

निवेदन / Enquiry



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Limited
पारेषण व्यापार समूह / Transmission Business Group
सामग्री प्रबंधन / Materials Management

Project : PGCIL BANASKANTHA AND SANKHARI

Enquiry No	Enquiry Dt	Rev No	Rev Dt	PI No	Enquiry Type	Inspection by	Due Dt	Commercial Comments	Technical Comments	Signing Authority
276E200	17-Oct-16	0		342250364	Package		09-Nov-16			

Document Enclosed

SN	Equipment	Phy Unit	Qty	Unit Exworks	Unit Packing	% ED	% CST	% VAT	% ST	Unit F&I	Plan Dt	Comments
1	OVER HEAD CONDUCTORS AAC BULL	KM	32								20-Dec-16	AS TECHNICAL SPECIFICATION TB-384-316-122.

You are requested to submit your most competitive offer so as to reach us positively by the tender opening date & time. THE TENDERS NOT RECEIVED WITHIN SCHEDULED DATE AND TIME ARE LIKELY TO BE IGNORED. BHEL shall not be responsible for any postal delay.

IN YOUR OWN INTEREST YOU ARE ADVISED TO CAREFULLY READ "THE INSTRUCTIONS TO BIDDERS". INCOMPLETE BIDS AND/OR BIDS NOT COMPLYING WITH TENDER CONDITIONS SHALL BE TREATED AS NON RESPONSIVE AND ARE LIKELY TO BE IGNORED.

In case Tender Documents are not received within 7 days of this E-mail message, intimate BHEL accordingly. If no intimation is received, it will be considered that you have received tender enquiry and delay in submission offer due to late receipt of tender documents will not be entertained.

YOU ARE REQUESTED TO SUBMIT YOUR MOST COMPETITIVE OFFER SO AS TO REACH US POSITIVELY BY 2 PM ON THE TENDER OPENING DATE AND TENDER WILL BE OPENED AT 2:30 PM WITH EFFECT FROM 15-SEP-09.

BHEL RESERVES THE RIGHT TO OPT FOR REVERSE AUCTION FOR OBTAINING BEST PRICES.

OFFERS THROUGH E-MAIL / FAX:

WHOSOEVER DESIRES TO SEND OFFERS ON THEIR OWN RISK (COMPLETE IN ALL RESPECTS) VIA E-MAIL or FAX HAVE TO SEND THE OFFERS TO THE COMMON E-MAIL ADDRESS tenderbox@bhel.in or 0120-6748581 FAX .

THE RECEIVED EMAIL OFFERS WILL BE PRINTED BY PURCHASE COORDINATOR AND PUT THEM INTO COVERS AS PER CONVENTIONAL METHOD FOR TENDER OPENING I.E., TECHNO COMMERCIAL & PRICE OFFER SHALL BE PUT INTO TWO SEPARATE COVERS AND BOTH THE COVERS ARE KEPT IN THIRD COVER DULY SUPER SCRIBING ENQY. NO. AND DUE DATE.

OFFERS SENT TO ANY OTHER E-MAIL ID or FAX NO AND INCOMPLETE OFFERS SHALL NOT BE CONSIDERED FOR EVALUATION PURPOSE.

It is suggested that the bidders are advised to send the files with 'password protection'. procedure for giving a password to a file has been given below:

For saving Excel file with password

Steps to be followed:

1. Click on the FILE option in XP system and Start sign in Vista system then go to SAVE AS option.
2. Select the location to save and Click on the TOOLS box and go to GENERAL OPTION.
3. It will ask for the password, type the password into open or modify box or both as required.
4. Then click on the OK button it will ask for reenter of the password.
5. After reentering the password click on the save box.

For saving Word file with password

Steps to be followed:

1. Click on the FILE option in XP and Start sign in Vista then go to SAVE AS option.
2. Select the location to save and Click on the TOOLS box and go to SECURITY OPTION in XP system and GENERAL OPTION in Vista system.
3. It will ask for the password, type the password into open or modify box or both as required.
4. Then click on the OK button it will ask for reenter of the password.
5. After reentering the password click on the save box.

The vendors who has sent offers with password, the passwords are to be forwarded to another email id: supplierinfo@bhelindustry.com

MSME STATUS

"THOSE INDUSTRIES WHO HAVE FILED A MEMORANDUM WITH THE CONCERNED AUTHORITIES AND REGISTERED AS MICRO & SMALL ENTERPRISE UNDER MICRO, SMALL AND MEDIUM ENTERPRISES DEVELOPMENT ACT 2006, HAVE TO SUBMIT A COPY OF SUCH REGISTRATION CERTIFICATE / MEMORANDUM TO BHEL FOR NECESSARY COMPLIANCES OF THE ABOVE ACT".

Please acknowledge the receipt of tender enquiry and fax back this letter by ticking the appropriate item below.

भारत हेवी इलेक्ट्रिकल्स लिमिटेड के लिए / for BHARAT HEAVY ELECTRICALS LTD

We acknowledge the receipt of tender.

- (a) The offer against subject enquiry shall be submitted by the scheduled date and time.
- (b) We regret to quote. The item in reference is out of our manufacturing range.
- (c) We regret because of our prior commitments.

(d) Any other reason.

To
A K Chowdhary
Sr Dy General Manager
BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS GROUP
TOWER-A, 5th Floor,
Advant Navis IT Business Park,
Plot No-7, Sector-142, Expressway Noida
Noida-201305
Distt. Gautam BudhNagar, U.P

Ph: 0120-6748471
Fax: 0120-6748581

हस्ताक्षर और प्रदाता का सील / **Signature and Seal of Tenderer**

Enquiry No : 276E200 Enquiry Dt : 17-Oct-16

ANNEXURE-1

BHARAT HEAVY ELECTRICALS LIMITED (TRANSMISSION BUSINESS GROUP)

ENQUIRY NO: 276E200

DATED: 17/10/16

1. For any Technical clarification, please contact:

SH. DIPAK MANDAL, SR. DGM (TBEM)
SH. V.P. MEENA, SR. ENGR (TBEM)
BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS GROUP
TOWER A, 5TH FLOOR, ADVANT NAVIS IT BUSINESS PARK,
PLOT NO-7, SECTOR-142, EXPRESSWAY NOIDA,
NOIDA-201305,
DISTT- GAUTAM BUDH NAGAR, UP, INDIA
Phone: 0120 ñ 6748462 / 0120 ñ 6748134
E-mail: ved@bhel.in / / dipak.mandal@bhel.in

2. For any Commercial clarification, please contact:

SH. HIMANSHU KANASKAR, MGR. (TBMM) /
SH. NAVEEN KUMAR, SR. ENGR. (TBMM)
BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS GROUP
TOWER A, 5TH FLOOR, ADVANT NAVIS IT BUSINESS PARK,
PLOT NO-7, SECTOR-142, EXPRESSWAY NOIDA,
NOIDA-201305,
DISTT- GAUTAM BUDH NAGAR, UP, INDIA
Phone: 0120-6748472 / 0120-6748532
Email: naveen.kumar@bhel.in / kanaskar@bhel.in

3. Delivery Requirement:

Delivery date is 20/12/2016. However, Vendors to quote their best delivery time.

4. Pre-Qualifying Requirement:

Vendor must have valid POWERGRID approved MQP on the date of techno-Commercial bid opening.

5. Integrity Pact: Not Applicable

6. Quantity Variation: As per technical specification attached with the enquiry

- a). The quantity may vary upto +/-30 % before placement of order.
- b). The quantity may vary upto +/-20 % during contract stage.

7. Note:

If no option is specified for Performance Bank Guarantee, by default option – B shall be considered for confirmation.

Signature of Bidder
Seal

**BHARAT HEAVY ELECTRICALS LTD.
(TRANSMISSION BUSINESS GROUP)**

GENERAL TERMS AND CONDITIONS FOR TENDER ENQUIRY / CONTRACT

This is to be submitted duly signed by bidder in original. Clause-wise deviations and / or additional conditions / clarifications, if any, are to be brought out clearly in Schedule of Commercial Deviation . Deviations and / or additional conditions / clarifications, if any, mentioned elsewhere in the bid / offer, shall not be considered.

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1.	INSTRUCTION TO BIDDERS : 1.1 Sealed bids are invited for the items mentioned in the tender enquiry conforming to the NIT including Technical Specifications. Bids should be typed and free from overwriting and erasures. Corrections or additions / deletions, if any, must be clearly written and attested, otherwise offer may be rejected. 1.2 Bidder must ensure that their bid is submitted / dropped in the tender box on or before 14-00 Hrs. IST on the due date of opening, unless otherwise specified in the NIT, at the address as follows :- Tender Box, Materials Management, Transmission Business Group, Bharat Heavy Electricals Limited, 5th Floor, Tower-A, Advant Navis IT Business Park, Plot-7, Sector-142, Noida Expressway, Noida, Dist. G. B. Nagar, U. P. – 201305 1.3 In case tender enquiry is floated through the e-procurement system, offer / bid has to be submitted through the e-procurement system ONLY as per instructions given in the e-procurement portal (https://bheleps.buyjunction.in). 1.4 The bids shall be opened at 14-30 Hrs. IST on the due date of opening, in the presence of participating bidders who may like to be present, unless otherwise specified in the NIT. Bids received late are liable for rejection. Bidders sending bids by courier or post will have to ensure that it is timely delivered at the above address. 1.5 Bids are to be submitted duly signed with seal in two parts :- a) Techno-commercial Bid (Part-I) – To be submitted in 2 sets (original + copy). A copy of Price Bid (Part-II) clearly mentioning all the necessary information as per format without prices “Un-Priced Bid” is also to be enclosed in Part-I Bid. b) Price Bid (Part-II) – To be submitted only in one set in a separate sealed envelope. This should not contain any Technical and / or Commercial Terms and Conditions. The rates should be quoted both in figures and words. 1.6 The Part-I and Part-II Bids are to be sealed in separate envelopes and

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	marked as “Techno-commercial Bid (Part-I)” and “Price Bid (Part-II)” respectively. Both the envelopes are to be kept in another common envelope and marked as “BID”. Each envelope should be sealed and superscribed with tender enquiry no., item / package name, project name and due date of opening. Bidder’s name and address shall also be mentioned on each envelope. 1.7 For any technical clarification, please contact official mentioned in the tender enquiry / NIT. 1.8 For any commercial clarification please contact official issuing tender enquiry / NIT. 1.9 Price bid (Part-II) should not contain any additional information / description other than given in “Un-Priced Bid” submitted with “Techno-commercial Bid (Part-I)” except prices, otherwise bid is liable for rejection. 1.10 Price Bid submitted along with the bid shall remain valid up to validity of offer. Any discount / revised offer submitted by the bidder on its own shall be accepted provided it is received before the due date and time of offer submission (i.e. Part-I Bid). The discount shall be applied on pro-rata basis to all items including optional items, if any, unless specified otherwise by the bidder. Discount offered shall be valid for full duration of validity of the offer including extension of validity, if any. Unsolicited Supplementary / Revised Price Bid submitted after the due date and time of offer submission (i.e. Part-I Bid), during validity period of offer, unless asked by BHEL, shall not be considered. Withdrawal of quotation by the bidder, at any stage after its opening, may entail suitable action against such bidder by BHEL. 1.11 The consultants / firm (and any of its affiliates) shall not be eligible to participate against tender enquiry for the related goods or works or services for the same project, if they were engaged by BHEL-TBG for the consultancy services. 1.12 In case any Foreign OEM / Foreign Principal insists on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer / supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer / supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from the manufacturer / supplier and the agent, bid received from the agent shall be ignored. 1.13 Non-conformities / errors / discrepancies in quoted prices in price bids shall be dealt as follows :- a) If, in the price structure quoted for the required goods / services / works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of BHEL there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly. b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.

