भारत हेवी इलेक्ट्रिकल्स ल मटेड
BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
पारेषण व्यापार समूह, नोएडा/Transmission
Business Group, Noida

निविदा आमंत्रण सूचना
NOTICE INVITING TENDER

Sir/Madam,

Bharat Heavy Electricals Limited (hereinafter referred to as **BHEL**) is a Central Public Sector Enterprise, having its Branch office at Transmission Business Group, 10TH Floor, Plot no.:- C-20, 1A/1, Joy towers,C Block, Phase 2, Industrial Area, Sector-62, Noida, Distt. Gautambudh Nagar, UP-201301, invites offer in sealed cover under two part bid system (Part-I: Techno commercial Part & Part-II: Price Part) from the competent agencies for **"Supply of low Voltage Cable: 1.1 kV Control Cable for 4 x 225 MW, Arun-3 (HEP), Nepal project as per the Tender Enquiry No: 90Q2300074 Date 17.06.2022"**

Please submit your competitive offer for the above subject work as per the tender terms & conditions.

SCHEDULE TO TENDER

1.	*Tender Reference No.*	**90Q2300074 Date 17.06.2022**
2.	*Date of Issue of Tender:*	***18.06.2022***
3.	*Type of Tender:*	*Open Tender*
4.	*Tender Title:*	*"Supply of low Voltage Cable: 1.1 kV Control Cable for 4 x 225 MW, Arun-3 (HEP), Nepal project as per the Tender Enquiry No: 90Q2300074 Date 17.06.2022"*
5.	*Tender issuing Authority*	*Transmission Business Group, 10TH Floor, Plot no.:- C-20, 1A/1, Joy towers,C Block, Phase 2, Industrial Area, Sector-62, Noida, Distt. Gautambudh Nagar, UP-201301*
6.	*Last date/ time for receipt of tender:*	***28.06.2022 by 11.00 Hrs***
7.	*Date/ time of opening of (Part-I):*	***28.06.2022 at 16.00 Hrs***
8.	*Offer/Bid submission mode*	*Tender is invited through e-Procurement System only. The bidder shall submit their bid through e-Procurement platform at* ***https://eprocurebhel.co.in****.*
9.	*Tender will be opened at:*	*BHEL TBG– HQ Noida of above mentioned address at point no. 5.*
10.	*Date/Time of price bid opening:*	*Will be intimated separately to the Techno-commercially qualified bidders in due course of time.*
Note:- For other instructions; bidder may please refer the Terms & Conditions and Special terms & conditions		

All corrigenda, addenda, amendments, Bid Submission extension, clarifications, etc. to the tender will be hosted on website **http://www.bhel.com** and **https://eprocurebhel.co.in** only. Bidders should regularly visit website till the due date of submission to keep themselves updated. Any clarification(s) regarding Notice Inviting Tender (NIT), if required, should be sought before the tender due date from the officials as mentioned in the tender Document.

Thanking you,

For & on behalf of
Bharat Heavy Electricals Ltd.

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PART-II

1	**PRICE BOQ – BIDDER has to quote their price in the On line (https://eprocurebhel.co.in) Price Bid format Only.**

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Enquiry No: 90Q2300074 Date 17.06.2022
Item: Supply of low Voltage Cable: 1.1 kV Control Cable
Project: 4 x 225 MW, Arun-3 (HEP), Nepal
In case any discrepancy between the requirements mentioned under addendum to General Terms and conditions (GTC), General Terms and conditions and Special Terms and conditions, Special Terms and conditions shall prevail.

1. **Clause No. 1.7 of GTC** – For any technical clarification, please contact:-
   Mr. Vyom (Dy Manager-TBEM) / Shri Jai Kumar (Sr Manager TBEM) ,BHEL, Transmission Business Group, Joy Tower, Sectro-62, Noida-201301, UP, India, Phone: +91 (0) 0120-6748522/8533, Fax: +91 (0) 0120 – 6748580,, Mobile :- 08826813370/9403955336
   E-mail: vyom @bhel.in; jaik@bhel.in

2. **Clause No. 1.8 of GTC** - For any commercial clarification, please contact:-
   Mr. Rajiv Ranjan, Manager (TBMM)/ Shri Sunil Kumar, Sr DGM-TBMM
   BHEL, Transmission Business Group, Joy Tower, Sectro-62, Noida-201301, UP, India,
   Phone: +91 (0) 0120- 6748575/8471, Fax: +91 (0) 0120 – 6748580.
   Mobile :- 9650299229/09761724520
   E-mail: rajiv_ranjan@bhel.in'; sunil.kumar@bhel.in

3. **Project Status – Export. Supply portion shall be governed as per notification 41/2017 of IGST (Rate) dated 23.10.2017. (Attached herewith)**

4. **Clause No. 1 of Addendum to GTC – Offer Submission Time: 11 Hrs IST**
   Offer Opening Time: 16 Hrs IST

   The critical Dates of tendering activities shall be provided separately during tendering processes.
   Address of tender Issuing Authority:-
   BHARAT HEAVY ELECTRICALS LIMITED,
   TRANSMISSION BUSINESS GROUP,
   10TH Floor, Plot no.:- C-20, 1A/1, Joy towers,
   C Block, Phase 2, Industrial Area
   Sector-62, Noida, Distt. Gautambudh Nagar, UP-201301

5. **Clause No. 2 of Addendum to GTC (Sl. No. a, b) – Point no. (a) & (b) is not applicable.**

6. **Clause No. 3 of Addendum to GTC –**
   Tender is invited through e-Procurement System only. The bidder shall submit their bid through e-Procurement platform at https://eprocurebhel.co.in. Vendors participating through e-procurement portal for this tender should have Class-III Digital Signature Certificate (DSC) for Signing & Encryption of bids issued by any of the valid Certifying Authorities (approved by Controller of Certifying Authorities) in India.

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Bidders may please be noted that no other mode of bid submission except through NIC Portal shall be accepted by BHEL. The bid submitted by other mode except NIC Portal as mentioned above; shall not be considered for evaluation and shall be rejected

The Notice Inviting Tender (NIT)/ the tender requirement of BHEL will not be henceforth published in newspapers. All the concerned are hereby notified that tender enquiries of BHEL will be published on BHEL tender website (www.bhel.com) and Government's Central Public Procurement Portal (https://eprocurebhel.co.in).

7. **Clause No. 6 of Addendum to GTC (PQR) -** As enclosed along with Technical Specification No. - TB-405-510-010 Rev 01 Dated 13.05.2022. (ANNEXURE_TQR)**.**

8. **Clause No. 8 of Addendum to GTC –** Delivery Plan – As per Activity Schedule [Annexure II]. The same shall be submitted in BHEL format along with commercial offer duly signed and stamped by authorized person. No deviation in this regards shall be acceptable.

9. **Clause No. 9 of Addendum to GTC –** Payment Terms: - As per clause 3.1 of GTC (Endorsed LR is not required in GST regime).

10. **Clause No. 13 of Addendum to GTC for Reverse Auction -** Applicable.
"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

Abridged Version of "**Guidelines for Reverse Auction-2021**" may also be seen at BHEL website (www.bhel.com) on "Supplier Registration" Page.

11. **Clause No. 18 of Addendum to GTC for Integrity Pact – Applicable As per Annexure-XI.**

12. **Clause No. 21 of Addendum to GTC -** Offer of techno – commercially acceptable vendors shall be considered for conducting Reverse Auction subject to their approval from Customer.

13. **Clause No. – 17 of GTC - Tender Evaluation** – As per Clause no 17 of GTC in addition to as below :-
Evaluation in case of more than one L-1 bidders - In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discount from respective L-1.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

14. **Clause No. 39 of GTC** – Quantity Variation:- BHEL shall have the right to variation in quantities of items within ± 25% 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.

15. **Clause No. 05 of GTC** – **Guarantee Clause (Defect Liability Period):** As per Clause No. 05 of GTC; being reproduced herewith:-

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.

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.

In addition to the above guarantee period, Extended Guarantee / Warranty, if any, shall be as per NIT / Technical Specifications.

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16. **Clause No. 07 of GTC** – **Performance Bank Guarantee** –
    Refer Clause no. 10 of the "Addendum to General Terms and Conditions (GTC-2016)" being reproduced herewith:-
    "Clause No. 7 of GTC, If no option is specified by the bidder, by default option – B for Bank Guarantee shall be considered.
    BG for Main supply items and Spares shall be submitted separately alongwith first bill.
    Note:
    BG should be submitted on non-judicial stamp paper of appropriate value by the supplier alongwith first submission of bill to BHEL."

    In addition to this, following is also applicable and shall be part of the tender document:-

    "Bidder agrees to submit performance security required for execution of the contract within the time period mentioned. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms and conditions defined in NIT / Contract, from the bills along with due interest.

17. **Clause No. 2.1 of GTC -** Prices shall be on FIRM basis including packing and forwarding charges. Vendor to quote prices on FOR destination basis including GST. Export **worthy packing** shall be applicable as per specification. However, bidder to ensure proper packing to avoid any damage & packing of spares should be separated

18. **Liquidated Damage – As per clause no. – 11 of Addendum to GTC.**

19. **GeM Seller ID**- GeM seller ID is mandatory for the bidders and must be mentioned in their offer. In case at the time of submission of offer GeM seller ID is not available with bidder, then successful tenderer should ensure to have GeM Seller ID prior to award of contract. Department of Expenditure (DOE) OM no. 6/9/2020-PPD dated 24.08.2020 may be referred in this regard.
20. **Following confirmation to be provided by vendor:**

"We confirm that we have quoted as per specified price format provided along with this tender".

Note: BHEL reserves the right to cancel this enquiry at any point of time. Bids of only customer approved vendors will be processed.

(Sign and seal of Bidder)
Name:
Signature:
Stamp:

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Enclosures:

a) Standard General Terms and Conditions of NIT (Doc. No. BHEL/TBG/GTC/2016 Rev 01)
b) Addendum to General Terms and Conditions (GTC-2016)
c) **Pre-Qualifying requirement-Annexure-I (Annexure_TQR) Technical/Qualifying Requirement**
d) Activity Schedule (Annexure-II)
e) Annexure-III – Billing check List
f) Annexure IV – Arbitration
g) Annexure V :- format of self-declaration for local content
h) Annexure-VI/ VII/ VIII- Compliance to GOI Order for restrictions under Rule 144 (xi) of General Financial Rules (GFRs), 2017
i) Annexure-IX & X :- MOP Circulars
j) Notification 41/2017 of IGST (Rate) dated 23.10.2017
k) **Annexure-XI Integrity Pact :- Not Applicable for this enquiry**
l) Annexure-XII- Risk & Cost
m) Unpriced BOQ Format
n) Technical Specification No.;- TB-405-510-010 Rev 01 Dated 13.05.2022
o) Format of Performance BG
p) List of Banks for the Submission of Performance Bank Guarantee
q) Commercial & Technical deviation Sheet.

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Additional Information and Terms and Conditions:-

Sl No.	Head	Information
1	Project Name	Electro Mechanical works for 900(225X4) MW Arun-3 HEP, Nepal
2	Ultimate Customer	SJVN Arun-3 Power Development Company (SAPDC), Nepal
3	Location of Plant	Location: Access by: Road/Air Nearest Railway Station: Raxaul Border Point India Nearest Airport: Tumlingtar Airport Nearest sea port: Access by road: Road
4	Scope for the unloading of the material / Custom clearance /transportation of the material and delivery of material at the site	➢ **The material is to be unloaded at the storage area in Nepal which is approx. 8-10 Km from Jogbani Border. The ware house address in Nepal is:** Ward No. 3, Gokuwa chowk, Budhiganga Gaupalika District Morang, Biratnagar, Nepal ➢ Unloading at the storage area along with custom clearance, payment of custom duty shall be in the scope of the BHEL/BHEL's appointed Agency. ➢ Due to limitation of gates at border, following are proposed for smooth operation: 1. One invoice for one vehicle-load job to be ensured to streamline the dispatch and documentation at the border. 2. Merging of consignments with an ODC consignment in the same invoice to be avoided wherever possible, so that vehicles may not be stranded at the customs gate. 3. Immediate after dispatching vehicles, all the requisite documents (invoices, LR copy, etc.) to be sent to BHEL for advanced clearance of the customs, IBN approval etc. in order to avoid detention at border. Further, the transportation of BHEL's material from the warehouse (Biratnagar, Nepal) to Arun-3 site is in the scope of BHEL. Bidder's may take the note and quote accordingly. ➢ 1% custom duty is applicable in the project. In case of custom clearance by BHEL at Indo Nepal Border Jogbani custom duty will be paid by BHEL. The vendor will provide the necessary documents in advance to BHEL for custom clearance by BHEL. In case, vendor opts for custom clearance at any other Nepal Border, 1% custom duty will have to be deposited by Vendor on behalf of BHEL /Customer. BHEL will reimburse the 1% Custom

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		Duty after submission of necessary documents to BHEL. ➢ The material is to be delivered by bidder at Indo Nepal Jogbani-Biratnagar Border. BHEL will complete the custom clearance at Indo Nepal Jogbani Border. The bidder has to ensure that the material is delivered through the same vehicle to Biratnagar, Nepal after custom clearance by BHEL. BHEL will complete the unloading at Biratnagar . In case Bidders wants to bring the material through Nepal border other than Jogbani, Indo Nepal Border, the bidder has to arrange the custom clearance and bear all the associated cost for the same. The charges for freight & insurance or any other charges/ costs involved in transportation of the materials and other associated cost till the said destination is to be borne by bidders themselves.
5	**Consignee Address and The list of documents required from vendor end for the custom clearance by BHEL's appointed agency:-**	Consignee Address :- Engineer-in-Charge SJVN Arun-3 Power Development Company (P) Limited (SAPDC) SAPDC Office Complex, Tumlingtar District Sankhuwasabha, (Nepal). Required List of Documents are as below:- *Vendor needs to provide following documents immediately after dispatch. 1. L.R/B.L 2. Packing list. 3. Vendor's invoice *Documents required for taking permission from IBN (Investment board of Nepal) for payment of applicable custom duty for custom clearance. In addition to above, BOQ in line with dispatchable unit is required immediately after placement of purchase order for getting approval of BBU with SAPDC and IBN.
6	Mode of Dispatch	By Road/Air
7	**Bill to Address:**	Bharat Heavy Electricals Limited-TBG, 10th Floor, Plot No.C-20/1A/1, Joy Tower, Sector-62, Noida-201301, U.P. **GSTN-**09AAACB4146P2ZC
8	MQP (Manufacturing	Inspection shall be carried out as per approved Quality Plan. For the same, Supplier to submit the Quality Plan to BHEL for

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<table>
<tr><td></td><td>Quality Plan):</td><td>Customer approval.</td></tr>
<tr><td>9</td><td>Inspection</td><td>Inspection shall be carried out jointly by as per approved Quality Plan. Inspection Agency:- Customer (SAPDC Nepal)</td></tr>
<tr><td>10</td><td colspan="2">Bidders to ensure that Third party / customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document / certificate issuing authority such as name & designation of Issuing Authority and its organization contact number and e-mail Id etc. In case the same found not available, Purchaser has right to reject such document from evaluation.</td></tr>
<tr><td>11</td><td colspan="2">Bidder to submit the details as per format as per Annexure-A.<u>ANNEXURE-A</u>
<table>
<tr><th colspan="2">CONTACT DETAILS OF BIDDER</th></tr>
<tr><td>Works Address-</td><td></td></tr>
<tr><td>Communication Address-</td><td></td></tr>
<tr><td colspan="2">Details of contact person for clarification regarding bid:</td></tr>
<tr><td>Contact Person Name:</td><td></td></tr>
<tr><td>Designation:</td><td></td></tr>
<tr><td>Email Id.:</td><td></td></tr>
<tr><td>Mobile No.:</td><td></td></tr>
<tr><td>Landline No.:</td><td></td></tr>
</table></td></tr>
<tr><td>12</td><td colspan="2">Bidders may please be noted that the minimum local Content in line with PPP-MII order, order ref no.:- A-1/2021-FSC-Part (5) dated 16.11.2021 issued by Govt of India, Ministry of Power for the item Cable is 60%. The bidder has to Declare this local content in Annexure-V.

The Bidder’s declaration in Annexure-V for Local content Less than 60% shall not be considered as Class-I supplier and their bid shall be rejected.

