof other than for raw material, for minor details or for any part of the plant for which makes are identified in the Contract. Suppliers of the equipment not identified in the Contract or any change in the identified suppliers shall be subjected to approval by the Engineer. The experience list of equipment vendors under consideration by the Contractor for the Contract shall be furnished to the Engineer for approval prior to procurement of all such items/equipment. Such assignment/sub-letting shall not relieve the Contractor of any obligation, duty or responsibility under the Contract. Any assignment as above, without prior written approval of Engineer, shall be void.

23.2 For components/equipment procured by the Contractor for the purposes of the Contract, after obtaining the written approval of the Owner, the Contractor's purchase documents and enquiries shall call for quality plan to be submitted by the suppliers along with their Proposals. The quality plans called for from the Vendors shall set out, during the various stages of manufacture and installation, the quality practices and procedures followed *by* the Vendors' quality control organization, the relevant reference document./ standard used, acceptance level, inspection documentation raised, etc. such quality plans of the successful vendors shall be discussed and finalized in consultation with the Engineer and shall form a part of the Purchase Order/Contract between the Contractor and the Vendor. Within three weeks of the release of the Purchase Orders/Contracts for such bought out items/components a copy of the same without price details but together with detailed purchase document, quality plans and delivery conditions shall be furnished to the Engineer by the Contractor.

24.0 Change of Quantity

24.1 During the execution of the Contract, the Owner reserves the right to increase or decrease the quantities of items under the Contract but without any change in unit price or other terms & conditions. Such variations unless otherwise specified in the accompanying Special Conditions of Contract and/or Technical Documents, shall not be subjected to any limitation for the individual items but the total variations in all such items under the Contract shall be limited to a percentage of the Contract price as specified in the Special Conditions of Contract.

24.2 The Contract price shall accordingly be adjusted based on the unit rates available in the Contract price shall accordingly be adjusted based on the unit rates available in the Contract for the change in quantities as above. The base unit currency of the Contract, except as provided for in Clause 33.0 below. In case the unit rates are not available for the change in quantity, the same shall be subjected to mutual agreement.

25.0 Packing, Forwarding and Shipment

25.1 The Contractor, wherever applicable, shall after proper painting, pack and crate all equipment in such a manner as to protect them from deterioration and damage during rail and road transportation to the Site and storage at the Site till the time of erection. The Contractor shall be held responsible for all damages due to improper packing.

25.2 The Contractor shall notify the Owner of the date of each shipment from his works, and the expected date of arrival at the Site for the information of the Owner.

25.3 The Contractor shall also give all shipping information concerning the weight, size and content of each packing including any other information the Owner may require.

25.4 The following documents shall be sent by registered post to the Owner within three days from the date of shipment, to enable the Owner to make progressive payments to the Contractor:-

Application for payment in the standard format of the Owner

Invoice

Packing list

Pre-despatch clearance certificate, if any

Test Certificate, wherever applicable

Insurance Certificate.

25.5 The Contractor shall prepare detailed packing list of all packages and containers, bundles and loose materials forming each and every consignment dispatched to Site.

The Contractor shall further be responsible for making all necessary arrangements for loading, unloading and other handling right from his works up to the Site and also till the equipment is erected, tested and commissioned. He shall be solely responsible for proper storage and safe custody of all equipment.

26.0 Cooperation with Other Contractors and Consulting Engineers

The Contractor shall agree to cooperate with the Owner's other Contractors and Consulting Engineers and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Engineer shall be provided with three copies of all correspondence addressed by the Contractor to other Contractors and Consulting Engineers of the Owner in respect of such exchange of technical information, Wherever needed.

27.0 No Waiver of Rights

Neither the inspection by the Owner or the Engineer or any of their officials, employees, or agents nor any order by the Owner or the Engineer for payment of money or any payment for or acceptance of, the whole or any part of the Works by the Owner or the Engineer, nor any extension of time, nor any possession taken by the Engineer shall operate as a waiver of any provision of the Contract, or of any power herein reserved to the Owner or any right to damages herein provided nor shall any waiver of any breach in the Contract be held to be waiver of any other or subsequent breach.

28.0 Certificate Not To Affect Right of Owner and Liability of The Contractor

No interim payment certificate of the Engineer, nor any sum paid on account by the Owner, nor any extension of time for execution of the Works granted by the Engineer shall affect or prejudice the rights of the Owner against the Contractor or relieve the Contractor of his obligation for the due performance of the Contract, or be interpreted as approval of the Works done or of the equipment furnished and no certificate shall create liability for the Owner to pay for alterations, amendments, variations or additional works not ordered, in writing, by the Engineer or discharge the liability of the Contractor for the payment of damages whether due, ascertained, or indemnify the Owner, nor shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the Owner against the Contractor.

29.0 Progress Reports

During the various stages of the work in pursuance of the Contract, the Contractor shall at his own cost submit periodic progress reports as may be reasonably required by the Engineer with such materials as, charts, networks, photographs, test certificates, etc. Such progress reports shall be in the form and size as may be required by the Engineer.

30.0 Taking Over

Upon successful completion of all the tests to be performed as Site on equipment furnished and erected by the Contractor, the Engineer shall issue to the Contractor a Taking Over Certificate as a proof of the final acceptance of the equipment. Such certificate shall not unreasonably be withheld nor will the Engineer delay the issuance thereof on account of minor omissions or defects which do not affect the commercial operation and/or cause any serious risk to the equipment. Such certificate shall not relieve the Contractor of any of his obligations which otherwise survive, by the terms and conditions of the Contract after issue of such certificate.

C. CONTRACT SECURITY AND PAYMENTS

31.0 Contract Performance Guarantee

The Contractor shall furnish Contract Performance Guarantee(s) for the proper fulfillment of the Contract in the prescribed form within fifteen (15) days of “Notice of Award of Contract”. The performance guarantees(s) shall be as per terms prescribed.

32.0 Payment

32.1 The payment to the Contractor for the performance of the works under the Contract will be made by the Owner as per the guidelines and conditions specified herein. All payments made during the Contract shall be on account payments only. The final payment will be made on completion of all Works and on fulfillment by the Contractor of all his liabilities under the Contract.

32.2 Currency of Payment

All payments under Contract shall be in Indian Rupees only.

32.3 Terms

Payment terms will be as prescribed in the special conditions of contract and on fulfillment of conditions specified thereof.

32.4 Payment Schedule

The Contractor shall prepare and submit to the Engineer for approval, a break up of the Contract Price. This Contract Price break-up shall be interlinked with the agreed detailed PERT network of the Contractor setting forth his starting and completions dated for the various key phases of Works prepared as per conditions in Clause 12.0 of this Section GCC of Volume I. Any payment under the Contract shall be made only after the Contractor’s price break up shall be equal to the lump sum Contract Price. A price breakup over valuing those items of supply which will be shipped first will not be accepted.

32.5 Application for Payment

32.5.1 The Contractor shall submit application for the payment in the prescribed proforma of the Owner. Proforma for application for payment will be as prescribed.

32.5.2 Each such application shall state the amount claimed and shall set forth in detail, in the order of the Payment Schedule, particulars of the Works including the Works executed at Site and of the equipment shipped/brought on to the site pursuant to the Contract upto the date mentioned in the application and for the period covered since the last preceding certificate, If any.

32.5.3 Every interim payment certificate shall certify the Contract value of the Works executed upto the date mentioned in the application for the payment certificate, provided that no sum shall be included in any interim payment certificate in respect of the works that, according to the decision of the Engineer, does not comply with the Contract.

32.6 Mode of Payment

32.6.1 Payment due on dispatch of equipment shall be made by the Owner through Owner's Bank or directly to the Contractor as per the payment schedule.

32.6.2 The payment of test charges, if any, payment, taxes and duties (whenever admissible) inland transportation (including port handling), insurance and the erection portion of the Works shall be made direct to the Contractor by the Owner.

Progressive payments linked with erection shall only be made after the issue of certificate by the Engineer, one for the quantum of work completed and the other for the successful completion of quality check points involved in the quantum of work billed.

32.6.3 Inland Transportation & Insurance

Inland transportation (including port handling) and inland insurance charges shall be paid to the Contractor on pro-rata to the value of the equipment received at site and on production of the invoices by the Contractor. However, wherever equipment wise inland transportation charges have been called for in the 'Bid Proposal Sheets' and have been furnished by the Contractor, the payment of inland transportation charges shall be made after receipt of equipment at site based on the charges thus identified by the Contractor in his Proposal and incorporated in the Contract. The aggregate of all such prorate payments shall however not exceed the total amount quoted by the Bidder in his bid and incorporated in the Contract.

33.0 Deductions from Contract Price

All costs, damages or expenses which the Owner may have paid, for which under the Contract the Contractor is liable, or any other retention award will be claimed by the Owner. All such claims shall be billed by the Owner to the Contractor regularly as and when they fall due. Such bills shall be supported by appropriate and certified vouchers or explanations, to enable the Contractor to properly identify such claims. Such claims shall be paid by the Contractor within thirty (30) days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Owner may them deduct the amount, from any monies due or becoming due by him to the Contractor under the Contract or may be recovered by sections of Law or otherwise.

D. RISK DISTRIBUTION

34.0 Transfer of Title

34.1 Transfer of title in respect of equipment and materials supplied by the Contractor to PTCUL pursuant to the terms of the Contract shall pass on to PTCUL with negotiation of dispatch documents.

34.2 This Transfer of Title shall not be construed to mean the acceptance and the consequent "Taking Over" of equipment and materials. The Contractor shall continue to the responsible for the quality and performance of such equipment and materials and for their compliance with the documents until "Taking Over" and the fulfillment of guarantee provisions of this Contract.

34.3 This Transfer of Title shall not relieve the Contractor from the responsibility for all risks of loss or damage to the equipment and materials as specified under the clause entitled "Insurance" of this Section.

35.0 Insurance

35.1 The Contractor at his cost shall arrange, secure and maintain all insurance as may be pertinent to the Works and obligatory in terms of law to protect his interest and interests of the Owner against all perils detailed herein. The form and the limit of such insurance as defined herein together with the underwriter in each case shall be acceptable to the Owner. However, irrespective of such acceptance, the responsibility to maintain adequate insurance coverage at all time during the period of Contract shall be of Contractor alone. The Contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations. The insurance covers to be taken by the Contractor shall , however, be authorized to deal directly with insurance Company or Companies and shall be responsible in regard to maintenance of all insurance covers. Further the insurance should be in freely convertible currency.

35.2 Any loss or damage to the equipment during handling, transportation, storage, erection, putting into satisfactory operation and all activities to be performed till the successful completion of commissioning of the equipment shall be to the account of the Contractor. The contractor shall be responsible for preference of all claims and make good the damages or loss by way of repairs and / or replacement of the equipment, damaged or lost. The transfer of title shall not in any way relieve the Contractor of the above responsibilities during the period of Contract. The contractor shall provide the Owner with copy of all insurance policies and documents taken out by him in pursuance of the Contract. Such copies of documents shall be submitted to the Owner immediately after such insurance coverage. The Contractor shall also inform the Owner in writing at least sixty (60) days in advance regarding the expiry/cancellation and/or change in any of such documents and ensure revalidation, renewal etc., as may be necessary well in time.

35.3 The perils required to be covered under the insurance shall include, but not be limited to fire and allied risks, miscellaneous accidents (erection risks) workman compensation risks, loss or damage in transit, theft, pilferage, riot and strikes and malicious damages, civil commotion, whether conditions, accidents of all kinds, etc. The scope of such insurance shall be adequate to cove the replacement/ reinstatement cost of the equipment for all risks upto and including delivery of goods and other costs till the equipment is delivered at Site. The insurance policies to be taken should be on replacement value basis and/or incorporating escalation clause. Notwithstanding the extent of insurance cover and the amount of claim available from the underwriters, the Contractor shall be liable to make good the full replacement/ rectification value of all equipment/ materials and to ensure their availability as per project requirements.

35.4 All costs on account of insurance liabilities covered under the Contract will be on Contractor's account and will be included in Contract Price, However, the Owner may from time to time, during the pendency of the Contract, ask the Contractor in writing to limit the insurance coverage, risks and in such a case, the parties to the Contract will agree for a mutual settlement, for reduction in Contract price to the extent of reduced premia amount. The Contractor, while arranging the insurance shall ensure to obtain all discounts on premia which may be available for higher volume or for reason of financing arrangement of the project.

35.5 The clause entitled 'Insurance' under the section ECC of the Volume-I, covers the additional insurance requirements for the portion of the works to be performed at the Site.

35.6 Special Conditions of Contract details out the various insurance liabilities.

36.0 Liability for Accidents And Damages

Under the Contract, the Contractor shall be responsible for loss or damage to the plant until the successful completion of commissioning as defined else where in the Bid document.

37.0 Delays by Owner or His Authorized Agents

37.1 In case the Contractor's performance is delayed due to any act of omission on the part of the Owner or his authorized agents, then the Contractor shall be given due extension of time for the completion of the Works, to the extent such omission on the part of the Owner has caused delay in the Contractor's performance of the Contract.

Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer shall be final.

37.2 In addition, the Contractor shall be entitled to claim demonstrable and reasonable compensation if such delays have resulted in any increase in cost. The Owner shall examine the justification for such a request for claim and if satisfied, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such an occurrence.

38.0 Demurrage, Wharfage etc.

All demurrage, wharfage and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the Contractor.

39.0 Force Majeure

39.1 Force majeure is herein defined as any cause which is beyond the control of the Contractor or the Owner as the case may be, which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of the Contract, such as:

a. Natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics;
b. Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, guarantees, embargoes.

Provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such clauses.

39.2 The Contractor or the Owner shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above.

The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after Contractor's performance of obligation has been delayed due to other causes.

40.0 Suspension of Work

40.1 The Owner reserves the right to suspend and reinstate execution of the whole or any part of the Works without invalidating the provisions of the Contract. Orders for suspension or reinstatement of the Works will be issued by the Engineer to the Contractor in writing. The time for completion of the works will be extended for a period equal to duration of the suspension.

40.2 Any necessary and demonstrable cost incurred by the Contractor as a result of such suspension of the works will be paid by the Owner, provided such costs are substantiated to the satisfaction of the Engineer. The Owner shall not be responsible for any liabilities if suspension or delay is due to some default on the part of the Contractor or his Sub-Contractor.

41.0 Contractor's Default

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

41.2 In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of Works as defined in Clause 14.0 of this Section.

41.3 Such action by the Owner as aforesaid the termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the Contract Performance Guarantee nor the time thereof. The Contract Performance Guarantee shall be valid for the full value and for the full period of the Contract including guarantee period.

42.0 Termination of Contract on Owner's Initiative

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

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

In the event of such a termination the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstances prevalent at the time of termination.

42.3 If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and the Contractor is a partnership concern and one of the partners dies then unless the Owner is satisfied that the legal representatives of the individual Contractor or of the proprietor of the propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract the Owner shall be entitled to cancel the Contract as to its incompleted part without being in any way liable to payment of any compensation to the estate of deceased Contractor and/or to the surviving partners of the Contractor's firm on account of the cancellation of the Contract. The decision of the Owner that the legal representatives of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the Contract shall be final and binding on the parties. In the event of such cancellation the Owner shall not hold the estate of the deceased Contractor and/or the surviving partners of the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable to damages for not completing the Contract.

43.0 Frustration of Contract

43.1 In the event of frustration of the Contract because of supervening impossibility in terms of Section 56 of the Indian Contract Act, parties shall be absolved of their responsibility to perform the balance portion of the Contract, subject to provisions contained in sub-clause 46.3 below.

43.2 In the event of non-availability or suspension of funds for any reasons, whatsoever (except for reason of willful or flagrant breach by the Owner) and/or Contractor then the works under the Contract shall be suspended.

Furthermore, if the Owner is unable to make satisfactory alternative arrangements for financing to the Contractor in accordance with the terms of the Contract within three months of the event, the parties hereto shall be relieved from carrying out further obligations under the contract treating it was frustration of the Contract.

43.3 In the event referred to in sub-clauses 46.1 & 46.2 above the parties shall mutually discuss to arrive at reasonable settlement on all issues including amounts due to either party for the work already done on quantum merit-basis which shall be determined try mutual agreement between the parties.

44.0 Grafts and Commissions Etc.

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the Contractor or his partner(s), agent(s), officer(s), director(s), employee(s) or servant(s) or any one on his or their behalf in relation to the obtaining or to the execution of this or any other Contract with the Owner, shall in addition to any criminal liability which it may incur, subject the Contractor to the cancellation of this and all other Contracts and also to payment of any loss or damage to the Owner resulting from any cancellation. The Owner shall then be entitled to deduct the amount so payable from any monies otherwise due to Contractor under the Contract.

F. RESOLUTION OF DISPUTES

45.0 Settlement of Disputes

45.1 Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the parties.

45.2 If any dispute or difference of any kind, whatsoever, shall arise between the Owner and the Contractor, arising out of the Contract for the performance of the Works whether during the progress of the Works or after its completion or whether before or after the termination, abandonment or breach of the Contract, it shall, in the first place, be referred to and settled by the Engineer, who, within a period of thirty (30) days after being requested by either party to do so, shall give written notice of his decision to the Owner and the Contractor.

45.3 Save as hereinafter provided, such decision in respect of every matters so referred shall be final and binding upon the parities until the completion of the Works and shall forthwith be given effect to by the Contractor who shall proceed with the Works with all due diligence, whether he or the Owner requires arbitration as hereinafter provided or not.

45.4 If after the Engineer has given written notice of his decision to the parties, no claim to arbitration has been communicated to him by either party within thirty (30) days from the receipt of such notice, the said decision shall become final and binding on the parties.

45.5 In the event of the Engineer failing to notify his decision as aforesaid within thirty (30) days after being requested as aforesaid, or in the event of either the Owner or the Contractor being dissatisfied with any such decision, or within thirty (30) days after the expiry of the first mentioned period of thirty days, as the case may be, either party may require that the matters in dispute be referred to arbitration as hereinafter provided.

46.0 Arbitration

46.1 All disputes or differences in respect of which the decision, if any, of the Engineer has not become final or binding as aforesaid shall be settled by arbitration in the manner hereinafter provided.

46.1.1 The arbitration shall be conducted by three arbitrators, one each to be nominated by the Contractor and the Owner and the third to be appointed as an umpire by both the arbitrators in accordance with the Indian Arbitration Act. If either of the parties fails to appoint its arbitrator within sixty (60) days after receipt of a notice from the other party invoking the Arbitration clause, the arbitrator appointed by the party invoking the arbitration clause shall become the sole arbitrator to conduct the arbitration.

46.1.2 The arbitration shall be conducted in accordance with the provisions of the Indian Arbitration Act, 1940 or any statutory modification thereof. The venue of arbitration shall be Dehradun.

46.2 The decision of the majority of the arbitrators shall be final and binding upon the parties. The arbitrators may, from time to time with the consent of all the parties enlarge the time for making the award. In the event of any of the aforesaid arbitrators dying, neglecting, resigning or being unable to act for any reason, it will be lawful for the party concerned to nominate another arbitrator in place of the outgoing arbitrator.

46.3 The arbitrator shall have full powers to review and/or revise any decision, opinion, direction, certification or valuation of the Engineer in accordance with the Contract, and neither party shall be limited in the proceedings before such arbitrators to the evidence or arguments put before the Engineer for the purpose of obtaining the said decision.

46.4 No decision given by the Engineer in accordance with the foregoing provisions shall disqualify him as being called as a witness or giving evidence before the arbitrators on any matter whatsoever relevant to the dispute or difference referred to the arbitrators as aforesaid.

46.5 During settlement of disputes and arbitration proceedings, both parties shall be obliged to carry out their respective obligations under the Contract.

47.0 Reconciliation of Accounts

The Contractor shall prepare and submit every six months, a statement covering payments claimed and the payments received vis-à-vis the works executed, for reconciliation of accounts with the Owner. The Contractor shall also prepare and submit a detailed account of Owner Issue materials received and utilized by him for reconciliation purpose in a format to be discussed & finalized with the owner before the award of Contract.

SECTION – ECC

ERECTION CONDITIONS OF CONTRACT

1.0 GENERAL

1.1 The following shall supplement the conditions already contained in other parts of these documents & document and shall govern the portion of the work of this Contract to be performed at Site.

1.2 The Contractor upon signing of the Contract shall, nominate a responsible officer as his representative as Site suitably designated for the purpose of overall responsibility and coordination of the works to be performed at Site. Such persons shall function from the Site office of the Contractor during the pendency of Contract.

2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES

2.1 The Contractor shall comply with all the rules and regulations of local authorities during the performance of his filed activities. He shall also comply with the Minimum Wages Act, 1948 and the Payment of Wages Act (both of the government of India) and the rules made thereunder in respect of any employee or workman employed or engaged by him or his Sub-Contractor. He shall abide by labour laws and others as specified in the special conditions of Contract.

2.2 All registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the Contractor. Should any such inspection or registration need to be re-arranged due to the fault of the Contractor or his Sub Contractor, the additional fees to such inspection and/or registration also shall be borne by the Contractor.

3.0 OWNER'S LIEN ON EQUIPMENT

The Owner shall have lien on all equipment brought to the Site for the purpose of erection, testing and commissioning of the equipment to be supplied & erected under the Contract. The Owner shall continue to hold the lien on all such equipment throughout the period of Contract. No material brought to the Site shall be removed from the Site by the Contractor and/or his Sub- Contractors without the prior written approval of the Engineer.

4.0 ACCESS TO SITE AND WORKS ON SITE

4.1 Suitable access to and possession of the Site shall be afforded to the Contractor by the Owner in reasonable time.

4.2 The works so far as it is carried out on the Owner's premises, shall be carried out at such time as the Owner may approve and the Owner shall give the Contractor reasonable facilities for carrying out the works.

4.3 In the execution of the works, no person other than the Contractor or his duly appointed representative, Sub-Contractor and workmen, shall be allowed to do work on the Site, except by the special permission, in writing of the Engineer or his representative.

5.0 CONTRACTOR'S SITE ESTABLISHMENT

The Contractor shall at all times keep posted an authorised representative for the purpose of the contract. Any written order or instruction of the Engineer of his duly authorized representative shall be communicated to the said authorised resident representative of the Contractor and the representative shall be available at a stated address for this purpose.

6.0 CO-OPERATION WITH OTHER CONTRACTORS

6.1 The Contractor shall co-operate with all other Contractors or tradesmen of the Owner, who may be performing other works on behalf of the Owner and the workmen who may be employed by the Owner and doing work in the vicinity of the Works under the Contract. The Contactor shall also so arrange to perform his work as to minimize, to the maximum extent possible, interference with the work of other Contactors and their workmen. Any injury or damage that may be sustained by the employees of the other Contactors and the Owner, due to the Contactor's work shall promptly be made good at the Contactor's own expense.

7.0 DISCIPLINE OF WORKMEN

The Contactor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at Site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contactor at the Site, if in the opinion of the Engineer such employee has misconducted himself or is incompetent or negligent or otherwise undesirable and then the Contactor shall remove such a person objected to and provide in his place a competent replacement.

8.0 CONTRACTOR'S FIELD OPERATION

8.1 The Contactor shall keep the Engineer informed in advance regarding his filed activity plans and schedules for carrying-out each part of the works. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contactor of any of his responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Owner or any of his representatives and no claim of the Contactor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contactor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.

8.2 The Contactor shall have the complete responsibility for the conditions of the Work-site including the safety of all persons employed by him or his Sub-Contractor and all the properties under his custody during the performance of the work. The requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours.

9.0 PROGRESS REPORT

9.1 The Contactor shall furnish three (03) copies each to the Engineer of progress including if any, photographs of the work done at Site.

9.2 The monthly progress report detailing-out the progress achieved on all erection activities shall highlight comparison to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and the action proposed for corrective measures, wherever necessary.

10.0 MAN-POWER REPORT

10.1 The Contactor shall submit to the Engineer, on the first day of every month, a man hours scheduled for the month, detailing the man hours scheduled for the month, skill-wise and area-wise.

11.0 PROTECTION OF WORK

The Contractor shall have total responsibility for protecting his work till it is finally taken over by the Engineer. No claim will be entertained by the Owner or by the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for complete restoration of the damaged works to original conditions to comply with the document and drawings.

12.0 EMPLOYMENT OF LABOUR

12.1 The Contractor will be expected to employ on the work only his regular skilled employees with experience of this particular work. No person below the age of eighteen years shall be employed.

12.2 All traveling expenses including provision of necessary transport to and from Site lodging, allowance and other payments to Contractor's employees shall be sole responsibility of the Contractor.

12.3 In case the Owner becomes liable to pay any wages or dues to Labour or any Government agency under any of the provisions of the minimum wages Act, Workmen Compensation Act, Contract Labour Regulation Abolition Act, or any other law due to act of omission of the Contractor, the Owner may make such payment and shall recover the same from the Contractor's bills.

13.0 FACILITIES TO BE PROVIDED BY THE OWNER

13.1 Space

Land for Contractor's Store, Workshop etc.

a) The Engineer shall at his discretion and for the duration of execution of the Contract make available at sire, land for construction of Contractor's field office, workshop, stores, etc. required for execution of the Contract. The Contractor at his cost shall do any such construction.

b) On completion of work the Contractor shall hand over the land duly cleaned to the Engineer. Until and unless the Contractor has handed over the vacant possession of land allotted to him for the above purposes, the payment of his final bill shall not be made.

13.2 Electricity:

Power supply

Where power supply is available with the Owner for construction purpose the same will be provided at the job site at one point of the distribution system as may be decided by Engineer free of charge for consumption in works. Electricity furnished will be 440 volts, 3 phase, 50 cycles and 230 volts, 1 phase, 50 cycles. Each Contractor shall provide and install all necessary transformers, switchgears, wiring fixtures, bulbs and other temporary equipment for further distribution and utilization of energy of power and lighting and shall remove the same on completion of the work. Should, however, electricity be used in the Contractor's labour/staff colony, the power so consumed shall be charged at the prevailing tariff rate of the Board as prevalent for that area at the time of award of work; the supply may be withdrawn if the power is used for purposes other than for the work of the project and the Contractor shall not be entitled to any claim whatsoever on account of any such action taken by the Engineer.