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	c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above. d) If there is such discrepancy in an offer as mentioned in (a), (b) & (c) above, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the BHEL, the bid is liable to be ignored. 1.14 In case the scope of the successful bidder / supplier against this tender enquiry includes Erection, Testing and Commissioning (ETC) of the equipment / material at site in addition to Supply, Purchase Order shall be placed for Supply Portion and Contract shall be separately awarded for ETC at Site Portion. General Terms and Conditions for Tender Enquiry / Contract mentioned herein shall be applicable for both Supply & ETC at Site. Additional Terms and Conditions for Tender Enquiry / Contract for Erection, Testing and Commissioning at Site "BHEL/TBG/GTC-ETC/2016" shall be applicable for ETC at Site only which is to be read in conjunction with General Terms and Conditions for Tender Enquiry / Contract mentioned herein. However, any breach of either the Purchase Order or the Contract shall be deemed to be breach of the other. 1.15 Taxes and Duties payable extra as per Clause No. 2.3 in NIT, if not specified/quoted clearly as extra shall be considered as included in Ex-works Price and therefore shall not be reimbursed. Taxes and duties not payable extra as per NIT shall be deemed to be included in Ex-works Price. 1.16 If the rates for taxes and duties in respect of the quoted materials and / or services assumed by the Supplier are less than the tariff prevailing at the time of tendering, Supplier will be responsible for such under quotations. However if the rates assumed are higher than the correct rates prevailing at the time tendering, the difference will be to the credit of BHEL. Note : Representative / official deputed by the bidder to witness tender opening must produce authorization letter for the same.
2.	PRICES : 2.1 Unless specifically indicated in the NIT, all prices shall be FIRM. No enhancement of rate for whatsoever reasons unless and until asked by BHEL shall be allowed. 2.2 Unless specifically indicated in the NIT, the prices shall be on INR basis. 2.3 Unless specifically indicated in the NIT, the prices are to be quoted on FOR (Site / Destination) basis. The break-up of prices shall be as under :- a) Ex-works Price: Ex-works price including packing & forwarding charges. b) Excise duty (ED): ED as applicable is to be quoted as percentage in both un-priced bid and price bid. c) Sales Tax (ST): Central Sales Tax/Value Added Tax shall be reimbursed only

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	if the same is paid by the Seller/Contractor to the respective Govt. authorities on direct sales by the Seller/Contractor to the purchaser meeting all statutory requirements and availing all exemptions/concessions under the respective CST/VAT Acts, If is shown/mentioned as included in quoted Price or mentioned as Not Applicable, it will not be reimbursed by BHEL proposes to make Sale in Transit under section 6(2)(b) of Central Sales Tax Act where good movement is interstate. Form "C" shall be issued and exchanged against Form "E1/E2" based on quarterly transactions. The supplier is required to submit the request for issue of Form "C" within 30 days from the end of the quarter giving statewise invoice details. VAT invoices in format prescribed in the respective State Sales Tax Act have to be submitted in the name of nodal agency specified in NIT/intimated by BHEL. d) Freight & Insurance: Freight (inclusive of all applicable taxes and duties) and Transit Insurance (inclusive of all applicable taxes and duties) for door delivery up to destination / site / store are to be quoted individually. e) Type Test Charges: If asked in the technical specification, it is to be quoted separately for each test along with applicable taxes and duties. f) Charges for Supervision of Erection, Testing & Commissioning (ETC) at Site: If asked in the technical specification / NIT, it is to be quoted separately along with applicable taxes and duties. g) Charges for Testing & Commissioning at Site: If asked in the technical specification / NIT, it is to be quoted separately along with applicable taxes and duties. h) Charges for Erection, Testing & Commissioning at Site: If asked in the technical specification / NIT, it is to be quoted separately along with applicable taxes and duties. i) Training Charges: If asked in the technical specification / NIT, it is to be quoted separately along with applicable taxes and duties. j) Service Tax: Service Tax if applicable is to be quoted as percentage in both un-priced bid and price bid. 2.4 Entry Tax / Octroi: Any Entry Tax / Octroi, if applicable at destination / destination state, shall be paid extra on proof of such payment. Supplier has to get confirmation from BHEL before despatch of material for any exemption, if applicable. Note : i) Unless otherwise specified in the NIT, the purchase order shall be placed on Ex-works basis for Indian bidders. ii) Prices quoted by Indian bidders shall be in Indian Rupees only. iii) In case Supervision of Erection, Testing & Commissioning (ETC) at Site or Testing & Commissioning at Site or Erection, Testing & Commissioning at Site is also in scope of the bidder along with supply, bidder has to ensure that prices quoted for such services also are in line with special terms & conditions of the NIT, if any.

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	iv) Unless otherwise specified in the NIT, Unloading at Site / Destination shall not be in the scope of the supplier.
3.	TERMS OF PAYMENT : 3.1 For Supply only or Supply where Supervision of Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier or Supply where Testing & Commissioning at Site is in scope of the supplier a) 95% of Ex-works value along with 100% taxes & duties, Freight & Insurance within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : • LR / GR duly endorsed by BHEL Site Official. • Material Receipt Certificate issued by BHEL Site Official. • Excise invoice (where ED reimbursement is required or ED exemption is applicable) • Packing List (Case-wise) • Copy of Transit Insurance Certificate from underwriters. • Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management • Guarantee Certificate • Copy of Performance Bank Guarantee (PBG) • Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order. b) 5% of Ex-works value within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : • Form "E1/E2" against Form "C", if applicable • Certificate of successful completion of Supervision of Erection, Testing & Commissioning at Site if it is in the scope of the supplier or Certificate of successful completion of Testing & Commissioning at Site if it is in the scope of the supplier. • Certificate of completion of final documentation as per Purchase Order / Technical Specification issued by BHEL Engineering Management 3.2 For Supply where Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier a) 90% of Ex-works value along with 100% taxes & duties, Freight & Insurance within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : • LR / GR duly endorsed by BHEL Site Official. • Material Receipt Certificate issued by BHEL Site Official. • Excise invoice (where ED reimbursement is required or ED exemption is applicable) • Packing List (Case-wise) • Copy of Transit Insurance Certificate from underwriters. • Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management • Guarantee Certificate • Copy of Performance Bank Guarantee (PBG)

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	• Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order b) 10% of Ex-works value within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : • Form “E1/E2” against Form “C”, if applicable • Certificate of successful completion of Erection, Testing & Commissioning at Site issued by BHEL Site Official / Construction Management • Certificate of completion of final documentation as per Purchase Order / Technical Specification issued by BHEL Engineering Management 3.3 For Type Test Charges 100% payment along with taxes and duties within 60 days from the date of receipt of complete invoice along with copy of Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management in 3 sets (original + 2 copies) on completion of delivery (at site, if F&I is in scope of supplier) of main supplies (excluding spares) for which Type Tests are applicable. List of main supplies (excluding spares) for which Type Tests are applicable shall be certified by BHEL Engineering Management. 3.4 For Charges for Supervision of Erection, Testing & Commissioning at Site 100% payment along with taxes and duties within 60 days from the date of receipt of complete invoice along with certificate of successful completion of Supervision of Erection, Testing & Commissioning at Site issued by BHEL Site Official / Construction Management in 3 sets (Original + 2 copies). 3.5 For Charges for Testing & Commissioning at Site 100% payment along with taxes and duties within 60 days from the date of receipt of complete invoice along with certificate of successful completion of Testing & Commissioning at Site issued by BHEL Site Official / Construction Management in 3 sets (Original + 2 copies). 3.6 For Training Charges 100% payment along with taxes and duties within 60 days from the date of receipt of complete invoice along with certificate of completion of training issued by BHEL Engineering Management in 3 sets (original + 2 copies). Note : i) Supplier has to submit invoice(s) as per PO or approved billing break-up of prices (if applicable as per NIT). ii) In case of supplies for overseas project, Material Receipt Certificate issued by BHEL Authorized Representative shall also be acceptable. iii) In case of Transit Insurance under Open Insurance Policy, Intimation /

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	Declaration of Transit Insurance as per terms of the relevant Open Insurance Policy along with copy of Open Insurance Policy from underwriters shall also be acceptable. iv) Supplier has to ensure commencement of transit insurance from the date not later than LR / GR date. v) In case VAT is applicable, supplier has to submit Tax Invoice(s) irrespective of any VAT benefit / input credit available to BHEL. vi) In case of interstate sale-in-transit against Form "C", supplier to ensure submission of Form "E1/E2" to BHEL timely to meet statutory requirements irrespective of the related payment terms. vii) Supplier has to submit proof of Service Tax deposited / paid to authority with copy of PAN Card for payment of Service Tax and TDS shall be applicable as per statutory requirements. viii) MSMED Act, 2006 and the rules made thereunder as amended from time to time shall be applicable for release of payment to suppliers qualified & registered as Micro & Small Enterprises based on documents mentioned in the NIT for MSME. ix) Supplier has to submit PBG & Guarantee Certificate as per BHEL format. x) In case any shortages and / or damages in supplies, an amount calculated based on comments against Material Receipt Certificate issued by the BHEL Site Official shall be withheld from the supply payment against 3.1(a) or 3.2(a) above to be deemed fit by BHEL subject to a minimum of 10% of the total ex-works value of the invoice corresponding to the LR / GR against which any shortages and / or damages are reported. The withheld amount shall be released after the shortages and / or damages in supplies are supplied / replenished against Certification by BHEL Site Official. xi) Additional documents required for payment for services are as follows : (a) Copy of Service Tax Registration Certificate (b) Copies of challans for deposit of service tax alongwith certificate by the supplier / contractor that tax charged under the invoice has been remitted by the supplier / contractor to tax authorities
4.	INTEREST LIABILITY : In case of any delay in payment due to any reason, BHEL shall not pay any interest on delayed payment. Also, no interest shall be payable by BHEL on the bank guarantee / deposit amount or balance payment or any other money which may become due owing to difference or misunderstanding or any dispute before any quasi judicial authority between BHEL and the Supplier / Contractor.
5.	GUARANTEE : The equipment / material supplied and services rendered (if applicable) shall be guaranteed to be free from all defects and faults in design & engineering, material, workmanship & manufacture and in full conformity with the Purchase Order / Contract, Technical Specifications & approved drawings / data sheets, if any, for 18 months from the date of last delivery or 12 months from the date of commissioning, whichever is earlier. Wherever Erection, Testing & Commissioning at Site are also in the scope of the Supplier, the guarantee period shall be 18 months from the date of last delivery or