(For details please refer Addendum to General Terms and Conditions (GTC-2016))</td></tr>
<tr><td>13</td><td colspan="2">Technical Specification no.:- TB-405-510-010 Rev 01 Dated 13.05.2022 is framed for LT Power & control Cable in combine. Since, the NIT is for the LT- Control Cable, Hence, the clause(s) pertains to Control Cables in Technical Specification are applicable. BHEL’s decision in this regard is final.</td></tr>
</table>

(Sign and seal of Bidder)

Name:
Signature:
Stamp:

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 though 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 marked

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	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 super scribed 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. c) If there is a discrepancy between words and figures, the amount in

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	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 Rev. 01" 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 excluding GST. The break-up of prices shall be as under :- a) **Ex-works Price**: Ex-works price including packing & forwarding charges. b) **Freight**: Freight for door delivery up to destination / site / store are to be quoted separately. c) **Insurance**: Insurance for door delivery up to destination / site / store are to be quoted separately.

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	d) **Type Test Charges**: If asked in the technical specification, it is to be quoted separately for each test. e) **Charges for Supervision of Erection, Testing & Commissioning (ETC) at Site**: To be quoted separately if specified in NIT/Price Schedule. f) **Charges for Testing & Commissioning at Site**: To be quoted separately if specified in NIT/Price Schedule. g) **Charges for Erection, Testing & Commissioning at Site**: To be quoted separately if specified in NIT/Price Schedule. h) Training Charges: To be quoted separately if specified in NIT/Price Schedule. 2.4 **GST rates** along with HSN/SAC code as applicable on Sr No (a) to (h) above is to be mentioned separately in percentage in both un-priced bid and price bid. 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. iv) Unless otherwise specified in the NIT, Unloading at Site / Destination shall not be in the scope of the supplier. v) Prices in respect of Sr No (a) to Sr No (h) of Clause 2.3 above are to be quoted inclusive of all taxes & Duties, charges. Levies, royalty etc. if any, excluding GST.
3.	**TERMS OF PAYMENT :** 3.1 **For Supply only in scope of the supplier** 100% of payment 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. . GST Compliant Tax Invoice · 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. 3.2 **For 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**

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	a) 95% of payment 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. . GST Compliant Tax Invoice · 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 payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · 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 3.3 **For Supply where Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier** a) 90% of payment 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. · GST Compliant Tax Invoice · 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) 10% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · 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 3.4 For Type Test Charges 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax 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

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	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. 3.5 For Charges for Supervision of Erection, Testing & Commissioning at Site 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax 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). 3.6 For Charges for Testing & Commissioning at Site 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax 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). 3.7 For Training Charges 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax 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 / 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) Supplier has to submit Tax Invoice(s). Supplier should ensure that Tax Invoice should comply all statutory requirements under GST Law to enable BHEL to avail input credit vi) 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. vii) Supplier has to submit PBG (as per BHEL format) & Guarantee Certificate as per PO terms. viii) In case any shortages and / or damages in supplies, an amount calculated

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	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. ix) Payment of GST component shall be made only if vendor has deposited the Tax and credit for the same is reflected in GSTN (GST Network). In case credit of the same is not reflected in GSTN , vendor may alternatively furnish BG of GST Amount for a period valid for not less than 1 month .In case of disallowance of credit /non reflection of credit in GSTN , amount will be recovered from supplier along with applicable Interest , penalty etc from any of his dues. x) If GST is payable by BHEL on reverse Charge Mechanism basis, vendor should ensure the submission of GST compliant Tax invoice immediately on dispatch/ performance of service. In case of non-compliance any additional charges towards interest, penalty etc, will be to vendors account. xi) TDS under GST Act, if applicable, shall be deducted unless Exemption Certificate If applicable, from the appropriate authority is furnished to BHEL along with Invoice.
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 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

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	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 :- <u>Option "A"</u> 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. <u>Option "B"</u> 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. <u>Option "C"</u> 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.

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	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 ± 20%. Beyond this variation of ± 20%, the Supplier shall arrange to enhance or may reduce the value of the Bank Guarantee accordingly for the total variation promptly. viii) Vendor to ensure submission of Certificate of Final Documentation /Confirmation regarding Non applicability of Final Documentation, as the case may be, as referred in clause No 9 regarding Final Documentation. BG shall be released only after submission of the same to BHEL TBMM.
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. After submission of Final Documentation, BHEL Engineering Management (TBEM) will issue a Certificate of Completion of Final Documentation. Wherever Final Documentation is not applicable, BHEL Engineering Management (TBEM) will issue confirmation regarding the same, Vendor to submit the Certificate of Final Documentation /Confirmation regarding Non applicability of Final Documentation, as the case may be, to BHEL TBMM. In case of Non Submission of Certificate of Final Documentation /Confirmation regarding Non applicability of Final Documentation, BG will be liable for encashment.
10.	**INSPECTION :** BHEL / customer / third party shall inspect equipment / material before despatch. 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

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	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 and 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 and duties, freight & insurance as applicable) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD. However, in case of staggered (lot-wise) contractual delivery schedule, an amount of 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 Purchase Order value. (Incl taxes, duties, Freight &Insurance as applicable) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD. Note : i) In case of any amendment / revision in PO /WO, 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) for imported supplies 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 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

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	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 and evaluated on total cost basis at destination/site (as per terms of NIT) considering overall quantity indicated in NIT unless contrary to same is specifically mentioned in the tender enquiry / NIT. Total cost for this purpose shall include cost of scope of work as mentioned in NIT along with applicable taxes & duties, and other services etc. (if applicable). GST input credit available to BHEL shall be reduced from prices while determining L1 status. In case all bidders are foreign & Port of Import (destination port) is same for all the bidders, evaluation of offers shall be done on CIF (Port of Import) basis. Otherwise, evaluation of offers shall be done on the basis of delivered cost at site /destination to BHEL. Further, in case of foreign bidders, marine freight & insurance are to be quoted separately & the purchase order may 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 :- 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

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	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 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

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	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 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

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	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 : 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

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	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 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

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	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 : 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 :

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	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 ± 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 :** GST rates prevailing at the time of dispatch of goods / completion of services shall be payable by BHEL. All other taxes, duties, charges, royalty, cess, other levies shall be deemed to be included in the Ex Works Prices / Charges quoted by bidders and no variations shall be payable in respect thereof. 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 applicable taxes /GST. 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, 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 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

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	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

Enquiry No: 90Q2300074 Date 17.06.2022
Item: Supply of low Voltage Cable: 1.1 kV Control Cable
Project: 4 x 225 MW, Arun-3 (HEP), Nepal

Addendum to General Terms and Conditions (GTC-2016)

1	Offer Submission/ Opening Time	Offer Submission Time: 11:00 Hrs IST Offer Opening Time: 16:00 Hrs IST
2	Instruction to Bidder(s):- **Refer Special Terms & Conditions**	~~(a) For Supply where Supervision of Erection, Testing & Commissioning (ETC) at Site is in the scope of the supplier or Supply where Testing & Commissioning (T&C) at Site is in scope of the supplier, minimum 10% of total ex-works value shall be quoted under supervision of ETC/T&C. In case bidder quotes less than 10%, then 10% of Total PO value excluding GST and F&I shall be allocated to the supervision of ETC/T&C scope. Service charges shall be back calculated to keep 10% of total cost to BHEL (without GST). This price adjustment shall be done from supply Ex works prices only on prorata basis for all supply line items.~~ ~~(b) For Supply where Erection, Testing & Commissioning (ETC) at Site is in the scope of the supplier, minimum 20% of total ex-works value shall be quoted under ETC. In case bidder quotes less than 20%, then 20% of Total PO value excluding GST and F&I shall be allocated to the ETC scope. Service charges shall be back calculated to keep 20% of total cost to BHEL (without GST). This price adjustment shall be done from supply Ex works prices only on prorata basis for all supply line items.~~ (c) Bidder's offer will be technically acceptable subject to final acceptance of vendor by ultimate customer as approved supplier. Price Bid will be opened only for those bidders in respect of which vendor approval is received from respective customer. Necessary credentials/documents to be submitted to customer for approval.
3	Offer Submission Mode **(Refer Special Terms & Conditions)**	~~Clause No. 1.3 of GTC – Tender is invited through e-Procurement System only. The bidder shall submit their bid through e-Procurement platform at https://eprocurebhel.co.in. Vendors participating through e-procurement portal for this tender should have Class-III Digital Signature Certificate (DSC) for Signing & Encryption of bids issued by any of the valid Certifying Authorities (approved by Controller of Certifying Authorities) in India.~~
4	Validity of Purchase Order	Purchase order shall be valid for two years from date of Purchase Order.
5	Work Address	Bidder to mention their works address below from where material will be supplied Works Address---------- ---------- ----------
6	Pre- Qualification Requirement(PQR)	As per Annexure-I The bidder must ensure that they are meeting the PQR (Technical) and should submit all the requisite credentials as per PQR.
7	Deviation	Technical Deviation: No Technical Deviation is envisaged. Commercial Deviation: No Commercial Deviation envisaged except defined in GTC.
8	Delivery Plan	As per Activity Schedule-Annexure-II
9	Terms of Payment **Refer Special Terms & Conditions**	As per clause 3.1 ~~to 3.7~~ of GTC (as applicable). Supplier to submit bills alongwith billing checklist as per Annexure-III

Addendum to General Terms and Conditions (GTC-2016)

10	Performance Bank Guarantee (PBG)	Clause No. 7 of GTC, If no option is specified by the bidder, by default option – B for Bank Guarantee shall be considered. BG for Main supply items and Spares shall be submitted separately alongwith first bill. **Note:** BG should be submitted on non-judicial stamp paper of appropriate value by the supplier alongwith first submission of bill to BHEL.

Addendum to General Terms and Conditions (GTC-2016)

11	Liquidated Damage	Clause no. 13 of GTC - In case of delay in execution of Purchase Order beyond the contractual delivery time, an amount of 0.5% of delayed lot value (Ex Works and F&I charges) for supply per week of delay or part thereof subject to a maximum of 10% of delayed lot value (Ex Works and F&I charges) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD. LD will calculated for lotwise and Manufacturing Clearance (MFC) date will be the last date of inputs for that particular lot Lot-1: items for which MFC is issued from 1-15 days of calendar month Lot-2: items for which MFC is issued from 16-30/31 days of calendar month Lot-3: items for which MFC is issued from 1-15 days of next calendar month, Lot-4: items for which MFC is issued from 16-30/31 days of next calendar month and so on...
12	Arbitration	As per Annexure-IV
13	Reverse Auction	“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.” Abridged Version of “Guidelines for Reverse Auction-2021” may also be seen at BHEL website (www.bhel.com) on “Supplier Registration” Page.
14	Splitting of Contract	Splitting of Contract not applicable for this tender.
15	Make In India (PPP-MII)	For this procurement, the local content to categorize a supplier as class-I local supplier / class-II local supplier / Non-Local supplier and purchase preference to class-I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020, issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT but before opening of part-II bids against this NIT. “Bidder to specify the percentage of local content as per the format of self-declaration for local content” as per Annexure-V." “This tender is not a global tender and only class-I suppliers as defined under the DPIIT order no. P-45021/2/2017-PP (BE-II) dated 04.06.2020 and subsequent to the PPP-MII order, order ref no.:- A-1/2021-FSC-Part (5) dated 16.11.2021 issued by Govt of India, Ministry of Power are eligible to bid in this tender. Bids received from Class-II & Non-Local supplier shall be rejected.”
16	Compliance to GOI Order for restrictions under Rule 144 (xi) of General Financial Rules (GFRs), 2017	Refer Clause at Annexure-VI and Certification at Annexure-VII / Annexure-VIII (whichever is applicable) regarding restrictions under Rule 144 (xi) of General Financial Rules (GFRs), 2017. Bidder to comply the clause and submit the certification. Non-compliance/ Non-submission of certification will lead to rejection of Offer.
17	MOP Circular	Bidder to comply the MOP circular dated 02-07-2020 (Annexure-IX) and its subsequent amendment, if any, in prescribed format (Annexure-X). Non-compliance/ Non-submission will lead to rejection of Offer [Not Applicable for cases where local content is 100%]. Vendor to quote as per specified price format of NIT, otherwise their offer shall be liable to be rejected. Following confirmation to be provided by vendor: ***“We confirm that we have quoted as per specified price format provided along with this tender”.***
18	Integrity Pact	*As per Annexure-XI.- Applicable for this Enquiry*
19	Risk and Cost	*As per Annexure-XII.*

Addendum to General Terms and Conditions (GTC-2016)

20	Prevention for cartel formation	The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.
21	Docuemts Required for Customer approval	Bidders to submit below documents alongwith their offer but not limited to: (a) PAN, GST, Certificate of Incorporation (b) Factory Registration Certificate (c) Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc.) (d) List of Plant and Machinery (e) List of Testing and Measuring equipment (f) Third party approval, if any (viz. ISO, BIS) (g) Pollution clearance wherever applicable (h) Energy conservation & Efficiency Report(Applicable to industries having contact load more than 100KVA) (i) Manufacturing Quality Plan (MQP) (j) List of past supplies references along with copy of major PO (k) Performance certificate from end user (j) Photographs of factory, plant and machinery & testing facilities Offer of techno – commercially acceptable vendors shall be considered for conducting Reverse Auction subject to their approval from Customer.
22	BHEL Supplier Registration Portal	The link for Online Supplier registration Portal is https://supplier.bhel.in/ The link for Online Supplier Registration Portal may also be seen at BHEL website (www.bhel.com) on “Supplier Registration” Page.

The Notice Inviting Tender (NIT)/ the tender requirement of BHEL will not be henceforth published in newspapers. All the concerned are hereby notified that tender enquiries of BHEL will be published on BHEL tender website (www.bhel.com) and Government’s Central Public Procurement Portal (https://eprocurebhel.co.in).

(Sign and seal of Bidder)

893625/2022/TBG-TB_ENGG_MSE

Annexure-I

ANNEXURE_TQR

TECHNICAL PRE QUALIFICATION REQUIREMENT

Name of Project : - 4x225MW Arun-3 (HEP), Nepal

Name of Customer : - SJVN Arun -III Power Development

Consultant : SJVN Limited

Name of Item : - LT Control Cables

TECHNICAL PRE QUALIFICATION REQUIREMENT
1. The manufacturer should have designed, manufactured, type tested FRLS type Control Cables of different sizes of 1.1kV voltage in any power plant/ substation or industrial complex.
2. And has supplied at least 80 kms of FRLS Type Control Cable in last 20 years.
3. The cables supplied as per Sno 2 above, should be in successful operation for at least 2 years in last 10 years as on cut off date# in Power Plant or Sub-stations or Industrial Complex etc.
#: Cut off date means Bidder's Bid Opening date scheduled for subcontracting.

SUPPORTING DOCUMENTS TO BE ATTACHED

Sr	Required Criteria	Supporting Documents to be submitted by bidder along with technical bid
1	Manufacturing	Approved Drawings / GTP / Approved Quality Plan / Factory Inspection Test Report e.t.c
2	Supply	PO / Dispatch clearance / LR / Material Receipt certificate at site / installation or commissioning certificate e.t.c

Notes (General points):

1. Consideration of offer shall be subject to customer's approval of bidder's, if applicable.
2. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self- attested English translated document should also be submitted.
3. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
4. After satisfactory fulfilment of all the above criteria / requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

[redacted]

ACTIVITY SCHEDULE [ANNEXURE II]

IMMEDIATE after approval of drawing and documents and issuance of MFC by BHEL however Break up of delivery period taken (Delay analysis for cases of delivery extension if required, shall be governed as per below schedule).

SL. NO.	ACTIVITY	ACTIVITY TIME IN WEEKS
1.	Submission of documents necessary for getting manufacturing clearance like Drawings, data sheet, MQP etc. (In scope of vendor)	02
2.	Review and Approval of documents and issue of manufacturing clearance (In scope of BHEL)	03
3.	Manufacturing Time & offer of Inspection to BHEL (In scope of vendor)	15
4.	Inspection (In scope of BHEL)	02
5.	Issue of MICC (In scope of BHEL)	01
6.	Dispatch (In scope of vendor)	02

Note – 1) Supplier to ensure every revised submission incorporating comments (Complete in all respect) within 1 week from the date of comments by BHEL.