14.0 FACILITIES TO BE PROVIDED BY THE CONTRACTOR

14.1 Tools, tackles and scaffoldings

The Contractor shall provide all the construction equipments; tools, tackles and scaffoldings required for pre-assembly, erection, testing and commissioning of the equipment covered under the Contract. He shall submit a list of all such materials to the Engineer before the commencement of work at site. These tools and tackles shall not be removed from the site without the written permission of the Engineer.

14.2 First-aid

The Contractor shall provide necessary first-aid facilities for all his employees, representative and workmen working at the site. Enough number of Contractor's personnels shall be trained in administering first-aid

14.3 Cleanliness

14.3.1 The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of personnel to keep the workarea clean. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.

15.0 LINES AND GRADES

All the works shall be performed to the lines, grades and elevations indicated on the drawing. The Contractor shall be responsible to locate and lay-out the works. Basic horizontal and vertical control points will be established and marked by the Engineer at site at suitable points. These points shall be sued as datum for the works under the Contract. The Contractor shall inform the Engineer well in advance of the times and places at which he wishes to do work in the area allotted to him so that suitable datum points may be established and checked by the Engineer to enable the Contractor to proceed with his works. Any work done without being properly located may be removed and/or dismantled by the Engineer at Contractor's expense.

16.0 FIRE PROTECTION

16.1 The work procedures that are to be used during the erection shall be those, which minimize fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the Site at least once each day. Fuels, oils and volatile or inflammable materials shall be stored away from the construction and equipment and materials storage areas.

16.2 All the Contractor's supervisory personnel and select number of workers shall be trained for fire fighting. Enough of such trained personnel must be available at the Site during the entire period of the Contract.

17.0 SECURITY

The Contractor shall have total responsibility for all equipment and materials in his custody/stores, loose, semi-assembled and/or erected by him at site. The Contractor shall make suitable security arrangements ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss.

18.0 PRE-COMMISSIONING TRIALS AND INITIAL OPERATIONS

The pre-commissioning trials and initial operations of the equipment furnished and erected by the Contractor shall be the responsibility of the Contractor as detailed in relevant clauses of Technical Documents. The Contractor shall provide, in addition, test instruments, calibrating devices, etc. and labour required for successful performance of these trials. If it is anticipated that the above test may prolong for a long time, the Contractor's workmen required for the above test shall always be present at Site during such trials.

19.0 MATERIALS HANDLING AND STORAGE

19.1 All the equipment furnished under the Contract and arriving at Site shall be promptly received, unloaded, transported and stores in the storage spaced by the Contractor.

19.2 Contractor shall be responsible for examining all the shipment and notify the Engineer immediately of any damages, storage, discrepancy etc., for the purpose of Engineer's information only. The Contractor shall submit to the Engineer every week a report detailing all the receipts during the week. However, the Contractor shall be solely responsible for any shortages or damages in transit, handling and/or in storage and erection of the equipment at Site. Any demurrage, wharfage and other such charges claimed by the transporters, railways etc., shall be to the account of the Contractor.

19.3 The Contractor shall maintain an accurate and exhaustive record detailing out the list of all equipment materials received by him for the purpose of erection and keep such record open for the inspection of the Engineer in-charge.

19.4 All equipment shall be handled very carefully to prevent any damage or loss. The equipment stored shall protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at Site.

19.5 All electrical panels, control gears, motors and such other devices shall be properly dried by heating before they are installed and energized. Motor bearings, slip ring, commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically inspected.

19.6 All the electrical equipment such as motors, generators, etc. shall be tested for insulation resistance atleast once in three months from the date of receipt till the date of commissioning and a record of such measured insulation values maintained by the Contractor. Such records shall be opened for inspection by the Engineer.

19.7 The consumable and other supplied likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality by storage.

19.8 All the materials stored in the open or dusty location must be covered with suitable weatherproof and flame proof covering material wherever applicable.

19.9 If the materials belonging to the Contractor are stored in areas other than those earmarked for him, the Engineer will have the right to get it moved to the area earmarked for the Contractor at the Contractor's cost.

19.10 The Contractor shall be responsible for making suitable indoor storage facilities to store all equipment, which require indoor storage. Normally, all the electrical equipment such as motors, control gears, generators, exciters and consumables like electrodes, lubricants etc. shall be stored in the closed storage space. The Engineer, in addition, may direct the Contractor to move certain other materials, which in his opinion will require indoor storage, to indoor storage areas, which the Contractor shall strictly comply with.

20.0 CONSTRUCTION MANAGEMENT

20.1 The field activities of the Contractors working at Site, will be coordinate by the Engineer and the Engineer's decision shall be final in resolving any disputes or conflicts between the Contractor and other Contractors and the tradesmen of the Owner regarding scheduling and coordination of work. Such decision by the Engineer shall not be a cause for extra compensation or extension of time for the Contractor.

20.2 The Engineer shall hold weekly meetings of the contractor at site, at a time and place to be designated by the Engineer. The Contractor shall attend such meetings and take notes of discussions during the meeting and the decision of the Engineer and shall strictly adhere to those decisions in performing his works. In addition to the above weekly meeting, the Engineer may call for other meetings either with individual Contractors or with selected number of Contractors and in such a case the Contractors if called, will also attend such meetings.

20.3 Time is the essence of the Contract and the Contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time, the Contractor is falling behind the schedule, he shall take necessary action to make good for such delays by increasing his work force or by working overtime or otherwise accelerate the progress of the work to comply with the schedule and shall communicate such actions in writing to the Engineer, satisfying that his action will compensate for the delay. The Contractor shall not be allowed any extra compensation for such action.

20.4 The engineer shall, however, not be responsible for provision of additional labour and/or materials or supply or any other services to the Contractor except for the coordination work between various Contractors if any at site.

21.0 FIELD OFFICE RECORDS

The contractor shall maintain up to date copies of all drawings, document and other Contract Documents and any other supplementary data complete with all the latest revisions thereto. The Contractor shall also maintain in addition the continuous record of all changes to the above Contract Documents, drawings, documents and supplementary data etc. effected at the field and on completion of his total assignment under the contract shall incorporate all such changes on the drawings and other Engineering data to indicate as installed conditions of the equipment furnished and erected under the contract. Such drawings and Engineering data shall be submitted to the Engineer in required number of copies.

22.0 CONTRACTOR'S MATERIALS BROUGHT TO SITE

22.1 The Contractor shall bring to Site all equipment, components, parts, materials, including construction equipment, tools and tackles for the purpose of the works under intimation to the Engineer. All such goods shall, from the time of their being brought vest in the Owner, but may be used for the purpose of the works only and shall not on any account be removed or taken away by the Contractor without the written permission of the

Engineer. The Contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

22.2 The Owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the Contractor, under, in respect of or by reasons of the Contract. After giving a fifteen (15)) days notice in writing of his intention to do so, the Owner shall be at liberty to sell and dispose off any such goods, in such manner as he shall think fit and to apply the proceeds in or towards the satisfaction of such or sums due as aforesaid.

22.3 After the completion of the Works, the Contractor shall remove from the Site under the direction of the Engineer the materials such as construction equipment, erection tools and tackles, scaffolding etc. with the written permission of the Engineer.

23.0 PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY

23.1 The Contractor shall be responsible for any damage resulting from his operations. He shall also responsible for protection of all persons including members of public and employees of the Owner and the employees of other Contractors and Sub-Contractors and all public and private property.

24.0 INSURANCE

24.1 In addition to the conditions covered under the Clause entitled 'Insurance' in General Terms and Conditions of Contract of this Volume-I, the following provisions will also apply to the portion of works to be done beyond the Contractor's own or his Sub-Contractor's manufacturing Works.

24.2 Workmen's Compensation Insurance

This insurance shall protect the Contractor against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his sub-Contractor's employee, which for any reason are not covered under the Workmen's Compensation Act, 1948. The liabilities shall not be less than:

Workmen's Compensation	:	As per statutory Provisions
Employee's Liability	:	As per statutory Provisions

24.3 Comprehensive General Liability Insurance

The insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act of omission on the part of the Contractor, his agents, his employees, his representatives and Sub-Contractors or form riots, strikes and civil commotion.

24.4 The hazards to be covered will pertain to all the works and areas where the contractor, his Sub-Contractors, his agents and his employees have to perform work pursuant to the Contract.

24.5 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the Contractors to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect, in pursuance of the Contract.

25.0 UNFAVOURABLE WORKING CONDITIONS

The contactor shall confine all his field operations to those works, which can be performed without subjecting the equipment and material to adverse effect during inclement weather conditions, like monsoon, storms etc. and during other unfavorable constructions conditions. No field activities shall be performed by the Contractor under conditions, which might adversely affect the quality of and efficiency thereof, unless special precautions or measure are taken by the Contractor in a proper and satisfactory manner in the performance of such Works and with the concurrence of the Engineer. Such unfavorable construction conditions will in no way relieve the Contractor of his responsibility to perform the Works as per schedule.

26.0 PROTECTION OF MONUMENTS AND REFERENCE POINTS

The Contractor shall ensure that any finds such as relic, antiquity, coins, fossils, etc. which he may come across during the course of performance of his Works either during excavation or elsewhere, are properly protected and handed over to the Engineer. Similarly the Contractor shall ensure that the bench marks, reference points etc., which are marked either with the help of Engineer or by the Engineer shall not be distributed in any way during the performance of his works. If any work is to be performed which disturbs such reference the same shall be done only after these are transferred to other suitable locations under the direction of the Engineer. The Contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

27.0 WORK & SAFETY REGULATIONS

27.1 The Contractor shall ensure proper safety of all the workmen, materials, plant and equipment belonging to him or to PTCUL or to others, working at Site. The Contractor shall also be responsible for provision of all safety notice and safety equipment required both by the relevant legislations and the Engineer, as he may deem necessary.

27.2 All equipment used is construction and erection by Contractor shall meet Indian/International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor in accordance with manufacturer's Operation Manual and safety instructions and as per Guidelines/rules of PTCUL in this regard.

27.3 Periodical examinations and all tests for all lifting/hoisting equipment & tackles shall be carried-out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/Rules in force from time to time. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by the Engineer or by the person authorised by him.

27.4 The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need.

27.5 The Contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the Contractor.

27.6 The Contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by PTCUL to handle such fuses, wiring or electrical equipment.

27.7 Before the Contractor connects any electrical appliances to nay plug or socket belonging to the other Contractor or Owner, he shall:

a. Satisfy the Engineer that the appliance is in good working condition;

b. Inform the Engineer of the maximum current rating, voltage and phases of the appliances;

c. Obtain permission of the Engineer detailing the sockets to which the appliances may be connected.

27.8 The Engineer will not grant permission to connect until he is satisfied that;

a. The appliance is in good condition and is fitted with suitable plug;

b. The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.

27.9 No electric cable in use by the Contractor/Owner will be disturbed with out prior permission. No weight of any description will be imposed on any cable and no ladder of similar equipment will rest against or attached to it.

27.10 No repair work shall be carried out on any live equipment. The equipment must be declared safe by the Engineer and a permit to work shall be issued by the Engineer before any repair work is carried out by the Contractor. While working on electric lines/ equipment, whether live or dead, suitable type and sufficient quantity of tools will have to he provided by the Contractor to electricians / workmen/ officers.

27.11 In case any accident occurs during construction / erection or other associated activities undertaken by the Contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Engineer in prescribed form and also to all the authorities envisaged under the applicable laws.

27.12 The Engineer shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accident and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Engineer with in 3 days of such stoppage of work and decision of the Engineer in this respect shall be conclusive and binding on the Contractor.

27.13 The Contractor shall not be entitled for any damage /compensation for stoppage of work due to safety reasons as provided in para 31.18 above and the period of such stoppage of work will not be taken as an extension of time for completion or work and will not be the ground for waiver of levy of liquidated damages.

27.14 It is mandatory for the Contractor to observed during execution of the works, requirement of Safety Rules which would generally include but not limited to following:

a) Each employee shall be provided with initial indoctrination regarding safety by the Contractor, so as to enable him to conduct his work in a safe manner.

b) No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.

c) Employees must not leave naked fires unattended. Smoking shall not be permitted around fire prone areas and adequate fire fighting equipment shall be provided at crucial location.

d) There shall be suitable arrangement at every work site for rendering prompt and sufficient first aid to the injured.

e) Requirements of ventilation in underwater working to licensed and experienced divers, use of gum boots for working in slushy or in inundated conditions are essential requirements to be fulfilled.

27.15 The Contractor shall follow and comply with all PTCUL Safety Rules, relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservations. In case of any discrepancy between statuary requirement and PTCUL Safety Rules referred above, the later shall be binding on the Contractor unless the statuary provisions are more stringent.

a.	Fatal injury or accident causing death	Rs. 1,00,000/- per person : for death	:	These are applicable
b.	Major injuries or accident causing 25% or more permanent disablements to workmen or employees	Rs. 20,000/- per person	: : :	Injury to any person whosoever

Permanent disablement shall have same meaning as indicated in Workmen's Compensation Act. The compensation mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of Workmen's Compensation Act and rules framed there under or any other applicable laws as applicable from time to time. In case the Owner is made to pay such compensation then the Contractor is liable to reimburse the Owner such amount in addition to the compensation indicated above.

28.0 CODE REQUREMENTS

The erection requirements and procedure to be followed during the installation of the equipment shall be in accordance with the relevant Codes and accepted good engineering practice, the Engineer's drawings and other applicable Indian recognized codes and laws and regulation of the Government of India.

SECTION–II - SCC - PART-I

SPECIAL CONDITIONS OF CONTRACT

1.0 General Particulars

This part of the Bid Document relates to certain specific/special terms and conditions particular to the Contract. The provisions herein are to be read and understood in conjunction with the relevant provisions elsewhere in the instructions to Bidders (ITB), the General Conditions of Contract (GCC) and Erection conditions of Contract (ECC). The intent of provisions herein are specific to this contract and are, in general, supplementary to related provisions under ITB, GCC and ECC. However, in certain provisions which are contrary to those in ITB, GCC and ECC, the provisions in these Special Conditions of Contract will prevail.

2.0 Tender Fee

The tender fee specified in notice inviting tender is payable by Demand Draft (DD) at Dehradun drawn on any Scheduled Bank in favour of MD, Power Transmission Corporation of Uttarakhand Ltd. The same will be furnished in Cover-I of Bid along with EMD (Bid Security).

3.0 Earnest Money Deposit (EMD)

The EMD is payable as under:

3.1 50% of EMD by DD in favour of Power Transmission Corporation of Uttarakhand Ltd. on any Scheduled Bank in Dehradun. Balance 50% by Bank Guarantee from any Schedule Bank in the format provided herein.

3.2 Payment by Cheque/Coop Bank Guarantee/Company Guarantee is not permissible.

4.0 Declaration by Bidder

The bidder shall sign the Declaration enclosed to this SCC and not furnishing the same will make the Bid invalid.

5.0 Qualifying Criteria

5.1 Technical Criteria:

(i) The tenderers should have constructed 3 Nos. or more 33 KV or higher voltage class Bays in last 2 year.

(ii) The tenderers should either be turnkey contractor for Bays of 33 KV or higher voltage class or manufacturer of 33 KV or higher voltage class Bay Equipments or should have tie-up with reputed manufacturer of such equipments in India.

(iii) A joint venture of firm having one partner as lead partner shall meet jointly, the entire qualifications requirement. However, the turnover shall be considered only of lead partner (prime bidder).

(iv) The tenderers must have all necessary facilities at their works or at the works of their supplier for carrying out such routine and acceptance tests as prescribed in the relevant ISS and any other routine and acceptance test as specified in the tender document. Documentary evidence of existence of such facilities must be filled along with the tender.

(v) The sub-vendor for other project materials shall be a reputed manufacturer of the material offered and shall have a minimum experience of 5 years in manufacturing of such material. Experience of sub contractor will not be considered for qualification.

Note: (The above cited experience and manufactured quantities shall be counted as on the date of opening of the tender and should be duly supported with authenticated copies of documents without which the tender is liable to be rejected summarily).

(vi) The tenderers should furnish the details of their experience and statement of past/ current projects of similar nature to this tender in the following forms. Photostat copies of Order and Performance Reports of these items from various State Electricity Boards/ Public Sector Power utilities/ other Government departments should also be given.

S.No.	Name and address of ordering authority	Order contract No. and Date	Particulars of ordered material with brief specification	Order Quantity.	Quantity Supplied with date	Remarks

(vii) The constructed Bays should have given proven trouble free performance in tropical climate for at least three years.

5.2 Financial Criteria:

(i) The annual average turnover of the Tenderer for the preceding three years should not be less than Rs. Two Crore Ten Lacs.

(i) The Bidder should have liquid assets of at least Rs. Four Crore Ten Lacs at the time of bidding. Relevant document /certificate/financial statement must be furnished in support.

Registration of "A" class with Board/Governments/Semi Government and validity of the registration should be furnished along with the technical bid. Latest Bank solvency certificate of 20% of the tender value is required to be furnished by the tenderer along with the technical bid.

6 Additional Documents

Apart from various documents to be furnished along with the Bid as required in the GCC and ECC, the following documents/details are to be furnished by the Bidder:

1. Sales Tax/Service Tax Registration No. date/issuing authority
2. Regn. No. under Shops & Estt. Act/issuing authority.
3. Details of Partners/Directors of the Firm/Company.
4. Experience Record and details of orders pending/executed for various utilities.
5. Last five years Audited Accounts.
6. Detail of Manufacturing/Fabrication facilities.
7. Factory Registration/license details.

8. 'A' class contractor's license with validation. ***Considering tender cost up to 3 crores for above 'AA' class Regi. require***
9. Solvency certificate from Bank (upto 20%) of Bid value).
10. *PAN No of the firm/ Company or PAN No of all its partner's in case of partnership firm or PAN No of the individual, incase of proprietorship.*

7 PRICE INCLUSIONS (Including Taxes & Duties)

7.1 Excise Duty: 100% value of Excise duty *and Cess* on materials, equipment, plant shall be reimbursed on submission of documents of excise duty paid by the Contractor at the prevailing or offered applicable rate, whichever is lower. However Chartered Accountants' certificate (along with last advance bill) that excise duty paid as by the Contractor and claim from PTCUL has not been refunded nor refund claim is pending with Excise department. Further, Contractor have to furnish and undertaking to *Company* that in any event, if any refund of excise duty either in full or part is received by Contractor in respect of the material supplied to PTCUL against tender under reference the same shall be passed on to the Board without any further claim to that effect from PTCUL.

7.2 The prices quoted shall be all inclusive of freight, transportation, loading, - unloading & stacking at site of materials supplied by Contractor as well as owner supplied item if any.

7.3 Sales Tax: The prices should be quoted inclusive of sales tax i.e. *VAT* or CST to be indicated. The rate of sales tax (*VAT* or CST) should clearly be indicated. However, in the breakup of end cost, sales tax has to be shown separately. The stores are required for consumption in generation, transmission and distribution of electrical energy and as such, Uttarakhand State forms "C" / C-1" / Central "C" from will be issued at the time of payment of bills, you are requested to quote your sales tax registration Number and date in all the bills.

7.4 No sales tax will be paid on bought out items.

7.5 All the relevant provisions of Uttarakhand Value Added Tax (UVAT) 2005 shall be applicable

7.6 As per the Government of Uttarakhand directives, while evaluating offer*s* incidence of sales tax will not be considered

7.7 ***Educational and other Cess:*** *All cess will be payable @ applicable*

7.8 Sale Tax on Works Contract

Works contact tax is liability of the bidder and if applicable, the same shall be borne by the bidder.

In case of contract value exceeding Rs. 1 Crore (Rupees One Crore only), tax shall be deducted at source at 2% of the net value payable as per the section 57(b) of the Uttarakhand Sale Tax Act of 1969 amended up to date. However, if contractor desires *payment* without deduction of 2% TDS, he has to obtain and produce certificate from competent authority of sales tax department to that effect.

7.9 E.D. / ST amount ceiling

Bidder shall also confirm that the total claim of excise duty and sales tax shall not exceed the amount indicated in the price bid.

7.10 Service Tax

Service Tax as applicable presently to this Contract will be included in the price; however the percent of Tax applied on this account shall be specifically mentioned in the bid. If the tax is not eventually payable or there is a difference between the rate mentioned in the bid & service tax actually payable then such amount or difference in payment amount shall be deducted from the actual amount payable towards the item in the price schedule.

7.11 Statutory Variations:

Any statutory increase or decrease in the taxes and duties subsequent to your offer if it takes place within the original contractual delivery date will be to the *PTCUL* account subject to the claim being supported by documentary evidence. However, if any decrease takes place after the contractual delivery date, the advantage will have to be passed on to the *PTCUL.*

No statutory variation shall be admitted, if the excise duty becomes payable because of exceeding the prescribed limits for turn over or for any such other reasons.

7.12 Income Tax

Income-tax at source at the prevailing rate will be deducted from bills in accordance with the provision of Income-Tax Laws and to that effect a certificate will be issued to the contractor.

8 SECURITY DEPOSIT-CUM-PERFORMANCE GUARANTEE DEPOSIT

8.1 The successful bidder has *to* pay security deposit-cum-performance deposit within 30 days of receipt of order.

8.2 The successful bidder will be required to pay an amount equivalent to 10% of the value of the order as a Security Deposit for satisfactory execution of the contract and as performance guarantee. Such Security Deposit will be payable either in Cash / DD payable at Dehradun / Bank guarantees from Scheduled / Nationalized Banks will be acceptable, if the amount of security deposit payable exceeds Rs. 50,000/- Bank Guarantees will be furnished. The Bank Guarantees furnished should have clear one time validity till the completion of the order in all respect and up to the expiry of the Guarantee period **two years**. Bank Guarantee for interim period will not be allowed. If by any reason the contract period is extended, then contractor should undertake to renew the Bank Guarantee at least one month before the expiry of the validity failing which *Company* will be at liberty to redeem the same, without entering into further correspondence in the matter.

8.3 No interest will be allowed on amount of Security deposit.

8.4 The Security Deposit –cum-performance Guarantee deposit as above on total shall be kept deposited upto *2 years from the date of commissioning of project.*

8.5 This security deposit is for the performance of contract and the same is liable to be forfeited by the Board in event of non fulfillment of the term and conditions of this contract by the contractor.

8.6 Corporate Guarantees are not admissible.

8.7 The ‘Signing of Contract’ and ‘Contract Agreements’ will be done as per prevalent PTCUL Terms and Conditions.

9 GUARANTEE PERIOD

Total material supplied and work executed shall be covered under guarantee period against any defect in materials, poor workmanship and defect/ wrong design etc. for a period of two years from the date of commissioning of *project.*

10 PENALTY FOR DELAY:

10.1 The tenderer should note that the completion time allowed for carrying out the work should be strictly observed. Any delay that may take place in supply and erection beyond Contractual cut off date stated as per stipulated delivery period shall be subject to the penalty at the rate of ½ % of the contract value per week (of delayed supply and/or work) or part there of, with a ceiling of 10 % of the total contract value.

10.2 The penalty will be deducted from bills payable either against this contract or from any Bank Guarantee or any other amount payable under any other contract with the Board.

10.3 Tenderer shall have to supply all materials to match with the erection activities.

11.0 COMPLETION PERIOD

11.1 Overall Completion period, for this Contract will be 6 months from the date of issue of LOI.

11.2 No mobilization period, idling or stoppage period will be allowed during this period of the Contract.

11.3 The completion date will be deemed to be the date on which all works on the Contract are demonstrated to be complete to the satisfaction of the *Company*/Engineer and is complete in all respects as per the terms and conditions of this Contract.

12.0 Presentation of Bills

12.1 Monthly RA bills for 80% value of the supplied tower material and work executed including cost of tower material consumed is to be prepared in triplicate and submitted to Site Engineers-in-charge of the work, for necessary payment. These bills shall be serially numbered with suffix (DGM concerned*) tender document no. PTCUL/SS-02/2007-08.*

12.2 10% payment out of balance 20% shall be released on completion of work, handing over and acceptance by the Site Engineers in charge after rectification work if any and settlement of material account according to actual quantity utilized for completion of line. No extra payment will be release for to material which is not required for completion of line if supplied excess during execution work.

12.3 Balance 10% payment shall be released only after finalization of material account and passing of final bill only. The contractor has to submit the final bill along with the material consumption statement and other required data of the carried out within 3 months from the date of completion of work. These bills shall be numbered with suffix (DGM concerned) *tender document no. PTCUL/SS-02/2007-08.*

12.4 All the bills in accordance with the above clauses must be submitted with the following information:

a) Item wise work done during billing period.

b) Item wise cumulative work done.

c) Account for material consumed and balance stock.

12.5 For non-submission or part submission of above information, an additional 5% amount of the respective RA bill shall be withheld and shall only be released at the time of final bill.

13.0 Terms of Payment

For a Project

The payment for materials to be supplied and erected *for a project* shall be made as under only execution of the contract documents/furnishing of Security Deposit and on execution of transmission line work.

13.1 For supply

(i) 80% of supply value for each consignment of *material* and accessories on submission of invoice along with 100% taxes, duties, *Cess,* F&I shall be paid within 60 days from the date of preparation of SR Note after verifying the following documents.

A. Commercial invoice.

B. Excise invoice.

C. Delivery challan.

D. Endorsed RR/LR copy.

E. Dispatch clearance certificate/letter wherever applicable.

(ii) 10% payment out of balance 20% of supply value shall be paid on completion of erection & testing of the project and completion certificate from Engineer-in-charge and VP (Projects) or equivalent.

(iii) Balance 10% of supply value shall be paid on successful commissioning of project against completion certificate and only after settlement of material account statement of items supplied, used, erected and successful commissioning is settled for complete lot and balance 10% will be release only after passing of final bill. No extra payment will be release for the project material which is not required for completion of line if supplied excess during execution of work and recovery will be made in final bill accordingly.

13.2 For erection works.

(i) *90%* payment of amount claimed covering various activities such as excavation, foundation, erection, earthing, tack welding stringing of conductor and earthwire including insulator hoisting works against R.A. bills duly certified by EIC within 60 days from the date of R.A. bill.

(ii) 10% of erection value shall be paid against commissioning of *project* after settlement of material account statement of items supplied, used, erected and successful commissioning of project the same amount will be release in final bill only and payment will be made only after passing of final bill.

14.0 TAKING DELIVERY AND INSURANCE:

14.1 The Contractor has keep tower materials & line materials in safe custody and transport to the respective sites and will be fully responsible for any damage to or loss of all materials at any stage during transportation or erection or taking over of the line by Board.