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	12 months from the date of commissioning, whichever is later. The defective equipment / material / component shall be replaced free of cost at site. Freight & Insurance during transit shall also be in the scope of the supplier / contractor. Any expenditure for dismantling and re-erection of the replaced equipment / material / component shall be to supplier's / contractor's account. All replacements during the guarantee period shall be delivered at site promptly and satisfactorily within a period not more than 45 days from the date of reporting the defect / rejection etc. In the event of the supplier / contractor failing to replace the defective equipment / material / component within the time period mentioned above, BHEL may proceed to undertake the replacement of such defective equipment / material / component at the risk and cost of the supplier / contractor without prejudice to any other rights under the contract and recover the same from PBG / other dues of this Purchase Order / Contract or any other Purchase Order / Contract executed by the supplier / contractor. Note : i) In case of Illumination System, items viz. Lamps, Tubes, Ballast, Starters, Capacitors & Fuses will not be under Guarantee after commissioning. ii) In addition to the above guarantee period, Extended Guarantee / Warranty, if any, shall be as per NIT / Technical Specifications. iii) In case offer of agent of Foreign OEM / Foreign Principal is considered, as per Clause No. 1.12 above, Guarantee as mentioned above has to be provided by the Foreign OEM / Foreign Principal also.
6.	LATENT DEFECT : Liability for latent defects shall be for defects inherently lying within material or arising out of design deficiency which does not manifest itself during guarantee period but later and shall be limited to five years from the expiry of the guarantee period.
7.	PERFORMANCE BANK GUARANTEE (PBG) : Supplier shall arrange to submit Performance BG / Deposit on a non-judicial stamp paper of appropriate value along with first invoice or within 60 days from placement of Purchase Order (PO) whichever is earlier, in line with one of the applicable options as follows :- Option "A" A single rolling PBG for Rs. 50 Lakhs initially valid for 18 months with claim period of 3 months extra over and above 18 months for all the Purchase Orders being executed for Transmission Business Group, BHEL. However, validity of the PBG shall be extended till 18 months from the date of last delivery with 3 months claim period extra over and above 18 months. Single Rolling PBG option shall not be applicable in case Ex-works value of the PO at the time of placement of PO exceeds Rs. One Crore. Option "B" PBG for 10% of the total Ex-works PO value, valid for 18 months from the date of last delivery with claim period of 3 months extra over and above 18 months. Ex-works PO value at the time of placement of PO shall be considered for calculation of the PBG amount.

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	Option "C" In case the total Ex-works PO value at the time of placement of PO does not exceed Rs. Ten Lakhs, interest free Deposit of 10% of the total Ex-works PO value at the time of placement of PO in form of Demand Draft favouring "Bharat Heavy Electricals Limited" and payable at New Delhi / Delhi / Noida shall also be acceptable to BHEL in lieu of PBG, which shall be released after expiry of 21 months from the date of last delivery after deduction, if any, within 60 days from receipt of invoice in 3 sets (original + 2 copies) to be submitted by the supplier. Note : i) The Bank Guarantee shall be from any bank as per Annexure for List of Banks (32 Nos.). The original PBG should be sent by issuing Bank directly to AGM (Finance), TBG, BHEL, Noida. ii) Extension of validity of the PBG in original, as per above clause, should be sent by issuing Bank directly to AGM (Finance), TBG, BHEL, Noida at least 45 days before expiry of validity of the PBG. iii) Unless otherwise specified in the NIT, deviation taken for non-submission of PBG / Deposit, as applicable, shall not be accepted. iv) Supplier has to confirm one of the applicable options for submission of PBG / Deposit before placement of PO. v) In case of non-submission PBG / Deposit, as applicable, BHEL reserve the right for Risk Purchase as per terms of the NIT and impose Suspension of Business Dealings with the Supplier / Contractor. vi) BHEL reserve the right to encash the Bank Guarantee and forfeit the amount in the event of any default, failure or neglect on part of the Supplier in fulfilment of performance of the Purchase Order. vii) Value of the Bank Guarantee (at the time of submission) shall remain unchanged for any subsequent variations in Purchase Order value up to $\pm 20\%$. Beyond this variation of $\pm 20\%$, the Supplier shall arrange to enhance or may reduce the value of the Bank Guarantee accordingly for the total variation promptly.
8.	SUBMISSION OF DRAWINGS / DOCUMENTS FOR APPROVAL : Supplier shall submit the master document list within 7 days from date of Purchase Order / Contract, unless otherwise specified in the NIT, with planned dates for submission which shall be in line with activity schedule as per Purchase Order / Contract and shall be finalized with BHEL Engineering Management. Date of first submission of drawings / documents shall be certified by BHEL Engineering Management after the receipt of applicable drawings / documents (e.g. project specific cover sheet, GTP, OGA drawings, schemes, type test reports etc.) by BHEL. During detailed engineering stage, necessary hard copies of the engineering drawings / documents shall also be submitted by the supplier as per the Purchase Order / Contract requirement. The supplier shall also submit the packing drawings as per technical specifications. In case item(s) offered require any interface details of other item (not in the scope of supplier & required for operating the equipment), the supplier has to submit interfaces schedule along with submission of engineering drawings / documents. It shall be responsibility of the supplier to get the details of the interfaced item from BHEL before manufacturing to avoid any mismatch at site.
9.	FINAL DOCUMENTATION : Final documentation as called in the technical / contract specification is to be submitted within 3 months from the date of first delivery of respective equipment / item material. In case of default, the Performance BG is liable for encashment.
10.	INSPECTION : BHEL / customer / third party shall inspect equipment / material before despatch.

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	Stage inspection during manufacturing may also be carried out. Material to be despatched only after getting Material Despatch Clearance Certificate (MDCC) / MICC issued by BHEL. Supplier shall send inspection call on prescribed format / web site only, with an advance notice of 15 days. Supplier to ensure submission of all routine / acceptance test reports, inspection reports and all other documents related to inspection, immediately to BHEL. BHEL representative is authorised to carry out audits along with Third Party Inspection Agency at vendor's / supplier's works before clearing the items for despatch.
11.	DESPATCH DOCUMENTS : Despatch documents to be immediately sent to BHEL on despatch are as follows :- • Copy of Invoice • Copy of LR / GR in case of Indian suppliers or BL / AWB in case of foreign suppliers • Copy of Packing List (Case-wise) • Copy of Transit Insurance Certificate from underwriters • Copy of Guarantee Certificate
12.	DELIVERY PERIOD : Delivery / Completion requirement shall be mentioned in the NIT. Bidder to specify best delivery / completion period possible in weeks from the date of LOI / PO as per activity schedule for consideration by BHEL. Time required for type test, if applicable, is to be separately indicated. Note : LR / GR date or invoice date (whichever is later) for indigenous supplies and BL / AWB date for FOB / CIF (if applicable) contracts shall be considered as delivery date.
13.	LIQUIDATED DAMAGES FOR DELAYED DELIVERY In case of delay in execution of Purchase Order beyond the contractual delivery time, an amount of 0.5% of the total Purchase Order value for supply (incl. taxes, duties, freight & insurance as applicable) per week of delay or part thereof subject to a maximum of 10% of the total Purchase Order value for supply (incl. taxes, duties, freight & insurance as applicable) shall be deducted as Liquidated Damages (LD). However, in case of staggered (lot-wise) contractual delivery schedule, LD shall be 0.5% of the total Purchase Order value for supply (incl. taxes, duties, freight & insurance as applicable) of delayed lot per week of delay or part thereof subject to maximum of 10% of the total ex-works Purchase Order value. Note : i) In case of any amendment / revision, the LD shall be linked to the amended / revised Purchase Order / Contract value and delivery / completion time / schedule, if applicable. ii) LR / GR date or invoice date (whichever is later) for indigenous supplies and BL / AWB date for FOB / CIF (if applicable) contracts shall be treated as the date of dispatch for levying LD as above. iii) However, for indigenous supply, if time period between date of receipt of material at site / destination by Site Official & the date of LR / GR or invoice (whichever is later) is more than 30 days, where distance from place of despatch as per LR / GR is upto 1000 Kms or if time period between date of receipt of

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	material at site / destination by Site Official & the date of LR / GR or invoice (whichever is later) is more than 45 days, where distance from place of despatch as per LR / GR is more than 1000 Kms, such excess period shall also be considered for LD purpose. iv) If, as per supplier, delay is not attributable to the supplier, delay analysis with documentary evidence may be submitted by the supplier at the earliest but not later than six months from the end of the financial year in which the payment is withheld. Based on the above details / documents submitted by the supplier, BHEL shall take final decision and if considered appropriate by BHEL, withheld amount (full or part as the case may be) shall be released, otherwise, full or balance withheld amount shall be treated as deduction of Liquidated Damages (LD) towards delayed delivery.
14.	VALIDITY OF OFFER : The offer shall be valid for 120 days from the due date of opening of tender (i.e. techno-commercial bid unless otherwise specified in the NIT). Prices of Spares, wherever they optional items, shall be valid till two years from the date of placement of PO.
15.	ACCEPTANCE / REJECTION OF TENDER : BHEL reserve the right to reject in full or part, any or all tender without assigning any reason thereof. BHEL also reserve right to vary the quantities as mentioned in the NIT. Acceptance of offer is subject to vendor approval by customer before opening of price bid. BHEL shall not be bound by any power of attorney granted by tenderer or by changes in composition of the firm made subsequent to award of order / contract. BHEL may however recognize such power of attorney and changes after obtaining proper legal advice, cost of which will be chargeable to the seller / contractor concerned. If the tenderer deliberately gives wrong information, BHEL reserves the right to reject such an offer at any stage or cancel the order / contract, if awarded, and forfeit the security deposit and bank guarantee.
16.	DEVIATION : The bids having deviation(s) w.r.t. tender are liable for rejection. However, BHEL, at its discretion, may load the prices for evaluation of offer with prior intimation to bidder.
17.	TENDER EVALUATION : Comparative statement shall be prepared based on overall quantity basis unless otherwise indicated in the tender enquiry / NIT. Evaluation of offers shall be done on the basis of total cost to BHEL which shall include applicable taxes & duties, freight & insurance and other services etc. (if applicable). VAT benefit / input credit available to BHEL shall be deducted from prices quoted for calculation of total cost to BHEL, in case specified in the NIT. In case all bidders are foreign & Port of Entry is same for all the bidders, evaluation of offers shall be done on CIF (Port of Entry) basis. Otherwise, evaluation of offers shall be done on the basis of delivered cost at site / destination to BHEL. However, in case of foreign bidders, marine freight & insurance are to be quoted separately & the purchase order shall be placed on FOB basis with an option for delivery on CIF / CFR basis, if required, later. In case of foreign bidders, Exchange Rate (TT selling rate of State Bank of India) as on date of tender opening (Part-I Bid in case of two part bid) shall be considered. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken for tender evaluation.
18.	LOADING CRITERIA : List of permissible deviations & loading criteria thereof are as follows :-