2) Supplier to furnish the advance information (at least 02 weeks) for inspection of the material after ensuring the readiness

Signature & Seal of

Supplier

Date:

Check List for Supply bills (ANNEXURE III)

Name Of the Project							
Package Description							
Invoice No. & Date							
PO No. & date							
Sr. No	Documents Required	Copies	Check Points	Page no.	Vendor Remarks	Verification by MM	Verification by Fin
					(Y/N/NA)	(Y/N/NA)	(Y/N/NA)
1	Original for Buyer Invoice - GST compliant invoice	1 Original+2 Copy	1. Please ensure GST complaint invoice in original				
			2. Consignee address : BHEL C/o followed by site address				
			3. Item description and unit of quantity are matched with PO				
			4. Buyer address and GSTN No as required (TBG Noida or Nodal				
			5. PO No and date, LR No and date, Vehicle No and Project name are				
			6. Invoiced quantity are not more than th PO quantity and MICC				
			7. Ex works unit rate , Taxes and F&I rates are same as per PO				
			8. Signed and stamped by vendor				
2	Receipted LR (signed & stamped)/ confirmation from site regarding receipt of packages/ Boxes	1Orignal+2 Copy	1. Consignee address : BHEL C/o followed by Site address				
			2. In case of material purchased from sub vendor , Consignee address Vendor's name C/o BHEL C/o Site address				
			3. Vendor's Invoice no and Vehicle No are mentioned				
			4. No of boxes/No of packages are same as per Packing list				
			5. In case of and adverse remark on LR (Like shortages/damages/broken etc) , clarification from site/TBMM/TBCM is nedded				
			6. LR is readable				
			7. In case of photo copy, LR is verified by TBMM				
			8. LR date is after the date of MICC/(MDCC if issued) or same date				
3	Packing List - showing number of packages, and gross weight/net Weight (if applicable)	1Orignal+2 Copy	1. PO No and date, LR No and date, Invoice No and date, Site Name and address, Consignor and consignee address are mentioned				
			2. Item description and quantity are matched with Invoice and PO				
			3. Signed and stamped by vendor				
			4. No of packages/ Item descriptions are matched with MRC and LR				
4	MICC from BHEL	1Original+2Copy	1. BHEL MICC has been issued prior to the date of dispatch or on same date				
			2. In case where MICC date is after the date of dispatch then MDCC date is same or prior to the date of dispatch				
			3. Project Name, PO,Po Date, Vendor's name and address is correct				
			4. Item description, Quantity and unit of quantity are same as per PO				
			5. All hold point in MICC , if any, have been resolved before submission of bill				
			6. Signed and stamped by BHEL Executive				
			7. MICC and MDCC quantity are not less than Invoice quantity and cover all invoiced items.				
5	Guarantee Certificate	1 Original+2 Copy	1. Project Name, PO No., Invoice No , LR No and date are mentioned .				
			2. Guarantee Certificate is strictly matched with PO T&C				
			3. Signed and stamped by vendor				
6	Bank Guarantee	1 Copy	'1. Ensure submission of BG directly from Bank before supply of material so that BG confirmation may be arranged before processing				
			2. Bill can be processed only after receipt of BG confirmation directly from bank				
			3. It should be in the name of BHEL , TBG Noida with registered office address Siri Fort, New Delhi				
			4. It should be in prescribed format.				
			5. BG value and valdity plus claim period should be minimum as specified in PO / RC. Please check before supply , If BG extension is required please arrange the same				
			6. Vendor's name address should be same as per PO				
			7. Po No / RC No and date should be correct				
7	Insurance Certifcate	1 Orignal+2 Copy	1. Invoice No and date, Vendor's Name,Place from Consignor to Consignee are mentioned				
			2. It has not been issued later than the LR date				
			3. Insured value is not less than the Invoice value				
			4. Signed and stamped by Insurance Company				
			5. In case of Open Insurance Policy, declaration has been submitted to Insurance Company as per declaration clause of Open policy and				
			6. In case of any discrepancy , consent of TBCM is required for processing the bill and amount will be deducted for invalid Insurance				
8	PVC (If applicable) Invoice is submitted along with the Despatch Invoice	1Original+2Copy	PVC (If applicable) Invoice is submitted along with the Despatch Invoice				
			1. PVC invoice is attched along with supply Invoice				
			2. Calculation sheet and applicable PVC indices are also enclosed				
			3. If delay in delivery, then PVC indicies are as per PO conditions.				
9	Material receipt Certificate		1. LR No and date, Invoice No and date, Vehicle No and date , Site Name an address are mentioned				
			2. Date of receipt of material				
			3. Item description and quantity are same as per Invoice / Packing List				
			4. It is signed and stamped by Site executive				
			5. In case of any shortages / damages / adverse remark , clarification is needed				
10	Other Documents		To be seen as per specific requirement of PO.				

Annexure-IV

(A) CONCILIATION (MODEL CONCILIATION CLAUSE FOR CONDUCTING CONCILIATION PROCEEDINGS UNDER THE BHEL CONCILIATION SCHEME, 2018)

The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract or the Memorandum of Understanding (whichever is inapplicable), which the Parties are unable to settle mutually), arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

Notes:

1. No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators.

2. Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in **Annexure-A to this GCC (Enclosed).**

The Annexure-A together with it's appendices will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in these GCC."

(B) ARBITRATION (WITH SOLE ARBITRATOR)

1.1. Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the Sole Arbitrator and such Arbitrator appointed by Head of the BHEL Unit/Region/Division issuing the Contract.

1.2. The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties.

1.3. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) and amended in 2015 and further amendment passed in 2019 or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall

be New Delhi. The language of arbitration shall be English and the documents shall be submitted in English.

1.4. The cost of arbitration shall initially be borne equally by the Parties subject to the final apportionment of the cost of the arbitration in the award of the Arbitrator.

1.5. Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

1.6. **SETTLEMENT OF COMMERCIAL DISPUTES BETWEEN CPSES INTER SE AND CPSE(S) AND GOVERNMENT DEPARTMENT(S)/ ORGANISATION(S) – ADMINISTRATIVE MECHANISM FOR RESOLUTION OF CPSES DISPUTES (AMRCD) – REGARDING**

Vide Dept. of Public Enterprises OM No. F. No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22.05.2018 it has been conveyed that *"To make the mechanism more effective and binding on the disputing parties, a new mechanism namely Administrative Mechanism for resolution of CPSEs Disputes (AMRCD) having two level (tier) structure has been evolved in consultation with various stakeholders to replace the existing PMA mechanism which stands wound up from the date of issue of this OM."* Accordingly, the existing Permanent Machinery of Arbitration (PMA) stands wound up with effect from 22.05.2018 and cases relating to disputes or differences relating to the interpretation and application of the provisions of commercial contract(s) between CPSEs / Port Trust / Central or State Government Department / Organisations (excluding disputes concerning Railways, Income Tax, Customs and Excise Departments) shall be taken up by either party for its resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD).

(C) JURISDICTION AND GOVERNING LAWS

The Courts at New Delhi shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract. This Contract shall be construed as per and be governed by the Laws of India.

ANNEXURE TO MODEL CONCILIATION CLAUSE FOR CONDUCT OF CONCILIATION UNDER THE BHEL CONCILIATION SCHEME, 2018

BRIEF PROCEDURE FOR CONDUCT OF CONCILIATION PROCEEDINGS

1. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided herein:

2. The party desirous of resorting to Conciliation shall send an invitation/notice in writing to the other party to conciliate specifying all points of Disputes with details of the amount claimed. The party concerned shall not raise any new issue thereafter. Parties shall also not claim any interest on claims/counter-claims from the date of notice invoking Conciliation till the conclusion of the Conciliation proceedings.

3. The party receiving the invitation/notice for Conciliation shall within 30 days of receipt of the notice of Conciliation intimate its consent for Conciliation along with its counter-claims, if any.

4. The Conciliation in a matter involving claim or counter-claim (whichever is higher) up to Rs 5 crores shall be carried out by sole Conciliator nominated by BHEL while in a matter involving claim or counter-claim (whichever is higher) of more than Rs 5 crores Conciliation shall be carried out by 3 Conciliators nominated by BHEL.

5. The Parties shall be represented by only their duly authorized in-house executives/officers and neither Party shall be represented by a Lawyer.

6. The first meeting of the IEC shall be convened by the IEC by sending appropriate communication/notice to both the parties as soon as possible but not later than 30 days from the date of his/their appointment. The hearings in the Conciliation proceeding shall ordinarily be concluded within two (2) months and, in exceptional cases where parties have expressed willingness to settle the matter or there exists possibility of settlement in the matter, the proceedings may be extended by the IEC by a maximum of further 2 months with the consent of the Parties subject to cogent reasons being recorded in writing.

7. The IEC shall thereafter formulate recommendations for settlement of the Disputes supported by reasons at the earliest but in any case within

15 days from the date of conclusion of the last hearing. The recommendations so formulated along with the reasons shall be furnished by the IEC to both the Parties at the earliest but in any case within 1 month from the date of conclusion of the last hearing.

8. Response/modifications/suggestions of the Parties on the recommendations of the IEC are to be submitted to the IEC within time limit stipulated by the IEC but not more than 15 days from the date of receipt of the recommendations from the IEC.

9. In the event, upon consideration, further review of the recommendations is considered necessary, whether by BHEL or by the other Party, then, the matter can be remitted back to the IEC with request to reconsider the same in light of the issues projected by either/both the Parties and to submit its recommendations thereon within the following 15 days from the date of remitting of the case by either of the Parties.

10. Upon the recommendations by the Parties, with or without modifications, as considered necessary, the IEC shall be called upon to draw up the Draft Settlement Agreement in terms of the recommendations.

11. When a consensus can be arrived at between the parties only in regard to any one or some of the issues referred for Conciliation the draft Settlement Agreement shall be accordingly formulated in regard to the said Issue(s), and the said Settlement Agreement, if signed, by the parties, shall be valid only for the said issues. As regards the balance issues not settled, the parties may seek to resolve them further as per terms and conditions provided in the contract.

12. In case no settlement can be reached between the parties, the IEC shall by a written declaration, pronounce that the Conciliation between the parties has failed and is accordingly terminated.

13. Unless the Conciliation proceedings are terminated in terms of para 22 (b), (c) & (d) herein below, the IEC shall forward his/its recommendations as to possible terms of settlement within one (1) month from the date of last hearing. The date of first hearing of Conciliation shall be the starting date for calculating the period of 2 months.

14. In case of 3 members IEC, 2 members of IEC present will constitute a valid quorum for IEC and meeting can take place to proceed in the matter after seeking consent from the member who is not available. If necessary, videoconferencing may be arranged for facilitating participation of the members. However, the IEC recommendations will be signed by all members. Where there is more than one (1) Conciliator, as a general rule they shall act jointly. In the event of differences between the Members of IEC, the decision/recommendations of the majority of the Members of IEC shall prevail and be construed as the recommendation of the IEC.

15. The Draft Settlement Agreement prepared by the IEC in terms of the consensus arrived at during the Conciliation proceedings between the Parties shall be given by the IEC to both the parties for putting up for approval of their respective Competent Authority.

16. Before submitting the draft settlement agreement to BHEL's Competent Authority viz. the Board Level Committee on Alternative Dispute Resolution (BLCADR) for approval, concurrence of the other party's Competent Authority to the draft settlement agreement shall be obtained by the other party and informed to BHEL within 15 days of receipt of the final draft settlement agreement by it. Upon approval by the Competent Authority, the Settlement Agreement would thereafter be signed by the authorized representatives of both the Parties and authenticated by the members of the IEC.

17. In case the Draft Settlement Agreement is rejected by the Competent Authority of BHEL or the other Party, the Conciliation proceedings would stand terminated.

18. A Settlement Agreement shall contain a statement to the effect that each of the person(s) signing thereto (i) is fully authorized by the respective Party(ies) he/she represents, (ii) has fully understood the contents of the same and (iii) is signing on the same out of complete freewill and consent, without any pressure, undue influence.

19. The Settlement Agreement shall thereafter have the same legal status and effect as an arbitration award on agreed terms on the substance of the dispute rendered by an arbitral tribunal passed under section 30 of the Arbitration and Conciliation Act, 1996.

20. Acceptance of the Draft Settlement Agreement/recommendations of the Conciliator and/or signing of the Settlement Agreement by BHEL shall

however, be subject to withdrawal/closure of any arbitral and/or judicial proceedings initiated by the concerned Party in regard to such settled issues.

21. Unless otherwise provided for in the agreement, contract or the Memorandum of Understanding, as the case may be, in the event of likelihood of prolonged absence of the Conciliator or any member of IEC, for any reason/incapacity, the Competent Authority/Head of Unit/Division/Region/Business Group of BHEL may substitute the Conciliator or such member at any stage of the proceedings. Upon appointment of the substitute Conciliator(s), such reconstituted IEC may, with the consent of the Parties, proceed with further Conciliation into the matter either de-novo or from the stage already reached by the previous IEC before the substitution.

22. The proceedings of Conciliation under this Scheme may be terminated as follows:
    a. On the date of signing of the Settlement agreement by the Parties; or,
    b. By a written declaration of the IEC, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of the declaration; or,
    c. By a written declaration of the Parties addressed to the IEC to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
    d. By a written declaration of a Party to the other Party and the IEC, if appointed, to the effect that the Conciliation proceedings are terminated, on the date of the declaration.
    e. On rejection of the Draft Settlement Agreement by the Competent Authority of BHEL or the other Party.

23. The Conciliator(s) shall be entitled to following fees and facilities:

Sl No	**Particulars**	**Amount**
1	Sitting fees	Each Member shall be paid a Lump Sum fee of Rs 75,000/- for the whole case payable in terms of paragraph No. 27 herein below.
2	Towards drafting of settlement agreement	In cases involving claim and/or counter-claim of up to Rs 5crores. Rs 50,000/- (Sole Conciliator)

Sl No	Particulars	Amount
		In cases involving claim and/or counter-claim of exceeding Rs 5 crores but less than Rs 10 crores. Rs 75,000 (per Conciliator) In cases involving claim and/or counter-claim of more than Rs 10 crores. Rs 1,00,000/- (per Conciliator) Note: The aforesaid fees for the drafting of the Settlement Agreement shall be paid on Signing of the Settlement Agreement after approval of the Competent Authority or Rejection of the proposed Settlement Agreement by the Competent Authority of BHEL.
3	Secretarial expenses	Rs 10,000/- (one time) for the whole case for Conciliation by a Sole Member IEC. Where Conciliation is by multi member Conciliators –Rs 30,000/- (one time)- to be paid to the IEC
4	Travel and transportation and stay at outstation i) Retired Senior Officials of other Public Sector Undertakings (pay scale wise equivalent to or more than E-8 level of BHEL)	As per entitlement of the equivalent officer (pay scale wise) in BHEL.
	Others	As per the extant entitlement of whole time Functional Directors in BHEL.

Sl No	Particulars	Amount
		Ordinarily, the IEC Member(s) would be entitled to travel by air Economy Class.
5	Venue for meeting	Unless otherwise agreed in the agreement, contract or the Memorandum of Understanding, as the case may be, the venue/seat of proceedings shall be the location of the concerned Unit / Division / Region / Business Group of BHEL. Without prejudice to the seat/venue of the Conciliation being at the location of concerned BHEL Unit / Division / Region / Business Group, the IEC after consulting the Parties may decide to hold the proceedings at any other place/venue to facilitate the proceedings. Unless, Parties agree to conduct Conciliation at BHEL premises, the venue is to be arranged by either Party alternately.

24. The parties will bear their own costs including cost of presenting their cases/evidence/witness(es)/expert(s)on their behalf. The parties agree to rely upon documentary evidence in support of their claims and not to bring any oral evidence in IEC proceedings.

25. If any witness(es) or expert(s) is/are, with the consent of the parties, called upon to appear at the instance of the IEC in connection with the matter, then, the costs towards such witness(es)/expert(s) shall be determined by the IEC with the consent of the Parties and the cost so determined shall be borne equally by the Parties.

26. The other expenditures/costs in connection with the Conciliation proceedings as well as the IEC's fees and expenses shall be shared by the Parties equally.

27. Out of the lump sum fees of Rs 75,000/- for Sitting Fees, 50% shall be payable after the first meeting of the IEC and the remaining 50% of the Sitting Fees shall be payable only after termination of the conciliation proceedings in terms of para 22 hereinabove.

28. The travelling, transportation and stay at outstation shall be arranged by concerned Unit as per entitlements as per Serial No. 3 of the Table at para 23 above, and in case such arrangements are not made by the BHEL Unit, the same shall be reimbursed to the IEC on actuals limited to their entitlement as per Serial No. 4 of the Table at Para 23 above against supporting documents. The IEC Member(s) shall submit necessary invoice for claiming the fees/reimbursements.