14.2 The Contractor has to open site store nearby the route of the line and ensure for safe custody of all the stored materials at his own cost.

14.3 The Contractor shall have total responsibility for the entire materials stored, loose, semi assembled and/or erected by him at site in his custody. The Contractor shall make suitable security arrangements at his own cost to ensure the protection of all materials, equipment and works from theft, fire pilferage and any other damages and loss. It shall be the responsibility of the contractor to arrange for securing till the works are finally taken over by the Board.

14.4 **Storage-Cum-Insurance:** The Contractor shall take suitable storage-cum-erection insurance cover at his cost to the extent of 60% cost of line materials, which are required to complete the line. Contractor shall have to take comprehensive insurance policy against any loss, damage, theft, pilferage, fire etc. for the complete period of storage, erection and commissioning up to the time of taking over of the transmission line by the Board. The Contractor shall deal directly and pursue the claim with the Insurance Company and shall be responsible in regard to maintenance of all insurance coverage as well as for settlement of claim. The proof of insurance policy taken by the successful Contractor shall be furnished to Engineer-In-Charge. In absence of the above insurance policy, R.A. Bill payment will be with held.

14.5 In the event of any damage, theft, loss, pilferage, fire etc., Contractor will be responsible to lodge, pursue and settle all the claims with the Insurance Company for all items, materials and the Board shall be kept informed about it. Contractor shall replace the lost / damaged materials/items promptly irrespective of the settlement of the claims by underwriter and ensure that the work progress is as per agreed schedule. The loss, if any, such replacement will have to be borne by the Contractor and Board will not entertain any claim/representation in this regard. However it will be Contractor's responsibility to insure the entire project till the line is taken over by the Board.

15.0 LABOUR LAWS:

15.0.1 Persons below the age of 18 years shall not be employed for the work. No female worker shall be employed in the night shift between 07:00 p.m. and 06.00 a.m. next day.

15.0.2 Contractor shall maintain a valid labour license under the contract Labour (Regulation and abolition) Act for employing necessary manpower required by him. In the absence of such license, the contract shall be liable to be terminated without assigning any reason thereof.

15.0.3 The Contractor shall at his own expenses comply with all labour laws and keep the Board indemnified in respect thereof. Some of the major liabilities under various labour and industrial laws which the Contractor shall comply with, are as under:

i) Payment of contribution by way of Employer's Contribution towards provident Fund, Family Pension Scheme, Deposit Linked Insurance Scheme, Administrative charges, etc. at the rates made applicable from time to time by the Government of Uttarakhand/Government of India or other Statutory Authority.

ii) Payment of deposit in respect of each contract labour at the rate of Rs. 30/- or later prevailing rate with the Office of Commissioner of Labour as per the Contract Labour (Regulation and Abolition) Act.

iii) License fee a s prescribed under the Contract Labour (Regulation and Abolition) Act and Rules framed there under depending upon the number of workmen.

iv) Paid leave facility and wages as per the provision of the Factories Act at the rate of one day for every 20 days of working.

v) Identity cards as prescribed under the Factories Act with photo affixed thereto, for identification.

vi) Payment of retrenchment compensation, Notice Pay and other liabilities as per Industrial Dispute Act. Any payment to the Contractor's employee arising out of any claim of disputes under the Industrial Disputes Act 1947 or any other Labour Laws.

vii) Payment of compensation in case of accidental injury.

viii) Provision of crèche if the female labourers employed are more than 30.

ix) Maternity Leave as per the provisions of the Maternity Benefit Act.

The above are some of the major liabilities of the Contractor in addition to other liabilities prescribed under the various labour laws, in force from time to time, from Statutory Authorities like State Government / Government of India, which the Contractor shall have to comply with.

15.1 Provident Fund and Family Pension Scheme

The Contractor shall submit along with his bills (month wise) a statement regarding deduction against employees Provident Fund and Family Pension Scheme in respect of each concerned employee. Provident Fund and Family pension Scheme at the rate of 18% (or at the rate made applicable by the Government from time to time of the wages. The contractor's contribution and his workers contribution towards Provident Fund and Family Pension Scheme shall be deposited by the Contractor with Regional Provident Fund Commissioner, Ahmedabad.

15.2 Deposit Linked Insurance Scheme

The contractor shall have to deposit ½ % of the wages in respect of employees who is a member of the Provident Fund, as the contribution to the Deposit Linked Insurance Scheme with Regional Provident Fund Commissioner, Ahmedabad.

15.3 Administrative Charges

Administrative charges for maintaining Provident Fund Account shall be deposited by the Contactor with Regional provident Fund Commissioner, Ahmedabad at the rates applicable.

15.4 Paid Leave Facility

Paid leave Facility at the rate of one day for every twenty days worked by the Contract Labour, shall be provided by the Contractor to his workers. He shall maintain Leave Records, Leave Cards, for individual labourer which shall be duly verified, approved and certified by the authorized Officer of the Board.

15.5 Workman's Compensation Fund And Employer's Liability Insurance

The contractor shall cover all his employees under workmen's compensation fund and under the liability insurance. The purchaser shall not be responsible for any payments of compensation to the workers / supervisor of the contractor for fatal or non-fatal accidents during the pendency of the contract.

15.6 The contractor shall employ adequate number of experienced staff at site for daily supervision and for maintenance of various registers and records required under the law and contract. No payment for supervision shall be admissible.

15.7 Contractor to Indemnify the Board

The Contractor shall Indemnify the Board and every member officer and employees of the Board also, Engineer-in-Charge and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever, arising out of or in connection with the matters referred herein above elsewhere and against all actions, proceedings, claims, demands, costs and expenses which may be made against the Board or Government for or in respect of performance of his obligation under the contract documents. The Board shall not be liable for intervention of authority Government for or in respect of performance of his obligation under the contract documents. The Board shall not be liable for or in respect of or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or his Sub-Contractor and the contractor shall indemnify and keep indemnified the Board against all claims, demands, proceedings, cost, charges and expenses whatsoever in respect thereof or in relation thereto.

15.8 Workmen's Compensation and Employer's Liability Insurance

Insurance shall be effected for all the Contractor's employee engages in the performance of this contract. If any of the work is sublet, the contractor shall required the Sub-Contractor to provide workmen's employer's liability insurance for the latter's employees, such employees shall be covered under the Contractor's Insurance.

15.9 Wages to be Paid & Time of Payment etc. by the Contractor

a) The Contractor shall pay minimum wages per day to his Labours/ Workers as per rates fixed under the minimum wages act. The wages of every Contract Labour employed by him under this contract shall also be paid by him before the expiry of 7^{th} day of the last day of the month in respect of the wages are payable (i.e. wages of a month have to be paid by him in the first week of the next month). Any default will result in cancellation of contract forthwith or else the contractor shall be punishable to the extent of Rs. 100/- per each day or as per the prevailing rules of labour laws.

b) The Contractor shall give his Telephone Number and Address to the Board, so that, in case of labour trouble etc. the contractor can be contacted. The Contractor shall arrange to have his office outside the factory work premises and the Contractor shall arrange to have his office outside the factory work premises and the Contractor shall keep himself present throughout the working hours.

15.10 Registration with Provident Fund Office

i) The separate P.F code issued from P.F commissioner is required to be taken by contractor.

ii) If the contractor does not possess separate P.F. code number of RPFC, his tender will not be considered for acceptance.

iii) The contractor should mention separate P.F. code number allotted by PPFC, along with the tender.

15.11 Termination of Contract:

In case of contractor fails to deliver the stocks or any consignment thereof within contractual period of delivery or in case the stores are found not in accordance with prescribed document and /or the approved sample, the *Company* shall exercise its discretionary power either:

15.11.1 To recover, from the contractor as agreed, by way of penalty clause above, or

15.11.2 To purchase from elsewhere after giving due notice to the contractor on account and at the risk of the contractor for such stores not so delivered or other similar description without canceling the contract in respect of the consignment not yet due for delivery or

15.12 To cancel the contract

In the event of the risk purchase of stores of similar description, the opinion of the *Company* shall be final. In the event of action taken under clause (A) or (B) above, the contractor shall be liable to pay for any loss which the *Company* may sustain on that account, but the contractor shall not be entitled to have any saving on such purchases made against default.

The decision of the *Company* shall be final as regards to the acceptability of stores supplied by the contractor and the Board shall not be required to give any reason in writing or otherwise at any time for rejection of the stores.

15.12.1 Matching of End Cost

In case the Board decides to award contract on matching end-cost basis, the bidder has to reduce all the quoted rates proportionately. The reduction on overall basis will not be accepted (i.e. all unit rates of erection schedule shall be reduced proportionately by difference in percentage). The confirmation of matching end cost shall be given within 7 (seven) days from the letter from PTCUL.

16.0 Vendor Registration

All new bidders / Vendors have to register themselves with the Board by paying Rs. 10,000/- (Non- refundable). Regular suppliers are registered automatically looking to their performance. They shall have to fill up a prescribed form giving basic details of their set up, turn over, ISO certification, etc. However, they shall have to re-register by paying Rs. 10,000/- (Non-Refundable) after 05 years from 01/03/2001. Factory inspection for new entrants is a must. Factory inspection shall be conducted for the period of every 2 years from where the supplier is supposed to supply the materials. This new rule shall come in to force after 06 months from 01/03/2001 so that party gets enough time for registration. However in the meantime all the New Vendors shall have to pay Rs. 10,000/-(Non-Refundable) towards registration fees as explained above, before submission of bids and the proof of the same may be given with the technical bid otherwise tender will be ignored outrightly.

Vendor registration upto tender value of Rs. 1 Lac (One lac) for the new entrant is not required. However, Rs. 1000/- towards Vendor registration shall be payable for the tender value between Rs. 1 Lac and including upto Rs. 5 Lacs. Vendor registration beyond Rs. 5 Lacs will be applicable and shall have to pay Rs. 10,000/- for new entrant as specified above.

If the New Vendors are already registered by paying of Rs. 10,000/- (Non-Refundable), than it is requested to please quote the Vendor Registration Number & date in Annexure-“X” which is attached with the tender and also enclose the copies of Money Receipt and vendor registration letter in the EMD Cover.

If the tenderer is new & not registered with the Board, then they should Pay Rs. 10,000/- before opening of the tender itself and the copy of Money Receipt should be submitted in the EMD Cover, otherwise their tender will be ignored without any further communication in the matter.

TENDER DOCUMENT NO.

TENDER DOCUMENT NO. PTCUL-02/2007-08.

Sub. : **OFFER FOR** construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis.

In connection with above subject, I/ we confirm the following:

I/ We, the undersigned have read and understand the *Tender Document No. TENDER DOCUMENT NO. PTCUL-02/2007-08 for* construction of 33 KV Bays at 220/132/33 KV Substation, Pantnagar & Hardwar on turnkey basis *along with all the tender Terms and Conditions.*

a) The supply & erection price components in the bid are firm ~~or variable prices~~ in line with Tender Document and shall stand valid till completion of the Contract, if awarded.

b) I/We declare that our bid is strictly in line with Tender Documents and there is no deviation. Further, I/ we also agree that additional conditions /deviations, if any found in bid, the offer shall be out rightly rejected without assigning any reason thereof.

Signature of Authorized representative of company /Agency

NAME :

STATUS :

Name of BIDDER

CONFIRMATION OF DETAILS OF BIDDER

Bidders are required to furnish following information specifying YES / NO

1)	Whether the Bid is on percentage basis as called for.	Yes / No
2)	Whether rebate furnished is in percentage basis as called for.	Yes / No
3)	Whether the Bid is submitted by RPAD.	Yes / No
4)	Whether all pages of Bid Documents are sealed and signed by the Bidder.	Yes / No
5)	a) Whether the Bidder is registered with PTCUL for transmission line erection.	Yes / No
	b) In case of "Yes", please furnish following details:	
	i) Registration Letter No. & date.	
	ii) Class of Registration	
	iii) Validity	
	c) Whether Bidder is having PF Code No.	Yes / No
6)	a) Whether EMD paid. (DD / BG)	Yes / No
	b) In case "Yes" , furnish details	Yes / No
7)	Whether following documents as specified are submitted.	Yes / No
	a) Human Resources detail	Yes / No
	b) Availability of tools, equipments etc.	Yes / No
	c) Details of orders executed /on hand	Yes / No
	d) Financial capability	Yes / No
	e) Experience as specified.	Yes / No
	f) Latest Income-tax certificate	Yes / No
	g) Company's Articles Of Association	Yes / No
	h) Details of Partners / Directors	Yes / No
	i) B.R./ P.A. Authorising Person	Yes / No
	j) Power of Attorney of Consortium Members	Yes / No

Signature of Authorized representative of company /Agency

NAME _____

STATUS _____

Name of tendering Company

1.0 PROJECT DATA :

1.1 Location : various sites in Uttaranchal
1.2 Altitude upto 3000 Meter above M.S.L.
1.3 Climatic Conditions

(a)	Design maximum ambient air temperature		50°C
(b)	Maximum daily average ambient temperature		
	(i) In shade		45°C
	(ii) In sun		60°C
(c)	Minimum ambient air temperature in shade		(-) 5°C
(a)	Relative Humidity	100 % Maximum	
(b)	Wind load	195 Kg / Sq.mm	
(c)	Seismic level	013 g	
(d)	Iso keronic level	50	
(e)	Average annual rainfall	1500 mm	
(f)	Hot & humid tropical climate conductive to rust and fungus growth.		

2.0 SYSTEM PARTICULARS :

2.1	Rated system voltage	400 / 220/ 132 KV,
2.2	system frequency	50Hz this may vary by + / - 5%
2.3	Number of phases	Three
2.4	Neutral	Effectively earthed

TECHNICAL & ERECTION DOCUMENT

1.0 Technical Document Of Equipments

1.1 SF-6 /ANY GAS FILLED CIRCUIT BREAKERS

The circuit breaker shall conform to the latest revisions with amendments available of relevant standards, rules and codes some of which are listed herein for ready reference.

Sl. No.	Title	Standard
1.	Aluminium and aluminium alloy ingots and castings for general engineering purposes.	IS 617
2.	Porcelain post insulators for systems with nominal voltage greater than 1000 volts.	IS 2544
3.	Recommended practice for hot dip galvanising on iron and steel.	IS 2629
4.	Hollow insulators for use in electrical equipment.	IS 5621
5.	High voltage AC Circuit Breakers.	IS 13118
6.	Methods of synthetic testing of high voltage AC circuit breakers.	IS 13516
7.	HV AC Circuit Breakers.	IEC 62271-100
8.	Document and acceptance of new Sulphur Hexafluoride.	IEC 376, 376A, 376B

Reference standards	Name and address
IEC	International Electro Technical Commission Bureau Central de la Commission, Electro Technique International, 1 Rue de verembe Grneva, Switzerland,
IS	Indian Standard bureau of Indian standards Manak Bhawan, 9 Bhaadur Shah Zafar marg, New Delhi-110002 (INDIA)

- In case of conflict, the order of procedure shall be (1) IEC (2) Indian Standard (3) Other alternative standards. This list is not to be considered exhaustive and reference to a particular standard or recommendation in this document does not relive the supplier of the necessity of providing the goods complying with other relevant standards or recommendation.
- Equipment meeting with the requirement of any other authoritative standards. Which ensure equal or better quality than the standard mentioned above shall also be acceptable.

➢ **AUXILIARY POWER SUPPLY**

Auxiliary electrical equipment shall be suitable for operation on the following system:

(i)	Power devices (like drive motors)	415 V, 3 phase, 4 wire 50Hz neutral grounded AC supply.
(ii)	D.C. Alarm, control and protective devices	24V DC ungrounded 2 wires.
(iii)	Lighting	230 V, Single Phase 50 Hz. A.C. Supply.

The bidder offering three phase motor for spring charging shall have to make provision of suitable relay contact in series of supply to motor to ensure that supply is switched of immediately after one phase goes. Merely providing MCB in circuit shall not be sufficient.

The purchaser at the terminal point for each circuit breaker for operation of accessories and auxiliary equipment. Supplier's scope include supply of interconnecting cables, terminal boxes etc. The above supply voltage may vary as indicated below and all devices shall be suitable for continuous operation over the entire range of voltages:

(i)	A.C. Supply	Voltage + 10% - 15% Frequency $\pm$ 5%.
(ii)	D.C. Supply	- 15% to + 10%

- **GENERAL**

The manufacturers whose SF6 Circuit Breaker are offered should have designed, manufactured tested as per IECIIS or equivalent standard supplied the same for the specified system voltage at least for 2 years as on the date of award of contract.
The circuit breakers and accessories shall conform to latest IEC/IS standards.

Circuit breaker offered would be of sulphur hexa-fluoride (SF6) type only..

The circuit breaker shall be complete with terminal connectors one no. trip coil & one no. close coil as spare operating mechanism, control cabinets, piping, cable accessories like glands, terminal blocks, marking, ferrules, lugs, density switches alongwith fixed or detachable type dial gauges, galvanized support structure for CB and control cabinets, their foundation bolts and all other circuit breaker accessories required for carrying out all the functions the circuit breaker is required to perform.
All necessary parts to provide a complete and operable circuit breaker installation such as main equipment, terminals, control parts, connectors and other devices whether specifically called for herein or not.

The support structure of circuit breaker as well as that of control cabinet shall be hot dip galvanized. All other parts shall be painted as per shade 631 of IS-5.

- **DUTY REQUIREMENTS**

The circuit breaker shall be re-striking free as per IEC under all duty conditions and shall be capable of performing their duties without opening resistors. The circuit breaker shall meet the duty requirements for any type of fault or fault location also for line switching when used on a 33 KV effectively grounded system, and perform make and break operations as per the stipulated duty cycles satisfactorily.

(i) Out of phase closing:

One closing operation under phase opposition that is with twice the voltage across the terminals.

(ii) The breaker shall be capable of interrupting the steady state and transient magnetizing current corresponding to rating of the Power Transformers. It shall also be capable of breaking 25% of the rated fault current at twice rated voltage under phase opposition condition.

(iii) The Breaker shall satisfactorily withstand the high stresses imposed on them during fault clearing, load rejection and re-energisation of lines with trapped charges. The breaker shall also withstand the voltages as per Technical Requirements.

➢ CONSTRUCTIONAL FEATURES

The features and constructional details of circuit breaker shall be in accordance with requirement stated hereunder:

CONTACTS

The gap between the open contacts shall be such that it can withstand at least the rated phase ground voltage for 8 hours at zero gauge pressure of SF6 gas due to the leakage. The breaker should be able to withstand all dielectric stresses imposed on it in open condition at lock out pressure continuously (i.e. 2 p.u. across the breaker continuously).

The SF6 circuit breaker shall meet the following additional requirements:

(a) The design and construction of the circuit breaker shall be such that there is a minimum possibility of gas leakage and entry of moisture. There should not be any condensation of SF6 gas on the internal insulating surfaces of thre circuit breaker.

(b) All gasketed surfaces shall be smooth, straight and reinforced. If necessary, to minimize distortion and to make a tight seal, the operating and connecting the operating mechanism to the arc chamber (SF6 media) shall have adequate seals. The SF6 gas leakage should not exceed 1% per year. (In case the leakage under the specified conditions is found to be greater than 1 % after one year of commissioning of circuit breaker, the manufacturer will have to supply free of cost, the total gas requirement for subsequent ten (10) years, based on actual leakage observed during first year of operation after commissioning).

(c) The dial type SF6 density monitor shall be adequately temperature compensated to model the pressure changes due to variations in ambient temperature within the body of circuit breaker as a whole. The density monitor shall meet the following requirements:

(i) It shall be possible to dismantle the density monitor for Checking/replacement without draining SF6 gas by using Suitable interlocked non-return valve coupling.

(ii) It shall damp the pressure pulsation while filling the gas in Service so that the flickering of the pressure switch contacts does not take place.

(d) Circuit breaker shall be capable of withstanding a vacuum of minimum 8 millibars without distortion or failure of any part.

(e) Sufficient SF6 gas will be required for gas Analysis during filling shall be provided to fill the circuit breakers installed. In addition, spare gas shall be supplied in separate unused cylinders as per requirement.

(f) Minimum 5 nos N.O and 5 nos N.C potential free contact in addition to those required for internal mechanism of breaker shall be provided. Separate limit switches each having required no. of contacts shall be provided in both service and test position of breaker. All contacts shall be rated for making continuously carrying & breaking 10 Amp. At 240 V A.C and 2 Amp 110 V DC.

(g) For 36 kV rating breakers gang operating mechanism shall be provided.

(h) The terminal connector shall be as per latest ISS suitable for ACSR dog / Panther conductors.

➢ SULPHUR HEXAFLUORIDE GAS (SF6)

- The SF6 gas shall comply with IEC-376, 376A and 376B and shall be suitable in all respects for use in the switchgear under the operating conditions.
- The high-pressure cylinders in which the SF6 gas is shipped and stored at site shall comply with requirements of the following standards and regulations:

  IS: 4379 - Identification of the contents of industrial gas cylinders.
  IS: 7311 - Seamless high carbon steel cylinders for permanent and high pressure liquefiable gases.

- SF6 gas shall be tested for purity, dew point, air, hydrolysable fluorides and water content as per IEC-376, 376A and 3768 and test certificates shall be furnished to Purchaser.

➢ INSULATORS:

The post insulator shall conform in general to latest IS: 2544, IEC-168 and IEC-815.

❖ Constructional features

Post type insulator shall consist of a porcelain part permanently secured in a metal base to be mounted on the supporting structures. They shall be capable of being mounted upright. They shall be designed to withstand any shocks to which they may be subjected to by the operation of the associated equipment. Only solid core insulators will be acceptable.

Porcelain used shall be homogenous, free from lamination, cavities and other flaw or imperfections thatight affect the mechanical or dielectric quality and shall be thoroughly vitrified, tough and impervious to moisture.

Glazing of the porcelain shall be of uniform brown in color free from blister, burrs and other similar defects.

The insulator shall have alternate long and short sheds with aerodynamic profile. The shed profile shall also meet the requirements of IEC-815 for the specified pollution level.

When operating at normal rated voltage there shall be no electric discharge between conductor and insulators, which would cause corrosion or injury to conductor, or insulators of substance produced by chemical action.

The design of the insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration.

All ferrous parts shall be hot dip galvanized in accordance with the latest edition of IS: 2633 & IS: 4579. The zinc used for galvanizing shall be grade Zn 99.95 as per IS: 209.The zinc coating shall be uniform, adherent, smooth, reasonably bright, continuous and free from imperfections such as flux ash, rust stains, bulky white deposited and blisters. The metal parts shall not produce any noise-generating corona under the operating conditions.

Every bolt shall be provided with a steel washer under the nut so that part of the

threaded portion of the bolts is within the thickness of the parts bolted together.

Flat washer shall be circular of a diameter 2.5 times that of bolt and of suitable thickness Where bolt heads/nuts bear upon the beveled surface they shall be provided with square tapered washers of suitable thickness to afford a seating square with the axis of the bolt.

All bolts and nuts shall be of steel with well-formed hexagonal heads forged from the solid and shall be hot dip galvanized. The nuts shall be good fit on the bolts and two clear threads shall show through the nut when it has been finally tightened up.

Contractor shall make available data on all the essential features of design including the method of assembly of shell and metals part, number of shells per Insulator, the manner In which mechanical stresses are transmitted through shell to adjacent part, provision for meeting expansion stresses results of corona and thermal shock tests, recommended employed to increase life under service conditions.

- ❖ Hollow porcelain should be in one integral piece in green and red stage. No jointed porcelain will be acceptable.

➢ OPERATING MECHANISM AND CONTROL

General Requirements

- 36 KV Circuit Breakers shall be operated by spring charged mechanism only.
- The mechanism shall be housed in a weatherproof and dust proof control cabinet.
- The operating mechanism shall be strong, rigid, not subject to rebound and shall be readily accessible for maintenance for a man standing on ground.
- The mechanism shall be anti pumping and trip free (as per IEC definition) under every method of closing.
- The me-chanism shall be such that the failure of any auxiliary spring will not prevent tripping and will not cause trip or closing operation of the power operating devices.
- A mechanical indicator shall be provided to show open and close position of the breaker. It shall be located in a position where it will be visible to a man standing on the ground level with the mechanism housing closed. An operation counter shall also be provided in the central control cabinet.
- Working parts of the mechanism shall be corrosion resisting material bearings which require grease shall be equipped with pressure type grease fittings. Bearing pin, bolts, nuts and other parts shall be adequately pinned or locked to prevent loosening or changing adjustment with repeated operation of the breaker.

- The Contractor shall furnish detailed operation and maintenance manual of the mechanism along with the operation manual for the circuit breaker. The instruction manuals shall contain exploded diagrams with complete storage, handling, erection, commissioning, troubleshooting, servicing and overhauling instructions.

- ▪ **Type Of Circuit Breakers:**

Sl. No	Voltage	Gang operated
1.	36KV	√

- **Operating Mechanism For Different Ratings:**

Sl.No.	Ratio	36KV
1.	Rated Current	1250 Amp.
2.	Operating Mechanism	Spring Operated
3.	Quenching medium	SF6

- **Control**

The close and trip circuits shall be designed to permit use of momentary contact switches and push buttons.

Each breaker pole shall be provided with two (2) independent tripping circuits, pressures switches and coils each connected to a different set of protective relays.

The breaker shall normally be operated by remote electrical control. Electrical tripping shall be performed by shunt trip coils. However, provisions shall be made for local electrical control. For this purpose, a local/remote selector switch and close and trip control switch/push buttons shall be provided in the Breaker central control cabinet.

The trip coils shall be suitable for trip circuit supervision during both open and close position of breaker. The trip circuit supervision relay would be provided on relay panels. Closing coils and associated circuits shall operate correctly at all values of voltage between 85% and 110% of the rated voltage. Shunt trip coil and associated circuits shall operate correctly under all operating conditions of the Circuit breaker up to the rated breaking capacity of the circuit breaker and at all values of supply voltage between 10% and 110% of rated voltage. However, even at 50% of rated voltage the breaker shall be able to operate. If additional elements are introduced in the trip coil circuit, their successful operation and reliability for similar applications on outdoor circuit breakers shall be clearly brought out in the additional information schedules.

Density Meter contacts and pressure switch contact shall be direct use as permissive in closing and tripping and closing circuits. Separate contacts have to b used for each of tripping and closing circuits, If contacts are not suitably rated and multiplying relays are used then fail safe logic schemes are to be employed. DC supplies for all auxiliary circuits shall be monitored and provision shall be made for remote annunciations and operation lockout in case of DC failures. Density monitors are to be so mounted that the contacts do not change on vibration during operation of circuit breaker.