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	a) Payment Terms Base rate of SBI (as applicable on the date of bid opening / techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidder(s) against terms of payment in the NIT. b) Liquidated Damages (LD) for Delayed Delivery Loading on LD clause shall be to the extent to which it is not agreed to by the bidder (at offered value). c) In case of foreign bidders, if the quoted prices is on CIF basis only, it shall be loaded to arrive at total FOR (Site / Destination) price, as applicable, by factors as follows :- i) Port handling / clearing charges : @ 1% of CIF value to arrive at Customs Assessable Value. ii) Custom Duty (including CVD & SAD) as per NIT prevailing on date of price bid opening. iii) Inland Freight & Transit Insurance : @ 5% of CIF value where distance between site / destination and Port of Discharge is upto 1000 Kms or @ 7% of CIF value where distance between site / destination and Port of Discharge is more than 1000 Kms. Note : Additional deviations (if considered acceptable by BHEL) & the loading criteria shall be communicated to all the qualified bidders before price bid opening.
19.	ARBITRATION : In the event of any dispute emanating from and relating to this contract, the matter shall be referred to the sole arbitration of the person appointed by the competent authority of BHEL. Subject to aforesaid, the provisions of "The Arbitration and Conciliation Act, 1996" and the rules made thereunder as amended from time to time in India shall apply to the arbitration proceedings. The venue of arbitration shall be in New Delhi. Further there shall be no claim for any pre-reference or pendente-lite interest on the claims and any claim for such interest made shall be void. However, in case of contract with Public Sector Enterprise / Undertaking (PSE/PSU) or Govt. Dept., the extant guidelines of Govt. of India shall be followed.
20.	LEGAL SETTLEMENT : Indian Courts at New Delhi / Delhi shall have exclusive jurisdiction to decide the dispute, if any, arising out of or in respect of the contract(s) to which these conditions are applicable. Contract, including all matters connected with contract, shall be governed by the Indian Law, both substantive and procedural, for the time being in force including modification thereto.
21.	SUB-CONTRACTING : In case further subcontracting of BHEL Purchase Order / Contract or part thereof is envisaged by supplier, the same can be done after written permission is obtained from BHEL. However it shall not absolve the Supplier / Contractor of the responsibility of fulfilling BHEL Purchase Order / Contract requirements. In case of subcontracting of Purchase Order / Contract awarded by BHEL or part thereof without such permission, BHEL reserve the right to cancel the Purchase Order / Contract and source such material / component / equipment / system from any other agency at the risk and cost of the Supplier / Contractor. If Supplier / Contractor is an individual or proprietary concern and the individual or the proprietor dies or the partnership is dissolved or substantially affected, then unless BHEL is satisfied that legal representative of individual Supplier / Contractor or proprietor of proprietary concern and surviving partners of partnership firm are

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	capable of carrying out and completing the Purchase Order / Contract, BHEL shall be entitled to cancel the Purchase Order / Contract as to its incomplete portion and without being in any way liable to payment of any compensation to legal representative of Supplier / Contractor and / or to surviving partners of Supplier's / Contractor's firm on account of cancellation of the Purchase Order / Contract. Decision of BHEL that legal representatives of deceased Supplier / Contractor or surviving partners of the Supplier's / Contractor's firm cannot carry out and complete the Purchase Order / Contract shall be final and binding on the parties hereto. Terms and Conditions shall not get affected in case of de-merger / amalgamation / taking-over / re-constitution etc.
22.	RISK PURCHASE : In case the Supplier / Contractor fails to supply or fails to comply with terms & conditions of the Purchase Order / Contract or delivers equipment / material not of the contracted quality or fails to adhere to the contract specifications or fails to perform as per the activity schedule and there are sufficient reasons even before expiry of the delivery / completion period to justify that supplies shall be inordinately delayed beyond contractual delivery / completion period, BHEL reserve the right to cancel the Purchase Order / Contract either in whole or in part thereof without compensation to Supplier / Contractor and if BHEL so desires, may procure such equipment / material / items not delivered or others of similar description where equipment / material / items exactly complying with particulars are not readily procurable in the opinion of BHEL which is final and in such manner as deemed appropriate, at the risk and cost of the Supplier / Contractor and the Supplier / Contractor shall be liable to BHEL for any excess cost to BHEL. However, the Supplier / Contractor shall continue execution of the Purchase Order / Contract to the extent not cancelled under the provisions of this clause. Recovery amount on account of purchases made by BHEL at the risk and cost of Supplier / Contractor shall be the difference of total value of new Purchase Order (PO) value and total value of old Purchase Order for applicable items, where the total value of new PO is more than total value of old PO for applicable items, plus additional 15% of the total ex-works value of new PO as overheads. The Supplier / Contractor shall on no account be entitled to any gain on such risk & cost purchase. In case the purchase order (PO) value of the new PO is less than the PO value of the old PO, 15% of the total ex-works value of the new PO shall be recovered as overheads and the difference between the PO value of the old PO and the new PO shall not be considered for calculation of the recovery amount.
23.	ADJUSTMENT OF RECOVERY : Any amount payable by the Supplier / Contractor under any of the condition of this contract shall be liable to be adjusted against any amount payable to the Supplier / Contractor under any other Purchase Order / Contract awarded to him by any BHEL unit. This is without prejudice to any other action, as may be deemed fit, by BHEL.
24.	FORCE MAJEURE CONDITION : If by reason of war, civil commotion, act of god, Government restrictions, strike, lockout which are not in control of Supplier / Contractor the deliveries / services are delayed, Supplier / Contractor shall not be held responsible. If at any time during the continuance of the Purchase Order / Contract, the performance in whole or in part by either party of any obligations under the Purchase Order / Contract is prevented or delayed by reason of any war hostilities, acts of the public enemy, restrictions by Govt. of India, civil commotion, sabotage, fires, floods, explosion, epidemics, quarantine restrictions, strike, lock-outs or acts of God (hereinafter referred to as "event"), which are not in control of Supplier / Contractor

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	or BHEL, then provided notice of the happening of such event is given by either party to the other within fifteen (15) days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate the Purchase Order / Contract nor shall have any claim for damages against each other in respect of such non-performance and delay in performance. Performance under the Purchase Order / Contract shall be resumed immediately after such event has come to an end or ceased to exist and decision of BHEL as to whether the deliveries have to be resumed or not shall be final, conclusive and binding on the parties hereto. In the event of the parties hereto not able to agree that a force majeure event has occurred, the parties shall submit the disputes for resolution pursuant to the provisions hereunder, provided that the burden of proof as to whether a force majeure event has occurred shall be upon the party claiming such an event. Notwithstanding above provisions, BHEL shall reserve the right to cancel the Purchase Order / Contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of delivery and other schedules.
25.	MANUFACTURING QUALITY PLAN (MQP) : Supplier to submit approved MQP in line with requirement of BHEL/customer.
26.	SUPPLIER PERFORMANCE MONITORING AND RATING SYSTEM : BHEL reserve the right for evaluation of Supplier Performance Rating as per Supplier Performance Monitoring and Rating System of BHEL for necessary action. Details are available at BHEL Website www.bhel.com for reference.
27.	DEALING WITH BANNED SUPPLIERS / CONTRACTORS IN BHEL : Offers of the bidders, who are on the banned list, as also the offers of the bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com for reference.
28.	ORDER OF PRECEDENCE : The order of precedence shall be as follows :- a) Special Terms & Conditions (STC) for Tender Enquiry / Contract, if any b) General Terms & Conditions (GTC) for Tender Enquiry / Contract & Additional General Terms & Conditions (GTC) for Tender Enquiry / Contract for Erection Testing & Commissioning (ETC) at Site, if applicable Provisions in (a) above shall prevail over (b). In case of conflict, between Technical Specifications and STC / GTC, bidder to seek necessary clarifications from BHEL concerned official as specified in NIT.
29.	PACKING : Packing shall be in conformity with specifications and shall be such as to ensure prevention of damages, corrosion, deterioration, shortages, pilferage and loss in transit or storage. In case of shipment by sea or air, the packing shall be sea-worthy or air-worthy respectively and of international standards. Different types of spares i.e. start-up / commissioning spares and initial spares (mandatory spares and recommended O&M spares) are to be packed separately. Packing List shall be submitted as per standard format along with advance set of documents for claiming payment which shall also indicate :- a) Case / Packing size (as applicable). b) Gross weight and net weight of each package. c) Detailed contents of the package with quantity of each item separately. Project, Item / Package Description, BHEL's PO No. with date & Case / Packing Mark should also be clearly mentioned on the Case / Packing and Packing List for identification. Also, Packing List must be duly signed & should include respective Invoice No. & LR No. Note :