29. The Parties shall keep confidential all matters relating to the conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of its implementation and enforcement or as required by or under a law or as per directions of a Court/Governmental authority/ regulatory body, as the case may be.

30. The Parties shall not rely upon or introduce as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the Disputes that is the subject of the Conciliation proceedings:
    a. Views expressed or suggestions made by the other party in respect of a possible settlement of the Disputes;
    b. admissions made by the other party in the course of the Conciliator proceedings;
    c. proposals made by the Conciliator;
    d. The fact that the other Party had indicated his willingness to accept a proposal for settlement made by the Conciliator.

31. The Parties shall not present the Conciliator(s) as witness in any Alternative Dispute Resolution or Judicial proceedings in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.

32. None of the Conciliators shall act as an arbitrator or as a representative or counsel of a Party in any arbitral or judicial proceeding in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.

33. The Parties shall not initiate, during the Conciliation proceedings, any arbitral or judicial proceedings in respect of a Disputes that is the subject matter of the Conciliation proceedings except that a Party may initiate arbitral or judicial proceedings where, in his opinion, such proceedings are necessary for preserving his rights including for preventing expiry of period of limitation. Unless terminated as per the provisions of this Scheme, the Conciliation proceedings shall continue

notwithstanding the commencement of the arbitral or judicial proceedings and the arbitral or judicial proceedings shall be primarily for the purpose of preserving rights including preventing expiry of period of limitation.

34. The official language of Conciliation proceedings under this Scheme shall be English unless the Parties agree to some other language.

Format 2 to BHEL Conciliation Scheme, 2018

FORMAT FOR SEEKING CONSENT FOR REFERRING THE DISPUTES TO CONCILIATION THROUGH IEC

To,

M/s. (Stakeholder's name)

Sub: Resolution of the Disputes through conciliation by Independent Expert Committee (IEC).

Ref: Contract No/MoU/Agreement/LOI/LOA& date _____.

Sir,

With reference to above referred Contract/MoU/Agreement/LOI/LOA, you have raised certain Disputes/claims. Vide your letter dated____ you have requested BHEL to refer the Disputes/claims to IEC for Conciliation.

We are enclosing herewith Format (3) for giving consent and the terms and conditions of BHEL Conciliation Scheme, 2018 governing conciliation through IEC. You are requested to give your unconditional consent to the said terms and conditions of the Scheme by returning the same duly sealed and signed on each page. On receipt of your consent, matter will be put to the Competent Authority for consideration and decision.

Please note that BHEL has also certain claims against you (if applicable). BHEL reserves its right to agree or not to agree conciliation of the said disputes through BHEL and this letter is being issued without prejudice to BHEL's rights and contentions available under the contract and law.

Yours faithfully,

Representative of BHEL

Format 3 to BHEL Conciliation Scheme, 2018

FORMAT FOR GIVING CONSENT BY CONTRACTOR/VENDOR/CUSTOMER/COLLABORATOR/CONSORTIUM PARTNERSFOR REFERRING THE DISPUTES TO CONCILIATION THROUGH IEC

To,

BHEL

.....

Sub: Resolution of Disputes through Conciliation by Independent Expert Committee (IEC).

Ref: Contract/MoU/Agreement/LOI/LOA No & date____

With reference to above referred contract, our following bills/invoices/claims submitted to BHEL are still unpaid giving rise to Disputes:

SL. no.	Claim Description	Bill submitted to BHEL (no. and date)	Amount of the bill/claim	Amount received from BHEL	Outstanding Amount

Accordingly we request you to kindly refer the Disputes in respect of above claims to IEC for Conciliation.

We hereby agree and give our unconditional consent to the terms and conditions of BHEL Conciliation Scheme, 2018 governing conciliation through IEC. We have signed the same on each page and enclosed it for your consideration.

Yours faithfully,

(Signature with stamp)

Authorized Representative of Contractor
Name, with designation
Date

Format 5 to BHEL Conciliation Scheme, 2018

STATEMENT OF CLAIMS/COUNTER CLAIMS TO BE SUBMITTED TO THE IEC BY BOTH THE PARTIES

1. Chronology of the Disputes

2. Brief of the Contract/MoU/Agreement/LOI/LOA

3. Brief history of the Disputes:

4. Issues:

5. Details of Clam(s)/Counter Claim(s):

Sl. No.	**Description of claim(s)/Counter Claim**	**Amount (in INR)Or currency applicable in the contract**	**Relevant contract clause**

6. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)

Note– *The Statement of Claims/Counter Claims may ideally be restricted to maximum limit of 20 pages. Relevant documents may be compiled and submitted along with the statement of Claims/Counter Claims. The statement of Claims/Counter Claims is to be submitted to all IEC members and to the other party by post as well as by email.*

Annexure-V

Item/Package Name :	**Supply of low Voltage Cable: 1.1 kV Control Cable**
Enquiry No.:	**90Q2300074 Date 17.06.2022**
Project:	**4 x 225 MW, Arun-3 (HEP), Nepal**
Type of project	**Gas Insulated Switchyard**
Percentage of Local Content	*(Bidder to enter the applicable % of local content)*

Self-certification to be submitted in INR 100/- non judicial stamp paper

Format of Self certification regarding Local Content in line with PPP-MII order, order ref no.:- A-1/2021-FSC-Part (5) dated 16.11.2021 issued by Govt of India, Ministry of Power)

Date: / /

I _____S/o, D/o, W/o, _____Resident of_____ hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (*hereinafter PPP-MII order*) of Government of India issued vide Notification No: P-45021/2/2017-BE-II dated 15/06/2017, its revision dated 04/06/2020 and any subsequent modifications/Amendments, if any.

That the information furnished hereinafter is correct to the best of my knowledge and belief and I undertake to produce relevant records before the procuring entity/BHEL or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for …….. *(Enter the name of the Equipment/Item for Project).*

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I am responsible for the correctness of the claims made therein.

That the goods/services/works supplied by me for …….. *(Enter the name of the Equipment/Item for Project)* **contains……..%** (mention the Local content in %age) Local Content.

That the value addition for the purpose of meeting the 'Minimum Local Content 'has been made by me at …… (*Enter the details of the location(s) at which value addition is made).*

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed supplier class categorization criteria as per said order, based on the assessment of procuring agency (ies)/BHEL/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.

i Name and details of the Local Supplier
(Registered Office, Manufacturing unit location, nature of legal entity)

ii. Date on which this certificate is issued

Annexure-V

Item/Package Name :	**Supply of low Voltage Cable: 1.1 kV Control Cable**
Enquiry No.:	**90Q2300074 Date 17.06.2022**
Project:	**4 x 225 MW, Arun-3 (HEP), Nepal**
Type of project	**Gas Insulated Switchyard**
Percentage of Local Content	*(Bidder to enter the applicable % of local content)*

Self-certification to be submitted in INR 100/- non judicial stamp paper

iii. Goods/services/works for which the certificate is produced

iv. Procuring entity to whom the certificate is furnished

v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed

vi. Name and contact details of the unit of the Local Supplier (s)

vii. Sale Price of the product

viii Ex-Factory Price of the product

ix. Freight, insurance and handling

x. Total Bill of Material

xi List and total cost value of input used to manufacture the Goods/to provide services/in construction of works

xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached

xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of…… (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)
<Insert Name, Designation and Contact No.>

Annexure-VI

Clause regarding regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017 as per Government of India order OM No.6/18/2019-PPD dated 23.07.2020

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not failing in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means:

a. An entity Incorporated, established or registered in such a country; or
b. A subsidiary of an entity Incorporated, established or registered in such a country; or
c. An entity substantially controlled through entitles incorporated, established or registered in such a country; or
d. An entity whose *beneficial owner* is situated in such a country, or
e. An Indian (or other) agent of such an entity; or
f. A natural person who is a citizen of such a country; or
g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The *beneficial owner* for the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.
   Explanation-
   a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;
   b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder's agreements or voting agreements;
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of Individuals;
4. Where no natural person is Identified under (1) or (2) or (3) above the beneficial owner is the relevant natural person who holds the position of senior managing official;
5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another or to represent another in dealings with third person.

Annexure-VI

Clause regarding regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017 as per Government of India order OM No.6/18/2019-PPD dated 23.07.2020

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

***** *The above clause is not applicable to the bidders from those countries (even if* sharing a land border with India) to which the GoI has extended lines of credit or in which the GoI is engaged in development projects.

* List of countries to which lines of credit have been extended or in which development projects are undertaken are available on the Ministry of External affaires website (https://www.mea.gov.in/)

Annexure-VII

Compliance to be submitted in INR 100/- non judicial stamp paper

Sub: **Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017**

Sl No.	Description	Bidder's confirmation
1	*We, M/s_____have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; We hereby certify that we are not from such a country.*	*Agreed*

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by BHEL)

Bidder's authorized signatory with stamp & seal

Annexure-VIII

Compliance to be submitted in INR 100/- non judicial stamp paper

Sub: **Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017**

Sl No.	Description	Bidder's confirmation
1	*We, M/s_____have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India. We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in above said order. We hereby certify that we fulfil all requirements in this regard and are eligible to be considered.* ***Evidence of valid registration by the Competent Authority is attached.***	*Agreed*

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by BHEL)

Bidder's authorized signatory with stamp & seal

Annexure-IX

No.25-111612018-PG

Government of India

Ministry of Power

Shram Shakti Bhawan, Rafi Marg, New Delhi • — 110001

Tele Fax: 011-23730264

Dated 02/07/2020

ORDER

Power Supply System is a sensitive and critical infrastructure that supports not only our national defence, vital emergency services including health, disaster response, critical national infrastructure including classified data & communication services, defence installations and manufacturing establishments, logistics services but also the entire economy and the day-today life of the citizens of the country. Any danger or threat to Power Supply System can have catastrophic effects and has the potential to cripple the entire country. Therefore, the Power Sector is a strategic and critical sector.

The vulnerabilities in the Power Supply System & Network mainly arise out of the possibilities of cyber attacks through malware / Trojans etc. embedded in imported equipment. Hence, to protect the security, integrity and reliability of the strategically important and critical Power Supply System & Network in the country, the following directions are hereby issued:-

1. All equipment, components, and parts imported for use in the Power Supply System and Network shall be tested in the country to check for any kind of embedded malware/trojans/cyber threat and for adherence to Indian Standards.
2. All such testings shall be done in certified laboratories that will be designated by the Ministry of Power (MOP).
3. Any import of equipment/components/parts from "prior reference" countries as specified or by persons owned by, controlled by, or subject to the jurisdiction or the directions of these "prior reference" countries will require prior permission of the Government of India
4. Where the equipment/components/parts are imported from "prior reference" countries, with special permission, the protocol for testing in certified and designated laboratories shall be approved by the Ministry of Power (MOP).

This order shall apply to any item imported for end use or to be used as a component, or as a part in manufacturing, assembling of any equipment or to be used in power supply system or any activity directly or indirectly related to power supply system.

This issues with the approval of Hon'ble Minister of State for Power and New & Renewable Energy (Independent Charge).

(Goutam Ghosh)

Director Tel: 011-23716674 To:

1. All Ministries/Departments of Government of India (As per list)
2. Secretary (Coordination),Cabinet Secretariat
3. Vice Chairman, NITI Aayog

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 टेली: 011-26732257 ईमेल: ce-rndcea@nic.in वेबसाइट: www.cea.nic.in

Sewa Bhawan, R.K Puram-I, New Delhi - 110066 Tele: 011-26732257 Email: ce-rndcea@nic.in Website: www.cea.nic.in

Annexure-X

Vendor Compliance format in bidder letter head

In view of by order No. 25-111612018-PG, Dated 02.07.2020 of Ministry of Power, GOI

Enquiry No/ PO No & Date : **90Q2300074 Date 17.06.2022**
Project : **4 x 225 MW, Arun-3 (HEP), Nepal**
Name of items/Package : **Supply of low Voltage Cable: 1.1 kV Control Cable**

This is to certify that all equipment, components, and parts imported for use in the Power Supply System and Network are in strict compliance to directions issued by Ministry of Power, Govt. of India vide order No. 25-111612018-PG dated 02.07.2020. The imported component(s), part or assembly item(s) does not carry any malware/Trojan etc.

Note: Non-compliance of MoP Order and its subsequent amendment(s), (if any), by vendor shall lead to rejection of their offer or cancellation of contract, which is awarded by BHEL.

Bidder's authorized signatory

with stamp & seal

Enquiry No: 90Q2300074 Date 17.06.2022
Item: Supply of low Voltage Cable: 1.1 kV Control Cable
Project: 4 x 225 MW, Arun-3 (HEP), Nepal

Annexure-XI

1. **Integrity Pact (IP):**

Bidder 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.

(a) IP is a tool to ensure that activities and transactions between the Company and Its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL

Sl no.	IEM	Phone & E- mail
1	Shri Arun Chandra Verma, (IPS (Retd.)	Acverma1@gmail.com
2	Shri Virendra Bahadur Singh. IPS (Retd.)	vbsinghips@gmail.com

(b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (part-I in case of Two/ Three Part Bid). Only **those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding**. In other words, entering into this Pact would be a preliminary qualification,

(c) Please refer Section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through e-mail only.
Note:-

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below":

Details of contact person (s):-

1) Name:- Sunil Kumar Department :- TBG, Material Management Address:- BHEL/ TBG, Noida Phone:- 01206748471 E mail:- Sunil.kumar@bhel.in	2) Name:- Rajiv Ranjan Department :- TBG, Material Management Address:- BHEL/ TBG, Noida Phone:- 01206748575 E mail:- rajiv_ranjan@bhel.in

Annexure-1

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____
_____ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process , terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - **Compensation for Damages**

4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above , the Bidder(s)/ Cotractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be-entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee , whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 - Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.

6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.

6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.

8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.

8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.

8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.

8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.

8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.

8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Prinicpal should be looked into by the CVO of the Principal.

8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.

8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.

8.13 The word `Monitor' would include both singular and plural.

Section 9 - Pact Duration

9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.

10.2 Changes and supplements as well as termination notices need to be made in writing.

10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.

10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

For & On behalf of the Principal
(Office Seal)

For & On behalf of the Bidder/ Contractor
(Office Seal)

Place _____
Date _____

Witness:_____
(Name & Address) _____
_____

Witness:_____
(Name & Address) _____
_____

Annexure-XII

RISK PURCHASE

1.1. 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.

1.2. Risk & Cost Clause, in line with Conditions of Contract may be invoked in any of the following cases:

i) Contractor/ supplier's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor/ supplier including unexecuted portion of work/ supply does not appear to be executable within balance available period considering its performance of execution.

ii) Withdrawal from or abandonment of the work by contractor/supplier before completion as per contract.

iii) Non completion of work/ Non-supply by the Contractor/ supplier within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the contractor/ supplier.

iv) Termination of Contract on account of any other reason(s) attributable to Contractor/ Supplier.

v) Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.

vi) Non-compliance to any contractual condition or any other default attributable to Contractor/ Supplier.

1.3. Risk and Cost amount against Balance Work:

In case Risk & Cost is invoked, the amount of Risk & Cost against balance work shall be calculated as under:

Risk & Cost Amount= [(A-B) + (A x H/100)]

Where,

A= Value of Balance scope of Work/ Supply (*) as per rates of new contract

B= Value of Balance scope of Works/ Supply (*) as per rates of old contract being paid to the contractor/ supplier at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5 (five)

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

***(Balance scope of work/ supply)**

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work / Supply for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: Incase portion of work is being withdrawn, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work/supply' for calculating Risk & Cost amount.

1.4. LD against delay in executed work/supply in case of Termination of Contract

LD against delay in executed Work /Supply shall be calculated in line with LD clause of the contract for the delay attributable to contractor/ supplier. For this purpose, contract value shall be taken as Executed Value of work/supply for the purpose of limiting maximum LD value.

Method for calculation of "LD against delay in executed Work/ supply" is given below:

i) Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor/ supplier= T1
ii) Let the value of executed work/ supply till the time of termination of contract= X
iii) Let the Total Executable Value of work/ supply for which inputs/fronts were made available to contractor/ supplier and were planned for execution till termination of contract = Y
iv) Delay in executed work/ supply attributable to contractor/supplier i.e. $T2=(1-\frac{X}{Y})x$ T1
v) LD shall be calculated in line with LD clause of the Contract for the delay attributable to contractor/ supplier taking "X" as Contract Value and "T2" as delay attributable to contractor/ supplier.