The auxiliary switch of the breaker shall be positively driven by the breaker-operating rod.

This, however, does not absolve the Contractor from the responsibility for safe and reliable operation of the breaker in its lifetime.

- **Spring Operated Mechanism:**

- Spring operated mechanism shall be complete with motor. Opening spring and closing spring with limit switch for automatic charging and other necessary accessories to make the mechanism, a complete operating unit shall also be provided.
- As long as power is available to the motor, a continuous sequence of the closing and opening operations has be possible. The motor shall have adequate thermal rating for this duty.
- After failure of power supply to the motor one close open operation shall be possible with the energy contained in the operating mechanism.
- Break operation shall be independent of the motor, which shall be used solely for compressing the closing spring. Facility for manual charging of the

closing spring shall also be provided. The motor rating shall be such that it requires not more than 30 seconds for full charging of the closing spring.

- Closing action of circuit breaker shall compress the opening spring ready for tripping.
- When closing springs are discharged after closing a breaker, closing springs shall be automatically charged for the next operation and an indication of this shall be provided in the local and remote control cabinet.
- Provisions shall be made to prevent a closing operation of the breaker when the spring is in the partial charged condition. Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of closing springs when the breaker is already in the closed position.
- The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide the required energy for the tripping mechanism in. case the tripping energy is derived from the operating mechanism.

➢ SUPPORT STRUCTURE

a) The structure design shall be such that during operation of circuit breaker, vibrations are reduced to minimum.
b) The Contractor shall provide suitable platform with steps on both sides of the circuit breaker for easy accessibility.

➢ TERMINAL CONNECTOR PAD

The circuit breaker terminal pads shall be made up of high quality electrolytic copper or aluminum. The terminal pad shall have protective covers which shall be removed before interconnections.

➢ INTERPOLE CABLING

All cables to be used by contractor shall be armoured and shall be as per 15-1554 (1100 Volts Grade). All cables within and between circuit breaker poles shall be supplied. Only stranded conductor shall be used. Minimum size of the conductor shall be 2.5 sq. mm. (Copper)

➢ FITTINGS AND ACCESSORIES

Following is a partial list of some of the *major* fittings and accessories to be furnished by Contractor in the central control cabinet. Number and exact location of these parts shall be indicated in the bid.

i) Cable glands (Double compression type), Lugs, Ferrules etc.
ii) Local/remote changeover switch.
iii) Operation Counter
iv) Control switches to cut off control power supply.
v) Fuses as required.
vi) The number of terminals provided shall be adequate enough to wire out all contacts and control circuit's plus 24 terminals spare for future use.
vii) Antipumping relay
viii) D.C. Supervision relays
ix) Rating and diagram plate in accordance with IEC incorporating year of manufacture

➢ SURFACE FINISH

➢ All interiors and exteriors of tanks, control cubicles and other metal parts shall be thoroughly cleaned to remove all rust, scales, corrosion, creases or other adhering foreign matter. All steel surfaces in contact with insulating oil as far as accessible shall be painted with not less than two coats of heat resistant, oil insoluble, insulating paints. All metal surface exposed to atmosphere shall be given two primer coats of zinc chromate and two coats of epoxy paint with epoxy base thinner. All metal parts not accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with *a*

suitable preventive compound *and* suitable wrapped or other protected. All paints shall be carefully selected to withstand tropical heat and extreme weather within the limit specified. The paint shall not scale off or wrinkle or be remove abrasion due to normal handling.

All external painting shall be *as* per shade No 631 of IS:5

- **Galvanizing**

All ferrous parts including all sizes of nuts, bolts, plain and spring was support channels, structures, shall be hot dip galvanized conforming to latest version - 2629 or any other equivalent authoritative standard.

- **TECHNICAL PARAMETER**

Installation	:Outdoor
Nominal Voltage (kV)	:33
Highest Voltage (kV)	:36
Rated Current(A)	:1250
Rated Short Time Current (kA)	:31.5 KA for one second
Rated Frequency (Hz)	: 50
No of poles	: 3 (Three)
Type	: SF6 Gas Insulated
Mounting arrangement Operating mechanism	: Structure mounted
Operating mechanism	: A.C Motor -wound spring charged (Gang Operated)
Total Break Time (ms)	: < 60
Control Local & Remote	: 79 . 650
Insulation level (kVp)	: 170
Power frequency withstand voltage kV RMS	: 70
Temperature rise	: As per IEC 56
Zinc coating (g/m2) for galvanized items except hardware	: 610
Insulator	
Total creepage (mm)	: 900
Auxiliary Supply	
AC supply for motors and for heaters	: 415V±10%, 3-Ph, 50Hz, 4 wire
DC Control supply for operation	: 220 V 2-wire, ungrounded
OPERATING MECHANISM BOX	
Material of sheet for mechanism box	: MS (Painted) / Aluminium
Thickness of sheet in mm	: 2 mm MS / 3 mm Aluminium
No. of Trip Coil	: 2 Nos.

1.2 33 KV TRIPLE FEEDER CONTROL PANEL

PROTECTION SCHEME FOR 33 KV FEEDERS

GENERAL REQUIREMENT FOR RELAYS

1. Triple pole protection relay with two elements R phase and B phase connected to over current and one to earth fault protection mounted on the front side suitable for CT Secondary 1A, 110V D.C. operated. Over current relay shall have plug setting 50%, 200% with time 0-3 sec and earth fault element shall have plug setting 20%-80% and time 0-3 sec. the protection shall be provided

with instantaneous cut off feature O/C 0-12 Amp & E/F 0-6 Amp Time setting may become with TMS Setting 0-1.

2. These relays shall be provided with dust proof remover front cover with full close window. The operation of the relay shall be practically free from errors due to normal variation of frequencies and ambient temperature. The relay shall be moistures resistant and design shall be such that the settings and calibration will not get out of adjustment unless intended to the relay contact rating shall be liberal so that they may give satisfactory services without much attention. The relay features like dashpot or other devices should not be effected by vibration temperature and humidity.
3. All relays except for auxiliary function shall be provided with operation indicators. The indicators shall show all types of faults or phases on which the fault has occurred. All indicators and hand set relays must be capable of being reset without opening the relay case. The relay should be flush mounted and draw out block in type with locking arrangement.
4. Control and relay protection scheme of two different 33 KV feeders may be accommodated in a single panel.

TRIPPING RELAYS

All the tripping should be activated through auxiliary tripping relays. Spare contacts may also protection relay. The purpose of the relays including the auxiliary relays, switches, etc. is required to be indicated just below the respective equipments. One timer 0-1 sec. may be provided as a back up protection for tripping of Transformer L.V. side breakers if any 33 KV CB fails to trip even after the operation of its protection.

Notes:

1. In case the equipment offered by the supplier does not made the requirement and spin-off technical document the offer of the firm shall not be considered.
2. The setting ranges of the equipment offered. If different from the ones specified shall be acceptable if they meet the functional requirements.
3. The contractor may also quote alternative/ additional protections or relays considered necessary by him proving complete effective and reliable protection. These equipments shall be quoted separately as in alternative and additional to the main offer.
4. The contractor shall quote for numerical relays having digital technology providing complete effective and reliable protection.
5. Bidder must guarantee an after sales support and availability of spares for 10 years from its own.
6. The bidder shall quote the rate of numerical relay complete in all respect.
7. Spares required may also be quoted separately with details describing their necessity.

Alarms and Annunciation:

Alarm and Annunciation relay with all the facility of indications flags annunciation hooter may be provided for all type of function. Accept and reset facility shall be available accordingly. Non trip and trip alarm may be identified separately with the provision of annunciation windows. Two nos. windows may be provided in spares.

Auxiliary Power Supply:

a. A.C. supply : 415/240 Vlots 3 Phase 4 wire. 50 Hz.

b. D.C. Supply : 220 Volts.

C.T.

C.T. : 1 A : 2 Core

Two core for protection and one core for metering.

Note:

Trip circuit Health indication may also be provided.

DETAILS OF NUMERICAL RELAY

1. **33 KV Feeder**
   - Over current and Earth Fault protection with wide range selection of characteristic setting and time delay.
   - Instantaneous trip element may also be provided with selective as described above.

2. **Monitoring Function**
   - Trip/ Non trip alarm contacts.
   - Trip Ckt. Supervision
   - Self supervision of the relay with fault diagnostic.
   - Measured- Value supervision.
   - Even recording (without tripping events)
   - Fault recording (with tripping events)
   - Different statistics.
   - Oscillographic fault recording.
   - Display of measured values.
   - Routine test facility.
   - Fault Locator.
   - Detailed reporting of three disturbances with print out facility.

3. **Communication Mode**
   - Data transmission
   - Data unloading
   - Easily adapted to different aummunication system

4. Application

- To provide fast and selective fault clearance.
- Contribute to improved stability.
- Should have flexibility for use with selectivity.
- Capable to detect apparent impedance in unfaulted faulted leep (By pattern recognition with symmetrical components and lead compression.)
- Integrated wide range AC DC power supply common point.

Notes:

- Numerical relay should have configurable function keys. Which shall permit the user to execute frequency used action faster.
- Removal of one relay from a chain of relays linked through a communication loop shall nor interrupt the link with remaining one. For this purpose the bus inter connection modules shall be equipped with their own backup power supply if required.
- Operation and caliberation checks can be carried out with the associated primary circuit(s) in service. Adequate test facility shall be provided with the system to enable the protection tested from the front of the protection equipment with primary circuit(s) in service.
- Shall include supervision facility which provide a periodic self check and continuous self monitoring of all internal power supplies and microprocessor operation. A defect in any of the part shall not cause mail operation of the protection and shall give and alarm.
- Contractor must include a statement of the number of years (should not be lessthan 10 years) of guarantee manufacturing repairing and part support which will be provided for the relays offered.

1.3 36 KV OUTDOOR ISOLATOR

1.3.1 APPLICATION

Normally these are to be used for

- Breaker isolation
- Line connection

1.3.2 TYPE AND CONSTRUCTION

- Triple pole, **double break,** gang operated suitable for outdoor installation in open yard under the specified site condition.
- Two post type with double break and with contacts coming in horizontal plane preferred.
- Common actuating mechanism for all three poles.
- Single pole units shall be interchangeable
- Switch blades shall be of copper and of one solid piece construction
- Inter phase clearance shall be about 2.1 meters and mounting height not less than 3 meters
- Speed of operation during opening or closing shall ensure minimum arcing.

- 36 kV isolator shall be horizontal double break type mounted on structure while 11 kV isolator shall be vertical single break type mounted on pole.

1.3.3 TECHNICAL PARTICULARS

a)	Nominal system voltage	33 kV
b)	Highest system voltage	36 kV
c)	Rated frequency	50Hz
d)	Type	Outdoor station type, double break, triple pole double throw with turn and twist mechanism. With earth switch.
e)	Continuous current rating	800A
f)	Short time rating 1 sec	25 kA
g)	Rated peak withstand current	62.5 kA Peak
h)	Insulation level of	
	i) Impulse withstand voltage (1.2/50 micro sec.)	
	Between poles to earth	170 kV
	Across isolating distance	195 kV
	ii) One min. power freq. Withstand voltage (both dry & wet)	
	Between poles to earth	70 kV
	Across isolating distance	80 kV
i)	Min. creep age distance	2.54 cm/kV
j)	Operating mechanism	Gang Operated, manual
k)	Termination	ACSR Moose Conductor Both sides
l)	Earthing switch	Mechanically inter locked with isolator Rating of earthing. Switch shall be same as isolator
m)	Auxiliary contacts	3 No + 3 NC
n)	Installation	Pole structure with padlocking facility
o)	Castle key interlock	i) With upstream circuit breaker / isolator. ii) Mechanical interlock with earthing switch for correct sequence of operation.
p)	Control voltage	220 V DC / 240V AC
q)	Temperature rise above 50 ° ambient	45^0
r)	Close and open indication lamp	To be provided in relay & control panel for 33 kV isolator (sufficient auxiliary contacts to be provided for the same).

- Disconnecting blades shall be capable of carrying rated current continuously as well as the specified short circuit current for the duration indicated above without causing mechanical damage to any part and temperature rise damaging the insulation.

- The switches shall be capable of making on to faults specified and withstanding the dynamic stresses involved.
- Shall also be suitable for interrupting small inductive and capacitive currents such as those which occur while disconnecting lines at no load, bus bars or voltage transformers under energized condition.

1.3.4 CONTACTS

- High pressure self aligning adjustable type
- Shall be well protected all round by a metal cover to provide not only electrostatic screening but also to prevent coarse dust from entering between the contacts.
- Sufficient wiping action to make contacts self cleaning.
- Contacts shall be of high grade high conductivity heat resisting copper and shall be silver plated.

1.3.5 OPERATING MECHANISM

- Shall be suitable for manual operation.
- Operating mechanism and its controls shall be so designed that under no circumstances the travel of the switch blades is interrupted before its reaches the fully closed or open position.
- Provision for padlocking the mechanisms in either the open or closed position.
- Housing for the operating mechanism and its control shall be of sheet steel weather and dust proof construction with rubber gaskets conforming to enclosure protection class IP – 55.

1.3.6 EARTHING SWITCHES FOR LINE ISOLATORS

- Disconnecting switches shall be provided with earthing switches on the line side forming integral part.
- Rating of earthing switch shall be same as that of the main isolator / disconnecting switch with respect to rated short time current and dynamic peak withstand current.
- Earthing blade shall be operated by a separate mechanism but interlocked so that it can be closed only when the main disconnecting switch is open and vice-versa.

1.3.7 TERMINAL CONNECTION

Shall be provided with high conductivity terminal connection suitable for ACSR conductors.

1.4 36 KV LIGHTNING ARRESTORS

1.4.1 GENERAL

Standard Lightning Arrestors shall strictly confirm to IS-3070 part-3 (1993) and IEC – 99/4 with latest amendment.

- Station class, 10 kA, heavy duty, non-linear resistance, metal oxide type gapless lightning arrestor for 33 kV systems.
- Self-supporting type in single pole assembly.
- Suitable for pedestal mounting.
- Outdoor type suitable for installation in open yard.

- Shall be designed to provide maximum protection against lightning and switching surges.

1.4.2 TECHNICAL PARTICULARS

a)	Nominal system voltage	:	33 kV	
b)	Highest system voltage (rms)	:	36 kV	
c)	Rated arrestor voltage (rms)	:	30 kV	
d)	Continuous operating voltage (rms)	:	24 kV	
e)	Frequency	:	50 Hz	
f)	Power frequency with stand test voltage	:	70 kV	
g)	Impulse voltage	:	170 kV peak	75 kV peak
h)	System neutral connection	:	Solidly Earthed	Solidly Earthed
i)	Nominal discharge current for 8/20 micro Sec.	:	10 kA peak	5 kA peak
j)	Long duration discharge class as per IEC 99-4	:	2	
k)	Maximum residual voltage at nominal discharge current of 8/ 20 micro sec. wave kV peak	:	100 kVP	
l)	Maximum steep current impulse (1/20 micro sec.) residual voltage at nominal discharge current (kVp)	:	110 kVP	
m)	Arrester Housing			
	a) One minute power frequency withstand voltage kV (rms)	:	70	
	b) Lightning impulse withstand voltage (kVP)	:	170	
n)	Prospective symn. fault current for pressure relief test kA (rms)	:	40	
o)	Disconnecting device	:	Disconnecting devices IS : 3070 (Part-II) shall be connected in series with ground lead.	
p)	Minimum creeping distance of porcelain housing (mm)	:	900	300

1.5 CURRENT TRANSFORMER

1.5.1 TYPE

- 33kV outdoor type suitable for installation in open yard.

- Oil bath type and epoxy molded dry type for 33kV.

1.5.2 TECHNICAL PARTICULARS

a)	Standard	:	IS - 2705 (1992)
b)	Nominal system voltage	:	33 kV
c)	Highest system voltage	:	36 kV
d)	Rated frequency	:	50 Hz, ± 3%
e)	System neutral earthing	:	Solidly earthed.
f)	Short time thermal current rating for 1 sec. duration	:	25 kA (rms)
g)	Class of insulation	:	B
h)	Insulation level		
	- Peak impulse withstand voltage	:	170 kV
	- Rated one minute power frequency wet and dry withstand voltage	:	70 kV
i)	Accuracy class	:	PS & 0.2
j)	Output burden	:	30 VA
k)	Knee point Voltage	:	1200 V/ 600 V
l)	Excitation current	:	40 mA
m)	Secondary resistance	:	< 5Ω
n)	Terminal	:	Suitable for ACSR conductors / Aluminium pipe for 33kV.
o)	Marshalling Box	:	IP – 55 enclosure
p)	For rating, ratio, class of	:	Refer Bill of Quantities.

1.5.3 TECHNICAL PARTICULARS

a)	Nominal system voltage	:	33 kV
b)	Nominal current rating	:	400/200/1 A
c)	Bus conductor	:	ACSR Moose Conductor
d)	Short time current rating for 3 (three) seconds	:	25 kA
e)	Deflection of bus-bars supported on post insulators shall not exceed	:	Half the diameter of busbar or L/14.4 cms (where L is the span in meters)

1.5.4 CLEARANCES

The net clearance in air for bus bars, Jumpers etc. shall not be less than that given in CBIP manual.

1.5.5 ACSR Conductor

- **CONSTRUCTION**
  - Conforming to IS 398 (Part-II), 1996.
  - Aluminium wire made from at least 99.5% pure electrolytic aluminium rods of EC grade with copper content less than 0.04%.
  - Steel wires uniformly coated with electrolytic high grade, 99.95% pure zinc.
  - Steel strand hot dip galvanized with minimum coating of 250 gm/sq.m. after standing.

- No joints permitted in the individual aluminium wires and steel core of the conductor.
- Standard length of conductor shall be 2500 mtr. with a tolerance of ± 5%

- **TECHNICAL PARAMETERS**

Sl. No.	Description	Type of Conductor	
		Moose	
1.	Wire diameter Aluminium (mm)	54/3.53	
	Steel (mm)	7/3.53	
2.	Sectional area of Aluminium (sq. mm.)	528.5 Sq mm	
3.	Total sectional area (sq. mm.)	597.0 Sq mm	
4.	Overall diameter	31.77 mm	
5.	Approximate weight (kg. / km.)	2004	
6.	Maximum calculated D.C. resistance at 20^0C (ohms/km.)	0.05552	
7.	Ultimate tensile strength (KN)	161.2	
8.	Final modulas of elasticity (GN/sq.m.)	69	
9.	Coefficient of linear expansion x 10^{-6} per ^{0}C	19.3	
10.	Technical particulars of aluminium and steel strands	*Steel*	*Al*
a.	Diameter		
	Nominal (mm)	3.53	3.53
	Maximum (mm)	3.60	3.57
	Minimum (mm)	3.46	3.49
b.	Cross-sectional area of nominal diameter wire (mm^2)	8.814	9.787
c.	Weight (kg./km.)	68.75	26.45
d.	Min. breaking load (KN)		
	Before stranding	10.67	1.57
	After stranding	10.14	1.49
e.	D.C. resistance at 20^0C (ohm/km)	-	2.974

Accessories for compression, twisting joints, repair sleeve shall form part of ACSR conductor. Clamps and connector for connecting of ACSR conductor shall be made of alloy casting.

Bi-metallic connectors shall be used for connecting equipment terminals made of copper or brass, bolts, nuts and washers for connector shall be made of mild steel and shall be electro-galvanized and passivated to make them corrosion resistant conforming to requirements of BS 1706.

1.5.6 H.T. INSULATORS

The insulators shall conform to the relevant latest IS standards (IS 2544,731,1248) and made of hard porcelain. Creepage distance shall be adequate for polluted outdoor atmosphere. Glazing of the insulator shall be uniform brown color, free from blisters, burns and other similar defects.

The insulators shall have technical particulars as detailed below:

		33kV
i)	Type	70 KN Disc(11 kV, 4 disc in strings)
ii)	Nominal system voltage kV (rms)	33

iii)	Highest system voltage kV (rms)	36
iv)	Wet power frequency one minute withstand voltage (kV, rms)	75
v)	Power frequency puncture kV (rms)	1.3 times the actual voltage dry flash over voltage
vi)	Impulse withstand voltage kV (Peak)	170
vii)	Visible discharge voltage kV (rms)	27
viii)	Creepage distance in mm (minimum)	580
ix)	Minimum failing load	10 KN (45KN for Disc Insulators)

1.5.7 H.T. INSULATORS

The insulators shall conform to the relevant latest IS standards (IS 2544,731,1248) and made of hard porcelain. Creepage distance shall be adequate for polluted outdoor atmosphere. Glazing of the insulator shall be uniform brown color, free from blisters, burns and other similar defects.

The insulators shall have technical particulars as detailed below:

		33kV
i)	Type	Post/Disc/Pin
ii)	Nominal system voltage kV (rms)	33
iii)	Highest system voltage kV (rms)	36
iv)	Wet power frequency one minute withstand voltage kV (rms)	75
v)	Power frequency puncture kV (rms)	1.3 times the actual voltage dry flash over voltage
vi)	Impulse withstand voltage kV (Peak)	70
vii)	Visible discharge voltage kV (rms)	27
viii)	Creepage distance in mm (minimum)	580
ix)	Minimum failing load	10 KN

1.6 HT POWER CABLES

1.6.1 APPLICABLE STANDARDS

The materials shall conform to the latest editions of the following Indian/ International Standards:

IS 7098 Part 2 : 1985	XLPE insulated PVC sheathed cables for working voltages from 3.3 kV up to and including 33 kV.
IS 5831 : 1984	PVC Insulation and Sheath of electric Cables
IS 8130 : 1984	Conductors for insulated electric cables and flexible cords
IS 613 : 1984	Copper rods and bars for electrical purposes
IS 3975 : 1988	Mild steel wires, formed and tapes for armoring of cable
IS 10810 : 1984	Method of tests for cables
IEEE – 383 :1974	Standard for type test of class IE electric cables, field splices and connections for nuclear power generating stations
ASTM-D2843, 1993	Standard test method for density of smoke from burning or decomposition of plastics
ASTM-D2863, 1981	Standard test method for measuring minimum oxygen concentration to support candle – like

	combustion of plastics (oxygen index)
NEMA-WC5, 1992	Thermoplastic Insulated Wire and cable for the transmission and distribution of Electrical Energy
IEC-754 (Part-I) : 1994	Test on gases evolved during combustion of electric cables. Determination of the amount of halogen acid gas evolved during combustion of polymeric materials taken from cables
IEC:332 (Part-I):1993	Test on electric cables under fire conditions. Test on a single vertical insulated wire or cable.
IS 3961 (Part-II):1967	Recommended current rating for cables. PVC insulated and PVC sheathed heavy duty cables
IS 10418:1982	Drums for electric cables

1.6.2 GENERAL REQUIREMENTS

- All cables shall be suitable for high ambient, high humid tropical Indian Climatic conditions. Cables shall be designed to withstand the mechanical, electrical and thermal stresses under the unforeseen steady state and transient conditions and shall be suitable for proposed method of installation.
- Aluminum Conductor shall be uniform, of good quality, and free from defects.
- Insulation shall be Cross Linked Polyethylene (XLPE).
- For cables, conductor screen and insulation screen shall both be extruded, semi-conducting compound and shall be applied along with XLPE insulation in a single operation by triple extrusion process. Method of curing of cables shall be “Dry curing/ Gas curing/ Steam curing”.
- Cables shall be provided with copper metallic screen suitable for carrying earth fault current. For single core armoured cables the armouring shall constitute the metallic part of the screening.
- Inner sheath – All armoured and multi-core un-armoured cables shall have distinct extruded inner PVC sheath of black color.
- Armouring - Material for armour for Single Core Cable shall be Aluminum wire. For Multi core cable it shall be GS wire/ flat. Armouring shall be as per relevant IS and it shall have minimum 90% coverage.
- Outer Sheath – It shall be of black colour PVC (type ST2 as per IS 5831) with Cable size and Voltage grade embossed on it. Sequential marking shall be at every 1 Meter distance. Word “FRLS” shall also be embossed on it at every 5 meter distance.
- FRLS Properties – All cable shall be Flame Retardant, Low Smoke (FRLS) type. Outer sheath shall have the following properties.
- Minimum bending radius shall be 10 D
- Repaired cables shall not be acceptable.

1.6.3 CURRENT RATING OF CABLES

- Normal current rating shall not be less than that covered by IS 3961. Tenderer shall submit data in respect of all cables in the prescribed format.
- Tables given de-rating factors for various conditions of cable installation including the following, for all types of cables shall be furnished.
    - Variation in ambient air temperature.
    - Cables laid in trench
    - Grouping of cables

- **The value of short circuit withstand current ratings of all cables shall be indicated for a short circuit for 3 second duration and should also specify the maximum temperature during short circuit.**
- The following factors shall also be accounted for, while specifying the maximum short circuit withstand of the cables.
  - Deformation of the insulation, due to thermo-mechanical forces produced by the short circuit conditions, can reduce the effective thickness of insulation.
  - Conductor and core screens can be adversely affected with loss of screening effect. Likewise the thermal properties of the outer sheath material can be the limitation.
- It is essential that the accessories which are used in the cable system with mechanical and/ or soldered connections are suitable for the temperature adopted for the cables.
- Formula for calculating short circuit current for different duration or curve showing short time current v/s time for different sizes of cables shall be furnished by the Tenderer.

1.7 ILLUMINATION SYSTEM

1.7.1 LIGHTING SYSTEM

All outdoor switchyard, substation/control room shall be properly illuminated by tenderer. The following details are given below :

Sl. No.	Area	Lux level	Type of fittings
1.	Out-door Switchyard	100 lux.	250/400W, HPSV
2.	Sub-station room	200 lux.	Fluorescent 2 x 40W tube light
3.	Periphery	30 lux.	150W, HPSV
4.	Toilet, stores etc.	100 lux	2 x 40W, 1x40W fluorescent tube lights.

Lighting system shall be complete with hangers, Clamps, junction boxes, conductors, cables and all accessories to make the lighting installation complete in all respect.

1 No. 1400 mm sweep ceiling fan with electronic regulator, Two nos. 15A plug – sockets etc. shall be provided in office room, exhaust fans will be provided for toilet room with control devices. At least 2 Nos. of pedestal fans shall be provided in the substation control room.