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	Foreign suppliers to furnish details to arrange inland transportation by BHEL, if applicable, as follows :- i) No. of Packages ii) Size with Weight (Gross & Net) of each Package iii) No. of Containers with type & size required for inland transportation iv) Type of Cargo (Break Bulk / LCL / FCL) v) Customs Tariff No.
30.	COLOUR CODING : Aluminium stickers are required to be attached to large components but plastic sheet tags should be tied with small components, giving details like purchase order, description of the component, quantity etc. Tags should be of the colour as follows :- a) Main equipment : Yellow or White tag b) Start-up / Commissioning spares : Blue tag c) Mandatory spares : Pink or Red tag d) Recommended / O&M spares : Green tag
31.	MICRO, SMALL & MEDIUM ENTERPRISES (MSME) : MSMED Act 2006 as amended from time to time & extant regulations of Govt. of India for MSME will be applicable. Micro & Small Enterprises (MSE) can avail the intended benefits only if they submit along with the offer / bid, attested copies of either Acknowledgement of Entrepreneur Memorandum Part-II (EM-II certificate) having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with attested copy of a CA certificate (As per BHEL format where deemed validity of EM-II certificate of five years have expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of opening (for Techno-commercial Bid : Part-I in case of two part bid). Non-submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or arrested (in original) by a Gazetted officer. Copy of Udyog Aadhaar Memorandum with Acknowledgement of Ministry of Micro, Small & Medium Enterprises should also be furnished.
32.	BUSINESS ETHICS / SUSPENSION OF BUSINESS DEALINGS WITH SUPPLIERS / CONTRACTORS : If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution, indulges in malpractices cheating, bribery, fraud or other misconduct or formation of cartel so as to influence the bidding process or influences the price or fails to perform or is in default without any reasonable cause etc or performs any act considered objectionable as per extant guidelines, action may be taken against such bidders/supplier/contractor as per extant "Guidelines for Suspension of Business Dealings with Suppliers/Contractors". Abridged version of same is available at BHEL website (www.bhel.com) on "Supplier Registration" Page.
33.	REVERSE AUCTION : BHEL reserve the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder or price bid submitted by the bidder through e-procurement system. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA. In case BHEL decides to go for Reverse Auction, only those bidders who have given their unconditional acceptance to participate in RA will be allowed to participate in

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	the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit "online sealed bid" in the Reverse Auction. Non-submission of "online sealed bid" by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue. General Terms and Conditions of RA are available at Annexure. Business Rules for RA shall be sent to the bidders before conducting RA. Abridged Version of "Common Guidelines for Conducting Reverse Auction" may also be seen at BHEL website (www.bhel.com) on "Supplier Registration" Page & "Tender Notifications" Page.
34.	INTEGRITY PACT : Bidders shall have to enter into Integrity Pact with BHEL, duly signed with seal in original, if specified in NIT / RFQ failing which bidder's offer shall be liable for rejection.
35.	TERMINATION OF CONTRACT : BHEL shall have the right to cancel the Purchase Order / Contract without any financial implication to BHEL if vendor approval by end user / customer is withdrawn or in case of Suspension of Business Dealings with the Suppliers / Contractors by BHEL. BHEL shall have the right to cancel Purchase Order / Contract, wholly or in part, in case they are obliged to do so on account of any decline, diminution, curtailment or stoppage of their business and in that event, the Supplier's / Contractor' compensation claim shall be settled mutually. In case of cancellation of Purchase Order / Contract for main supply, all other associated Purchase Orders / Contracts like those for Mandatory Spares / Recommended Spares / Erection, Testing & Commissioning (ETC) / Supervision of ETC, if any, would also get cancelled.
36.	SHELF LIFE : Supplier has to inform the list of the items / sub-items which have limited shelf life like consumables or those required for the first fill and shall indicate the corresponding shelf life period in the offer. Such items / sub-items shall be manufactured / despatched only after getting formal clearance from BHEL.
37.	LIMITATION OF LIABILITY : Notwithstanding any other provisions, except in cases of wilful misconduct and / or criminal negligence / acts, a) Neither the Supplier / Contractor nor BHEL shall be liable to the other, whether in Purchase Order / Contract, tort, or otherwise, for any consequential loss or damage, loss of use, loss of production or loss of profits or interest costs, provided however that this exclusion shall not apply to any obligation of the Supplier / Contractor to pay Liquidated Damages to the BHEL and b) Notwithstanding any other provisions incorporated elsewhere in the contract, the aggregate liability of the Contractor in respect of this contract, whether under the Contract, in tort or otherwise, shall not exceed total Contract Price, provided however that this limitation shall not apply to any obligation of the Vendor to indemnify BHEL with respect to Patent Infringement or Intellectual Property Rights.
38.	SHORTAGES / DAMAGES : a) Against Supply only or Supply where Supervision of Erection, Testing & Commissioning (ETC) at Site or Supply where Testing & Commissioning at Site is in scope of the supplier :

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	Any shortages and / or damages in supplies shall be supplied / replenished free of cost by the supplier as early as possible but not later than 30 days from the date of intimation by BHEL to the supplier. b) Against Supply where Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier : Any shortages and / or damages in supplies and during handling / storage, erection, testing and commissioning at site shall be supplied / replenished free of cost by the Supplier / Contractor, as early as possible, to meet the contractual completion time / schedule. Note : There shall not be any extension in the contractual delivery time / schedule due to any shortages and / or damages in supplies.
39.	VARIATION OF CONTRACT VALUE / QUANTITY VARIATION : BHEL shall have the right to variation in quantities of items within $\pm 30\%$ of the total Purchase Order / Contract value at the time of placement of PO or award of Contract on overall basis for all amendments together within two years from the date of original Purchase Order / Contract or completion of execution of the Purchase Order / Contract whichever is earlier but quantities of individual items may vary to any extent or may get deleted unless otherwise specified in the technical specifications. No compensation is payable due to variation in the quantities and the Supplier / Contractor shall be bound to accept the same the contracted prices / rates without any escalation. However, if the Purchase Order / Contract is on "Lumpsum" basis, no variation of Purchase Order / Contract value shall be admissible to the Supplier / Contractor within the scope of Purchase Order / Contract, as long as the inputs remain unchanged.
40.	STATUTORY VARIATION : Statutory Variations in Excise Duty on self-manufactured items, Service Tax on services directly rendered by Supplier / Contractor and Sales Tax / Central Sales Tax / Value Added Tax only on the rates prevailing at the time of delivery / completion w.r.t. rates on the date of offer will be to the account of the BHEL if quoted separately in the prices. No other variations such as on customs duty, exchange rate, minimum wages, prices of controlled commodities, any other input etc. shall be payable by the BHEL. Notwithstanding anything above, where the actual completion of the supply / services occurs beyond the period stipulated in the Purchase Order / Contract or any extension thereof, variations referred to above, will be limited to the rates prevailing on the dates of such agreed completion periods only. For variations after the agreed completion periods, the Supplier / Contractor alone shall bear the impact for the upward revisions and for downward revisions BHEL shall be given the benefit of reduction in taxes / duties. This will be without prejudice to the levy of liquidated damages for delay in delivery / completion. If new tax is introduced by Central/State Govt/Municipality becomes directly applicable on items specified in Bill of Quantities/Purchase Order/Contract and new tax is neither in substitution nor in abolition of any of present taxes but is altogether a new tax, full reimbursements shall be made provided it becomes applicable on items specified in Bill of Quantities. However, any additional tax implication due to delay in delivery, beyond the Contractual Delivery, attributable to supplier shall be borne by supplier.
41.	MODE OF PAYMENT : Payment shall be made directly to the Supplier / Contractor by BHEL through NEFT / RTGS.
42.	CONFIDENTIALITY : Supplier / Contractor shall, at all times, undertake to maintain complete

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	confidentiality of all data, information, software, drawings & documents etc. belonging to BHEL and also of systems, procedures, reports, input documents, manuals, results and any other BHEL documents discussed and / or finalized during the course of execution of Purchase Order / Contract.
43.	INDEMNIFICATION : The Supplier / Contractor shall indemnify and keep indemnified and hold harmless BHEL and its employees and officers from and against any and all claims, suits, actions or administrative proceedings, demands, losses, damages, costs and expenses and any other claim of whatsoever nature in respect of the death or injury of any person or loss of or damage to any property arising during the course and out of the execution of the Purchase Order / Contract.
44.	TITLE OF GOODS : a) Ownership of the equipment / material procured in India, shall be transferred to BHEL upon loading on to the mode of transport to be used for transportation of the said equipment / material from the works to the site / destination and upon endorsement of the dispatch documents in favour of BHEL. b) Ownership of the equipment / material to be imported into the country where the site is located, if not procured in India, shall be transferred to BHEL upon loading on the mode of transport to be used for transportation of the equipment / material from the country of origin to that country / destination and upon endorsement of despatch document in favour of BHEL. c) Notwithstanding the transfer of ownership of the equipment / material, the responsibility for care and safe custody thereof together with the risk of loss or damage thereto for whatsoever reason shall remain with the Supplier.
45.	COMPLIANCE OF STATUTORY REQUIREMENTS : The vendor shall comply with all State and Central Laws / Acts, Statutory Rules, Regulations etc., as may be enacted by the Government during the tenure of the Purchase Order / Contract and having in force and applicable to the Purchase Order / Contract and nothing shall be done by the Supplier / Contractor in contravention of any Law / Act and / or Rules / Regulations, thereunder or any amendment thereof. The Supplier / Contractor shall pay all taxes, fees, licence charges / deposits, duties, tolls, royalty, commissions or other charges which may be levied on account of any of his operations connected with the Purchase Order / Contract. In case BHEL is constrained to make any of such payments, BHEL shall recover the same from the Supplier / Contractor either from moneys due to him or otherwise as deemed fit.
46.	ACCEPTANCE OF ORDER : Supplier should acknowledge and accept the Letter of Award / Purchase Order issued by BHEL within 7 days of the issue of Letter of Award / Purchase Order. In case of any discrepancy / typographical error in issue of Purchase Order / Contract, the agreed terms & conditions, scope of work, rates / prices for placement of PO / award of contract shall be applicable and BHEL reserves the right to issue amendment(s) to PO / Contract for correction of discrepancies / typographical errors in the PO / Contract at a later date.
47.	FRAUD PREVENTION POLICY : The Bidder along with its associate / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

Signature of Bidder (Authorized Signatory) with Date & Seal

Annexure for List of Banks (32 Nos.)

Sr. No.	Name of Bank
1	Allahabad Bank
2	Andhra Bank
3	Bank of Baroda
4	Canara Bank
5	Corporation Bank
6	Central Bank
7	Indian Bank
8	Indian Overseas Bank
9	Oriental Bank of Commerce
10	Punjab National Bank
11	Punjab & Sindh Bank
12	State Bank of India
13	State Bank of Hyderabad
14	Syndicate Bank
15	State Bank of Travancore
16	UCO Bank
17	Union Bank of India
18	United Bank of India
19	Vijaya Bank
20	IDBI
21	CITI Bank N. A.
22	Deutsche Bank AG
23	The Hongkong and Shanghai Banking Corporation Limited
24	Standard Chartered Bank
25	J P Morgan
26	Axis Bank
27	The Federal Bank Limited
28	HDFC
29	Kotak Mahindra Bank
30	ICICI
31	Indusind Bank
32	Yes Bank

Un-Priced Schedule (Part II)

(BIDDER TO STRICTLY ENSURE SUBMITTING THE PRICE BIDS IN THIS FORMAT)

ENQUIRY NO: 276E200. DTD: 17/10/16

ITEM : OVER HEAD CONDUCTORS AAC BULL

PROJECT: PGCIL BANSKANTHA & SANKHARI

S.No.	Description of Item	Destination	Unit	Quantity	Unit Price Ex-works	Total Ex-Works	Unit F & I	Total F & I	ED @ of Col. 6	VAT/ CST / ST @____% of (Col 6+9)	TOTAL (FOR Destination) PRICE (Rs.)
1	2		3		5	6	7	8	9	10	11
1	OVER HEAD CONDUCTORS AAC BULL	BANASKANTHA	KM	32							

NOTE: 1.VENDOR TO INDICATE APPLICABLE LOCAL TAX/VAT WITHOUT AS ANY CONCESSIONAL FORMS FOR TRANSACTION WITHIN THE STATE.LOCAL TAX/VAT_____

2. PLEASE NOTE THAT UNPRICED COPY OF PRICE BID (i.e. WITH ALL PRICE BLANKED) SHALL BE FURNISHED ALONGWITH TECHO-COMMERCIAL BID.