Note: In case portion of service/ supply is withdrawn, no LD shall be applicable for portion of service/ supply withdrawn.

1.5. Recovery from Supplier

Recoveries from contractor/ supplier on whom risk & cost has been invoked shall be as per Clause No. 23 of GTC.

[TO BE PUBLISHED IN THE GAZETTE OF INDIA, EXTRAORDINARY, PART II, SECTION 3, SUB-SECTION (i)]

Government of India
Ministry of Finance
Department of Revenue

Notification No. 41/2017--Integrated Tax (Rate)

New Delhi, the 23rd October, 2017

G.S.R.....(E).- In exercise of the powers conferred by sub-section (1) of section 6 of the Integrated Goods and Services Tax Act, 2017 (13 of 2017), (hereafter in this notification referred to as "the said Act"), the Central Government, on being satisfied that it is necessary in the public interest so to do, on the recommendations of the Council, hereby exempts the inter-State supply of taxable goods (hereafter in this notification referred to as "the said goods") by a registered supplier to a registered recipient for export, from so much of the integrated tax leviable thereon under section 5 of the Integrated Good and Services Tax Act, 2017 (13 of 2017), as is in excess of the amount calculated at the rate of 0.1 per cent., subject to fulfilment of the following conditions, namely: -

(i) the registered supplier shall supply the goods to the registered recipient on a tax invoice;

(ii) the registered recipient shall export the said goods within a period of ninety days from the date of issue of a tax invoice by the registered supplier;

(iii) the registered recipient shall indicate the Goods and Services Tax Identification Number of the registered supplier and the tax invoice number issued by the registered supplier in respect of the said goods in the shipping bill or bill of export, as the case may be;

(iv) the registered recipient shall be registered with an Export Promotion Council or a Commodity Board recognised by the Department of Commerce;

(v) the registered recipient shall place an order on registered supplier for procuring goods at concessional rate and a copy of the same shall also be provided to the jurisdictional tax officer of the registered supplier;

(vi) the registered recipient shall move the said goods from place of registered supplier –

(a) directly to the Port, Inland Container Deport, Airport or Land Customs Station from where the said goods are to be exported; or
(b) directly to a registered warehouse from where the said goods shall be move to the Port, Inland Container Deport, Airport or Land Customs Station from where the said goods are to be exported;

(vii) if the registered recipient intends to aggregate supplies from multiple registered suppliers and then export, the goods from each registered supplier shall move to a registered warehouse and after aggregation, the registered recipient shall move goods to the Port, Inland Container Deport, Airport or Land Customs Station from where they shall be exported;

(viii) in case of situation referred to in condition (vii), the registered recipient shall endorse receipt of goods on the tax invoice and also obtain acknowledgement of receipt of goods in the registered warehouse from the warehouse operator and the endorsed tax invoice and the acknowledgment of the warehouse operator shall be provided to the registered supplier as well as to the jurisdictional tax officer of such supplier; and

(ix) when goods have been exported, the registered recipient shall provide copy of shipping bill or bill of export containing details of Goods and Services Tax Identification Number (GSTIN) and tax invoice of the registered supplier along with proof of export general manifest or export report having been filed to the registered supplier as well as jurisdictional tax officer of such supplier.

2. The registered supplier shall not be eligible for the above mentioned exemption if the registered recipient fails to export the said goods within a period of ninety days from the date of issue of tax invoice.

[F. No. 354/117/2017-TRU (Pt. III)]

(Ruchi Bisht)
Under Secretary to the Government of India

Unprice Bid Format :- Bidders to mark "Quoted"in this unprice BOQ Format. The price to be quoted in the "Price Bid Format" only which is attached separately with the Enquiry.

Validate | Print | Help | se BoQ

Tender Inviting Authority: BHEL/ TBG

Name of Item:- Supply of low Voltage Cable: 1.1 kV Control Cable for 4 x 225 MW, Arun-3 (HEP), Nepal project as per the tender document

Enquiry/NIT No: 90Q2300074 Date 17.06.2022

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	13	14	15	16	20	21	51	53	54	55
1	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 4 CORE X 6SQMM UNARMOURED CONTROL CABLE	item1	27000.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only
2	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 4 CORE X 4SQMM UNARMOURED CONTROL CABLE	item2	3000.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only
3	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 5 CORE X 2.5SQMM UNARMOURED CONTROL CABLE	item3	12000.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only
4	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 10 CORE X 2.5SQMM UNARMOURED CONTROL CABLE	item4	17000.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only

5	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 14 CORE X 2.5SQMM UNARMOURED CONTROL CABLE	item5	16500.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only
6	SUPPLY- LOW VOLTAGE CABLE : HR-PVC INSULATED, COPPER (PLAIN) CONDUCTOR, PVC TYPE FRLS OUTER SHEATH, 19 CORE X 2.5SQMM UNARMOURED CONTROL CABLE	item6	7000.00	MTR			**0.00**			**0.00**		**0.000**	**0.000**	INR Zero Only
Total in Figures												**0.000**	**0.000**	Zero Only
Quoted Rate in Words		**INR Zero Only**												

BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS ENGINEERING MANAGEMENT
NOIDA

DOCUMENT NO.	TB-405-510-010	Rev 01	Prepared	Checked	Approved
TYPE OF DOC.	TECHNICAL SPECIFICATION	NAME	Vyom	JK	VK
		SIGN			
TITLE		DATE	13.05.2022	13.05.2022	
1.1kV LT Power and Control Cable		GROUP	TBEM		
		WO No.			

CUSTOMER	SJVN Arun-3 Power Development Company (P) Ltd. (SAPDC)
Consultant	SJVN Ltd
PROJECT	4x225MW Arun-3 (HEP),Nepal

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Remarks: Bidder to note that data and details of Guaranteed Technical Particulars & Design documents shall not be reviewed during Technical Evaluation/ Review, hence compliance of Guaranteed Technical Particulars in line with Technical Specification shall be bidder's responsibility.

Rev. No.	Date	Altered	Checked	Approved	
Distribution				To	
				Copies	

SECTION 1

SCOPE, SPECIFIC TECHNICAL REQUIREMENTS & QUANTITIES

1.0 SCOPE

This technical specification covers the requirement of design, manufacture, testing at works, packing and dispatch of 1.1kV Auxiliary power and control cables as listed below. In case of any discrepancy between the requirements mentioned in this section and those specified in other sections of this specification, this section shall prevail and shall be treated as binding.

1.1 The LT cables (Control & Power) are required for the following project.

Name of the Customer : **SJVN Arun-III Power Development Company (P) Ltd (SAPDC)**

Name of the Consultant : **SJVN Limited**

Name of the Project : **4x225MW, Arun-3 HEP, Nepal**

Refer Section -3 for Project Details and General Specifications

The specification comprises of following sections:

Section-1	:	Scope, Project Specific Technical Requirements & Bill of Quantities
Section-2	:	Equipment Specification under scope of Supplies
Section-3	:	Project Details & General Technical Requirements (For All Equipment under the Project)
Section-4	:	Check List
Annexures		Annexure A- Schedule of Technical Deviations Annexure B- Compliance Certificate to Technical Specification Annexure C- Quality Assurance Test Requirement Formats Annexure D- Checklist for QAP Annexure E- Quality and Inspection Formats Annexure F- Export Worthy Packing Annexure_Drawings – Relevant Drawings of the Project

In general, no deviation from the requirements specified in various clauses of this specification shall be allowed and hence, a certificate to this effect shall have to be furnished along with the offer (Annexure-A), however bidder shall furnish list of conflicts/ ambiguities/ deviations (Annexure-B), if any. Any conflicts/ ambiguities/ deviations mentioned elsewhere in technical offer shall not be reviewed.

1.2 SPECIFIC TECHNICAL REQUIREMENTS

1.2.1 Control Cables: Cable Specification

- 1100 V grade in line with IS:1554, IS:8130, IS:5831.
- Conductor shall be Stranded non-compacted and circular, high conductivity annealed plain copper, generally conforming to IS:8130.
- **Extruded HRPVC Type-C** insulation, core identification by colour coding and numbering at interval of 100mm or less
- Distinct extruded inner sheath of **PVC Type ST2** material. Filler shall be of same material as of inner sheath. Single core cables shall have no inner sheath.
- **Extruded PVC type ST2** outer sheath having FRLS (Fire Retardant Low smoke) properties, generally conforming to IS: 5831
- Maximum conductor temperature for normal operation is 90 °C and for short circuit conditions, 160 °C. The minimum conductor cross section is 2.5 sq. mm.
- Cables shall be **unarmoured.**
- **Drum:** Conforming to IS-10418 (Wooden Drum)

1.2.2 Auxiliary Power Cables: Cable Specification

Power cables for the 415 V AC, 230V AC system and 220V DC system
They shall be of two types depending on the type of conductor.

Auxiliary Power Cables (Aluminium)

- 1100 V grade in line with IS 7098. IS 8130 & IS 5831.
- Stranded and compacted and circular plain **aluminium** conductor of grade H2.
- **Extruded XLPE** insulation, core identification by colour coding and numbering at interval of 100mm or less
- Distinct extruded black inner sheath of **PVC type ST2** material for cables. Single core cables shall have no inner sheath.
- **Extruded PVC type ST2** outer sheath with improved fire performance category C2 having FRLS (Fire Retardant Low smoke) properties, generally conforming to IS: 5831 (Part-1).
- Maximum conductor temperature for normal operation is 90 °C and for short circuit conditions, 250 °C.
- Cables shall be **unarmoured.**
- **Drum:** Conforming to IS-10418 (Wooden Drum)

Auxiliary Power Cables (Copper)

- 1100 V grade in line with IS 7098. IS 8130 & IS 5831.
- Conductor shall be Stranded compacted and circular, high conductivity annealed plain copper, generally conforming to IS:8130.
- Extruded Cross linked polyethylene **(XLPE) insulation** conforming to IS:7098 with core identification by colour coding.
- Distinct extruded black inner sheath of **PVC type ST2** material for cables. Single core cables shall have no inner sheath.
- **Extruded PVC type ST2** outer sheath with improved fire performance category C2 having FRLS (Fire Retardant Low smoke) properties, generally conforming to IS: 5831 (Part-1).
- Maximum conductor temperature for normal operation is 90 °C and for short circuit conditions, 250 °C.
- Cables shall be **unarmoured.**
- **Drum:** Conforming to IS-10418 (Wooden Drum)

1.3 TYPE TEST, ROUTINE & ACCEPTANCE TESTS:

1.3.01 **Shop Tests**

The Cables shall be subject to shop tests in accordance relevant IS/IEC standards to prove the design and general qualities of the Cables.

1.3.02 **Routine tests** on each drum of cables.

The following Routine tests shall be conducted on samples of manufactured cables and on components of accessories in order to verify that the finished products meet the requirements of specifications.

- Conductor resistance test,
- Partial discharge test (for screened cables),
- High voltage test.

In addition to above tests, all other tests mentioned in the relevant IS shall also be performed.

XLPE/PVC/instrumentation cable/coaxial cable shall be tested as per relevant IEC/IS standard.

1.3.03 **Acceptance tests** on drums chosen at random on each type, size and batch for acceptance of the lot.

1.3.04 **Type Tests** shall be conducted as per applicable standards on XLPE and PVC insulated power & control cables. Test details shall be as per schedule-VI enclosed with the specification.

The contractor shall carry out type tests listed under Category –I, schedule-VI for each type and size of Cables. The owner reserves the right to waive conducting of any or all of the specified type tests on submission of type test certificates from Govt. approved labs/ accredited laboratories conducted on similar equipment during last five (5) years from the date of bid opening.

The prices of the shop test, routine test, acceptance test and type test is deemed to be included in the equipment price. No separate prices shall be entertained during the project execution.

1.3.05 **Test Witness**

Tests shall be performed in presence of Owner's representative if so desired by the Owner. The Contractor shall give at least thirty (30) days' advance notice of the date when the tests are to be carried out.

1.3.06 **Test Certificates**

a) Certified reports of all the tests carried out at the works shall be furnished in six (6) copies for approval of the Owner.
b) Test reports shall be completed with all details and shall also contain IS specified limit values, wherever applicable, to facilitate review
c) The cables shall be dispatched from works only after receipt of Owner's written approval of the test reports.

1.4 BILL OF QUANTITIES

S. No.	Description	Quantity (meter)
	LT CONTROL CABLES	
1	4cX6sq.mm Cu/HRPVC	27000
2	4cX4sq.mm Cu/HRPVC	3000
3	5cX2.5sq.mm Cu/HRPVC	12000
4	10cX2.5sq.mm Cu/HRPVC	17000
5	14cX2.5sq.mm Cu/HRPVC	16500
6	19cX2.5sq.mm Cu/HRPVC	7000
	LT POWER CABLES (COPPER)	
7	1Cx70 Cu/XLPE	6200
8	2Cx10 mm2 Cu/XLPE	700
9	2Cx2.5 mm2 Cu/XLPE	2100
10	4Cx10 mm2 Cu/XLPE	1500
11	2Cx4 mm2 Cu/XLPE	300
	LT POWER CABLES (ALUMINIUM)	
12	1CX400 mm2 Al/XLPE	11000
13	4CX4 mm2 Al/XLPE	1700
14	2CX6 mm2 Al/XLPE	1000
15	4CX16 mm2 Al/XLPE	1500
16	3.5CX70 mm2 Al/XLPE	1200
17	3.5CX35 mm2 Al/XLPE	1500

!! Total quantity may vary by ±25% at contract stage.

All control and power cables shall be supplied in drum length of 1000m with a tolerance of ± 5%.
The overall tolerance on total quantity of ordered cables shall be limited to ± 2.5%.

Owner shall not accept any non-standard lengths of the total ordered quantity. Cable lengths shall not be less than 500 meters in any case.

Cable identification and packing shall be as per clause 18.5.1 and 18.8 of section-II respectively. Wooden drums shall be suitable for outdoor storage for minimum period of 1 year. The ends of the cable shall be sealed by means of non-hygroscopic sealing material.
Extruded PVC serving as specified shall be applied with suitable additives to prevent attack by rodents and termites.

Note:

1. Where the ordered quantity is not multiple of 1000 m, the incremental quantity is to be supplied in separate drums.
   Incremental quantity of two different types of cables listed above shall not be clubbed together.
2. Cables consumed during type tests shall be in bidder's account. Bidders shall ensure that sufficient cut lengths of each type and size of cables are available for the same.

1.5 Technical Qualifying Requirements:

Please refer Annexure_TQR

1.6 DRAWING APPROVAL

The successful bidder shall have to extend all possible support like timely submission / re-submission of drawings, visit to end customer to facilitate documents approval without any commercial implications to BHEL. Acceptance of bidder's documents shall be subject to end customer's approval. Date of Submission of first lot of drawings will be counted only from the date of submission of reasonably correct drawings.
Approval of the following will be required for technical clearance of manufacturing for LT Power and Control cable.

- GTP

Note-Inspection and testing shall be done as per of section-3 of technical specification. However, any other test not mentioned but required as per relevant IEC/IS shall also be performed

1.7 PACKING AND DISPATCH:

The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to any subsequent instruction ordered by the Employer consistent with the requirements of the Contract AS PER Specification. Reference Export-worthy packing details is attached "**Annexure - Export Worthy Packing".**

1.8 QUALITY PLAN:

The Bidder shall follow Quality Assurance Programme to ensure that the equipment and services under the scope of contract whether manufactured or performed at the Bidder's works or at his sub-vendor's premises or at the SAPDC's site or at any other place of work are in accordance with the technical specifications. Such programme shall be outlined by the Bidder and be submitted along with the bid. The QA programme shall be generally in line with IS/ISO- 9001,Section-2 & Section-3.