1.7.2 LIGHTING DISTRIBUTION BOARD

Lighting distribution board shall have following features:

- Sheet steel enclosed, wall mounted, hinged neoprene gasket door, slotted opening for the operating handle / knob of switch / miniature circuit breaker.
- Incoming power supply 415V, 3 phase, 4 wire 50 Hz, neutral solidly earthed Board shall have short circuit capability of 10kA.
- Incoming MCB (Isolator type) without release and outgoing 20 A, SP, MCB, 9KA channel mounted type.
- 30% spare outgoing circuit to be provided in the LDB for future use.

- Complete pre-wired up to terminal block for external connection.

1.7.3 COLOUR CODE

Following colour codes shall be followed for electrical equipment :

Sl. No.	Equipment	Colour	Paint shade No. as per IS-5, 1991	Equivalent. RAL Code
1.	Outdoor structures, nuts, bolts etc.	MS	-	-
2.	Transformer and Outdoor equipment	Dark admiralty gray,	632	7012
3.	HT Switchgear panels	Light Gray	631	7042
4.	LT Switchboard charger etc.	Light admiralty Gray	697	6010
5.	Panels, DBS etc.	Light admiralty Gray	697	7001
6.	Junction Boxes	Light Gray	631	7042
7.	Earthing	Black	-	-

Painting of all equipment shall be as per relevant IS, manufacturer's practice to ensure long lasting, without causing rust, peeling off Any touch-up painting as required shall be done by tenderer including supply of paints etc. at no extra cost.

B- ERECTION DOCUMENT

1.0 GENERAL

- All electrical installation shall confirm to the Indian Electricity Act, IE Rules and Regulation in force, in the state, by electrical inspectorate.
- All works under this contract including the installation of the equipments shall be got inspected and approved by the relevant authorities like Electrical Inspectorate etc.
- **The circuit breaker, current transformers, lightning arresters, power transformers etc., shall be examined on receipt for damages. The contractor shall assemble, install and connect the equipment wherever necessary as per manufacturer's recommendations. The assembly of the unit including their operating mechanism, site adjustments shall also be carried out as per guiding instructions from the manufacturer. The equipment shall be placed and levelled carefully on their respective structures. All the preparatory works such as civil foundations, any concrete channels etc., shall be completed prior to this.**
- The operating mechanism and control circuit of the equipment shall be tested for proper opening, closing and position indication. The opening and closing tests shall be made from control points as in service operation.
- Earthing of supporting structures and metal parts of operating mechanism operating cabinets, operating handles at ground potential shall be ensured. Where moving parts are involved, flexible copper conductors shall be used.
- Before charging the equipment, contractor shall submit the completion report for each equipment indicating rectifications / modifications carried out during erection, site test certificates with observations, rectifications carried out. Contractor shall also indicate the correctness of operational and safety interlocks. Site test certificates shall also indicate the corresponding values obtained in the factory test.
- The conductor/jumpers shall be correctly and effectively connected to the terminals of equipment. The faces shall be cleaned with fine cloth and lightly coated with petroleum jelly before use. However, if contacts are silver plated, they shall not be cleaned with emery paper. The connection shall be flexible to withstand stresses during switching operation.
- The control cabling shall be effectively crimped to the cable lugs which shall be bolted tight after ensuring that the contact faces are clean. Small wiring that is necessary between units in accordance with the diagram of connection shall be made complete.
- In outdoor switchyard, the structure required for 33 kV & 11 kV renovated equipment shall match with the existing system.

2.0 INSTALLATION OF 33 KV SF-6 CIRCUIT BREAKER

2.1 GENERAL

- The circuit breakers shall be assembled and erected on the support structures as per the manufacturer's instructions and drawings and shall be aligned accurately and levelled on the support structures.
- Perfect operation of the circuit breaker shall be ensured after erection by manual operation. Each bearing of the operating mechanism shall be properly lubricated.

- The contractor shall follow the following sequence of erection of SF-6Circuit Breaker
    - Transportation to the place of installation from contractor's stores.
    - Unpacking the cases and physical inspection of the components for breakages, missing parts or damage as compared with the packing list.
    - The foundation must be plane and horizontal so that the Circuit breaker rest firmly on foundation.
    - Assembly and erection of the circuit breaker shall be done strictly as per the instruction and drawings from the manufacturer. Corresponding part of each pole marked in the packing list shall be strictly adhered to. Breaker installation shall be checked for proper leveling and alignment.
    - Adjust the operating rods between poles and the operating mechanism as directed by manufacturer, before closing the breaker at full speed. Check the "indicating distance" by operating the breaker slowly to the closed position.

2.2 WIRING OF THE CIRCUIT BREAKER OPERATING CUBICLE

- Laying, meggaring, termination, dressing and clamping of control cables, bus-bars, jumpers etc.
- Testing and marking of cables.
- Cleaning of all insulating surfaces with dry cloth or as indicated by the manufacturer.
- Functional tests on the circuit breaker.
- Painting of all accessories, structures etc.
- Earthing of all the metal parts and structures not intended to be live.
- Submission of site test certificates, completion report etc., in the proper format.
- Handing over to engineer/owner.

3.0 INSTALLATION OF ISOLATOR/DISCONNECTING SWITCH

- The poles of the disconnecting switches shall be aligned accurately and leveled on the supporting steel structures. Sequence of installation of disconnecting switch parts shall be carried out as recommended by manufacturer.
- Perfect operation of disconnecting switch, earthing switches shall be ensured after erection by manual operation. Working clearance between adjacent structures and switch blades in open position shall be checked.
- The switches shall be adjusted so as to permit operation with ease by one man. Each bearing of the operating mechanism shall be properly lubricated.
- Laying, termination of power and control cables, checking of internal wiring connections.
- The contractor shall also check for the key interlocking of the earthing switch with the main disconnect switch. Earthing between units, earthing terminals to structure, operating handle to structure and ground mat should be effective and neatly taken through structures and foundation. Ground mat shall be positioned right below the operating handle of the disconnect switch, visible at all times.

4.0 INSTALLATION OF CURRENT TRANSFORMER

- Current transformers shall be mounted on the steel supporting structure with secondary terminal boxes in pre-determined position so that cable can be conveniently taken without much bends and twisting.
- Interconnection wiring should be kept as short as possible, both for economy and to produce low burdens. The cable shall be taken neatly through suitable galvanised iron conduits to trench sections wherever required.
- Apart from general earthing, one terminal of secondaries of current transformers shall be earthed solidly through adequate section of solid copper conductor.

5.0 INSTALLATION OF LIGHTNING ARRESTERS

- The lead connecting lightning arrester with line should be direct without any splice or other joint and the connection should be effective to carry the lightning discharge currents. The lightning arrester shall be positioned in such a way that short and straight leads can be run from the earthing terminal of the arrester to the earth electrode specifically provided for this purpose. The arrester exhaust ports should be directed away from the equipment and other arrester.

6.0 INSTALLATION OF CONNECTING MATERIALS IN SWITCHYARD

- The arrangement of connections shall be such that the connected apparatus are not subjected to any mechanical stress due to expansions, contractions etc.,of the connections.
- The connections shall ensure good electrical contact. The connector and joints shall be rigid to withstand all mechanical and electrical stresses. Suitable bi-metallic clamps shall be used for all the connections between the conductors of different materials.
- All live parts shall have sufficient practical clearances from earthed parts and ground. The clearances of strung busbar shall be decided considering the effect of sag. In applying clearance an allowance shall be made to cater for variation in making foundation and in the dimensions of structures and buildings.
- The contractor shall be responsible for supplying and installing the various conductors required for connection of the various equipment. The tenderer's scope shall include all bolts, nuts and washers required for installation. All connections etc., shall be so made that stress between connecting terminals will be reduced to the minimum.
- The physical layout of the system shall be such that the system extension or conversion can be carried out with minimum changes and easy methods. Further, it shall be ensured that all civil works for the foundations are completed by the contractor before taking up erection of structure.

7.0 INSTALLATION OF SWITCHGEAR PANELS

- **The base frame of all panels shall be welded to the structures or to the civil inserts provided on the floor. Fabrication of support / frames , wherever required shall be done by the contractor.**
- The shipping section shall be placed in position before removing the protective covering to eliminate scratch / damage. The shipping section shall be moved by using rollers under the shipping skids wherever lifting cranes are not available. The contractor shall do the assembly at site as per the manufacturer’s General

Arrangement drawings and installation instructions. While assembling a complete board comprising several unit type cubicles, the board as a whole shall be aligned. The panels shall be properly levelled prior to grouting the holding down bolts or welding the panels to the inserts. All interconnection of the bus-bars and wiring between the panels shall be done as per manufacturer's instructions and drawings. Welding work on the panels shall only be carried out after consultation with the purchaser. Damage to the paint during welding shall be rectified by the contractor.

- After mechanical installation of the board is completed loose instruments shall be installed wherever required, and wires shall be connected to the instruments. The wiring of intermediate terminal strips between two panels, wherever disconnected for transport, shall also be connected.

8.0 INSTALLATION OF GROUNDING/EARTHING

- Entire system shall be earthed in accordance with the provisions of the relevant IEC recommendations / IS code of practice IS 3043-1987 and Indian Electricity Rules, so that the values of the step and touch potentials in case of faults, are kept within safe permissible limits.
- The principal requirements of the grounding are :
  a) Low resistance and adequate current carrying capacity.
  b) Uniform and near uniform ground potential on all structural metal work on all metal enclosures and/or supports of equipment and apparatus.
- The resistance of earthing network shall be less than 1 ohm for the network of outdoor yard under all conditions. The earthing network shall be as per actual site conditions.
- The contractor's scope of installation will also include all the civil work associated with complete earthing network.
- All earth connection shall ensure a permanent low resistance contact. Earth connections required to be removed for the purpose of testing of equipment/earthing network shall have bolted connection and joints fastened. All earthing connections shall be visible for inspection.
- Switchyard fencing and all equipment located at switchyard, shall have 2 separate distinct earth connections.
- Lightning arresters and transformer neutrals shall be connected to two independent earth electrodes as per IS 3043.
- Air termination rods of lightning protection systems shall be connected to earthing network as per IS 3043.
- The grounding connection to the lightning arresters, air termination points of lightning protection system shall be as short as possible. Sharp turns in these conductors shall be avoided.
- It has to be ensured that main earth bus in the installation as well as earth buses in individual sections/areas shall form complete ring and they shall be interconnected.
- Duplicate earthing (two separate and distinct connections with earth) shall be employed for all equipments.
- Wherever burying of earth conductors are specified, they shall be buried as per approved drawings.
- Wherever earth conductor crosses the road, it shall be taken through GI pipes.

- At all terminations of earth conductors on equipments, sufficient length shall be left for easy movement of the equipment from its position for alignment purposes.
- Wherever not detailed, the route of the conductor and location of the earth pit shall be arranged, so as to avoid obstructions, crossing etc., according to convenience at site and shall be got approved by the owner's representative in-charge of the work.

9.0 INSTALLATION OF EARTH PITS

- The arrangement of earth electrode/pit shall be as shown in IS 3043. Termination arrangement of interconnecting earth strips is included in the scope of earth pit. Interconnecting earth flats shall be jointed by welding to the termination arrangement on the electrode. Electrode will be 50 mm dia pipe of 3 m length, medium class, in a single piece.
- The distance between two pits shall not be less than 6 meters.
- All accessories required for the earth pits such as electrodes, charcoal, salt, clamps, clips, bolts/nuts, washers, GI pipes, funnel cast iron cover and also the masonry works of the pits including supply of necessary materials, bricks, cement and excavation of earth for providing earth pit shall be part of rate quoted for earth pit.
- The electrodes shall be well packed with earth, charcoal and salt mix up to the level of connections.
- Masonry work of the earth pit shall be carried out only after well ramming of riddled soil and complete settling of loose soil. As such electrodes shall be fixed in the ground before commencing of any other work of the installation and masonry work shall be taken only at the end after completion of all other works in the installation.

10.0 JOINTS/TERMINATIONS OF EARTH STRIPS

- All joints of bare galvanised earth strips shall be welded so as to form rigid earth ring. All such welded joints shall be given necessary coating of cold galvanised paint as per relevant standards and a coat of suitable bitumen compound to prevent corrosion. Welded joints shall form part of laying of earth conductors and they shall not be considered as terminations for payment purposes. No extra costs shall be applicable for joints of all the earth conductors.
- In case the joints are made by using suitable connectors the entire joint shall be fully sealed by suitable compound so that no metallic part is exposed.
- The contractor shall make his own arrangements for the necessary crimping tools, soldering equipments, drilling machines and other tools and tackles which are necessary for completing the installation.

11.0 ERECTION AND COMMISSIONING, TOOLS AND TACKLES

- The contractor shall provide all tools/tackles, jigs and fixtures, winches, alignment tools, welding sets, testing kits, testing meters/instruments, breaker, handling devices, all consumable items and construction equipment as required in installing the work, complete in all respects and shall include but not be limited to bolts, nuts, rivets, welding rods, shims, wedges, packing sheets, packing compounds, oil, flushing oil, protective greases and oils, all materials required for proper installation and protection of individual equipment in storages, and during erection, testing and commissioning.
- This shall also cover proper alignment, tack welding, tagging, laying, marking of and connection of cables, fabrication, supply and installation of all support structures for installation of various electrical equipments and cables.

- Supply and installation of first aid boxes, shock treatment charts, rubber mats, keyboard.
- The rubber mats shall be provided in front of all control panels/switchgears to comply with Indian Electricity Act.
- Erection, testing and commissioning of various equipments shall be done strictly as per manufacturer's instructions.
- All plant and equipment the painting of which has been damaged during transportation/erection or by corrosion shall be given two coats of paint after removal of scales, rust, oil etc.
- All iron frame work erected shall be provided with one under coat of primer and one top coat of finish paint.
- Cable shall be always laid in conduit upto 2 meter of height in case of vertical run to avoid mechanical damage.
- Cable shall be laid in separate racks according to voltage levels and between two cables horizontal clearance equal to diameter of cables shall be provided in the hooks.
- Maximum cross section areas of cable passing through conduit shall not exceed 60% of cross section of conduit.
- Approved type of danger boards, boards inscribing ‘EARTHED', 'DO NOT CLOSE’, ‘ MEN AT WORK’ etc, shall be provided in sufficient numbers.
- Special care shall be taken to make the enclosed equipment protected against entry of rats, lizard, and creeping reptiles which may create electrical short circuits.

12.0 STAGES OF COMPLETION OF WORKS

- The stages of completion of various works shall be as follows :

12.1 COMPLETION OF ERECTION

- Equipment shall be considered to be completely erected when the following activities have completed.
  - Moving of all equipment to the respective foundations.
  - Aligning the equipment
  - Fixing of anchor bolts or tack welding as required
  - Drying of equipment as required and testing of oil for dielectric strength.
  - Assembling of all accessories such as relays, CTs, PTs, meters, instruments etc. as described in job document.
  - Filtration and filling of oil as required.
  - Cable laying termination with continuity checking.
  - Applying of finish coat of paint
  - Completion of earthing system.
  - Removing of unwanted materials and covering of all openings including cable openings, conduits etc.
- In other words, erection shall be considered to be complete where the equipment is ready for testing with all other associated equipments required for commissioning. In this matter the opinion of Purchaser/Consultant shall be final.

12.2 COMPLETION OF TESTING

- Testing of equipment shall be considered as complete after the following operational tests.
  - Testing/commissioning of all panels and equipments as specified.
  - Checking of all circuits/ schemes for correct connections and continuity.
  - Reworking as required during testing and retesting.
  - Charging of the equipments.

12.3 CABLE INSTALLATION

12.4 Mode of Cable Installation

- Straight through joints shall not be permitted in cables.

12.5 TRENCHES

- The maximum depth of all trenches shall normally be 1.0 meters, the maximum soil cover above the protective slabs shall be 75 cms, unless otherwise agreed. The back filling of the excavation shall be carried out without disturbing the cover slabs or damaging the cables.

12.6 CABLE LAYING IN TRENCHES

- The cables shall be laid on 80 mm of riddled sand and covered with 100 mm riddled sand and covered with approved protective slabs of reinforced concrete.
- Unless agreed otherwise, all power cables shall be spaced at a distance of 15 cms horizontally.

12.7 MARKERS

- Approved cable markers of reinforced concrete shall be provided and fixed to mark each and every deviation of all buried cable routes. A marker shall also be placed every 50 meters along straight portions of each route.
- A concrete cable marker shall also be provided and fixed to mark the position of every buried joint.

12.8 SUPPORTING STEEL WORK FOR OUTDOOR SWITCH YARD EQUIPMENT

- All supporting steel work shall be free from dirt, rust or scale and shall be painted.

12.9 CABLE SUPPORTING STRUCTURE

- Cable supporting structures shall use angle of minimum size of 50 x 50 x 6 mm
- The structure shall be painted. For laying cable in the substation and switch yard existing cable structure may have to be extended or few cable structures shall be provided.
- Fixing to concrete and brick work
- The cable supporting material shall be fixed to concrete and brick work by the use of anchor bolts. Fibre plugs shall not be used.

13.0 CABLE IN PIPE

- Cable pipes, kick guards shall be provided to protect the cables, where the cables rise through holes at ground level.
- Not more than one cable shall be drawn into one pipe unless agreed otherwise.
- After the cable has been drawn in, the pipe shall be sealed by an approved means.

13.1 CABLE TERMINATIONS

- The cable shall be terminated in accordance with the relevant diagrams.
- The cable cores from the sealing box or gland, to the terminals of the apparatus shall be neatly dressed & arranged, and shall be of sufficient length to prevent the development of tension or local pressure on the insulation. They shall be suitably supported wherever required.

13.2 IDENTIFICATION AND MARKING

- End of each core of every control cable shall be fitted with tight ferrules of approved make and white non-inflammable plastic insulation material, having the marking engraved in black to correspond with the relevant diagram. Where the ends of one conductor have different markings, each end shall also have white ferrules engraved in red with the remote marking.
- Distinguishing labels of non-corrodible material marked in accordance with the cable numbers of the cabling diagram shall be permanently attached to each end of every cable.
- The phase or polarity of each power cable core at the cable ends shall be identified as follows :

  AC system : Phase - Red, Yellow and Blue painted discs
  Neutral - Black painted disc

13.3 CONNECTION TO TERMINALS

- Power cable connections shall be made with cable lugs of approved type and materials, taking into account the bimetallic actions
- All control circuit connections shall be made with the bare conductor with the use of washers, crimped lugs etc.
- The ends of all stranded conductors shall be twisted tightly together.
- Solid or stranded conductors shall be connected to terminal studs by taking one complete turn around the stud between the flat washers.
- Connections to an easy wiring terminal shall be made with a straight end conductor.

13.4 PROTECTION OF CABLES

All cables shall be installed such that the risk of subsequent damage is minimised. Steel guards shall be provided where necessary.

13.5 SEALING

All cables passing from one electrical premises to other i.e basement to cable trench, basement to cable tunnel, spare ducts etc. to be sealed properly to prevent seepage of water.

13.6 GUIDELINES FOR CLEARANCE IN ELECTRICAL PREMISES

All the substation building sizes shall be decided as per the following guidelines :

- All equipment/ panels shall have minimum 1250 mm back clearance all around them.

- The front to front clearance of switch boards / panels shall be minimum 2500 mm.
- Clearance between two panels installed in a row shall be minimum 1000 mm.
- Clearance between wall and end of the panels shall be minimum 1000 mm.

13.7 CABLE CHANNELS

- The cable channels shall have removable covers for the full width.
- Minimum working passage of 500 mm shall be provided between cable racks or between cable rack and wall.
- Shall have suitable drainage facility to avoid accumulation of seepage water.

13.8 SAFETY PARTITIONS AND ENTRIES

- Doors shall be provided for electrical buildings.
- All the cable openings on the equipment floor shall be sealed.

14.0 CIVIL WORKS

14.1 SCOPE OF WORK

The contractor's scope for civil engineering works shall include complete engineering and construction inclusive of

1. Any other drawing and execution works not mentioned specifically but required for overall completion and handing over of the system as a whole.
2. Supply of all construction materials, tools and tackles, labourers and execution of works complete as required for electrical buildings, equipment foundations and associated facilities for 33 kV Power sub-stations.

- Removal of debris, micro leveling of the site up to 20m all around buildings and premises within the scope of contract prior to completion of work.
- The Contractor shall undertake, within the battery limits, any change in the location of units/ items and / or building numbers/ parameters, sizes etc which may be necessary during engineering/ execution from those indicated by the Contractor in their contract drawings at no additional cost to the purchaser.
- **All other civil works that will be necessary to complete the work in all respects for smooth functioning of the system.**
- The contractor shall not make any additional claim if the total concrete quantity or quantity of any other civil engineering items required for completion of the entire package as per terms of contact exceed the quantity / Nos indicated by the contractor in BOQ of this section or for supply and execution of any other quantity/items beyond BOQ.
- **Broadly the civil works pertains to the following works in general but are not necessarily limited to the same.**
    - 33 kV outdoor switchyard
    - Equipment foundation
    - Gravel pitching for outdoor equipments
    - Cable Channel
    - Yard fencing with 1.8m wire mesh fencing.
    - Inside the periphery, 1.5 meter wide stone aggregate path of 100mm thickness shall be provided with 20mm aggregate to size for walking.
    - Grouting electric poles etc. wherever, required.

- **Apart from the broad scope the following shall also be included in the scope of work.**

  i. Area shall be gently slopped outwards for draining rain water.

14.2 MATERIAL AND WORKMANSHIP FOR CIVIL WORKS

14.2.1 EARTHWORK

- Earthwork and blasting of rock/ hard strata shall be carried out generally as per stipulations laid down in BIS codes and as directed by the Engineer The Contractor shall adopt a suitable dewatering system for carrying out earthwork concrete and shuttering work and other underground work .The Contractor shall carry out compaction of sub-grade necessary to achieve the design criteria of floors and foundations taking into consideration the settlement limits. Method of compaction shall depend upon the materials to be used and verified by the contractor by site testing at his own cost. Surplus and unsuitable materials shall be disposed suitably at locations within a lead indicated by the Purchaser. If required the backfilling material shall be brought to the site by the contractor at no additional cost. Availability of dumping yard and borrow pit may be within or outside the plant boundary. Dozing and spreading of the dumped earth, if necessary, shall be done by the Contractor at no additional cost to the Purchaser.
- Apart form shoring and temporary supports all other necessary measures shall be provided, if necessary for protection of existing underground services at no additional cost to the Purchaser.
- The checking and correctness of al min centre lines is the responsibility of the Contractor irrespective of any checking by Purchaser.
- Backfilling shall be done withe selected earth in layers to fill up the left out portion after concreting, walling etc. so as to achieve the required compaction. All materials being used shall be confirming to relevant BIS code.

14.2.2 CONCRETE AND REINFORCED CONCRETE STRUCTURE

- The ingredients to be used in the manufacture of concrete shall consist solely of Portland cement, clean said natural coarse aggregate, clean water and admixtures, if conditions at site warrant its use.
- All concrete and reinforced concrete structures shall be constructed as per structures shall be constructed as per stipulations of BIS codes and as directed by the Engineer.
- The mix design adopted shall be suitable for proper strength workability and service condition of the structure. Minimum cement content and maximum water cement ratio shall be normally as per stipulation of BIS codes. However in case of exposure to aggressive environments, the mix design adopted shall be suitable to ensure durability of the concrete under that condition.

- Unless specifically approved by the Engineer the maximum nominal size of coarse aggregates for concrete under that condition. Steel reinforcement to be used shall be as per BIS Codes.

14.2.3 SERVICE LINES AND PLUMBING

- All service pipelines, water supply, plumbing and other utility pipelines within the buildings of RC / masonry construction shall be concealed within the masonry, Concrete work etc or by removable wooden panels.
- All buildings with toilets/ drinking water facilities shall be provided with water storage tanks at roof of the buildings.
- Reference grid point and bench marks shall be made available to the contractor.
- The Contractor shall do other necessary work for controlling reference grid.

14.3 GENERAL SUB-SOIL CONDITIONS

The tenderer shall visit the site and collect all relevant data regarding site, soil sub-soil etc before quoting the price quoted by the contractor shall be firm and no additional payment will be allowed on account of variation in subsoil condition.

The successful tenderer shall make his own arrangement for soil investigation in consultation with the consultant and submit the reports with out without additional cost to the Purchaser. The investigation work shall be (both field & Laboratory) shall be carried out following relevant IS: codes through approved agency and will be supervised by the Purchase The scope of soil investigation work, data and recommendation derived from the soil investigation (carried out by the Contractor) shall have to be approved by the Purchaser before implementation in design and / or construction.

14.4 SITE CONDITIONS

- Site clearance of muck debris etc. and disposal of the same shall be included in the scope of contractors work.
- The Contractor shall be deemed to have visited and carefully examined the site and surroundings to have satisfied himself about the nature of all existing structures foundations etc existing underground services general site conditions the site for disposal of surplus materials debris etc and all other matters affecting the work. Claims and objections and objections due to ignorance of site conditions shall not be considered after submission of the tender.

14.5 ESTIMATED QUANTITIES FOR CIVIL WORKS

The tenderers shall indicate the quantities for the following items in their offer. The quantities indicated shall be non-binding and are only for progress review purpose.

1) Excavation in
   a) Soil
   b) Rock

2) PCC
3) RCC
4) Reinforcement
5) Brick work
6) Doors and windows
7) Flooring
8) Roads
9) Paved area

14.6 TECHNICAL RULE FOR CIVIL ENGINEERING WORKS

14.6.1 GENERAL

- This Technical Rule is meant for civil Engineering works included in the scope of work in the package .It includes loading standards permissible stress functional requirement quality standards architectural guidelines norms etc to be adopted as a basic for preparation of designs and drawings and drawings by the contractor.
- The design prepared by the contractor shall not only provide for the requirements indicated in this Technical Rule but also consider the overall process requirements service conditions and provisions to be made for future expansion the designs shall be compatible with the operating conditions in the plant and the atmospheric conditions prevalent at locations of project site.