3. Sales Tax: Sales Tax / VAT / CST (against C-form) to be quoted as percentage in un-price & price-bid

4. Excise duty: To be quoted as percentage in un-price & price-bid.

5. THE PRICES MUST BE QUOTED IN THE PRESCRIBED UNIT ONLY.

6. IN CASE OF CST RATE AGAINST 'C' FORM SHALL BE QUOTED.

TENDERER

**TRANSMISSION BUSSINESS GROUP
MATERIAL MANGEMENT
BHEL TBG NOIDA
ACTIVITY SCHEDULE**

Please submit this format duly filled in along with offer. Time indicated will be used for calculating contractual delivery period.

ENQUIRY NO: 276E200

Dated: 17/10/16

PROJECT: PGCIL BANASKANTHA & SANKHARI

ITEM: OVER HEAD CONDUCTORS AAC BULL

VENDOR.....

OFFER REF.....

SL. NO.	ACTIVITY	ACTIVITY TIME IN WEEKS	REMARKS IF ANY
1.	Receipt of P.O		
2.	P.O Acceptance	ONE WEEK	Vendor must Submit PO acceptance within one week
3.	Submission of documents necessary for getting manufacturing clearance like Drawings, date sheet etc.		Documents complete in all respect are to be Submitted. Delay in approval on account of incomplete / inadequate information shall be the responsibility of supplier
4.	Review and Approval of documents and issue of manufacturing clearance	BHEL ACTIVITY (2 weeks)	Vendor must reply all queries expeditiously.
5.	Manufacturing Time		Manufacturing time be indicated considering all constrains & must include time required for internal inspections etc.
6	Raise inspection call	-VE 2 WEEKS TO SL NO 5	Call for inspection must be raised at least two weeks in advance in the prescribed format. Non availability of offered material for inspection to the inspector will be viewed very seriously & may result in financial implications. The date of inspection must be with in the period indicated in 5 above.
7	Inspection	BHEL (1 week)	
8	Issue of MICC, MDCC & other documents like EDEC, Road permits etc	BHEL (1 week)	Vendor must indicate requirement well in advance.
9	Dispatch	ONE WEEK	Vendor must ensure to dispatch with in one Week of receiving all documents required

Total time in vendor's scope.

1. Please mention constraints if any. For multiple lot delivery activity landmark for each lot should be mentioned. Multiple inspection calls for one lot are to be avoided & delay on this account shall be vendor's responsibility. Vendors to quote their Best Delivery Plan.
2. Inspection call should be given in the prescribed format only. Inspection calls not in the prescribed format shall not be entertained.
3. Qty. to be offered for Inspection should be in accordance within Delivery- schedule - lot BHEL reserves the right not to entertain multiple inspection calls for a Delivery- lot and delay on this account shall be the responsibility of Supplier.
4. Bidders to mention the period in weeks in the Activity Schedule Format ensuring scheduled delivery preferably within three months from the date of placement of Purchase Order.

SIGNATURE AND SEAL OF COMPANY

ENQUIRY NO: 276E200

DATED: 17/10/16

SCHEDULE OF COMMERCIAL DEVIATION

The following are the deviations / variations exception from the General Terms and Conditions:-

SL. NO.	CLAUSE NO. OF GENERAL TERMS & CONDITIONS	STATEMENT OF DEVIATION

Incase, this schedule is not submitted, it will be presumed that the equipment / material to be supplied under this contract is deemed to be in compliance with the General terms and Conditions.

If there is NIL deviation, even then the format to be filled as NIL DEVIATION.

NOTE: Continuation sheets of like size and format may be used as per the Bidder's requirement and shall be annexed to this schedule.

Place _____

Signature of the authorized representative of

Date _____

Bidder's Name _____

Designation _____

Company seal _____

SCHEDULE OF TECHNICAL DEVIATION

The following are the deviations / variations exception from the Technical Specifications:-

SL. NO.	CLAUSE NO. OF TECHNICAL SPECIFICATIONS	STATEMENT OF DEVIATION

Incase, this schedule is not submitted, it will be presumed that the equipment / material to be supplied under this contract is deemed to be in compliance with the Technical Specifications.

If there is NIL deviation, even then the format to be filled as NIL DEVIATION.

NOTE: Continuation sheets of like size and format may be used as per the Bidder's requirement and shall be annexed to this schedule.

Place _____

Signature of the authorized representative of

Date _____

Bidder's Name _____

Designation _____

Company seal _____

Terms & Conditions of Reverse Auction

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit ‘online sealed bid’ in the Reverse Auction. Non-submission of ‘online sealed bid’ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the 'Business Rules of Reverse Auction', which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II) dtd:.....,
Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006 :
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of Rs.....Lacs forMicro / Small (Strike off which is not applicable) Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:



(Signature)

Name -

Membership number -

Seal of Chartered Accountant



BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS GROUP
MATERIAL RECEIPT CERTIFICATE

- a) Site:
b) LR No. with date:
c) Vehicle no.:
d) Date of receipt of material at site:
e) Material details (as mentioned below):

S.no.	Item Description	Type of Packages	Unit (MT/KM/NO.)	Qty as per packing list	Qty Received	Remarks

Other Remarks:

Signature with date: _____

Name & Designation: _____
(With Seal)

Important Remarks:

1. LR endorsement Format-

“LR no./ Date: _____ Endorsed in favour of (Customer Name) and the transporter is instructed to deliver the goods to (Site name)”.

For Example-

LR no. / Date: 22126/ dt. 30/04/15

Endorsed in favour of TANTRANSCO and the transporter is instructed to deliver the goods to TANTRANSCO, Anikadavu substation.

(Sign and stamp with name & designation)

2. LR will only be endorsed as per the given Format and strictly not be receipted.

3. Material receiving will only be given through the MRC (Format attached).



BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS ENGINEERING MANAGEMENT
NEW DELHI

DOCUMENT No.	TB-384-316-122	Rev	00		Prepared	Checked	Approved
CUSTOMER Doc. No.		NAME	JK	SK	AS		
TYPE OF DOC.	TECHNICAL SPECIFICATION	SIGN					
TITLE	AAC BULL CONDUCTOR	DATE	10/03/16				10/03/16
		GROUP					
		W.O. No					
CUSTOMER PROJECT	POWER GRID CORPORATION OF INDIA LIMITED Substation Package – SS02 for Construction of 765/400/220kV Banaskantha S/S and Extension of 400kV Sankhari (GETCO) S/S including 400kV Transformer and Reactor associated with Green Energy Corridors: Inter-State Transmission Scheme (ISTS) – Part B						
NOA Ref:							

<u>List of Contents</u>	<u>No. of Pages</u>
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Section 2 Standard Specification (Specific Technical Requirements)	10
Section 3 Project Details and General Specification	02
Section 4 Check list	01
<u>Enclosures:</u>	
Annexure – 1 (NO DEVIATION Certificate)	01
Annexure-B- (POWERGRID Standard GTP of AAC Bull conductor)	03

00					First Issue
Rev.	Date	Altered	Checked	Approved	REVISION DETAILS
Distribution				CUSTOMER	TBMM O/C
				-	1 1

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Substation Package – SS02 for Construction of 765/400/220kV Banaskantha S/S and Extension of 400kV Sankhari (GETCO) S/S including 400kV Transformer and Reactor associated with Green Energy Corridors: Inter-State Transmission Scheme (ISTS) – Part B

Bharat Heavy Electricals Ltd.

BULL CONDUCTOR

Doc. No. TB-384-316-122 Section- 1

SECTION – I

SCOPE, SPECIFIC TECHNICAL REQUIREMENT AND QUANTITIES

1.0 SCOPE

This technical specification covers the requirements of design, manufacture, testing at works, packing and dispatch of AAC Bull Conductor.

The equipment is required for the following project.

Name of Customer : Power Grid Corporation of India Ltd.

Name of the Project : Substation Package – SS02 for Construction of 765/400/220kV Banaskantha S/S and Extension of 400kV Sankhari (GETCO) S/S including 400kV Transformer and Reactor associated with Green Energy Corridors: Inter-State Transmission Scheme (ISTS) – Part B

1.1 BILL OF QUANTITY

Sl. No	Description	Banaskantha
1.	AAC Bull Conductor	32 kM

Note:

- The Qty may vary upto $\pm 30\%$ before placement of order.
- The Qty. May vary by $\pm 20\%$ during contract stage.

1.2 TYPE TESTING

Bidder shall submit valid type test reports (as per relevant IEC/IS Standard) for approval. The type test reports submitted shall be of tests conducted within last 10 years prior to the date of bid opening i.e. **24.02.2015**. The bidder should have conducted type test on identical or similar equipment/ components to those offered. In case type test reports are found to be technically unacceptable to BHEL/PGCIL, the type test shall be conducted without cost and delivery implication to BHEL.

1.3 QUALITY PLAN

Substation Package – SS02 for Construction of 765/400/220kV Banaskantha S/S and Extension of 400kV Sankhari (GETCO) S/S including 400kV Transformer and Reactor associated with Green Energy Corridors: Inter-State Transmission Scheme (ISTS) – Part B

Bharat Heavy Electricals Ltd.

BULL CONDUCTOR

Doc. No. TB-384-316-122 Section- 1

Bidder to follow valid PGCIL approved Quality Plan as per PGCIL procedure. In case the bidder don't have PGCIL approved QP, it will be the bidder's responsibility to get its QP approved directly from the ultimate customer.

1.4 DRAWING/DOCUMENTS APPROVAL:

Standardized GTP of POWERGRID is enclosed as Annexure-B, no approval on GTP is required and inspection shall be carried out as per standardized GTP.