1.9 Title Block for the Project is as follows:

□□□ □□□□	**4x225 MW Arun 3 HEP**
एसएपीडीसी SAPDC	**CUSTOMER** □□□□ □□□□-3 □□□ □□ □□□□□□□□ □□□ □ □□ □□□□ (□) □□□ एस.जे.वी.एन अरुण-3 पावर डेवेलोप्मेंट कम्पनी (प) लिमिटेड
एसजेवीएन SJVN	**CONSULTANT** □□□□ □□□ □□□ एस.जे.वी.एन लिमिटेड
बी एच ई एल BHEL	**BHARAT HEAVY ELECTRICAL LIMITED** □□□□□□ □□□□□ □□□□□□□□ □□□□□ पारेषण व्यापार समूह

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Annexure: FQP and MQP Format

एसजेवीएन SJVN	**PROJECT NAME (MW)**		**MANUFACTURING / FIELD QUALITY ASSURANCE PLAN**					**CONTRACTOR NAME, ADDRESS & LOGO**				
	ITEM DESCRIPTION		**SUB-ITEM**		**QAP NO.**		**REV. NO**	**ISSUE DATE**	**SUB-CONTRACTOR NAME, ADDRESS & LOGO**			

SR. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M/C	S				M	C	S	
1	2	3	4	5	6		7	8	9	10			11

LEGENDS

M	MANUFACTURER	C	CONTRACTOR	S	SJVN LTD.
P	PERFORM	V	VERIFICATION OF RECORDS	W	WITNESS / CHP
IR	INSPECTION REPORT	DRG	DRAWING	CHP	CUSTOMER HOLD POINT
MA	MAJOR	MN	MINOR	CR	CRITICAL
ME	MEASUREMENT	NDT	NON DESTRUCTIVE TESTING	HT	HEAT TREATMENT
TR1	CERTIFICATE OF COMPLIANCE TO TS/STANDARD REQUIREMENT WITHOUT ANY CHECK LIST OF TESTS CARRIED OUT.	TR2	CERTIFICATE OF COMPLIANCE TO TS/STANDARD REQUIREMENT WITH CHECK LIST OF TESTS CARRIED OUT.	TR3	TEST REPORT/TEST CERTIFICATE WITH TEST RESULTS BASED ON SPECIFIC INSPECTION & TESTING AT MANUFACTURER FACILITY/NABL APPROVED LAB.

NOTE: QAP SHALL BE READ IN CONJUNCTION WITH QUALITY ASSURANCE REQUIREMENT GIVEN AS PART OF TECHNICAL SPECIFICATION.

MANUFACTURER / SUB-CONTRACTOR:		**CONTRACTOR:**	**FOR SJVN USE:**	**REFERENCE DOC NO. OF SJVN:**	
PREPARED BY:	REVIEWED BY	REVIEWED & RECOMMENDED By	REVIEWED BY	RECOMMENDED BY	APPROVED BY
NAME, DESIGNATION & SIGNATURE	NAME, DESIGNATION & SIGNATURE	NAME, DESIGNATION & SIGNATURE	NAME & SIGNATURE	NAME & SIGNATURE	SIGNATURE & SEAL

SECTION - 2

CABLE AND CABLE TRAYS

18.1 SCOPE OF WORK

Scope of work under this section covers the provision of labour, tools, plants, materials and performance of work necessary for the design, engineering, manufacture, quality assurance, quality control, shop assembly, shop testing, packaging & delivery at site including insurance, unloading, site storage and preservation, in plant transportation at site, erection / installation, testing supervision, pre commissioning, successful commissioning, performance and acceptance testing, handing over to Employer and warrantee for two years of Cable and Cable Trays as per the specifications hereunder, complete with all auxiliaries, accessories, spare parts and warranting a trouble free safe operation of the installation. [redacted]

18.1.1 Detail scope of work

The scope of work shall be a comprehensive functional system complete in every respect including but not be limited to following:

18.1.1.1 Power cables

iii. One(1) lot of 1.1 kV PVC/XLPE, Aluminium conductor,unarmoredpower cable (Low voltage cable) [redacted]

iv. One (1) Lot of 1.1 kV PVC/XLPE, Copper conductor, unarmored power cable (Low voltage cable) for DC System [redacted]

v. One (1) Lot of power cable, copper conductor connecting the rotor to DC field breaker.

vi. One(1) lot of power cable, Copper conductor, from DCDB to HS pumps including intermediate panels.

vii. One(1) Lot of power cables from LT boards at Power house, Switchyard,Surge Shaft, BFV house, TRT and Dam site, HRT/SFT cavern,to unit auxiliaries and station auxiliaries upto the motor/equipments including intermediate panel/junction box.

viii. One(1) Lot of power cables from LT boards at Power house, Switchyard,Surge Shaft, BFV house, TRT and Dam site, HRT/SFT cavern, to balance of plant items like LP compressor, elevator, EOT cranes, HVAC, illumination, firefighting system, workshop/laboratory etc. upto the motor/equipments including intermediate panel/junction box.

ix. One(1) Lot of power cables from EM panels to third party interface such as Hydro-mechanical equipment, PLCC equipments, civil infra equipments (ejector, water purification plant etc.) etc. at Power house, Switchyard,Surge Shaft, BFV house, TRT and Dam site, HRT/SFT cavern.

18.1.1.2 Control and instrumentation cables

i. One (1) Lot of 600/1000 Volt, Copper conductor control cables for Control System (interconnection of various control panels, field equipments, junction box etc.

ii. One (1) Lot of 600/1000 Volt, Copper conductor, Instrumentation cables for connection of various field equipments like RTDs, thermocouple etc. to control panels .

iii. One (1) lot of Coaxial and communication cables for PLCC, time synchronization etc.

iv. One(1) Lot of control cables from EM panels to third party interface such as hydro-mechanical panels

Any other power/control cable not specifically mentioned in the scope of this chapter and other chapters shall be in the scope of contractor at all places.

18.1.1.4 Control, monitoring and related items and services

Co-ordination and provision of necessary contacts and/or ports for integration with plant SCADA system.

18.1.1.5 Common Supplies and services

i. [redacted]

ii. Drawings, documents and design calculations as per clause 18.6.

iii. Shop, assembly, inspection & tests as per clause no. 18.7.

iv. Packaging, handling and site storage as per clause no. 18.8.

v. Delivery, installation and commissioning as per clause no. 18.9.

vi. Tools and instruments as per clause no. 18.10.

vii. Spare parts as per clause no. 18.11

viii. Field/touch-up painting including all painting materials.

18.1.1.6 Completeness of System

Any other item (s) not mentioned specifically but necessary for the satisfactory completion of scope of work defined above, as per accepted standard (s)/best international practice.

18.2 STANDARDS & REGULATIONS

The design, manufacture and testing of the various equipment covered under this specification shall comply with the requirements of the latest edition of the relevant IEC/IS/IEEE/ISO standards only. Preference for latest IEC standards for particular equipment / system shall be governed over IEEE/ IS/ ISO standards. Further rules, guide lines and standard laid down by international/ national agency shall be applicable in this specification.

The relevant abstract (in soft / hard copy) of all referred standards shall be provided free of cost during engineering stage for facilitating review/ approval of submitted drawing/documents.

18.3 CABLE PARAMETERS& GUARANTEES

18.3.1 General

All cables shall be designed to cope with:

- The short–circuit conditions,
- The applied protective system in respect to cross-section and number of cores.

The cables shall be capable of satisfactory operation under a power supply system voltage variation of 10% and frequency variation of 5% and a combined frequency voltage variation of 10% (absolute sum). The cables shall have heat and moisture resistant properties. These shall be of type and design, with proven record of hydro power station installation.

18.3.2 Rating and Functional Characteristics

□ Flame propagation As per relevant IEC

18.3.2.2 Power cables -1100 volt grade

I. Single core cables

These cables shall be at least 1100 volt grade, heavy duty, single core, stranded Aluminium / Copper conductor, FRLS, HR-PVC/XLPE, insulated and PVC sheathed, unarmored and shall conform to the same design and properties as cables conforming torelevantIS/IEC.

II. Multi core cables:

The cable shall be at least 1100 volt grade, heavy duty multi core, stranded Aluminium/Copper conductor, FRLS, HR-PVC/XLPE insulated, color coded, laid up, unarmored, inner sheathed with extruded PVC, 2/3.5 cores, conforming to relevant IS/IEC.

18.3.2.3 Control and instrumentation cables

The control and instrumentation cables shall be multi core, colour coded, unarmored, annealed stranded high conductivity Copper, single conductor, insulated with HR-PVC insulation, PVC sheathed and armoured, conforming to relevant IS/ IEC.

18.3.2.4 Coaxial cable

Coaxial cable shall be offered in accordance with relevant IEC/ISto connect coupling unit installed in the pothead yard to the PLCC terminals, installed in control room of

powerhouse. The cable offered by the Contractor shall be steel armored. The cable shall have braided tinned Copper conductor. The capacitance of the cable shall be low so as to minimize attenuation in the carrier frequency range. The impedance of the cable shall be so as to match with the output impedance of the PLC terminals and secondary impedance of the coupling units. The cable shall be insulated to withstand a test voltage of 4 kV .The Contractor shall supply H.F. cable with following properties:

- Co-axial H.F. cable with 75 ohms characteristic impedance (unbalanced),
- Capacitance per meter – 53-pf approx.,
- Test voltage in kV – 4 kV RMS for 1 minute,
- Size of conductor – 7 strands/0.4mm.

The maximum attenuation at various frequencies shall be as follows:

Frequency in KHZ	Attenuation in db/km
300	1.4
60	3.3
500	4.7

18.3.3 Performance Criteria and Guarantee

The power, control, instrumentation, coaxial communication and other cables along with all auxiliaries and accessories shall be capable of performing intended duties under specified conditions. It is the responsibility of the Contractor to supply the equipment as per guaranteed technical particulars and shall also guarantee the reliability and performance.

18.4 DESIGN AND CONSTRUCTION

18.4.1 Conductor material

All DC,control and instrumentation cables shall be of copper conductor. Power cables shall be of aluminium or copper conductor as defined in the scope.

18.4.2 Conductor shield

The conductor having a semi-conducting screen shall ensure perfectly smooth profile and avoid stress concentration. The conductor screen shall be extruded in the same operation as the insulation. The semi-conducting polymer shall be cross linked (for XLPE cables).

18.4.3 Insulation

The insulation of the cables shall be extruded type and shall be designed and manufactured for the specified system voltage. The manufacturing process shall ensure that insulation is free from voids. The insulation shall withstand mechanical and thermal stresses under steady state and transient operating conditions. The extrusion method should give very smooth interface between semi-conducting screen and insulation. The insulation of the cable shall be of high standard quality. This should be in accordance with relevant IS and IEC standards.

18.4.4 Insulation shield

In XLPE cables, to confine electrical field to the insulation a non-magnetic semi-conducting shield shall be put over the insulation. The insulation shield shall be extruded in the same operation as the conductor shield and the insulation by triple extrusion process. The XLPE cable insulation shall be strippable. Metallic screening as given in this specification for the various control and power cables and special cables shall be provided

18.4.5 Sheath

The sheath shall be suitable to withstand the site conditions and specified temperature conditions. It shall be of adequate thickness and applied by a continuous process to produce a sheath of consistent quality, free from any defects. The sheath shall be extruded. This should be in accordance with relevant IS and IEC standards.

18.4.6 Service and outer sheath

Extruded PVC servingas specified shall be applied with suitable additives to prevent attack by rodents and termites. All servings must be given anti-termite treatment. The cable should also offer a specially formulated Flame Retardant Low Smoke compound (FRLS) for outer sheat**h**The cable shall have suitable fillers laid up with the conductors, before the sheath is applied and the fillers shall be of substantially circular cross section. Fillers shall be suitable for operating temperature of the insulation and compatible with the insulation.

18.4.7 Size and length of cables

The number of cores and sizes of the cables required for various circuits shall be worked out during detailed engineering.

However, minimum sizes for the following cables conductor shall be taken as:

- 2.5 mm^2 copper for control cable conductor,
- 1.5 mm^2 copper for annunciation and RTD cable conductor,
- 4 core x 6 mm^2 copper for connection between CT junction boxes and panels having red, yellow, blue and black colour cover,
- 4 core x 4 mm^2 copper for connection between PT junction boxes and panels having red, yellow, blue and black colour cover.

The cables covered by this specification shall be supplied in one length or in standard length as approved by the Employer.

18.5 AUXILIARY SYSTEMS AND MISCELLANEOUS COMPONENTS

18.5.1 Color scheme and identification

To facilitate easy identification of phases a color scheme of red, yellow and blue for phases and black for neutral shall be adopted for power cables. Multi-core control cables shall be color coded for identification of cores as per relevant IS/ IEC.

All the cables shall carry manufacturer data in a permanent, legible manner at an interval of at least three (3) meter run. The manufacturer's data shall include the name, cable size, and voltage rating together with any other information.

18.5.2

T
h

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18.5.3 Cable lugs

The Contractor shall ensure that no bimetallic action takes place, between the conductor of the cable and the cable-connecting lug by filling the lugs with suitable compound. The lugs shall be of standard quality conforming IEC / IS.

18.5.4 Cable accessories

The Contractor shall supply all the required accessories that may be found necessary during actual execution of the job and cost of them shall be included in the contract price. No intermediate joint will be allowed in the run of any cable.

18.5.5 Cable glands

The cable glands shall be made of brass duly electro tinned in order to avoid corrosion and oxidation of the surface. The nipple threads shall be in accordance with relevant IS/IEC. Glands shall provide neat, tight, dust and vermin proof termination. Gland shall be provided with rubber ring to hold the cables firmly when check-nut is slightly tightened. Gland shall be complete with suitable washers etc.

18.5.6 Compression type terminals for control wiring

These terminals are required for copper conductor of control wiring. They shall be crimped to the conductor while other end will provide flat surface for better connections. The connectors shall be made of Copper electro tinned.

18.5.7 Button tape (strap and stud)

This consists of perforated cable strapping with holes conveniently spaced for assembly and moulded studs. The strapping shall be made of NYLON Grade 220 or other elastic material to give proper performance. The studs shall be made of 'NYLON'.

18.5.8 Self adhesive marker

Self-adhesive marker in the form of strips of any one character, which can be easily peeled from the backing cards and can be applied on the cable, shall be supplied. The strips shall be water- proof duly marked with special formulated ink with specific thermo-setting adhesive to withstand high temperature.

Suitable plastic ring type ferrules marked with engraved indelible ink for control cables and sticker type ferrules for power cables shall be supplied. These shall be marked as per cable schedule such that each core of each cable can be identified easily.

18.5.9 Aluminum strip

Aluminium strip of adequate size for making tags for labels shall be supplied.

PVC tapes, cotton tapes and any other accessory required for laying, termination, testing and commissioning shall be supplied of good quality as per relevant Indian Standards.

18.5.10 Cable trays and support structure

Perforated cable trays made out of 14-gauge mild steel sheet shall be fabricated. The trays shall be of perforated plates with long shape slots for proper ventilation of the cables. The trays shall have minimum 50 mm edge height.

The cable trays shall be fully galvanized as per the relevant IS / IEC

Stainless steel cable trays shall be provided for humid premises and the area prone to water dripping and spraysuch as Drainage and Dewatering and shall be finalized during detailed engineering.

Supports and screws and bolts for cable trays shall be made of the same materials as the cable trays they support.

Tray support system shall be pre-fabricated and bolted type for quick and easy installation.

Trays provided in tiers shall have minimum 300 mm spacing between tiers.

Detailed design of the cable trays and supports shall be approved by the Employer before commencement of fabrication/assembly. The fixing of supports to the walls/ceiling/tunnel/column/ trench etc. is also covered in the scope of supply. Strut channels shall be embedded for fixing of the supports and shall be provided, installed and supervised during concreting for correctness of positioning and alignment by the

Contractor. Anchor fasteners shall be used wherever required to fix the anchors/supports.

In addition to this, ladder type tray with double bends may be used wherever requiredconforming to relevant IEC/IS which shall be finalized during detail engineering. Also, various cable tray accessories such as vertical elbow, horizontal elbow, reducer, horizontal tee, and horizontal cross should be used.

18.5.11 Fire proofing

Cables passing through different fire zones shall be provided with fireproof barriers with the same fire rating as the penetrated walls or partitions.

18.5.12 Cable junction boxes

Junction box shall be constructed of sheet steel of thickness not less than two (2) mm. The door shall be adequately strengthened to ensure rigidity and strength. Sheet steel and sections used in enclosures shall be cut neatly and finished free from burrs. Ample wiring space shall be provided at the sides, and back of the enclosure for incoming and outgoing circuits.

Removable plates with gaskets shall be fitted at the top and bottom of the box to provide the entry for conduit or cable. The door shall be provided with suitable gasket and fitted with a lock type handle. The door shall be hung on hinges having brass bodies and stainless steel pins.

Each cable junction box shall be provided with terminals of adequate rating on the terminal strip of suitable thickness.

18.5.13 Terminal blocks

As per GTS clause 1.8.5 .

18.5.14 Cable markers and cable binding

Suitable cable markers of Aluminium with punch marks shall be provided and suitably tagged to the cable permanently so that cable could be easily identified.