14.6.2 STANDARDS

- The design criteria for civil engineering work shall be in according with this Technical Rule. Detailed instructions on such aspects as are not indicated herein Shall be as per the latest standards codes and recommendations of the Bureau of Indian standards (BIS) documents

14.6.3 DESIGN

PERMISSIBLE STRESSES

Allowable stresses for all reinforced concrete structures shall be as per IS:459 and for pre-stressed concrete structures as per IS:1343

FOUNDATIONS

- Foundations for structures and equipment shall be proportioned to resist the worst conditions of loadings and shall be generally designed as per the provisions of IS:1904.
- The depth of foundation shall be determined based on loading on foundations level constructional and technological requirements the maximum allowable bearing pressure for design of foundation shall correspond to values confirmed by results of detailed soil investigation taking into account limits of allowable settlement considered for design of structures and equipment generally the foundation shall be taken down to t least 600mm below natural ground level in case of soil with approval of Purchaser.

- Generally foundation for buildings & equipment shall not be structurally connected ground floor slab the top level of the stem for building column foundations shall be so provided that no part of the steel column base assembly protrudes over finished floor level the column base assemblies shall be encased with concrete up to floor level.
- Foundations of equipment subjected to dynamic loading shall be isolated form adjoining floors foundations to prevent propagation of vibration to adjoining structures.
- Supporting structures and foundations for equipment which may cause vibration shall be designed for the dynamic effect of equipment together with the direct loads the dynamic loads and other relevant data required for analysing the dynamic effect shall be taken as per manufacturers data and recommendations.
- Structures and foundations supporting vibrating equipment shall be proportioned to avoid resonant frequencies the dynamic analysis shall be done as per the stipulations as recommended by respective Is codes as well as the stipulations recommended by Equipment manufacturer.

UNDERGROUND STRUCTURES

- Based on the data on subsoil and underground water adequate precautions shall be taken for design of foundational and under ground structure al underground structures such as sumps pits trenches etc shall be designed considering soil water and surcharge pressure from the surrounding areas Adequate precautions against floatation shall be taken.
- Water tightness of expansion and construction joints shall be ensured by provision of PVC water bars of approved type & suitable joint soiling compound.

14.6.4 CHEMICAL PROTECTION TO STRUCTURES AND FOUNDATION

Concrete structures floors and foundation coming in contact with acid/ alkalies /other chemical shall be provided with acid Proof treatment/ lining as stipulated under finishing details separately.

14.6.5 CONCRETE AND REINFORCED CONCRETE FOR STRUCTURES AND FOUNDATIONS

- Concrete work shall secure a dense homogeneous smooth mass including required finishes possessing required strength and resistance to weathering and abrasion for the structures and foundations
- Design of all reinforced concrete structures shall be as per the IS: 456 and of pre-stressed concrete structures as per IS:1343 The structural safety of al foundations on soil shall in general be based on IS:1904 The design of water retaining structures shall be according to IS:3370
- For calculation purpose Working Stress Design or Limit State Design methods may be adopted but design shall be consistent throughout.

- Unless other wise specified minimum grades of concrete to be used shall be as follows

  Plain cement concrete M15

  General Reinforced M20

14.6.6 EXTERNAL CLADDING INTERNAL PARTITIONS AND FINISHES

- This section deals with cladding internal partitions and finishes.
- External cladding for all buildings including auxiliary buildings an service buildings where specified shall be constructed of brick masonry having minimum 230 mm Design of masonry walls shall conform to IS:1905.
- Masonry walls of thickness 200mm or more shall be constructed in cement sand mortar not leaner than 1:6 Partition walls of half brick walls shall be constructed in 1:4 cement sand mortar with suitable reinforcement.
- All brick shall be plastered on both sides. Thickness of plaster shall be minimum 20 mm for unfair faces and for all external surfaces and 15mm for internal walls with fair faces. Thickness of plaster for ceiling shall be minimum 6mm.
- Cement sand mortar mix for plasters shall be 1:6 20 mm thick plastering shall be done in two layers.
- All outside & inside plastered surfaces of masonry walls shall be applied with Snowcem or equivalent cement based paint and to be applied as per manufacturer's document.
- Painting on ceilings shall be done with Snowcem or equivalent cement based paint matching with wall finish.
- Walls in toilets shall be provided with mat finish ceramic wall tiles 100 mm x 200mm x 6mm (approx) thick dado of approved make and colour up to a minimum height of 2.1 m walls above dado shall be coated with two coats of oil bound distemper over a coat of primer
- 100 mm high skirting shall be provided in all rooms except where there is a provision for dado

14.6.7 CABLE AND PIPE TRENCHES

- All cable/ pipe trenches etc inside various premises shall be made of reinforced water tight concrete and shall be covered with chequered plate suitably designed taking into account loading conditions. The out-door trenches shall be covered with pre cast RCC slabs with necessary lifting arrangement.
- All electrical cables at road crossing shall be taken through conduit pipes or cable ducts as per electrical document

14.6.8 DRAINS

- All drains shall be made of RCC or PCC depending on depth and discharge volume and provided with pre-cast RCC covers with lifting arrangements as per requirement.
- Generally minimum earth coverage of one metre shall be provided over underground drainage sewer pipe lines.

15.0 LIST OF RELEVANT IS CODES

I.S CODE NO.	TITLE
IS:269-1989	Document for 33 grade ordinary Portland cement.
IS: 383-1970	Document for coarse and fine aggregates from natural sources for concrete.
IS:432 (PART-1)-1982	Document for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement mild steel and medium tensile steel bars.
IS:432 (PART-20-1982	Document for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforced hard drawn steel wire
IS:455-1989	Document for Portland slag cement
IS:456-1978	Code of practice for plain and reinforced concrete -
IS:458-1988	Document for pre-cast concrete pipes with or without reinforcement
IS:651-1992	Document for salt glazed stone ware pipes and fittings
IS :783-1985	Code of practice for laying of concrete pipes
IS: 814-1991	Covered electrodes for manual metal arc welding of carbon and carbon manganese steel
IS:816-1969	Code of practice for use of metal arc Welding for general construction in mild steel
IS:875-(PART-1)1987	Code of practice for design loads 9 other than earthquake) for buildings and structures dead loads.
IS:875-(PART-2)1987	Code of practice for design loads other than earthquake) for buildings and structures imposed loads
IS:875-(PART-3)1987	Code of practice for design loads other than earthquake) for buildings and structures wind loads
IS:875-(PART-5)1987	Code of practice for design loads other than earthquake) for buildings and structures special loads & load combinations
IS: 1003 (PART-1) 1991	Document for timber panelled and glazed shutters windows and ventilator shutters
IS: 1003 (PART-2) 1993	Document for timber panelled and glazed shutters windows and ventilator shutters
IS:1038-1983	Document for steel doors windows and ventilators
IS:1080-1986	Code of practice for design and construction of shallow foundations on soil (other than raft ring and shell)
IS:1081-1960	Code of practice for fixing and glazing of metal (steel and aluminum) doors windows and ventilators.
IS:1172-1993	Code of basic requirement for water supply drainage and sanitation.
IS:1346-1991	Code of practice for water proofing of roofs with bitumen buildings
IS:1361-1978	Document for steel windows for Industrial buildings
IS:1786-1985	Document for high strength Deformed steel bars and wires

	for Concrete reinforcement
IS: 1893-1984	Criteria for earthquake resistant design of structures
IS:1904-1986	Code of practice for design and construction of foundation in soil General requirement
IS:1905-1987	Code of practice for structural use of un-reinforced masonry
IS: 2062-1992	Structural Steel(Fusion welding quality) Structural steel (fusion welding quality)
IS:2191(PART-1) - 1983	Document for wooden flush door shutters (cellular and hollow core type)-plywood face panels
IS:2191(PART-2) - 1983	Document for wooden flush door shutters (cellular and hollow core type)-practical board and hard Board face panels
IS:2202(PART-1) - 1981	Document for wooden flush door shutters (solid core type plywood face panels)
IS:2202(PART-2) - 1983	Document for wooden flush door shutters (solid core type particle board and hard board face panels
IS:2470(PART-1) - 1985	Code of practice for installation of septic tanks design criteria and construction
IS:2470(PART-2) - 1985	Code of practice for installation of septic tanks secondary treatment and disposal of septic tank efficient
IS: 2751 -1979	Welding of mild steel plain and deformed bars for reinforced concrete construction
IS:2950-(PART-1) - 1981	Code of practice for design and construction of raft foundations design
IS:3006-1979	Document for chemically resistant glazed stone ware pipes and fittings
IS: 3114 -1985	Code of practice for laying of cast iron pipes

16. INSPECTION AND TESTING

16 INSPECTION

16.1 GENERAL

Inspection & testing of equipment covered under the Technical Document shall be carried out by the Purchaser / Consultant at the manufacturers' works/ premises prior to despatch to ensure that their quality & workmanship are in conformity with the contract documents and approved drawings.

16.1.2 RESPONSIBILITY FOR INSPECTION

Any inspection by the Purchaser/ Consultant does not relieve the responsibility of quality assurance and quality control functions, as expected of the contractor to be performed by him for supply of plant & equipment as part of the contractual obligations.

16.1.3 Extent of Inspection

Routine test as per BIS for 100% equipment.

Type test shall be carried out on each type of equipment for which the tenderer fails to produce Type Test Certificates carried on similar type of equipment within 3 years period

16.1.4 TESTS, TEST CERTIFICATES AND DOCUMENTS

For each of the items being manufactured, following test certificates and Documents (as applicable for each of the equipment) in requisite copies shall be prepared and submitted to the Inspection Engineer for scrutiny & records.

Routine / type / calibration / acceptance / special test certificates for electrical items

Certificates from competent authority for the items coming under statutory regulations.

Should the result of tests not come within the margin specified, the tests shall if required be repeated at Contractor's cost without any liability to the Purchaser.

16.1.5 METHODS OF GIVING INSPECTION CALLS

Inspection calls shall be given by the contractor with ten days notice period as per proforma (11.20 (DQM) F05/2 Rev.0).All calls shall accompany two sets of relevant test certificates and inspection report of the Contractor /sub- contractor after satisfactory completion of internal inspection and tests by them as per approved QAP .Inspection calls without enclosing relevant test certificates & internal inspection report shall not be entertained .

16.2 TESTING

Test of all equipment shall be conducted as per latest BIS.

The site tests and acceptance tests to be performed by contractor are detailed below.

The contractor shall be responsible for satisfactory working of complete integrated system and guaranteed performance.

16.2.1 SITE TESTS AND CHECKS

All the equipment shall be tested at site to know their condition and to prove suitability for required performance .

Following tests shall be conducted after installation. All tools, accessories and required instruments shall have to be arranged by the Tenderer.

Any other tests which is considered necessary by the manufacturer of the equipment has to be conducted at site.

The tests to be carried out on the equipment at pre-commissioning stage shall include but not limited to the following

16.2.2 SF-6 CIRCUIT BREAKER /

1. IR test on each pole by Meggar (Between poles and lower poles to ground)
2. IR tests on control circuits.
3. Functional check of breaker operation on minimum and maximum specified control voltages.
4. Checking of interlocks with isolators & earthing switches.
5. Measurement of contract resistance.
6. Checking of operation and tripping of protection release .
7. Checking tightness of termination connectors and earthing connections.
8. Checking of insulators for cracks etc.
9. Check for closing and opening time and simultaneous closing of all poles through oscillograph.
10. Tripping of circuit breaker at reduced or over voltage i.e. at 60% & 110%

16.2.3 ISOLATOR/ DISCONNECTING SWITCHES

1. IR test by HV Meggar on main poles.
2. IR test on control circuits.
3. Measurement of contract resistance for all three phases.
4. Functional checking for manual operation.
5. Checking of interlocking with earth switch
6. Checking of earth switch operation.
7. Checking tightness of earthing connections.
8. Checking of insulators for cracks.

16.2.4 LIGHTNING ARRESTOR

1. Continuity check (for metal oxide type only)
2. Check for connection to ground.
3. Check insulators for cracks.
4. HT and IR test of each element.
5. Check reading of leakage current

16.2.5 CURRENT TRANSFORMER

1. IR test on each winding, winding to earth and between windings.
2. Checking of winding ratios by primary injections set.
3. Polarity check on each winding.
4. Continuity check for all windings
5. Check for connections to correct taps.
6. Checking of oil level
8. Checking of continuity and IR values for cables from CT to Marsh Box.
9. Checking tightness of earthing connections.
10. Checking of insulator for cracks.
11. Check output after loading of the main circuit

16.2.6 POTENTIAL TRANSFORMER

1. IR test on each winding, winding to earth and between windings.
2. Polarity check on each winding.
3. Continuity check for all windings
4. Turns ratio test
5. Check for connections to correct taps.
6. Checking of oil level
7. Checking tightness of earthing connections.
8. Checking of insulator for cracks.

16.2.7 INSULATORS

1. Checking tightness of connections.
2. Check for minor damage/ cracks after cleaning.
3. Verification of number of disks as per drawings.
4. Check heating at termination point during shut down.

16.2.8 ACSR CONDUCTOR

1. Check for continuity
2. Check for tightness of connections for all the termination points.
3. Check for phase sequence marking and for their correctness.
4. Physical verification

16.2.9 CONTROL & RELAY PANELS

1. IR Value test by meggar
2. Checking of control cable connection.
3. Operational test of all components mounted on control & relay panel .
4. Testing and calibration of indicating meters.
5. **Testing of all relays including auxiliary relays for their pick up, drop out values , operation at all taps etc with the help of relay testing kits**
6. Setting of relays as per approved setting table and checking its operation for one below and one upper settings in the scheme.
7. Measurement of current and voltage in relay operating coils by secondary injection in CT and PT circuit .
8. Measurement of current and voltage in relay and meter circuits during loading of the primary circuit / system.
9. Testing of al schemes for their functions as per approved drawings.
10. Check operation of relays at minimum/ maximum control voltage as per the document.
11. Integrated testing of protective relays for operation of master trip relay and tripping of breakers from operation of master trip relay
12. Check earthing connection of panels, fixing of panels and opening from side and bottom.
13. Testing of TVM meters.
14. Checking and adjustment in TVM meters as per the manufacturer's instructions.

16.2.10 CABLES

1. Checking of continuity/ phasing and IR values for all the cables before and after HV test.
2. HV test and measurement of leakage current after termination of cable kits (for HT cables)
3. Checking of continuity for Armour and fourth core (if applicable)

16.2.11 EARTHING

1. Check tightness of all each connections
2. Check earthing of all metallic equipment, busbar supporting structures, yard Fencing steel structures of yard, rails, gates, building column (if steel) all elect. equipment water pipe lines etc. as per the drawing/ document.
3. Measurement of earth resistance for each electrode.
4. Measurement of total earth resistance.

16.2.12 LIGHTNING PROTECTION

1. Check continuity of all the earth strips/ shield wire .
2. Check tightness of all connections.
3. Measure earth resistance of each electrode and combined system.

16.2.13 MISCELLANEOUS

1. Checking of continuity of the system .
2. Checking of phase sequence from overhead line to consumer end.
3. Checking safe accessibility of all operating points .
4. Check availability of control/ aux. supply.

GUARANTEED TECHNICAL PARTICULARS

The following Guaranted Technical Particulars shall be submitted by the Tenderers.

Sl. No.	Descriptions	Details
1	2	3
1. SF-6 CIRCUIT BREAKER		
1.	Rated voltage kV	
2.	Rated continuous voltage for rated MVA	
	a) Maximum kV	
	b) Minimum KV	
3.	Type of quenching medium	
4.	No. of Poles	
5.	Whether all 3 poles are ganged mechanically.	
6.	Pole to Pole spacing	
7.	Continuous current	
	a) Under site conditions, Amps.	
	b) Rated time, secs.	
8.	**a)** Rated short time current kA rms	
	b) Rated time, secs.	
9.	Maximum rise of temperatures over ambient for current rating.	
10.	Rated operating duty.	
11.	Interrupting capacity based on duty cycles	
	a) Symmetrical at rated voltage in KA & MVA.	
	b) Asymmetrical at rated voltage, kA	
	c) Symmetrical at service voltage, kA	
12.	Rated short time current of breaker IS(KA) and dynamic current (KAp)	
13.	Rated restriking voltage	
	a) Amplitude factor	
	b) Rated-of-rise at natural frequency	
	c) Type of devices used to limit the rate of rise of restrikling voltage.	
14.	Making capacity, kA peak	
	a) At higher rated voltage	
	b) At lower rated voltage	
15.	**a)** Partial discharge level	
	b) Noise level of equipment db measured at …….. meter	
16.	Insulation level of the breaker	
	a) One-minute power frequency withstand voltage kV rms.	
	b) Switching surge withstand test voltage kV (peak)	
	c) Impulse withstand test voltage kV (peak)	
17.	Corona and visual discharge	
	a) Radio interference voltage at ….. KV, micro volts	
	b) Visual discharge voltage for falling power frequency voltage kV	
18.	Insulator	
	a) Insulation class	
	b) One minute dry power frequency withstand kV (rms)	
	c) 10 seconds wet power frequency withstand kV (rms)	

	d)	Flashover voltage, kV	
	e)	Full wave impulse withstand voltage, kV (peak)	
	f)	Switching surge withstand voltage kV(peak)	
	g)	Corona discharge voltage kV	
	h)	Nature of the dielectric medium employed in the bushings	
	i)	Ionized Creepage distance mm	
		Total	
		Protected	
	j)	Volume of insulating medium per bushing liters.	
	k)	Permissible safe cantilever loading on installed bushing.	
19.	Time difference between pre-insetion of resistance and closing of main contact.		
20.	Make Time (ms)		
21.	Break Time (ms)		

2.	**36 kV Isolator (Outdoor)**	
1.	Manufacturer's name	
2.	Manufacturer's type designation	
3.	Standards applicable	
4.	Type	Double break Horizontal type
5.	Rated voltage kV	
6.	Rated frequency	
7.	Current rating	
	a.) Continuous A (at design temp.)	
	b) Current rating at site condition A	
	c) Dynamic through fault kA	
	d) 3 second rating kA	
	e) Making current A	
8.	Design ambient temperature (° C)	
9.	Maximum temperature of current carrying parts when carrying rated current at specified ambient temperature, ° C	
10.	Maximum temperature of current carrying parts when carrying short circuit current for 3 seconds, °C	
11.	One minute power frequency dry & wet withstand voltage	
12.	1.2 / 50 micro sec. Impulse withstand voltage.	
13.	Switch contact particulars	
	a) Type of main isolating contacts	
	b) Area & material of contacts.	
	c) Thickness of silver facing	
	d) Blade material	
14.	Number of auxiliary contacts on disconnecting switch	
15.	Rating of auxiliary contacts	
	a) Continuous A	
	b) Breaking current at 220 V DC.	
16.	Type of interlock between earthing blade and isolator	
17.	Particulars of isolator operating mechanism	
18.	Duty	Outdoor/Indoor
19.	No. of operations, the disconnecting switch can withstand without deterioration of contacts.	

20.	Clearance			
	a) Between phases, mm			
	b) Between live parts & earth, mm			
	c) Between fixed contacts and blade in open position, mm			
21.	a. Capacitive current that can safely be interrupted by the switch, A			
	b. Magnetizing current that can safely be interrupted by the switch, A			
22.	Type and make of insulator			
23.	No. of insulators per stack			
24.	One minute dry & wet withstand voltage per stack, kV(rms)			
25.	Impulse withstand voltage of insulator stack at 1.2/50 micro seconds positive full wave, kV(peak).			
26.	Creepage distance			
	a) Total mm			
	b) Protected mm			
27.	Total weight, Kg.			
28.	Dimensions of switch LxBxH(mm x mm x mm)			
29.	Shipping dimension of largest package			
30.	Provision of earthing switch			One side/both side
31.	G.A. drg. Of disconnect switch along-with support structure			Submitted/not submitted
32.	Supporting structures			
	a) Material			
	b) Total weight/Isolator, kg.			
	c) Thickness of galvanizing, micron			
	d) Total height of structure in mm			
33.	Power and control power supply voltage.			
34.	Confirm that all particulars given in technical particulars are acceptable to tenderer			Yes/No
35.	If answer is 'NO' in above then indicate point wise deviation			
3.	**36 kV Current Transformers (Outdoor)**			
1.	Name of manufacturer			
2.	Manufacturer's types designation			
3.	Type			
4.	Standards followed.			
5.	Rated Voltage(kV)			
6.	Rated primary current/voltage			
7.	Rated secondary current/voltage			
8.	Number of cores	Rated out put	Class of accuracy	Accuracy limit factor
	Core I			
	Core II			
	Core III			
9.	Short time current rating			
	i) 1 second, kA (rms)			

	ii) 3 seconds, kA(rms)	
10.	Dynamic current kA(peak)	
11.	Temperature rise over max. site ambient °C	
	i) Oil at top of housing(° C)	
	ii) Winding (° C)	
12.	Class of insulation	
13.	Current/voltage and phase errors at rated burden and frequency	
14.	Confirm that all particulars given in technical data sheet are acceptable.	Yes/No
15.	If answer is 'NO' in 14, indicate point wise deviation.	
4.	**30 KV Lightning Arrester (Outdoor)**	
1.	Manufacturer's name	
2.	Manufacturer's type designation	
3.	Applicable standard(s)	
4.	Arrestor class and type	
5.	Rated arrestor voltage kV (rms)	
6.	Nominal system voltage, kV (rms)	
7.	Rated frequency, Hz	
8.	Nominal discharge current (8/20 micro sec. wave) kA (peak)	
9.	Max, 100% 1.2/50 micro sec. Spark over voltage, kV (peak)	
10.	Max. front of wave spark over voltage, kV(peak) & front steepness kV/sec.	
11.	Max. residual voltage at rated nominal discharge current kV(peak)	
12.	Impulse current withstand	
	a) High current short duration (4/10 micro sec. Wave), kA (peak)	
	b) Low current long duration, Amps.(peak)	
13.	Wet and dry power frequency withstand voltage for the housing, kV (rms)	
14.	Impulse withstand strength of arrester housing, with 1.2/50 micro-sec. Wave kV (peak)	
15.	Total creepage distance of the arrester housing, mm	
16.	Protected creepage distance of the arrestor housing, mm	
17.	Total weight of material included for Supporting structures	
	Thickness of galvanizing, micron	
	Total height of structures in mm	
18.	Suitable for outdoor duty.	Yes/No
19.	Confirm that all particulars given in tech. Part sheet are acceptable.	Yes/No
20.	If answer is 'NO' in 19 indicate point-wise deviation	

5.	**Insulators.**	
1.	Make	
2.	Type	
3.	Material of insulator	
4.	Colour	
5.	Insulation level: Dry (PF) Wet (PF) Impulse	
6.	Creepage distance	
	a) Total (mm)	
	b) Protected (mm)	
7.	Power freq. Puncture test	
8.	Visible discharge test volt	
9.	Suitable to connect	
10.	For support insulators minimum height of base from ground	
11.	Number of disc in string insulators.	
12.	Rated voltage for disc in kV	
13.	Deviation if any from the data sheet.	
6.	**ACSR Conductors/Aluminum Bus**	
1.	Make	
2.	Type	
3.	Size	
4.	Nominal current rating at maximum site ambient	
5.	Short time rating for 3 sec. (in kA)	
6.	Rated dynamic stability current kA (peak)	
7.	Weight per mtr in kg	
8.	Clearance	
	Phase to phase	
	Phase to earth	
7.	**Supporting Structures**	
1.	Make	
2.	Type	
3.	Material used	Steel/RC
4.	Thickness of galvanizing (for GI)	
5.	Designed for wind load	
6.	Designed for earth quack load	
7.	Matching with equipment arrangement	Yes/No
8.	Design calculations for sizing	Will be as per approved calculations for each structures
9.	Scope of work	Support for the equipments bus wires etc. as per approved equipment layout
10.	Foundation bolts and base bolts (bolts shall be projected. Min. 75 mm above the base plate)	Included

11.	Standard followed for fabrication (for steel structures)	
12.	Approach ladder provision	
13.	Deviation if any on technical data sheet	
8.	**Control & Relay Panel**	
1.	Make	
2.	Type	
3.	Reference Standard	
4.	Construction	
	a. Degree of protection	
	b. Sheet metal thickness mm	
	c. Floor channel sills, vibration damping pads and kick plate furnished?	
5.	Equipment Mounting	
	a. All relays, meters and switches are flush mounted?	
	b. Relays furnished in draw out cases with built-in test facilities?	
6.	Name plate	
	a. Material	
	b. Thickness	
	c. Size for: -	
	Equipment	
	Panels	
7.	Internal illumination	
	a. Volt	
	b. Watt	
	c. Door switch controlled	
8.	Space Heater	
	a. Volt	
	b. Watt	
	c. Thermostat Controlled?	
9.	Plug Socket	
	a. Type	
	b. Rating	
10.	Panel illumination, space heater and plug socket circuits provided with individual switch fuse units?	
11.	Internal Wiring	
	a. Wire type	
	b. Voltage grade	
	c. Conductor material	
	d. Conductor size for: -	
	i. Current /control circuit	
	ii. Voltage circuit	
	e. Wires identified at both ends with ferrules?	
12.	Terminal block	
	a. Make	

	b. Type/ Catalogue No.	
	c. 20% spare terminals furnished?	
13.	Ground Bus	
	a. Materials	
	b. Size mm	
14.	Painting	
	a. Type of finish	
	b. Colour shade Inside/Outside	
	c. Details of painting procedure furnished?	
15.	Breaker Control Switch	
	1. Make	
	2. Type	
	3. Reference Standard	
	4. Contact Rating	
16.	a. Make & continuous Amp	
	b. Break (inductive) Amp	
17.	Meter Selector Switch	
	1. Make	
	2. Type	
	3. Reference Standard	
	4. Contact rating	
	a. Make and continuous Amp.	
	b. Break (inductive) Amp.	
18.	Push Button	
	1. Make	
	2. Type	
	3. Reference Standard	
	4. Contact rating	
	a. Make and continuous Amp.	
	b. Break (inductive) Amp.	
	5. No. and type of contacts provided per button	
19.	Lamps	
	1. Make	
	2. Type	
	3. Reference Standard	
	4. Rating	
	a. Volt	
	b. Watt	
	c. Series resistance	
20.	Indicating instruments	A V TVM F PF
	1. Make	
	2. Type	
	3. Reference Standard	
	4. Type of movement	
	5. Accuracy Class	
	6. Scale in degrees.	
	7. VA Burden:	
	a. Current Coil	

	b. Voltage Coil	
	8. Size	
	9. Range	
	10. Rated input	
	11. Overload capacity without loss in accuracy (%)	
	a) Continuous	
	b) Short time	
	12. Burden on CT/PT	
21	Annunciator	
	1. Make	
	2. Type	
	3. Reference standard	
	4. No. of Annunciator groups furnished ?	
	5. No. of Windows per group.	
	6. Overall dimension of a group mm	
	7. Details write-up on scheme furnished ?	
22.	Illumination Status Indicators for Isolators	
	1. Make	
	2. Type	
	3. Rating	
	a) Volt	
	b) Watt.	
23.	Semaphore Indicators	
	1. Make	
	2. Rating	
	a) Volt	
	b) Watt	
24.	Fuses	
	1. Make	
	2. Type	
	3. Fuse bases provided with imprints of fuse rating and voltage	Yes/ No
25.	Relays	
	1. Catalogue of all relays submitted with bid:	
	2. Whether tenderers agree to conduct all site tests as asked	Yes/No
	3. If ‘No’ indicate deviations	