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SECTION – II

TECHNICAL SPECIFICATION

2.1 This section covers the technical requirements of the AAC BULL Conductor.

2.2 TECHNICAL REQUIREMENTS

- | | | |
|----|----------------------|--------|
| 1. | Conductor type | : AAC |
| 2. | Commercial name item | : BULL |

2.2.1 The details of the conductor are tabulated below:

a)	Stranding and wire Diameter in mm	61/4.25 mm Al
b)	Number of strands	
c)	1 st Aluminium layer	1
d)	2 nd Aluminium layer	6
e)	3 rd Aluminium layer	12
f)	4 th Aluminium layer	18
g)	5 th Aluminium layer	24
h)	Sectional area of aluminium	865.36 mm ²
i)	Total sectional area	865.36 mm ²
j)	Overall diameter	38.25 mm
	Linear Mass of the conductor	
k)	standard	2400 kg/km
l)	Minimum	2355 kg/km
m)	Maximum	2445 kg/km
n)	Calculated dc resistance at 20°C	0.0334 ohm/km
o)	Minimum UTS	139 kN
p)	Drum Length	1000m
q)	Tolerance on standard length (%)	(+/-) 5
r)	Raw Material	
s)	Minimum purity of Aluminium (%)	99.5
t)	Max. Copper content (%)	0.04
u)	Direction of lay of outer layer	Right Hand
v)	Modulus of elasticity (kg/sqmm)	4709(initial) and 5869(final)
w)	Coefficient of linear expansion (/deg C)	23x10 ⁻⁶
x)	Minimum corona Extinction	508 kV rms

	Voltage kV rms	
y)	RIV at 1MHz (micro volts)	Less than 1000 at 508kV (rms)

2.2.2 The details of aluminium strand are as follows:

i)	Minimum breaking load of strand - before stranding - after stranding	2.23kN 2.12kN
ii)	Max. D.C. resistance of strand at 20°C	03.651 ohm/km
iii)	Max. resistance of 1 m length of strand at 20°C	0.00203 ohm

2.2.3 Drum Dimensions (Generally conforms to IS-1778)

i)	Flange diameter (mm)	1855
ii)	Traverse width (mm)	925
iii)	Barrel diameter (mm)	850
iv)	Flange thickness (mm)	50x50

2.3 APPLICABLE STANDARDS

The Conductor shall strictly conform to the following Indian and International standards, as appropriate:

IS 398 (Part-V): 1992 Aluminium conductors

IS 8263:1990 Methods for radio interference test

IS 1778:1980 Reels and drums for bare conductors

IS 1521:1991 Method for tensile testing of aluminium wire

2.4 TECHNICAL REQUIREMENT AND CONSTRUCTIONAL DETAILS

2.4.1 The finished conductor shall be smooth, compact, uniform and free from all imperfections including spills and splits, die marks, scratches, abrasion, scuff marks, kinks (protrusion of wires), dents, press marks, cut marks, wire cross over, over riding, looseness (wire being dislocated by finger/hand pressure and/or unusual bangle noise on tapping), material inclusions, white rust, power formation or black spots (on account of reaction with trapped rain water etc.), dirt, grit etc.

2.4.2 All the aluminium strands shall be smooth, uniform and free from all imperfections, such as spills and splits, die-marks, scratches, abrasions and kinks after drawing.

2.5 Joints in wires

2.5.1 Aluminium wires

No joints shall be permitted in the individual wires in the outermost layer of the finished conductor. However joints are permitted in the inner layer of the conductor unavoidably broken during stranding, provided such breaks are not associated with either inherently defective wire or with the use of short length of Aluminium wires. Such joints shall not be more than four(4) per conductor length and shall not be closer than 15 meters from joint in the same wire or any other Aluminium wire of the completed conductor.

Joints shall be made by cold pressure butt welding and shall withstand a stress of not less the breaking strength of individual strand guaranteed.

2.6 Tolerances

The manufacturing tolerances to the extent of the following limits only shall be permitted in the diameter of individual aluminium strands and lay-ratio of the conductor.

a) Diameter of aluminium strands after stranding (in millimetres):

	Standard	Nominal	Maximum	Minimum
Aluminium	Al 61/4.25mm	4.25	4.29	4.21

b) Lay ratio of conductor:

		Maximum	Minimum
Aluminium	6-wire layer	16	10
	12-wire layer	16	10
	18-wire layer	16	10
	24-wire layer	14	10

2.7 Materials

2.7.1 Aluminium

The aluminium strands shall be hard drawn from electrolytic aluminium rods having purity not less than 99.5% and a copper content not exceeding 0.04%

2.8 Standard length

The conductor shall be supplied in lengths as required.

2.9 Tests:

The following type, acceptance and routine tests and tests during manufacturing shall be carried out on the conductor.

2.9.1 Type Tests

The following type test reports conducted within past 10years as on 03.02.15 shall be submitted

UTS test	139 kN (Min)
Corona extinction voltage test (dry)	508 kV rms
Radio interference voltage test (dry)	Less than 1000 micro Volts at 508 kV
DC resistance test of Conductor at 20 degree C	0.0334 ohm/km

2.9.2 Acceptance tests

a)	Visual check for joints, scratches, etc. and lengths of conductor	As per clause No. 2.10.6 below
b)	Dimensional check on strands	As per clause No. 2.10.7 below
c)	Check for lay ratio of various layers	As per clause No. 2.10.8 below
e)	Torsion and elongation test on Aluminium strands	As per clause No. 2.10.9 below
f)	Breaking load test on strands	As per clause No. 2.10.10 below

In addition wrap test on aluminium strands, DC resistance test on aluminium strands and UTS test on welded joint of aluminium strands shall be carried out as per clauses 12.5.2,12.7& 12.8 respectively of IS:398 (part V)1982.

NOTE:

All the above tests except test mentioned at (a) shall be carried out on aluminium after stranding only.

2.9.3 Routine tests

- Check to ensure that the joints are as per specification.
- Check that there are no cuts, fins etc. on the strands
- All acceptance tests as mentioned in clause 2.9.2 above to be carried out on each coil.

2.9.4 Tests during manufacture

a)	Chemical analysis of aluminium used for making aluminium strands	As per clause No. 2.10.5
----	--	--------------------------

2.9.5 Sample batch for type testing

The bidder shall offer material for selection of samples for type testing, only after getting quality assurance plans approved from owner's quality assurance department. The sample shall be manufactured strictly in accordance with the quality assurance plan approved by owner.

2.10 TESTING PROCEDURE FOR AAC BULL CONDUCTOR

2.10.1 UTS Test on Stranded Conductor

Circles perpendicular to the axis of the conductor shall be marked at two places on a sample of conductor of minimum 5 m length suitably compressed with dead end clamps at either end. The load shall be increased at a steady rate up to 50% of minimum specified UTS and held for one minute. The circles drawn shall not be distorted due to relative movement of strands. Thereafter the load shall be increased at a steady rate to 100% of minimum specified and held for one minute. The applied load shall then be increased until the failing load is reached and the value recorded.

2.10.2 Corona Extinction Voltage Test

Two samples of conductor of 5m length shall be strung with a spacing of 450 mm between them at a height not exceeding 8.0 m above ground. This assembly shall be tested as per Annexure-A, corona extinction voltage shall not be less than 508 kV (rms) Line to ground for 765kV & system.

2.10.3 Radio Interference Voltage Test

The sample assembly similar to that specified under (2.10.2) above shall be tested as per annexure-A. Maximum RIV level (across 300 ohm resistor at 1 MHz) at 508 kV (rms) line to ground voltage shall be 1000 μ V.

2.10.4 D.C Resistance Test on Stranded Conductor

On a conductor sample of minimum 5 m length two contact clamps shall be fixed with a pre-determined bolt torque. The resistance shall be measured by a Kelvin double bridge by placing the clamps initially zero meter and subsequently one meter apart. The test shall be repeated at least five times and the average value recorded. The value obtained shall be corrected to the value at 20°C as per clause no. 12.8 of IS:398 (Part V)-1982. The resistance

corrected at 20°C shall conform to the requirements of this specification.

2.10.5 Chemical Analysis of Aluminium

Samples taken from the Aluminium ingots/ coils/ strands shall be chemically/ spectrographically analyzed. The same shall be in conformity to the requirements in this specification.

2.10.6 Visual Check for Joints, Scratches etc.

Conductor drums shall be rewound in the presence of the inspector. The inspector shall visually check for scratches, joints, etc. and that the conductor generally conforms to the requirements of this specification. The length of conductor wound on the drum shall be measured with the help of counter meter during rewinding.

2.10.7 Dimensional Check for Aluminium Strands .

The individual strands shall be dimensionally checked to ensure that they conform to the requirements of this specification.

2.10.8 Check for Lay –ratios of various Layers.

The lay-ratios of various layers shall be checked to ensure that they conform to the requirements of this specification and clause no. 9.4 and 9.5 of IS-398 (Part-V) 1982.

2.10.9 Torsion and Elongation Tests on Steel Strands

The test procedures shall be as per relevant clauses of IS 398 (Part V): 1982. In torsion test, the number of complete twists before fracture shall not be less than 18 on a length equal to 100 times the standard diameter of the strand before stranding & 16 after stranding. In case test sample length of less or more than 100 times the standard diameter of the strand, the minimum number of twist will be proportionate to the length and if number comes in the fraction then it will be rounded off to next higher whole number. In elongation test, the elongation of the strand shall not be less than 4% for a gauge length of 200 mm.

2.10.10 Breaking load test on welded Aluminium strand:

Two Aluminium wires shall be welded as per the approved quality plan and shall be subjected to tensile load. The welded point of the wire shall be able to with stand the minimum breaking load of the individual strand guaranteed by the bidder.

ANNEXURE-A

CORONA AND RADIO INTERFERENCE VOLTAGE (RIV) TEST

1. General

Unless otherwise stipulated, all equipment together with its associated connectors, where applicable, shall be tested for external corona (for 400kV & above) both by observing the voltage level for the extinction of visible corona under falling power frequency voltage and by measurement of radio interference voltage (RIV) for 132kV above.

2. Test Levels:

The test voltage levels for measurement of external RIV and for corona extinction voltage are listed under the relevant clauses of the specification.

3. Test Methods for RIV:

- 3.1 RIV tests shall be made according to measuring circuit as per International Special-Committee on Radio Interference (CISPR) Publication 16-1(1993) Part -1. The measuring circuit shall preferably be tuned to frequency with 10% of 0.5 Mhz but other frequencies in the range of 0.5 MHz to 2 MHz may be used, the measuring frequency being recorded. The results shall be in microvolts.
- 3.2 Alternatively, RIV tests shall be in accordance with NEMA standard Publication No. 107-1964, except otherwise noted herein.
- 3.3 In measurement of, RIV, temporary additional external corona shielding may be provided. In measurements of RIV only standard fittings of identical type supplied with the equipment and a simulation of the connections as used in the actual installation will be permitted in the vicinity within 3.5 meters of terminals.
- 3.4 Ambient noise shall be measured before and after each series of tests to ensure that there is no variation in ambient noise level. If variation is present, the lowest ambient noise level will form basis for the measurements. RIV levels shall be measured at increasing

and decreasing voltages of 85%, 100%, and 110% of the specified RIV test voltage for all equipment unless otherwise specified. The specified RIV test voltage for 765kV, 400 kV, 220 KV is listed in the detailed specification together with maximum permissible RIV level in microvolts.