18.5.15 Cable binding/strapping

18.6 DRAWINGS, DOCUMENTS AND DESIGN CALCULATIONS

18.6.1 Drawings and documents

After award of contract, the contractor shall furnish all drawings, documents, design calculations, data, manuals & other necessary literature, pertaining to equipment offered by them & so specified under various clauses, in accordance with requirements stipulated in "clause [redacted] specification (GTS)". A comprehensive list of all such drawings/documents A comprehensive list of all such drawings/documents planned to be submitted for reference/approval shall be provided beforehand for approval of the purchaser as already explained in clause no. 1.19.6 of Section – 1 (GTS). The list of drawings & documents to be furnished for approval / reference shall not be limited to the following:-

i) Drawings, documents, design calculations literatures, manuals etc. as per [redacted]

ii) Drawings, documents, design calculations, literatures, manuals as listed in [redacted]

iii) Detailed quality assurance plan, giving complete specifications of the materials and specifications relating to inspection and testing of materials and finished components.

iv) All drawings having bearing on civil foundations, equipments foundation details and loads

v) Arrangement, installation, foundation, plan, section, detailing of main equipment and sub-assemblies including control & instrumentation system.

vi) All Electrical& Control Drawings such as Electrical Panels OGA, Cable Block & Termination Diagram, Schematic Diagram, JB/MB/Kiosk Diagram etc. in respect of this section.

vii) All manufacturing drawings not specifically covered under approval/reference category shall be submitted for record and facilitate inspection of the component in the shop and assembly at site.

viii) Any other drawings, documents, design calculations, literatures, manuals etc. not covered anywhere in the specification, but required to be furnished for approval / reference of employer for suitability of design to fulfill the scope of work.

18.7 SHOP ASSEMBLY, INSPECTION AND TESTS

18.7.1 Type Test

Type tests which shall fall under Category –I(refer clause 14 of GTS) are to be conducted as per Schedule VI to demonstrate that the cables and accessories offered meet the requirement of specifications.

18.7.2 Routine Tests

The following Routine tests shall be conducted on samples of manufactured cables and on components of accessories in order to verify that the finished products meet the requirements of specifications.

- Conductor resistance test,
- Partial discharge test (for screened cables),
- High voltage test.

In addition to above tests, all other tests mentioned in the relevant IS shall also be performed.
XLPE/PVC/instrumentation cable/coaxial cable shall be tested as per relevant IEC/IS standard.

18.7.3 **Field tests**

Before commissioning of complete system, all cabling system shall be checked as per cable schedule and complete report shall be prepared by Contractor and shall be submitted.

Field test shall include:

- Continuity checking,
- IR testing
- Verification of phase order in power cables
- Visual checking in respect of tagging, laying, dressing, glanding, earthing of complete cable system.

18.7.4 Performance testing

If nothing unusual has been observed in load run and load rejection tests, the test service period of 72 hours shall follow. During this test service period, the unit must operate continuously at rated condition without any interruption except of those beyond the control of the Contractor. However, such interrupted period shall not be counted for in the test service period. There should be one month reliability run of the complete unit reckoned from the date of taking over by employer.

18.8 PACKAGING, HANDLING AND SITE STORAGE

The Contractor shall pack all the consignment in sea worthy packaging strong enough to withstand rough handling during transit. Machine surface shall be suitably protected against scratches, corrosion, shocks, impact etc. Packages shall be suitably and distinctly identified for type of handling and kind of storage.

All the cables shall be supplied on non-returnable wooden drums with adequate barrel diameter so as to avoid any damage to the cables and to withstand rough handling during transportation and storage. The ends of the cable shall be sealed by means of non-hygroscopic sealing material.

A layer of waterproof paper shall be applied to the surface of the drums and over the outer cable layer. A circular space of at least 40mm shall be left between the cable and the lagging. Each drum shall carry the name of the manufacturer, the name of the Employer, his address, order number, item number, type, size length of cable, net and gross weight duly stenciled thereon. The supplier shall indicate the methods of

storage of cable drums and accessories at site during the detailed design stage.

18.9 SITE INSTALLATION AND COMMISSIONING

18.9.4 Installation procedure

The Contractor shall follow the construction methodology and installation procedure recommended by the cable manufacturer and shall arrange all the necessary erection tools/devices required for installation of cables such as cable rollers, cable pullers, motorized winches, power packs, two-way communications and safety devices etc., as per manufacturer's standard practices for installation of the cables.

Plugging of all cable gland holes left out in the panel after completion of cabling shall be done.

18.10 TOOLS AND INSTRUMENTS

18.10.1 Tools for erection and Installation.

The Contractor shall bring his own tools, devices, testing instruments / equipments to site in order to erect and install the complete equipment delivered under this section. These shall remain the property of the Contractor unless otherwise agreed to take over any / all of these at mutually agreed conditions.

18.10.2 Instruments for testing & commissioning

The list of instruments to be supplied shall be as per Schedule V(A). General requirement of these tools are as below:-

1. The contractor shall provide the highest model of the mentioned make or equivalent.
2. The timeframe to be reckoned the highest model of the mentioned make / equivalent shall be six months prior to the submission of drawings / documents for review / approval of equipment. .
3. The contractor shall submit the duly signed certificate by OEM / dealer certifying that the selected model is the highest model meeting the above timeframe criteria.
4. Supplied equipment's authorized service center shall preferably in India / Nepal.
5. Data sheet needs to be approved during detailed engineering of the finalized model selected from the list of makes. If the contractor proposes to supply the model / make equivalent to the specified list, then data sheet of the

SCHEDULE-VI

SCHEDULE OF TYPE TEST

The following type tests shall be conducted as per applicable standards on XLPE and PVC insulated power & control cables:

Sr.No.	Description of Test
1.	Annealing test (for copper)
2.	Tensile test
3.	Wrapping test
4.	Conductor resistance
5.	Partial discharge test
6.	Dielectric power factor test
7.	Bending test followed by partial discharge test
8.	Heating cycle test followed by partial discharge test
9.	Test for thickness of insulation and sheath
10.	Tensile strength and elongation test for insulation and sheath Ageing test for insulation and sheath
11.	Loss of mass tests for insulation and sheath
12.	Shrinkage Test for Insulation and Sheath
13.	Hot Deformation Test for Insulation and Sheath
14.	Cold Bend Test (up to 6mm.sq.) size
15.	Cold Impact Test for Insulation and Sheath
16.	Heat Shock Test for Insulation and Sheath
17.	Thermal Stability Test for Insulation and Sheath
18.	Test for Bleeding and Blooming of pigments for PVC Insulation & Sheath
19.	Fire Resistance Test
20.	Measurement of Insulation Resistance
21.	Impulse withstands Test.
22.	High voltage test (Cable immersed in water)
23.	High voltage test at room temperature
24.	Oxygen Index
25.	Temperature Index
26.	Smoke density test
27.	Flammability test
28.	Swedish Chimney test
29.	Ladder Test.
30.	

Date:
Place:

Signature of Bidder
Name:
Status
Whether authorized attorney
Of tendering company
Name of Tendering Company

SCHEDULE-VI

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9.	Test for thickness of insulation and sheath
10.	Tensile strength and elongation test for insulation and sheath Ageing test for insulation and sheath
11.	Loss of mass tests for insulation and sheath
12.	Shrinkage Test for Insulation and Sheath
13.	Hot Deformation Test for Insulation and Sheath
14.	Cold Bend Test (up to 6mm.sq.) size
15.	Cold Impact Test for Insulation and Sheath
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27.	Flammability test
28.	Swedish Chimney test
29.	Ladder Test.
30.	

Date:
Place:

Signature of Bidder
Name:
Status
Whether authorized attorney
Of tendering company
Name of Tendering Company

SECTION- 3

PROJECT DETAILS AND GENERAL SPECIFICATIONS

3.0 GENERAL

This section stipulates the General Technical Requirements under the Contract and will form an integral part of the Technical Specification.

The provisions under this section are intended to supplement general requirements for the materials, equipment and services covered under other sections of tender documents and are not exclusive. However in case of conflict between the requirements specified in this section and requirements specified under other sections, the requirements specified under respective sections shall prevail.

3.1 PROJECT DETAILS

Name of the Project:	**4x225MW , Arun-3 HEP ,Nepal**
Name of the Customer:	**SAPDC**
Name of Consultant :	**SJVN**

SJVN Arun-3 Power Development Company (P) Ltd. (SAPDC), a company promoted by SJVN Ltd., as a single shareholder company in Nepal having its registered office at Lokanthali, Kathmandu, Nepal has signed Project Development Agreement with Government of Nepal to plan, promote, organize & execute Arun-3 Hydroelectric Project (900 MW) in Sankhwasabha District. of Nepal.

The bid prepared by the Bidder and all correspondence and documents related to the bid exchanged by the Bidder and the consultant/owner shall be written in the English, provided that any printed literature furnished by the Bidder may be written in another language, as long as such literature is accompanied by a translation in English, in which case, for purposes of interpretation of the bid, the translation shall govern.

3.2 Location & Land Availability:

The proposed project site is located at a distance of 50 km from Khandbari, the headquarters of Sankhuwa sabha District of Nepal. It is at about 240 km from Biratnagar and about 740 km from Kathmandu. The location details of the proposed project site are as indicated below:

- Latitude …….. .27^{O}30'N – 27^{O} -35'N
- Longitude …….. ...87^{o} -12'E – 88^{O}-20'E
- Distance from Tumlingtar (domestic airport) town is……About 68 km
- Distance of Kathmandu (international airport) from Tumlingtar…..About 660.km

3.3 Climatic Condition

A	Meteorological data		
1.1	Maximum ambient temperature	^{0}C	35
1.2	Minimum ambient temperature	^{0}C	4
1.3	Design ambient temperature	^{0}C	40
1.4	Design minimum ambient temperature	^{0}C	-4
1.5	Maximum Relative humidity	%	100
1.6	Maximum Relative humidity	%	35

3.4 Seismic Zone

The equipment shall be designed for operation in seismic zone IV for earthquake resistance. The equipment and each part of it shall be strong enough and sufficiently well connected to resist total operating stresses resulting from forces in normal operation, abnormal condition and forces superimposed due to occurrence of earthquakes of intensity which cause a ground acceleration of 0.16 g in vertical direction and 0.24 g in the other horizontal directions.

3.5 Transportation

Unless otherwise specified in the **Specification**, responsibility for arranging transportation of plant and equipment lies with the Contractor. The Contractor shall at its own risk and expense transport all plant and equipment to a destination specified in bid document. The contractor shall transport the contracted plant and equipment/ supplies through registered common carriers only.

The nearest major airport is at Kathmandu which is at a distance of 740km from Project Site. Biratnagar is connected to Kathmandu by Road.

The major nearest seaport for the trans-shipment of heavy equipment to Nepal is Kolkata. Other sea ports for imported equipment would be Mumbai or Chennai as convenient. The two sea ports Mumbai & Chennai are connected to Kolkata and Jogbani by rail as well as roads.

Railway transport is available from Kolkata and other locations of Indian Cities to the Nepal-India border only. The broad gauge line from Kolkata ends at Jogbani, Bihar. All rail freight for Nepal has to be unloaded there. The distance of Kolkata by rail route is about 800 km. From Jogbani, the road distance to the projects sites via Biratnagar is about 300km.

Road access to Arun-3 project from Kolkata to Jogbani is 600km; from Biratnagar to Project Area via Hile is 300km. Total distance to project area from Kolkata is 900km. Alternative route could be from Kolkata to Raxaul which is 800km, further from Birganj to Dhalkebar to Hile to Project Area which is 450km. Total distance Kolkata to Project Area is 1250km.

Local transportation, insurance and other services incidental to the delivery of facilities to be supplied from Employer's country (Schedule- 2 Items) shall be quoted separately.

3.6 Transport Limitation

The transport limitation by road from Jogbani to the project site is the governing factor for determining permissible package size and weight.
The existing roads allow the transport of the packages of the following size and weight.
Size (in mm) (l x b x h) - 9700 x 6000 x 6000*
Weight (Tonnes) - 70R
Heaviest package to be transported with suitable number of axle for safe transportation of consignment for 70R bridge capacity.

* Height from the ground.

3.7 Salient features of Project

The salient features of Arun-3 HEP are as follows:

A. POWER HOUSE COMPLEX

i. Power House Cavern		Underground on Left bank
ii.	Installed capacity	900 MW
iii.	No. of units	4
iv.	Unit Capacity	225 MW
v.	Size of Power House Cavern	179.50m (L) x 22.5m (W) x49.5m(H)

B. UNDERGROUND TRANSFORMER CAVERN

i. Size	146.14m (L) x 16 m(W)x 23m(H)
ii. Transformer Type	Single Phase
iii. Number and rating	13 nos. (including 1 spare), 15.75/420/√3kV, 50Hz, 92MVA
iv.Transformer Hall level	El. 552 m

C. Switchyard & Transmission

i.Type of Switching	Gas Insulated Substation and Pothead Yard
ii. Size	207m (L) x 106m (W)
iii. Switchyard level	El. 557 m
iv. Transmission System	400kV Arun III HEP – Muzzafarpur via Dhalkebar D/c Quad Moose Lines with LILO of both circuits at Dhalkebar 400/220kV substation

3.7.1 SYSTEM PARAMETERS

1	Continuous current carrying capacity (rms) at 40° C ambient temperature.	2000A (min)
2	Short time current carrying Capacity	50kA for 1sec
3	Voltage	400KV/420kV (rms) (Nom/Max)
4	Frequency	50Hz
5	System neutral earthing	Effectively earthed
6	Insulation Level	
a	One minute Dry Power frequency Withstand Voltage (kV rms)	630
b	One minute Wet power frequency Withstand Voltage (rms)	630
7	Switching Impulse withstand(250/2500 microsec.) voltage (kV peak)	1050
8	Impulse Withstand Voltage of arrester housing with 1.2/50 micro sec wave.	1425 kVp
9	Creepage distance	25 (mm/kV)
10	Radio Interference voltage at 320kV	As per CEA guidelines

3.7.2 AUXILIARY POWER SUPPLY

3.7.2.1 AC power

Three-phase system with grounded neutral for feeding three-phase and one-phase consumers (connected between phase and neutral), 415/240V ± 10% and 50Hz , -5% to +3 %. All motors and other electrical apparatus should be designed to work continuously under,-5% to +3 % frequency variation and ±10% voltage variation.

3.7.2.2 DC power

DC Systems, ungrounded, with earth fault detection 220V plus (+) 10% and minus (-) 20% for the supply of main control circuits for high and medium voltage switchgear, protection circuits and to other larger essentials loads. Other voltage systems eventually needed, shall be generated from the above systems by means of dc/dc converters, inverters etc.

3.7.2.3 Deleted

3.7.2.4 Cabling & wiring

Wiring within cubicles and equipment enclosures shall conform to requirements of this section unless otherwise specified. Control wiring shall be single / stranded copper subjected to prior approval by purchaser during detailed engineering and shall not be smaller than 2.5 Sq. mm, except as otherwise agreed by the purchaser.

All Distribution Boards, Control & Protection panels, Motor Control control panels etc. shall be supplied completely wired internally up to the terminal blocks ready to receive purchaser control cable.

All inter cubicle and inter panel wiring and connections between panels of same Distribution Board, Control & Protection panels, Motor Control panels including all bus wiring for AC and DC supplies shall be provided by the tenderer.
Larger size wiring shall be used where needed for the current carrying capacity requirements.

Cables shall have at least 1000 V PVC insulation except for 220V DC and telemetering or communication system equipment for which 650V and 300 V ratings respectively are acceptable.

For current and potential transformer secondary circuits the minimum cross section of the conductors shall not be less than 4.0 Sq. mm.

Wiring shall terminate at terminal blocks at one side only. Where tap connections are required, they shall be made on terminal blocks. Wiring shall be neatly arranged and laid in wire ways accessible from the front door.

Engraved core identification ferrules marked to correspond with panel wiring diagram shall be fitted at both ends of each wire.

Each cubical shall be provided with an earthing bar (PE) of sufficient cross section carrying any possible fault current without undue heating. All metallic parts of the cubicle not forming part of the live circuits, all instrument transformer terminals to be earthed and other earthing terminals as well as all cable screens and PE-wires shall be connected to the earthing bar.

3.7.2.5 Power outlets

Power outlet for utilities such as electric drills, welding equipment etc., shall be provided in all floors of the powerhouse to enable repair and maintenance works to be done locally/ in-situ.