	4. Whether quality assurance plan is acceptable	Yes/No
	If 'NO' indicate deviations.	
	5. Whether tenderer agree to provide No. of aux. Relays timers, range of relays/meters terminal blocks, control switches, wiring etc as per approved drawings	
	6. Minimum clearance between Relay /meter/ casings Horizontal Vertical	
	7. Deviation if any on technical design parameters for control protection- metering and alarm system.	
	8. Any additional protection metering, control features, if necessary/ desirable from tenderer's point of view	
9.	**Illumination System**	
	Outdoor Lighting	
	No. of poles/ tower envisaged	
	Type of poles/tower envisaged	
	Type of fittings envisaged	
	Make of fittings	
	Lux level to be obtained	
	Provision of escape lighting	
	Location of main and sub DBs	
	Control of lighting	Manual and automatic
	Automatic	Photo cell / clock type
	Cable laying in ground	Buried/conduit
	Cable laying above ground	
	Cables laying for light fittings to pole	Flexible steel conduits of through poles

	Deviations if any on technical data sheet	
10. Earthing and Lighting Protection		
Earthing		
	Size of earth strip for the yard	
	Gap between earth mat conductors	
	Size of main outer strip	
	Galvanizing content on above	
	Value of earthing resistance (proposed to be achieved)	
	Standard to be followed for galvanizing	
	Type of electrodes	
	Construction of earthing pit as per IS	Included
	Deviations if any on technical data sheet Cable Identification Tag Material Thickness Binding wire material	
	Buried cable markers/covers Applicable Standards Material of Protective Covers HV Cables LV Cables	
	- Conduit & floor openings sealing compounds	
	Material & composition for:	
	i.) Water proofing	
	ii) Fire proofing	
	- Grounding for cable armour/sheaths	
	i) Material of conductor	
	ii) Size	
	- Structural Steel	
	a) Painting of fabricated Steel	
	i) Type of paint and no. of coats of primer	

	ii) Type of paint, no. of coats and colour of finish paint.	
	- Tools provided.	
	i) All necessary tools, tackles, crimping tools etc.	Yes/No
	ii) Welding equipment	Yes/No
	iii) H.V. Cable Testing Equipment	Yes/No
11. Lightning Protection		
	Whether shield wires or lightning conductors have been envisaged for the lightning protection	
	Angle of protection	
	Whether s/s building is also protected	Yes/No
	Numbers of electrodes provided	
	Earthing resistance value	
	Size of down conductors	
	Standard followed	
	Deviations if any on technical data sheet	
12. Cables		
1.	Manufactures Name & Address	
2.	Country of manufacturer	
3.	Type of cable	
4.	Applicable standards for manufacturing	
5.	Applicable standards for testing	
6.	Rated voltage	kV
7.	Maximum service voltage	kV
8.	Maximum continuous current carrying capacity per cable when lain in air at an ambient air temperature of 50 ° (single core cables solid bonded)	A
9.	Maximum continuous current carrying capacity per cable when lain in ground at a depth of 1.0 m (ground temp. 40 °C and soil thermal resistively of 150 °/ watt/ cm max. Conductor temp. 90 °C)	A
10.	Maximum continuous current carrying capacity per cable when drawing into duct./ pipes (single core cables solid bonded)	A
11.	Maximum continuous current carrying capacity	A

	per cable when lain in covered RCC trenches at an ambient temperature of 50 Deg. C laying conditions to be specified (Single core cables solid bonded)	
12.	Short circuit withstand capacities for 1 second of (With a conductor temperature of 90 Deg. C at the commencement	
	i) Conductor	kA
	ii) Screen	kA
	iii) Armour	kA
13.	Conductor	
	i) Material & Grade	
	ii) Nominal cross – sectional area	Sq.mm
	iii) No. of strands	
	iv) Diameter of each strand (Nominal)	mm
	v) Max. DC resistance of conductor at 20 Deg. C	Ohm/km
	vi) Max. AC resistance of conductor at 90 Deg. C	Ohm/km
	Reactance of cable at normal frequency (Approx.)	Ohm/km
	Electrostatic capacitance at normal frequency	Mircorfarads per km
	Charging current	mm
	Loss tangent at normal frequency at Uo	
14.	Conductor screen	
	i) material	
	ii) Nominal thickness	mm
15.	XLPE Insulation	
	i) Composition	
	ii) Type of curing	
	iii) Thickness of insulation (nominal)	mm
	iv) Tolerance on thickness	
	v) Dielectric constant at normal frequency	
	vi) Specific insulation resistance at 20 Deg. C	ohm/km
	vii) Min. volume resistively at 20 Deg. C	
	viii) Min. volume resistively at 90 Deg. C	
	ix) Min. Tensile strength	kg/sq.mm
	x) Min. Elongation percentage	%
	xi) Identification of cores	
16.	1.2/50 microsecond impulse wave withstand voltage	kVp
17.	5 min. power frequency withstand voltage	kV
18.	Max. Dielectric stress at the conductor	kV/cm
19.	Max. Dielectric stress at the conductor screen	kV/cm
20.	Insulation screen	
	i) Material	
	ii) Extruded/ wrapped	
	iii) Nominal thickness	mm
	iv) Colour	
21.	Nominal diameter over metallic screen	mm
22.	Nominal radial clearance allowed under metal sheath	mm
23.	Type and material of filler	

24.	Armour	
	i) Material and type	
	ii) Dia	
25.	Outer sheath	
	i) Material	
	ii) Type	
	iii) Colour	
	iv) Minimum radial thickness	mm
	v) Tolerance on nominal thickness of sheath	
	vi) Minimum tensile strength	Kg/sq.mm
	vii) Minimum elongation percentage at rapture	
	viii) Oxygen index	
	ix) Temperature index	
	x) Accelerated water absorption	Mg/cm-sq
	xi) Dielectric constant after 24 hours for	XLPE insulation
	xii) Increase in capacitance for XLPE insulation	
	a. 1-14 Days	
	b. 7-14 Days	
	xiii) Retention of dielectric strength of XLPE insulation	
	xiv) Acid gas generation	
	xv) Smoke density generation	
26.	Method of application	
	i) Insulation	
	ii) Inner sheath	
	iii) Outer sheath	
27.	Nominal overall diameter of completed cable	mm
28.	Nominal weight of complete cable	Kg/m
29.	Min. bending radius of the cable	m
30.	Standard drum length of cable	
31.	a) Approx. Drum Size (Flange die)	
	b) Approx. Shipping weight	
32.	Charts for de-rating factors enclosed	
	i) Variation in ambient temperature	
	ii) Variation in ground temperature	
	iii) Variation in ground resistively	
	iv) Spacing factors	
	a. Cable laid in ground	
	b. Cables laid on racks in RCC trenches with covers	
	c. Cables laid in Air	
	d. Cable laid in pipes/ ducts.	
13.	**CONTROL CABLES**	
1.	Make	
2.	Type	
3.	Standard applicable	
	a) Voltage Grade	
	b) Suitable for service	
4.	Maximum conductor temperature	
	a) Continuous	°C
	b) Short time	°C
5.	Conductor (copper)	

	a) Material	
	b) Form of Conductor	
	c) Number of cores	
	d) Number and diameter (Stranded/ Solid) of wire per core	
6.	Insulation	
	a) Material Insulation	
	b) Thickness	
	c) Average dielectric strength	
	d) Dielectric constant	
7.	Suitability with regard to temperature moisture, ozone	
8.	Thickness of sheath over conductor, if any	mm
9.	Material of sheath over cable	
10.	Thickness of sheath over cable	mm
11.	Electrical/ Performance	
a)	Conductor resistance at 20°C per KM	
b)	Maximum conductor temperature permissible	
c)	Under full load	
d)	Under transient conditions	
e)	Maximum operation voltage	Volts
f)	Insulation resistance of 1 Km of cable at 20°C Mega ohms	
g)	Power factor or loss angle	
h)	Tan delta of dielectric material	
i)	Dielectric loss per km at rated voltage	
j)	Power frequency with-stand voltage kV rms	
k)	Current loading data for the cable for specified operating temperature	
	i) In air in cable trays	
	ii) In cable channels	
	iii) In clewed ducts	
	iv) In cable conduits and pipes	
13.	De-rating factors for	
a)	Ambient temperature	
b)	Grouping of 3 or 4 cables in air in trays, channels for different spacing, between cable and in closed ducts in touching position	
14.	Allowable short circuit current for one sec.	
15.	D.C. withstand voltage	
16.	A.C. 50 cycles/ second impedance	
17.	A.C. 50 cycles/ second reactance	
Mechanical Data		
18.	Weight of cable :-	
	a) Wt of conductor per Km	
	b) Wt of PVC compound per Km	
	c) Complete wt. per Km	
	d) Wt of Armour	
19.	Overall diameter	
20.	Maximum length per drum	
21.	Drum dimensions	
22.	Gross weight of cable and drum	
23.	Maximum pulling tension	

24.	Minimum bending radius	
25.	I.S.I. Certification No.	
26.	Whether agreeable to the type test at CPRI	State Yes/No

SCHEDULE 'A'

TENDER FORM

Tender document No. PTCUL/SS-02/2007-08

From:

To

Deputy General Manager
Corporate (Contract & Procurement)
Power Transmission Corporation of Uttarakhand Ltd.
Dehradun- 248 001

Sir,

With reference to your invitation to tender for the above I/We hereby offer to the Power Transmission Corporation of Uttarakhand Ltd. The item in the schedule of prices and delivery annexed or such portion there of as you determiner in strict accordance with the annexed conditions of contract Form 'B'. Document and Schedules of Rates to the satisfaction of the purchaser are in default there of to forfeited and pay to Power Transmission Corporation of Uttarakhand Ltd.. the some of money mentioned in the said conditions.

The rates quoted are inclusive prorate and in full satisfaction of all claims.

I / We agree to abide this tender for the period of 180 days from the date fixed for opening of the same.

A sum of Rs. ---------- (Rs.----------)Uttarakhand based unit may deposit earnest money as per Industrial Policy No. 502@vkS0fo0@ 03-143 & m|ksx@ 2003 fnukad 23 vxLr 2003. in the form of Demand Draft /FDR/ Bank Guarantee ,in pledged in favour of the Executive Engineer, Electricity Stores Division, Dehradun is enclosed with Part-I of the offer as earnest money.

I / We hereby undertake and agree to execute a contract in accordance with the conditions of the contract.

Encl: As above Yours faithfully

Date Day of 2007

Witness (Signature of the tenderer in full)

(Name and Signature) Name

Address Seal

Occupation

SCHEDULE 'B"

Tender document No. PTCUL/SS-02/2007-08

For **" Construction of 5 nos. 33 KV Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"**

PRE- QUALIFICATION DETAILS OF THE TENDERER

Schedule of General Particulars to be written in phrases with supporting document, Other wise tender will be rejected.

Sl No.	Particular			
1	**Manufacturer or accredited representative**			
(a)	For manufacturer, registration with Industries Deptt. Permitting manufacturer is to be enclosed	**Permanent** registration No / issue Date , item & validity (Copy registration Certificate to be Enclosed)		
(b)	For accredited representative, letter of Authorisation from manufacturer of being **Accredited representative to be enclosed**			
2	**Operational Experience**			
	The following details are to be furnished ONLY in respect of Tendered item for last five financial years.			
(a)	Complete postal address including Designation of the authority placing order.			
(b)	Order No & Date			
(c)	Quantity ordered			
(d)	Period of supply			
(e)	Period of trouble free service			
3	**Supply Performance against last five orders**			
(a)	Order No. & date **(with supporting document)**	**2004-2005**	**2005-2006**	**2006-2007**
(b)	Quantity ordered			
(c)	Contractual delivery Period			
(d)	Actual delivery **(with supporting**			

	document)				
(e)	Period of trouble free Service **(with supporting document)**				
4	**Manufacturing Experience**				
	The following details are to be furnished ONLY in respect of Tendered Item.				
Sl No.	Complete postal address including designations of authority placing order	Order No & date	Quantity ordered	Quantity manufactured * during last five years	
				Year	Qty in (No)
				2002-2003	
				2003-2004	
				2004-2005	
				2005-2006	
				2006-2007	

***** In case the quantity manufactured is less then the qualifying figures, previous years may also be included.

Testing Facilities:-

Sl. No.	**Name of Tests**	**Details of testing Equipment required**	**Range upto which test can be performed**	**Place of testing**
1	**2**	**3**	**4**	**5**
1	ROUTINE :			
	(a)			
	(b)			
	(c)			
(2)	ACCEPTANCE :			
	(a)			
	(b)			
	(c)			

	TYPE :			
	(a)			
	(b)			
	(c)			

NOTE :(1) In case facility of test not available at works, place where such tests would be carried out, be specified.

(2) The tenderer is required to give the details of Testing facilities available in works against column 2, he is to essentially mention the name of tests and correspondingly in column 3 he is to specify the instruments which will be employed to perform that tests.

Type testing of Products

It is required that a Xerox copy of complete type test report of the product is enclosed with Part-I of the tender documents failing which it will be presumed that the product is not type tested.

NOTE : Type test should have been carried out only within five years from the date of tender opening (Part-I) from any of the Laboratories/ Test houses.

Company Seal

Signature

Name

Designation

SCHEDULE 'C"

DECLARATION

**(To be executed on a non-judicial stamp paper of Rs. 100/-
with a revenue stamp of Rs. 1/- affixed)**

Tender invited by:-

Deputy General Manager
Corporate (Contract & Procurement)
Power Transmission Corporation of Uttarakhand Ltd.
Dehradun- 248 001

Name of Tenderer…….

Document No. and date of opening :- PTCUL/SS-02/2007-08 **& ---------- at ----------**

In Consideration of the Power Transmission Corporation of Uttarakhand Ltd. having treated the Tenderer to be an eligible person whose tender may be considered the Tenderer agrees to the condition that the proposal in response to the above invitation shall not be withdrawn within 180 days (or any extension thereof) from the date of opening of the tender also to the condition that if hereafter the Tenderer does withdraw his proposal within the said period, the Earnest Money deposited by him may be forfeited to the Power Transmission Corporation of Uttarakhand Ltd. and at the discretion the purchaser. The Purchaser may debar the Tenderer from tendering for a minimum period of one year, reckoned from the date of opening of the tender.

Signed this day of

Place

Signed by

State title(whether)

(Proprietor/Partner)

Witness:

Signature

Name

Address

Name of the firm

Address of the firm

Seal of the firm

SCHEDULE "D"

PROFORMA FOR JOINT UNDERTAKING BY THE COLLABORATOR / ASSOCIATE AND THE TENDERER

(To be stamped in accordance with Uttarakhand State Act)

To:

Deputy General Manager
Corporate (Contract & Procurement)
Power Transmission Corporation of Uttarakhand Ltd.
Dehradun- 248 001

Dear Sir,

(In terms of " Instruction to tenderers" in the document No. PTCUL/SS-02/2007-08 for the design manufacture, testing, delivery, erection and commissioning (as specified), of **" Construction of 5 nos. 33 Kv Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"** . It is a condition that the tenderer as well as their collaborator / associate shall jointly and severally undertake the responsibility for the successful performance of the contract (here in after referred to as Contract) which is qualified for the award on the basis of the expertise of collaborator / associate .

We having our registered office at (herein after referred to as a collaborator / associate) which in turn shall include our successor, administrator recruiter and assigner and we having our registered office at (herein after called as tenderer or contractor) are held jointly and severally liable and bound up to Power Transmission Corporation of Uttarakhand Ltd. (herein after referred to as purchaser) which expression shall include its successor administrator and assigns, for the successful performance of the contract, including the overall responsibility for the design, manufacture, rating delivery performance etc. of ---------- in accordance with contract.

The contractor / associate hereby agree to depute their technical experts from time to time contractor's works / Project site as mutually agreed upon between the purchase and the contractor in order to discharge the contractor's obligations as stipulated in contract. The tenderer and the collaborator / associate hereby agree that this undertaking shall be irrevocable and it shall form an integral part of the contract.

In witness there of the collaborator / associate and the tenderer have through their authorized representative, set their hands and seal on this day of… 2007.

Witness	Collaborator / Associate
	Signature
	Name
(Official Address)	Designation
	Seal
Witness	Tenderer
	Signature
	Name
(Official Address)	Designation

SCHEDULES "E"

Tender Document No PTCUL/SS-02/2007-08

Construction of 5 nos. 33 Kv Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"

Schedule of General Particulars to be written in phrases with supporting document, Other wise tender will be rejected.

1	Name of Tenderer		
	(a) Registered Office address		
	(b) Head Office address		
	(c) Postal address of Tenderer		
	(d) Fax No. (e) Phone No.		
2	Name and address of manufacturer if any		
	Works		
3	Location with full postal address		
	Total space occupied in sq. meters (approximate within 15%)		
	Constructed Area in sq. meters (approximate within 5%)		
4	Name and address of local representative and his Telephone No.		
5	Name and address of the officer of the Tenderer/ manufacturer to whom all reference shall be made for expeditious coordination.		
6	Place from where service facility and spares are available(give full address)		
7	Whether the tenderer is sole proprietor/ Partner- ship concern/ Pvt. Ltd. Company/Public Under taking		
8	Name of foreign collaborator, if any		
9	Whether the design are their own or obtained from other source. If form other sources, the same may be indicated.		
10	Name and address of sub-supplier, indicating equipments, or parts to be supplied by each.		
11	The name, designations, qualification & experience of Engineers employed by the tenderer in design, development and manufacturing the quoted item/ equipment.		
12	Authorised capital of the company.		
13	Total annual turnover of the firm during last Three financial years**.** **(Balance Sheet to be enclosed in support**	2004-2005 2005-2006 2006-2007	

	of above)		
14	Actual production per year of the equipment quoted during last five financial years giving quantity and bill value rounded off to first decimal place in Rs. Lac excluding Central Excise.	2002-2003	
		2003-2004	
		2004-2005	
		2005-2006	
		2006-2007	
15	Manufacturing capacity per month of the quoted item / equipment item wise.		
16	State the name and designation of your relative (s) if any, working in Power Transmission Corporation of Uttarakhand Ltd.		
17	1% security deposit in terms of clause 3 of Form 'B' is to be deposited within 30 days of placement of order. Whether or not willing to deposit. If no, state reasons.		
18	Whether certificates or satisfactory performance of offered equipment enclosed or not. If yes give the designation of the officer issuing certificate and the quantity to which it refers.		
19	(a) Whether quoted ex-works prices are firm / variable. (b) In case of variable price, have you noted. (c) That prices variable as per Specified formula enclosed without any ceiling on either side. **(IEEMA/ CACMAI Circular to be Enclosed)**	Firm NA NA	
20	Have you mentioned base prices indicating Prevailing as on the first day of one month before tender opening.		
21	Whether ex-works prices quoted or not		
22	Whether packing, forwarding, freight and insurance cover (for transit plus 30 days storage thereafter) has been quoted besides ex-works Prices(All these charges are to be excluded)		
23	Whether the quoted prices are also applicable for any reduced quantity order.		
24	Terms of payment as mentioned in relevant clause are acceptable or not.		
25	Give Trade Tax / Sales Tax Registration No. (i) Central		
	(ii) State		
26	Income Tax clearance certificate of current and the preceding year enclosed or not.		
27	Whether the Tenderer is agreeable to supply the equipment in case of the deviations		

	stipulated by him are not acceptable to the purchaser.		
28	Give two references (Name, Designation and complete postal address) who can certified tenderers financial status and capability to under-take such supply orders. One of the references should be of any scheduled nationalized bank in India.		
29	Have you submitted a sealed sample(s) required in the document(non- returnable) and delivered the same to the office of Deputy General Manager, Corporate (C&P-I) , Dehradun		
30	Have you offered any discount and so than what is rebate / discount in Rs. Per Unit.		

Seal of Company

Full Signature
Name
Designation
date

SCHEDULE 'F'

Tender Document No. PTCUL/SS-02/2007-08

LIST OF DRAWINGS AND LITERATURE ENCLOSED WITH THE TENDER

Sl. No.	Drawing / Literature No.	Title
1	2	3

Seal of the Company

Signature
Name

Designation
Date

SCHEDULE 'G'

Tender Document No. PTCUL/SS-02/2007-08

DEVIATIONS FROM "TECHNICAL DOCUMENT"

(All deviations from the " Technical document" shall be filled in clause by clause, in this schedule. Compliance with the Document will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation(s) the "NIL" information should be furnished. In case the tenderer is required to agree to the standard clause then he may indicate the amount in Tender bid Part-II schedule P2 by which the tender price will there by be increased or decreased.)

Sl. No.	Page No.	Clause No. & stipulation in PTCUL's Document	Deviation
1	2	3	4

The Tenderer hereby certified that the above mentioned are the only deviations from the " technical Document"

Seal of the Company

Signature
Name

Designation
Date

SCHEDULE 'H'

Tender Document No. PTCUL/SS-02/2007-08

DEVIATIONS FROM "INSTRUCTIONS TO TENDERERS"

(All deviations from the " Instructions to Tenderers" shall be filled in clause by clause, in this schedule. Compliance with the Document will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation(s) the "NIL" information should be furnished. In case the tenderer is required to agree to the standard clause then he may indicate the amount in Tender bid Part-II schedule P2 by which the tender price will thereby be increased or decreased.)

Sl. No.	Page No.	Clause No. & stipulation in PTCUL's Document	Deviation
1	2	3	4

The Tenderer hereby certified that the above mentioned are the only deviations from the "Instructions to tenderers"

Seal of the Company

Signature
Name

Designation
Date

SCHEDULE 'I'

Tender Document No. PTCUL/SS-02/2007-08

DEVIATIONS FROM "GENERAL REQUIREMENT OF DOCUMENT"

(All deviations from the " General Requirement of document" shall be filled in clause by clause, in this schedule. Compliance with the Document will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation(s) the "NIL" information should be furnished. In case the tenderer is required to agree to the standard clause then he may indicated the amount in Tender bid Part-II schedule P2 by which the tender price will there by be increased or decreased.)

Sl. No.	Page No.	Clause No. & stipulation in PTCUL's Document	Deviation
1	2	3	4

The Tenderer hereby certified that the above mentioned are the only deviations from the "General Requirement of document"

Seal of the Company

Signature
Name

Designation
Date

SCHEDULE 'J'

Tender Document No. PTCUL/SS-02/2007-08

DEVIATIONS FROM "GENERAL CONDITION OF CONTRACT FORM 'B'

(All deviations from the " General Condition of Contract Form 'B'" shall be filled in clause by clause, in this schedule. Compliance with the Document will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation(s) the "NIL" information should be furnished. In case the tenderer is required to agree to the standard clause then he may indicated the amount in Tender bid Part-II schedule P2 by which the tender price will there by be increased or decreased.)

Sl. No.	Page No.	Clause No. & stipulation in PTCUL's Document	Deviation
1	2	3	4

The Tenderer hereby certified that the above mentioned are the only deviations from the "General Condition of Contract Form 'B' "

Seal of the Company

Signature
Name

Designation
Date

SCHEDULE 'K'

Tender Document No. PTCUL/SS-02/2007-08

LIST OF RECOMMENDED SPARE PARTS AND THEIR PRICES

(Tenderer shall given below a list of spare recommended for five years trouble free operation of equipment offered by them and its prices).

Sl. No.	Catalogue No.	Name of the Component	Recommended Qty. in Nos.	Unit price		Total
				Ex-works	Packing Forwarding freight, unloading , Proper stacking and required insurance	
1	2	3	4	5	6	7

Seal of the Company

Signature
Name

Designation
Date

NOTE:- (I) Please write " NOT APPLICABLE" where the schedule is not relevant.
(ii) The quoted prices of spare parts shall be "FIRM" in all respect.

SCHEDULE 'L'

Tender Document No. PTCUL/SS-02/2007-08

LIST OF RECOMMENDED SPECIAL TOOLS AND TACKLES AND THEIR PRICES

(Tender shall given below a list of recommended special tools and tackles required for erection, commissioning, operation and maintenance of equipment offered by him).

Sl. No.	Particulars	Recommended Qty. in Nos. per Substation/ unit	Unit price		Total
			Ex-Works	Packing Forwarding freight, unloading, Proper stacking and required insurance	
1	2	3	4	5	6

The tenderer here by certifies that above are the only special tools and tackles for required erection, commissioning and maintenance of the equipments offered by him.

Seal of the Company

Signature
Name

Designation
Date

NOTE:- (I) The quoted prices of special tools and tackles shall be "FIRM" in all respects.
(iii) Please write " NOT APPLICABLE" where the schedule is not relevant.

SCHEDULE 'M'

Tender Document No. PTCUL/SS-02/2007-08

LIST OF RECOMMENDED TEST SETS AND TESTING INSTRUMENTS AND THEIR PRICES

(Tenderer shall given below a list of recommended test sets and testing instruments required for erection, commissioning, operation and maintenance).

Sl. No.	Particulars	Quantity	Unit price		Total
			Ex-Works	Packing Forwarding freight, unloading , Proper stacking and required insurance	
1	2	3	4	5	6

The tenderer hereby certified that the above are the only test sets and testing instruments required for erection, commissioning and maintenance of the equipments offered by him.

Seal of the Company

Signature
Name

Designation
Date

NOTE:- (I) The quoted prices of test sets and testing instruments shall be "FIRM" in all respects.

(ii) Please write " NOT APPLICABLE" where, the schedule is not relevant.