- 3.5 The metering instruments shall be as per CISPR recommendation or equivalent device so long as it has been used by other testing authorities.
- 3.6 The RIV measurement may be made with a noise meter. A calibration procedure of the frequency to which noise meter shall be tuned shall establish the ratio of voltage at the high voltage terminal to voltage read by noise meter.

4. Test Methods for Visible Corona

The purpose of this test is to determine the corona extinction voltage of apparatus, connectors etc. The test shall be carried out in the same manner as RIV test described above with the exception that RIV measurements are not required during test and a search technique shall be used near the onset and extinction voltage, when the test voltage is raised and lowered to determine their precise values. The test voltage shall be raised to 110% of specified corona extinction voltage and maintained there for five minutes. In case corona inception does not take place at 110%, test shall be stopped, otherwise test shall be continued and the voltage will then be decreased slowly until all visible corona disappears. The procedure shall be repeated at least 4 times with corona inception and extinction voltage recorded each time. The corona extinction voltage for purposes of determining compliance with the specification shall be the lowest of the four values at which visible corona (negative or positive polarity) disappears. Photographs with laboratory in complete darkness shall be taken under test conditions, at all voltage steps i.e. 85%, 100%, and 110%. Additional photographs shall be taken at corona inception and extinction voltages. At least two views shall be photographed in each case using Panchromatic film with an ASA daylight rating of 400 with an exposure of two minutes at a lens aperture of f/5.6 or

equivalent. The photographic process shall be such that prints are available for inspection and comparison with conditions as determined from direct observation. Photographs shall be taken from above and below the level of connector so as to show corona on bushing, insulators and all parts of energised connectors. The photographs shall be framed such that test object essentially, fills the frame with no cut-off.

For recording purpose, modern devices utilizing UV recording methods such as image intensifier may also be used.

- 4.1 The test shall be recorded on each photograph. Additional photograph shall be taken from each camera position with lights on to show the relative position of test object to facilitate precise corona location from the photographic evidence.
- 4.2 In addition to photographs of the test object preferably four photographs shall be taken of the complete test assembly showing relative positions of all the test equipment and test objects. These four photographs shall be taken from four points equally spaced around the test arrangement to show its features from all sides. Drawings of the laboratory and test set up locations shall be provided to indicate camera positions and angles. The precise location of camera shall be approved by Purchaser's inspector, after determining the best camera locations by trial energisation of test object at a voltage which results in corona.
- 4.3 The test to determine the visible corona extinction voltage need not be carried out simultaneously with test to determine RIV levels.
- 4.4 However, both test shall be carried out with the same test set up and as little time duration between tests as possible. No modification on treatment of the sample between tests will be allowed. Simultaneous RIV and visible corona extinction voltage testing may be permitted at the discretion of Purchaser's inspector if, in his opinion, it will not prejudice other test.

5. Test Records:

In addition to the information previously mentioned and the

requirements specified as per CISPR or NEMA 107-1964 the following data shall be included in test report:

- a) Background noise before and after test.
- b) Detailed procedure of application of test voltage.
- c) Measurements of RIV levels expressed in micro volts at each level.
- d) Results and observations with regard to location and type of interference sources detected at each step.
- e) Test voltage shall be recorded when measured RIV passes through 100microvolts in each direction.
- f) Onset and extinction of visual corona for each of the four tests required shall be recorded.

6. POWERGRID STANDARDIZED GTP: As per Annexure-B of this specification.

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SECTION-3

PROJECT DETAILS & GENERAL SPECIFICATION

SITE INFORMATION

	Particular	Details
a)	Owner	POWERGRID
b)	Customer	POWERGRID
c)	Project Title	765kV/400Kv/220kV Banaskantha (New) Substation and Extn. of 400kV Sankhari (GETCO) Substation
d)	Location for Banaskantha site.	Village – MUDETHA , Near BHILDI - 385530 Taluka – Deesa, Dist. Banaskantha (Gujarat)
e)	Location for Sankhari site	Village – VELODA, Near Melusan Dist. Patan (Gujarat)
f)	Transport Facilities	RAOD/TRAIN, For both Site Nearest Rail Head: Palanpur
SITE CONDITIONS		
a)	Max. ambient air temp.	50°C
b)	Min. ambient air temp.	0°C
c)	Max. design ambient temp.	50°C
d)	Design reference temp.	50°C
e)	Average Humidity	Max. 100%
f)	Special corrosion conditions	No
g)	Solar Radiation	1.2kW/sqmtr
h)	Atmospheric radiation	High
i)	Altitude above sea level	Less than 1000meter
j)	Pollution Severity	High Pollution (25mm/kV)
k)	Seismic Zone	As per the seismic zone defined in the relevant BIS but not less than 0.3g horizontal
WIND DATA		
	Wind velocity	As per IS
	Average No. of thunderstorm days per annum	As per IS

	Main Electrical Parameters:	
	Fault Levels:	For Banaskantha 765kV: 50kA for 1 sec 400kV: 63kA for 1 sec 220kV: 40kA for 1 sec For Sankhari 400kV: 40kA for 3 sec
	Creepage Distance	25mm/kV

Substation Package – SS02 for Construction of 765/400/220kV Banaskantha S/S and Extension of 400kV Sankhari (GETCO) S/S including 400kV Transformer and Reactor associated with Green Energy Corridors: Inter-State Transmission Scheme (ISTS) – Part B

Bharat Heavy Electricals Ltd.

Technical Specification of AAC Bull conductor

Doc. No. TB-384-316-122 Section- 4

TECHNICAL CHECK LIST

(INFORMATION TO BE FURNISHED WITH OFFER)

RETURN THIS CHECKLIST AS THE PART OF THE OFFER DULY SIGNED BY THEM.

S.No.		Confirmation Yes/No	Remarks
1.	Compliance to Power grid GTP enclosed(Refer Annexure-E) with specification		
2.	Powergrid approved valid Manufacturing Plan (pls mention date till it is valid)		
3.	Powergrid approved type test report (pls check the date of validity wrt to 24.02.15)		

Date:

Place:

Phone:

Fax:

E-mail:

Mobile:

Website:

ANNEXURE - 1

SCHEDULE OF TECHNICAL DEVIATIONS

Bidder shall list below all technical deviation clause wise w.r.t. tender specifications:

<u>S.No.</u>	<u>Page No.</u>	<u>Clause No.</u>	<u>Deviation</u>	<u>Reason / Justification</u>
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Any deviation not specifically brought out in this section shall not be admissible for any commercial implication at later stage. Except to the technical deviations listed in this schedule, bidder's offer shall be considered in full compliance to the tender specifications irrespective of any such deviation indicated / taken elsewhere in the submitted offer.

Date:

Tenderer's Stamp & Signature

ANNEXURE-B

STANDARD TECHNICAL DATA SHEETS FOR AAC/ACSR CONDUCTORS, GS EARTHWIRE AND ALUMINIUM TUBE

1.0 GENERAL

Employer has standardised the guaranteed technical particulars for the following AAC/ACSR conductors, Galvanised steel earthwire and aluminum tube. The contractor shall supply the conductors as per the standard GTP mentioned below. Any deviation to the following GTP shall be clearly brought out by the bidder in their bid.

1.1 Guaranteed Technical Particulars (GTP) for conductors:

A. GTP of AAC BULL and AAC TARANTULA conductor:

Sl.	Description	Unit	AAC BULL	AAC TARANTULA	
1.0	Applicable Standard		IS:398		
2.0	Raw Materials				
2.1	Steel Wire / Rods				
2.1.1	Aluminium				
a)	Minimum purity of Aluminium	%	99.50		
b)	Maximum copper content	%	0.04		
3.0	Aluminum strands after stranding				
3.1	Diameter				
a)	Nominal	mm	4.25		
b)	Maximum	mm	4.29		
c)	Minimum	mm	4.21		
3.2	Minimum breaking load of strand				
a)	Before stranding	KN	2.23		
b)	After stranding	KN	2.12		
c)	Maximum D.C. resistance of strand at 20 deg. Centigrade	Ohm /KM	3.651		
3.3	Maximum resistance of 1 m length of strand at 20 deg. C	Ohm	0.00203		
4.0	AAC Conductor				
4.1. a)	Stranding		Al – 61/4.25 mm		
b)	Number of Strands				
i.	1st Aluminium Layer	Nos.	1		
ii.	2nd Aluminium Layer	Nos.	6		

SECTION - (SE)
SWITCHYARD ERECTION

Sl.	Description	Unit	AAC BULL	
iii.	3rd Aluminium Layer	Nos.	12	
iv.	4th Aluminium Layer	Nos.	18	
v.	5th Aluminium Layer	Nos.	24	
4.2	Sectional Area of aluminium	Sq. mm	865.36	
4.3	Total sectional area	Sq. mm	865.36	
4.4	Approximate Weight	Kg/m	2.4	
4.5	Diameter of the conductor	mm	38.25	
4.6	UTS of the conductor	kN	139 (Min.)	
4.7	Lay ratio of the conductor	mm	Max	Min
a)	6 wire Aluminium layer	mm	16	10
b)	12 wire Aluminium layer	mm	16	10
c)	18 wire Aluminium layer	mm	16	10
d)	24 wire Aluminium layer	mm	14	10
4.8	DC resistance of the conductor at 20°C	ohm/km	0.03340	
4.9	Standard length of the conductor	m	1000	
4.10	Tolerance on Standard length	%	(±) 5	
4.11	Direction of lay of outer layer		Right Hand	
4.12	Linear mass of the conductor			
a)	Standard	kg/km	2400	
b)	Minimum	kg/km	2355	
c)	Maximum	kg/km	2445	
4.13	Modulus of Elasticity	Kg/sq .mm	4709 (Initial) 5869 (Final)	
4.14	Co-efficient of Linear Expansion	Per Deg. C	23.0×10^{-6}	
4.15	Minimum Corona Extinction Voltage	KV (rms)	508	
4.16	RIV at 1 Mhz	Micro volts	Less than 1000 at 508 kV (rms)	
5.0	Drum Dimensions		Generally conform	

SECTION - (SE)
SWITCHYARD ERECTION

Sl.	Description	Unit	AAC BULL
a)	Flange Diameter	mm	1855
b)	Traverse width	mm	925
c)	Barrel Diameter	mm	850
d)	Flange thickness	mm	50x50

B.

Tech
C / E