SCHEDULE 'N'

Tender Document No. PTCUL/SS-02/2007-08

RATES OF SUPERVISION OF ERECTION AND COMMISSIONING

1. **Rate per day of supervision of erection and commissioning engineer.** **Rs. ……/day**

2. **Duration required for erection Testing and commissioning .** **(Days)**

Seal of the Company

Signature
Name

Designation
Date

NOTE:- i) Charge for supervision of erection and commissioning shall be payable for number of days of actual presence at works site or above specified duration whichever is less.

ii) Please write " NOT APPLICABLE" where, the schedule is not relevant.

SCHEDULE 'O'

Tender Document No. PTCUL/SS-02/2007-08

SCHEDULE OF QUOTED GUARANTEED DELIVERY

(**1)** The Delivery schedule be given as per requirement given in clause 19 of instructions to tender.

(2) The Guaranteed delivery schedule will be reckoned from the date of issue of LOI / Counter offer or date of signing of agreement which ever is earlier.

(3) For transport by Rail, the date of R / R and for transport by road, the date of receipt of material at Purchaser's Store Centers shall be considered as date of delivery.

Sl. No.	Name of Work	Offered Qty.	Quantity which the firm can supply per month from date of Purchase Order.
1	2	3	4
	Construction of 5 nos. 33 KV Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis		

Note: KINDLY QUOTE MONTH WISE DELIVERY & COMMENCEMENT TIME IF ANY FROM DATE OF LETTER OF INTENT / COUNTER OFFER.

Seal of the Company

Signature
Name

Designation
Date

(PRICE Break-up Ex. Works Price & F & I Price Components)

Schedule P-1(Supply)-A

Bidder's Name & Address:

Bill of Quantity for **" Construction of 5 nos. 33 Kv Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis" for supply items.**

S. No.	Description of Material	Unit	Quantity	Unit Ex-works prices	Unit Freight	Unit Packing Forwarding Unloading & Stacking Insurance for transit cum 30 days storage	Excise Duty & Cess	Sale Tax/VAT	Unit F.O.R. Destination prices (5+6+7+8+9)	Total (4*10)
1	2	3	4	5	6	7	8	9	10	11
1	36 KV SF6 Circuit breaker	No.	-							
2	36 KV,800A, Double break Isolator(without earth switch)	No.	05							
3	36KV, 800A, Double break Isolator (with one earth switch)	No.	-							
4	30 KV L.A.	No.	-							
5	33 KV C.T.(400/200/1 A)	No.	-							
6	33 KV Control &Relay Panel (Triple Feeder)	.No	-							
7	CT Junction Box	No.	5							
8	Control Cables									
	(a) 10 Crore 2.5 sq.mm	Km.	06							
	(b) 4 Crore 2.5 sq.mm	Km.	-							
	(c) 2 Crore 2.5 sq.mm	Km.	3.5							
9	Auxiliary Power Cable (3.5 crore 35 sq.m.m	Km.	1.5							
10	Main Earth Mat & Riser(40 mm dia MS Rod)	R Km.	1.5							

11	ACSR Moose Conductor	Km.	2							
12	75*12 mm GI Earth Strip	Km.	1.875							
13	50*6 mm GI Earth Strip	Km.	0.375							
14	4" IPS AL Tube	Mtr.	187.5							
15	Disc Insulator (70 KN)	No.	250							
16	Over Head Shielding Wire	Km.	0.50							
17	Lattice Type Structure	MT.	30							
18	PipeType Structure	MT.	15							
19	Marshalling Kiosk Box	No.	2							
20	Cable Glands (Suitable for different cores)	No.	150							
21	Clamp & Connectors									
	(a) 33 KV Isolator clamp	No.	90							
	(b) 36 KV C.B Clamps	No.	30							
	(c) 33 KV CT clamps	No.	30							
	(d) PG Clamp (Moose-Moose)	No.	150							
	(e)Separator for Moose (Quadr Type)	No.	38							
	(f) Separator for Moose (Twin Type)	No.	30							
	(g) Tension Fitting for Moose(Quadr Type)	No.	15							
	(h)Tension Fitting for Moose(Twin Type)	No.	15							
	(i)Connector (Moose)	No.	45							
	(j) Tower Clamp for Shielding wire	No.	18							
22	Phase Colour Disc	Set.	5							
23	Hardware & Anchor Bolts	MT.	3.75							
24	Illumination system									
	(a)250 W SWF 330 Light Set (Complete with all accessories and fittings	No.	05							
	(b)Junction box	No.	10							

* specify rate & amount of taxes duties & levies payable on the transaction between the Contractor and other Owner and octrio/entry tax as applicable for destination site/state on all items of supply including bought-out finished items (to be identified in the Contract), which shall be dispatched directly from the sub-vendor's works to the Owner's site (sale-in-transit), only. Other taxes, duties & levies for all the bought-out items are to be included in the Ex-works Price (Col. No. 4)

** The above quantity mentioned are for comparison purposes the exact quantities executed as per actual shall be paid.

(Signature)……

(Printed Name)…….

(Designation) ……..

Date :……..

(Common Seal)……

(PRICE Break-up Erection. Works Price & F & I Price Components)

Schedule P-1(Works)- B

Bidder's Name & Address:

Bill of Quantity for" **Construction of 5 nos. 33 Kv Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"** for works items.

Sl. No.	Details of Work	Unit	Qty.	Unit Rates (Rs.)	Service Tax & Rates	Total		
1.	Excavation in all type of soil	Cu. Mtr.	1875					
2.	Laying of compact plug (300 mm think) of coarse sand gravel of size 20 to 200 mm below foundation	Cu. Mtr.	137.5					
3.	CC work in 1:2:4 ratio	Cu. Mtr.	7.5					
4.	RCC work in 1:1:5:3 ratio	Cu. Mtr.	312.5					
5.	CC work (75 mm thick) in 1:4:8 ratio	Cu. Mtr.	35					
6.	CC work in 1:6:2 ratio	Cu. Mtr.	3.75					
7.	First class brick work in 1:6 cement and sand mortar	Cu. Mtr.	100					
8.	Plaster in 1:4 cement and sand mortar	Sq.Mtr.	550					
9.	M.S. work in heavy section in trenches including cutting, moulding, bending and welding complete in all respect	MT	8.75					
10.	MS work in reinforcement in RCC work	MT	17.5					
11.	Erection, mounting and fixing of following main and auxiliary structure including proper alignment, fixing of anchor bolts and hardware and necessary fabrication if required complete in all respect							
	(a) Lattice type Structure	MT	30					
	(b) Pipe type Structure	MT	15					

12.	Erection, mounting and fixing of following indoor and outdoor equipments including proper aligment, leveling, grouting including cost of foundation bolts and fixing of phase plates etc as per documents and shifting from store/unloading place of the same if required, complete in all respect							
	(a) 36 KV SF6 Circuit Breaker	No.	5					
	(b) 36 KV, 800A, Double Break Isolator (Without Earth Switch)	No.	10					
	(c) 36 KV, 800A, Double Break Isolator (With One Earth Switch)	No.	5					
	(d) 30 KV LA	No.	15					
	(e) 33 KV C.T.	No.	15					
	(f) 33 KV Control & relay Panel (Triple Feeder)	No.	02					
	(g) CT Junction Box	No.	5					
	(h) Marshalling Kiosk Box	No.	02					
13.	Laying of main earth mat and riser with 40 mm dia MS rod as per standard documents including digging, cutting, bending, marking standard joints with we4lding complete in all respect	RM	1500					
14.	Proper earthing of all the outdoor / indoor equipment and main / auxiliary structures by togging with GI strips as per standard document including cutting, bending, marking appropriate joints with welding, fixing of nuts-bolts etc complete in all respect	RM	2125					
15.	Stringing of 33 KV main bus bar with moose in Quadr fashion by cutting conductor to required size, fixing of special type Quadr tension fitting and preparing of disc insulators strings as directed by Engineer In-charge and site requirement with proper sag and ground clearance for all 3 phases.	RM	1000					

16.	Fixing of the following clamp / connectors in 33 KV main bus bar (Quadr type) by proper tightening of nut bolts etc. as per the direction of Engineer In-Charge							
	(a) Separator for Moose (Quadr type)	No.	37.5					
	(b) Connector for Moose	No.	25					
	(c) P.G. Clamp (Moose-Moose)	No.	62.5					
17.	Stringing of 33 KV transfer bus bar with moose in twin fashion by cutting conductor to required size, fixing of special type twin tension fitting and preparing of disc insulators strings as directed by Engineer In-charge and site requirement with proper sag and ground clearance for all 3 phases.	RM	500					
18.	Fixing of the following clamp/ connectors in 33 KV transfer bus bar (twin type) by proper tightening of nut bolts etc. as per the direction of Engineer In-charge.							
	(a) Separator for Moose (twin type)	No.	30					
	(b) Connector for moose	No.	20					
	(c) P.G. Clamp (Moose-Moose)	No.	50					
19.	Making jumpers with ACSE Moose conductor by cutting of conductor to required size for jumpering between main / transfer bus bar and equipments including bending, shaping, fixing of required clamp / connector with proper aligment and tightenin gas per line diagram.	No.	625					
20.	Proper laying of control cable of following sizes between equipment to equipment in outdoor switch yard and indoor control room, in cable trenches including proper dressing, clamping at suitable intervals, tagging etc for the entire route as per cable termination schedule							
	(a) 10 Core 2.5 mm^2	RM	7000					
	(b) 4 Core 2.5 mm^2	RM	2000					

	(c) 2 Core 2.5 mm^2	RM	5000					
	(d) Auxiliary Poer Cable (3.5 cire 35 $mm^{2)}$	RM	2500					
21.	Safe scraping of following cables ends up to 1 to 2 meters each by removing insulation, separating leads of cable, fixing of cable glands of required size by marking holes in equipments plates and afterward fixing of glands, including the cost of cotton / PVC tape required for proper completion of work including cost of cable glands.	Job	3					
	(a) 10 Core cable	No.	250					
	(b) 4 Core cable	No.	250					
	(c) 2 Core cable	No.	250					
22.	Complete wiring/ connection in all the outdoor / indoor equipments after sorting out different leads of cables, providing and fixing of 2.5 mm ferrules as per drawing, cutting and adjusting individual length of leads and its termination with cost of different alphabetic and numeric ferrules as required.	Job	3					
23.	Proper and safe dismantling of existing Chain Link Fencing (approximately 70 Metres) in a way so that the different metal parts and accessories be used further in the construction of new fencing including shifting of dismantled martial to the site of construction of new fencing .	RM	175					
24.	Construction of new Chain Link Fencing as per annexure C	Job	3					
25.	Proper installation of illumination system as per the following details	Job	3					
	(a) Laying of 2x2.5 mm^2 cable in cable trenches including proper dressing, clamping at suitable intervals, tagging etc for the entire route including connection at both ends as required	RM	1250					

	(b) Erection of 250 watt SFW Philips light set in 33 KV column peaks in such a way that maximum Lux Level can be achieved in the Switchyard including proper fixing, tightening of clamps, direction adjustment including cost of all the accessories required for the proper completion of work.	No.	25					
	(c) Erection of junction box in tower legs for providing connection to SFW light sets including complete wiring, fixing of accessories as per technical document.	No.	10					

* specify rate & amount of taxes duties & levies payable on the transaction between the Contractor and other Owner and octrio/entry tax as applicable for destination site/state on all items of supply including bought-out finished items (to be identified in the Contract), which shall be dispatched directly from the sub-vendor's works to the Owner's site (sale-in-transit), only. Other taxes, duties & levies for all the bought-out items are to be included in the Ex-works Price (Col. No. 4)

** The above quantity mentioned are for comparison purposes the exact quantities executed as per actual shall be paid.

(Signature)……

(Printed Name)…….

(Designation) ……..

Date :……..

(Common Seal)……

(PRICE Break-up Ex. Works Price & F & I Price Components)

SCHEDULE P-1 (Works)- C

Construction of Chain Link Fencing at 220/132/33 KV Substation Pantnagar.

Bidder's Name & Address:

Bill of Quantity for" **Construction of 5 nos. 33 KV Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"** for works items

S. No.	Details of Works (Chain Link Fencing.)	Unit	Qty.	Unit Rates (Rs.)	Service Tax or other taxes & their Rates, if any	Total
1	2	3	4	5	6	7
1	Excavation in all type of soil	Cu. Mtr.	20			
2	Cement concrete in 1:6:12 ratio with cement, coarse sand and stone grit in 20 mm size	Cu. Mtr.	3			
3	First class brick work in 1:4 cement and coarse sand mortar	Cu. Mtr.	25			
4	Plaster in 1:4 cement and coarse sand mortar	Sq Mtr	90			
5	CC work in 1:2:4 ratio in cement, coarse sand and 20 mm gauge stone ballast.	Cu. Mtr.	1			
6	Supply of security fencing chain link 50x50 mm^2 made of 8 SWG galvanized wire of 2.4 metre width.	Sq Mtr	120			
7	Fabrication and supply of following items as per drawing of as directed by engineer in charge including cutting of same to required size straightening and drilling holes & welding & bending etc.					
8	(a) Angle support 75x75x6 mm size with cleat in the bottom and bent and welded at top as per drawing for vertical supports and stays.	Kg	450			
	(b) MS Flat (cover plate) 75x6 mm size with holes matching to vertical support.	Kg	150			
	(c) Angle runner at 40x40x6 mm size for top and bottom runner	Kg	350			
	(d) MS Flat (cover plate) 40x6 mm size with holes matching to top and bottom runner.	Kg	200			

9	Erection of vertical post stays with proper leveling and alignment.	No	35			
10	Fixing of runners with vertical post by welding including cutting of angle edge at one side of runner for maximum contact area, welding with vertical support for top and bottom runner for making panel for fixing chain link in panel with proper tensioning and then fixing of same with cover flat with vertical support and horizontal runner and bolting with 10x50 mm bolt as per drawing including cost of bolts and nuts.	RM	100.0			
11	Supply and fixing of galvanized barbed wire on top of security fencing horizontally and vertically (weight of barbed wire not less than 110 gms/meter) including cost of barbed wire.	Mtr.	250			
12	Water proof cement paints with Snowsem on Toe Wall of security fencing in two coats with approved quality of snow sem including proper curing	Sq Mtr.	75			
13	Painting of black angel/flat of security fencing with one coat of red oxide primer Burger/Asian and thereafter two coats of synthetic enamel made of approved shade including proper cleaning etc.					
14	Tag welding of 10 mm dia nuts and bolts.	NO.	450			

* specify rate & amount of taxes duties & levies payable on the transaction between the Contractor and other Owner and octrio/entry tax as applicable for destination site/state on all items of supply including bought-out finished items (to be identified in the Contract), which shall be dispatched directly from the sub-vendor's works to the Owner's site (sale-in-transit), only. Other taxes, duties & levies for all the bought-out items are to be included in the Ex-works Price (Col. No. 4)

** The above quantity mentioned are for comparison purposes the exact quantities executed as per actual shall be paid.

(Signature)……

(Printed Name)…….

(Designation) ……..

Date :……..

(Common Seal)……

SCHEDULE 'P-2'

Tender Document No. PTCUL/SS-02/2007-08

SCHEDULE OF PRICE INCREASE / DECREASE DUE TO DEVIATION FROM DOCUMENT

Sl. No.	Description	Deviation	Price incidence (Increase / Decrease)
1	Price effect due to deviations mentioned in SCHEDULE 'G'		
2	Price effect due to deviations mentioned in SCHEDULE 'H'		
3	Price effect due to deviations mentioned in SCHEDULE 'I'		
4	Price effect due to deviations mentioned in SCHEDULE 'J '		

Seal of the Company

Full Signature

Name

SCHEDULE 'Q'

Tender Document No. PTCUL/SS-02/2007-08

SCHEDULE OF QUANTITES AND PRICES FOR SPARE PARTS REQUIRED BY THE PURCHASER

Sl. No.	Item	Unit Quoted price in Rs.		Total Unit Prices(Rs.)	Present rates of Duties and taxes	
		Ex- Works	Packing Forwarding freight, unloading , Proper stacking and required insurance		Excise Duty %	Sales Tax / Trade Tax %
1	2	3	4	5	6	7

NOTE:- The quoted prices of spare parts shall be' FIRM' in all respect

SCHEDULE 'R'

Tender Document No. PTCUL/SS-02/2007-08

STATEMENT GIVING DETAILS OF PROPRIETOR / PARTNER / BR. DIRECTORS / EXECUTIVES / PRESIDENT / SECREATRY OF TENDERING FIRM

Tender invited by : Deputy General Manager
Corporate (Contract & Procurement)
Power Transmission Corporation of Uttarakhand Ltd.
Dehradun- 248 001

Document No. : PTCUL/SS-02/2007-08

Tender for : **" Construction of 5 nos. 33 Kv Bays at 220/132/33 KV Substation Pantnagar & Hardwar on turnkey basis"**

Due for opening on : ---------- at ----------hrs.

Sl. No.	Full Name	Desig.	Full Address		Tel. No.	Full Specimen Signature	Relationship with firm's proprietor
			Permanent home address	Official			
1	2	3	4	5	6	7	8

I. FOR PERSONS SIGNING TENDERS :
1
2
3

II. PROPRIETOR :
1
2
3

III. PARTNERS :
1
2
3

IV. DIRECTORS :
1
2
3

V. EXECUTIVES :
1
2
3

VI. PRESIDENT / SECRETARY (AS THE CASE MAY BE)
1
2

NOTE:- In each case the person who has signed the tender documents must enclose the attested photo copy of power of Attorney for signing the tender(To be marked as Schedule “S”)

Seal of the Company

Signature of tenderer
Name of tenderer
Designation
Address

FORM OF THE BANK GUARANTEE FOR EARNEST MONEY

(To be submitted with Bid Part-I)

(For depositing earnest money in case the amount for deposit exceeds Rs. 20,000 Bank guarantee should be on a non-judicial stamp Paper of Rs. 100% as per present act and should be checked by the tenderer at the time of issuing the Bank Guarantee to any change in the Stamp value.)

To,

EXECUTIVE ENGINEER
ELECTRICITY TRANSMISSION DIVISION
POWERTRANSMISSION CORPORATION OF UTTARAKHAND LTD.
DEHRADUN

Sir,

WHEREAS, Messrs……a company incorporated under the Indian Companies Act, its registered office at …..……..……../a firm registered under the Indian Partnership Act and having its business office at……..…….……. son of ……of Messrs……at…… ./Sri…… son of……..……..resident of ……at ……..Sri……..…….son of ……..…….resident of……..…….partners carrying on business under the firm's and style of Messrs ……at …….which is an unregistered partnership (hereinafter called the "the Tender") has /have in response to your tender Notice against document number ……for …….offered to supply and / or execute the works as contained in the Tender's letter No……

AND WHEREAS the Tender is required to furnish you a Bank Guarantee for the sum of Rs …….. as earnest money against the tenderer's offer as aforesaid:

AND WHEREAS we ……..…….(name and full address of the bank) have at the request of the tenderer agree to give you the guarantee a hereinafter contained.

NOW THEREFORE in consideration of the premises we the undersigned hereby covenant that the aforesaid tender of the tenderer shall remain open for acceptance by you during the period of validity as mentioned in the tender or any extension here of you and the tenderer may subsequently agreed and if the tenderer shall for any reason back out whether expressly or impliedly from his said tender during the period of its validity or any extension thereof as aforesaid, we hereby guarantee to you the payment of sum of Rs ……. on demand notwithstanding the existence of any dispute between the Uttarakhand Power Corporation. Ltd. And the tenderer, in this regard AND we hereby further agree as follows:

(a) That you may without affecting this guarantee grant time or other indulgence to or negotiate further with the tenderer in regard to the conditions contained in the said tender and hereby modify these conditions or add thereto any further conditions a may be mutually agreed upon between you and the tenderer.

(b) That the guarantee hereinbefore contained shall not be affected by any charge in the constitution of our Bank or in the constitution of the tenderer.

(c) That any account settled between you and the tenderer shall be conclusive evidence against us of the amount due hereunder and shall, not be questioned by us.

(d) That this guarantee commences from the date hereof and shall remain in force till the tenderer, if his tender is accepted by you, furnishes the security as required under the said documents and executes a format agreement as therein provided or till six months after the period of validity or the extended period or validity, as the case may be of tender whichever is earlier.

(e) Notwithstanding anything contained above of the Guarantor hereunder is restricted to the said sum of Rs…… And this guarantee shall expire on the……. Day of ……2006 Unless a claim under the guarantee is filled with the Guarantor within six months of such date., all claims shall laps and the Guarantor shall be discharge from the guarantee.

(f) That the expressions 'the tender' and the Bank the Power Transmission Corporation of Uttarakhand Ltd. herein used shall, unless such interpretation is repugnant to the subject or context include their respective successors and assigns.

(g) We……..……..(Name of Bank) lastly undertake to pay to the (PTCUL) any money so demanded not withstanding any dispute or disputes raised by the contractor(s) /supplier(s) in any suit or proceeding pending before any court or Tribunal relating arbitration there to of liability under the present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s)/ supplier(s) shall have not claim against us for making such payment.

Yours Faithfully

PERFORMA FOR PERFORMANCE BANK GUARANTEE

POWER TRANSMISSION CORPORATION OF UTTARAKHAND LTD.

THIS DEED OF GUARANTEE MADE on the ……..day of……by the……..(hereinafter called " the Guarantor") of the part in favour of Power Transmission Corporation of Uttarakhand Ltd. (herein after called " the Purchaser") of the other part.

WHEREAS in accordance with the contract agreement dated the …….. day of …….. (hereinafter called " the said contract") entered into between the Purchaser and Messer's. …….. a Company within the meaning of the Companies Act. And having its registered office at…… (hereinafter called " the contract") the Contractor agrees to supply to the Purchaser the ……. As provided in the said contract.

AND WHEREAS the payment terms under the said Contract provide that in order to take 100% payment of the contract value the contractor shall furnish to the Purchaser a Bank Guarantee in the sum of 10% value of each consignment dispatched valid for…….

AND WHEREAS instead of furnish separate guarantees as aforesaid the Contract wishes to furnish one guarantee in the sum of 10% value of the Contract valid for…… and reckoned from the date……

NOW THIS DEED WITNESSES AS FOLLOWS

1. In consideration of the promises the guarantor hereby undertakes that the Contractor shall duly supply the aforesaid material of the said Contract failing which the Guarantor shall pay to the purchaser on demand such amount or amounts as the Guarantor may be called upon to pay the maximum aggregate to Rs…….. being 10% of the Contract value.
2. The Guarantor shall pay to the Purchaser on demand the sum under Clause 1 above without demur and without requiring the Purchaser to invoke any legal remedy that may be available to it to compel the Guarantor to pay the same or to compel such performance by the Contractor, provided that where the Guarantor consider the demand of the Purchaser unjustified shall nevertheless pay the same though under protest to the Purchaser and shall not withhold payment on that account.
3. This guarantee shall come into force from the date hereof and shall remain valid for ……. Calendar month from the date of the …….. of last consignment of …… goods dispatched which date of dispatch according to contract is the …… date of ……. of however, the period of the contract is for any reason extended thereby extending the said date and upon such extension, if the contractor fails to furnish a fresh or renewed Bank Guarantee for the extended period, the Guarantor shall pay to the Purchaser the said sum of Rs……. or such lesser sum as the Purchaser may demand.
4. The guarantee herein contained shall not be affected by any change in the Constriction of the Guarantor or of the Contractor.
5. Any account settled between the Contractor and the Purchaser shall be Conclusive evidence against the Guarantor of the amount due and shall not be questioned by the

Guarantor.

6. The neglect or forbearance of the Purchaser in enforcement of payment of any moneys the payment whereof is intended to be hereby secured or the giving of time by the Purchaser for the payment thereof shall in no way reliever the Guarantor of its liability under this deed.
7. The Purchaser and the Contractor will be at liberty to carry out any modifications in the said Contract during the terms of the said contract and any extension thereof, notice of which modification to the Guarantor is hereby waived.
8. The expression " The Purchase" and the Guarantor" and "The Contractor" shall unless there be anything repugnant to the subject or context include their respective successors and assigns.
9. Not withstanding anything contained above, the Guarantee hereunder is restricted to the said sum of Rs. ……. And this guarantee shall expire on the …… day of ……. Unless claim under the guarantee is filed within six months of such date, all claim shall lapse and the Guarantor shall be discharged from the guarantee.

IN WITNESS HEREOF

For and on behalf of the Guarantor has signed this deed on the day and year first above written.

Witness

1. ……..

   …….

Signed by

For and on behalf of the Guarantor

2. ……..

   ……..

AGREEMENT
(REFERRED TO IN CLAUSE 3)

THIS AGREEMENT made on the ----------day of ----------Between ----------hereinafter referred to as (' The Contractor") of the one part AND THE Power Transmission Corporation of Uttarakhand Ltd. (hereinafter called ' Purchaser') of the other part.

WHERE AS the Purchaser is about to supply and delivery the (hereinafter called 'The Works') and for the purpose required the plants and machinery mentioned, enumerated and specified to in certain general conditions, schedules, drawings, form of Tender covering letter and schedule of prices which, for the purpose of identification has been signed by ----------, on behalf of the contractor and ---------- (the Engineer or the purchaser) on behalf of the Purchaser of which , are deemed to form part of this Contract as though as separately set out herein and are included in the expression 'Contract' whenever herein used.

AND WHERE AS the Purchaser has accepted the tender of the Contractor for the supply and delivery of the said plant and machinery for the sum of Rs ----------Upon the terms and subject to the conditions here in after mentioned.

NOW THESE PRESENT WITNESS and the parties here to hereby agree and declare as follows, that is to say, in consideration of the payment to be made to the Contractor by the Purchaser (as hereinafter mentioned " the Contractor") shall and will duly provide the said plant and machinery of said work on the terms and conditions mentioned in the Contract.

AND in consideration of the due provisions of the said plant and machinery by the Contractor and due performance of his part of the Contract, the Purchaser does hereby for himself, his successors or such assigns convenient with the Contractor that he (the Purchaser) his successors or assigns will pay to the Contractor the said sum of Rs ----------or such other sums as may become payable to the Contractor under the provision of this Contract, such payments to be made as such time and in such manner as is provided by this Contract.

IN WITNESS WHEREOF the Parties here to have signed this Deed hereunder on the dates respectively mentioned against the signature of each.

Signed by	**Signed by**
----------	**----------**
(for and on behalf of Purchaser)	**(for on behalf of Contractor)**
by date	**by date**
in the presence of	**in the presence of**
(1)	**(1)**
(2)	**(2)**