3.7.2.6 Terminal blocks

The terminal blocks shall be located to allow a neat and easy connection work and shall be safely accessible while the equipment is in service. Control circuits and power circuits shall be completely separated by use of divided or separate terminal blocks. Power terminal blocks shall be rated in accordance with applicable standards, and shall be provided with covers. Terminal blocks shall be 1100V grade and have continuous rating to carry the maximum expected current on the terminals.

Terminal blocks for current transformer and voltage transformer secondary leads shall be provided with test links and isolating facilities. The current transformer secondary leads shall also be provided with short circuiting and earthing facilities.
The terminal shall be such that maximum contact area is achieved when a cable is terminated.
The terminal shall have a locking characteristic to prevent cable from escaping from the terminal clamp unless it is done intentionally.
The conducting part in contact with cable shall preferably be tinned or silver plated.
The terminal blocks shall be of extensible design. The terminal blocks shall have locking arrangement to prevent its escape from the mounting rails.

The terminal blocks shall be fully enclosed with removable covers of transparent, non-deteriorating type plastic material. Insulating barriers shall be provided between the terminal blocks. These barriers shall not hinder the operator from carrying out the wiring without removing the barriers.

Unless otherwise specified terminal blocks shall be suitable for connecting the following conductors on each side.

All circuits except CT/ PT flexible circuits	Minimum of two of 2.5 sq. mm copper
All CT/ PT Circuits flexible	Minimum of 2 nos. of 6 sq. mm copper

The arrangements shall be made in such a manner so that it is possible to safely connect or disconnect terminals on live circuits and replace fuse links when the cabinet is live.
Wherever duplication of a terminal block is necessary it shall be achieved by solid bonding links.

At least 20% spare terminals shall be provided on ach panel / cubicle / box and these spare terminals shall be uniformly distributed on all terminals rows.
There shall be minimum clearance of 250 mm between the first / bottom row of terminal block and the associated cable gland plate. Also, the clearance between two rows of terminal blocks shall be a minimum of 150 mm.

3.7.2.7 Protection requirement

For short circuit and overload protection of power and control circuits, air circuit breakers, moulded case circuit breakers or MCBs shall be used. Outlets from AC (and DC) distribution panels are protected in their respective panels.

3.7.2.8 Switches, Lamps & Instruments

General

Control switches, indicating lamps and instruments shall be arranged so that all parts are readily accessible for servicing without the necessity to remove other devices, terminal blocks or excessive amount of wiring.

All control switches and indicating devices mounted in cabinets and enclosures shall be visible with the doors closed.

Identification nameplates shall be provided for all control switches, indicating instruments and lamps, in accordance with clause “Nameplates”.
Instruments and controls shall be located so that their dials, indicators and nameplates are clearly readable. Data for all instruments to be provided, including type, size, scale range, electrical ratings, nameplate and name of manufacturer, shall be furnished. Steel panels shall be provided for group mounting of the instruments.

All instruments shall be of an approved type and shall match, insofar as practicable, the other instruments with which they are associated; their dial type, scaled markings and units, type of connection and mounting, shall be co-coordinated. All piping and tubing required for instruments shall be furnished and installed. All instruments and control switches shall be furnished with necessary auxiliaries,i.e. resistors, shunts etc.

3.7.2.9 Control and Selector switches

The switches and push buttons shall be provided with ample contact ratings, suitable cam or block arrangements necessary for the control functions on 230 V AC or 220V DC circuits. The control switches used in mimic diagrams shall be of discrepancy type with built in lamp indication.
Control and Selector switches shall be rotary type with escutcheon plates clearly marked to show the function and positions. The switches shall be of sturdy construction suitable for mounting on panel front.
Switches with shrouding of live parts and sealing of contacts against dust ingress shall be provided.
Circuit breaker control switches shall have three positions and shall be spring return to "NEUTRAL” from "CLOSE" and "TRIP" positions and shall have pistol grip handles. They shall have at least two (2) contacts closing in close position, and two (2) contacts closing in trip position unless specified otherwise.
Ammeter and voltmeter selector switches shall have four stay out position with adequate number of contacts for three phase 4 wire system. These shall have oval handles. Ammeter selector switches shall have make before break type contacts to prevent open circuiting of CT secondaries. Contacts of the switches shall be spring assisted and shall be of suitable material to give a long trouble free service.

3.7.2.10 Push buttons

Push-buttons shall be of spring return, push to actuate type. Their contacts shall be rated to make, continuously carry and break 10A at 230V AC and 0.5A at 220V DC.

All push buttons shall have one normally open and one normally closed contact, unless specified otherwise. The contact faces shall be of silver or silver alloy.

All push buttons shall be provided with integral escutcheon plates marked with its function. The colour of the button shall be as follows:

Green : Breaker Close
Red : Breaker Open
Black : For overload reset

3.7.2.11 Indicating and signaling lamps

Each indicating and signaling lamp shall have a removable cap, which can be inscribed with wording and shall not be affected with the heat of the lamp.
Indicating lamps are preferably of LED type & low watt consumption and shall be replaceable from the front of the panel. The indicating and signaling lamps shall be of the same size and type.
Lamps shall be provided with series resistors, preferably built-in the lamps assembly.
The lamps shall have escutcheon plates marked with its function, wherever necessary.

Lamps shall have translucent lamp-covers of the following colours, as warranted by the application.

Red : ACB's/MCCB's close
Green : ACB's/MCCB's open
White : Auto trip
Amber : For all healthy conditions e.g. control supply
Voilet : Circuit breaker spring charged
Blue : For all alarm conditions (e.g. overload) Also for "SERVICE" & "TEST" positions indicators

Indication lamps should be located just above the associated push buttons/control switches.
All indicating lamps shall be suitable for continuous operation at 90% to 110% of their rated voltage.

3.7.2.12 HRC Fuses

HRC-Fuses shall have visible operation indicators.

HRC-Fuses shall be mounted on fuses carriers, which are mounted on fuse bases. Wherever it is not possible to mount fuses on carriers, fuses shall be directly mounted on plug-in type of bases. In such cases one set of insulated fuse pulling handles shall be supplied with each switchgear.

HRC-Fuse rating shall be chosen by the tenderer depending upon the circuit requirements.

3.7.2.13 Indicating instruments and Meters

Instruments mounted on panels, shall be of the semi flush type back connected, matching pattern, shape, and of approved finish to present neat and fitting appearance consistent with functional requirements Mechanical quantity measuring instruments which are directly mounted on equipment shall have circular dials and shall be properly supported and guarded against accidental injury/breakage. These shall be placed in convenient locations.

The instruments shall accurately measure and indicate the quantity under all conditions of operation with minimum instrument errors. Changes in ambient temperature within the range prevailing at site shall not affect the accuracy Contact making instruments shall have contacts suitable for 240 V AC or 220 V DC circuits.

The reading scales on the dials shall be in metric units only and range shall be such that the normal operating values of the quantities are indicated in the middle 3rd of the scale. The dials pointer etc. shall be designed to facilitate accurate reading by minimizing parallax and glare from instrument window and by providing clear bold dial markings. The size of dial and length of the scales of the indicating instruments shall be large enough to suit the requirements. The scale plates of panel mounted indicating instruments shall have a permanent white mat finish with black graduations and the pointer shall also be of the black colour. Instruments mounted on panels shall be of flush type and shall be back connected. All instruments on a switchgear panel shall be of matching pattern, shape and finish so as to present a pleasing appearance consistent with the functional requirements.

All instruments shall conform to relevant International or national applicable standards. These shall be subjected to tests prior to dispatch. The instruments shall be shock, vibration and moisture proof. The electrical instruments shall withstand dielectric test of 2000 V RMS to ground for one (1) minute as per standards.

The coils of electrical instruments shall be designed for continuous operation at 110% of the full load current at instrument potential. The coil rating of the measuring instruments shall be coordinated with those of the associated instrument transformers (i.e. CTs, PTs, etc.) by the supplier. The VA burden of the instruments shall be as low as possible. The meters shall be of the first grade in respect of accuracy classification.

Energy meter shall be suitable for 3-phase, 4-wire unbalanced system and shall comply generally with the relevant standard. All instruments shall be tested in accordance with the requirements of relevant standards.

3.7.2.14 Integrating instruments

The Wh and VArh meters shall be of the semi-flush-mounted type. Each meter shall be connected to terminal blocks suitable for opening and short-circuiting for testing purposes. The meter cases shall be dust-tight and with removable covers. The meters shall be three-phase, three element, equipped with an impulse contact mechanism, potential free for remote metering purposes, and shall be suitable for continuous operation from secondary of potential transformers and from secondary of current transformers, with transformer ratios and connections indicated on the contract drawings.

The meters shall be provided with primary-rated, direct reading registers, with five or more digits and a suitable multiplier. The meters for the outgoing lines shall be of the two-way type and all meters shall have mechanism to prevent negative registration.

The meters shall have built in over-voltage protection and isolation according to IEC Publication 60521. The tolerance ambient temperature range of the meters shall be 0 to 45 degrees C.
The protection class of the Wh meters shall be 0.2 and the VArh meters 0.2 according to IEC Publication 60687.

3.7.2.15 Measuring converters

The converters shall be suitable for direct connection to the secondary circuits of the potential and current transformers used, or other sensors, each as they apply. The converters shall be static type, having all accessories to provide an output signal of 4-20 mA, filtered DC.
For the measuring converters the following minimum requirements shall be fulfilled:
Current transducers shall be single-phase, of accuracy class 0.5 or better. Voltage transducers shall be single-phase of accuracy class 0.5 or better. W and VAR transducers shall be two elements, three-phase. Accuracy class of the transducers shall be 0.5 or better.

3.7.2.16 Measuring transformers

All current and voltage transformers shall be completely encapsulated cast resin insulated type suitable for continuous operation at the temperature prevailing inside the switchgear enclosure, when the distribution board is operating at its rated condition and the outside ambient temperature is 40 deg.C.
All instrument transformers shall be able to withstand the thermal and mechanical stresses resulting from the maximum short circuit and momentary current ratings of the associated switchgear.
All instrument transformer shall have clear indelible polarity markings. All secondary terminals shall be wired to a separate terminal on an accessible terminal block where star-point formation and earthing shall be done.

All VTs shall have readily accessible HRC current limiting fuses on both primary and secondary sides.The class of insulation should be E or better.

The parameter & rating of CTs & PTs are minimum requirement & tentative only. Contactor shall submit the calculations for selection of CT/PT for approval to purchaser. Potential transformer secondary windings shall be rated 110 / V3 V Current transformer secondary windings shall have a rated current of 1A / 5A.

3.7.2.17 Nameplates and Labels

Each major and auxiliary item of equipment shall have a nameplate permanently affixed thereto, or as directed, showing in a legible and durable manner the serial number, name and address of the manufacture, rated capacity, speed, electrical characteristics, and other significant information, as applicable.
The module identification plate shall clearly give the feeder number and feeder designation wherever applicable. For single front switchboards, similar panel and board identification labels shall be provided at the rear also.
All name plates shall be of non rusting metal or 3-ply lamicoid with white engraved lettering on black back-ground, inscriptions and lettering sizes shall be as per their standard practice. Suitable plastic sticker labels shall be provided for easy identification of all equipment, located

inside the panel/module. These labels shall be positioned so as to be clearly visible and shall give the device number, as mentioned in the module wiring drawings.

3.7.2.18 Motors

All electric motors for driving various equipment shall conform to relevant standards viz. IEC, BS or IS as applicable. The motor rating, torque characteristics, speed etc. shall be selected to suit the duty requirements.

Type of starter for motors shall be duly approved by the purchaser during detailed engineering. The detailed design calculation for selection of type of starters is to be submitted for approval. The priority for type of starters shall be in the following order:

1. Variable frequency drive
2. Soft starter
3. Star delta/ auto –transformer
4. Direct on-line starter

The enclosure of each motor shall be of the type best suited for the service conditions of the motor. The motor insulation shall be resistant to moisture, oil or oil vapor and the motors in general shall be so designed as to suit the tropical climate. Varnished cambric or glass insulation class F shall be used for connection from the windings to the terminals.

The terminal box shall be closed conduit box type conveniently located, and shall have means for terminating the external wiring for outdoor use. The motor terminals shall be of the stud type totally enclosed. Eye bolts or lugs shall be provided for lifting.

Space heaters to avoid condensation shall also be provided. Special type of motors, not adequately covered by these specifications, shall be offered for any special application, but these shall be subject to the approval of purchaser.

3.7.2.19 Space heaters

Space heater shall be provided in the Distribution Boards, Control & Protection panels, Motor Control panels etc. The space heaters shall be suitable for continuous operation on 240V AC, 50 HZ single phase supply, and shall be automatically controlled by thermostats. Necessary isolating switches and fuses shall also be provided.

3.7.2.20 Auxiliary relay, contacts and devices

All relays and timers in protective circuits shall be flush mounted on panel front with connections from the inside. They shall have transparent dust tight covers removable from the front. All protective relays shall have a draw out construction for easy replacement from the front. They shall either have built-in test facilities, or shall be provided with necessary test blocks and test switches located immediately below each relay. The auxiliary relays and timers may be furnished in non-draw out cases.

All AC auxiliary relays shall be suitable for operation with VTs and CTs secondaries.

DC auxiliary relays shall be designed for 220V DC unless otherwise specified and shall operate satisfactorily between 80% and 110% of the rated voltage. Relays shall have adequate thermal capacity for continuous operation in circuits in which they are used.

All protective relays and timers shall have at least two potentially free output contacts. Relays shall have contacts as required for protection schemes. Contacts of relays and timers shall be silver faced and shall have a spring action. Adequate number of terminals shall be available on the relay cases for applicable relaying schemes.

Suitable number of auxiliary contacts or auxiliary relays shall be provided with each VCB's / ACB's for indication, remote indication, annunciation and automatic changeover and interlocking scheme.
All protective relays, auxiliary relays and timers shall be provided with hand reset operation indicators (flag) for analysing the cause of operation.

3.7.2.21 Welding & NDT

Preparation of base material

Members to be joined by welding may be cut to shape and size by mechanical means such as shearing, machining, grinding, or by gas or arc cutting, to suit the conditions. Edges shall be shaped according to ASME requirements. Design of welded joints and selection of weld filler metal shall be in accordance with approved standards and shall allow thorough penetration and good fusion of the weld with the base metal. The edges of surfaces to be welded shall be sound metal free of visible defects such as laminations or defects caused by cutting operation at least 30 mm back from the edge of the weld, and free from rust, oil, grease, and other foreign matter.

The establishment of welding procedures, welder's qualifications shall conform to the requirements of the ASME Boiler and Pressure Vessel Code Section VIII and IX. The approved copy of the WPS & WPQR in accordance with the ASME requirements shall be submitted to the purchaser for review and record.

3.7.2.22 Field welding

Filler material required for field-welded joints shall be furnished by the Contractor. The Contractor shall perform all welding work at site in accordance with the applicable WPS. Only qualified welders shall be used for undertaking welding as per the applicable WPS.NDT shall be performed as per the approved drawings.

Preparation for field welding

All cutting, chamfering, and other shaping of metals necessary for the field connection shall be done as far as possible in the shop. Adequate temporary bolted field connections shall be provided to hold the assemblies rigidly and in proper alignment during shop and field assembly.
To ensure proper alignment during field erection, a minimum of two dowels shall be provided for each field connection between subassemblies. The holes shall be drilled and the dowels fitted at shop assembly after the subassemblies have been satisfactorily aligned. All stipulations for welding, structural work and other, shall be applied to fieldwork as well as to shop work, except where otherwise stated.

3.7.2.23 Painting

All the equipment furnished and installed by the Contractor shall be completely painted for final use, with the exception of those parts or surfaces that are expressly designated as unpainted. Surfaces to be painted shall receive the preparatory treatment and required number of coats. The Contractor shall perform all painting work in the shop, before shipment, followed by a final coat of paint at site after installation as per the standard procedure.

All materials, supplies, and articles furnished shall be the standard products of recognized reputable manufacturers. Colour schedule of equipment supplied shall be finalized during detailed design stage.

3.7.2.24 Galvanization

All materials to be galvanized shall be of the full dimensions shown or specified and all punching, cutting, drilling, screw tapping and the removal of burrs shall be completed before the galvanizing process commences. All galvanizing shall be done by the hot dip process with smelter, not less than ninety eight percent (98%) of which must be pure zinc. No alternative process shall be used without the approval of the purchaser. No components shall be galvanized which are likely to come into subsequent contact with oil. Bolts shall be completely galvanized including the threads, but the threads shall be left uncoated in the case of nuts.

The zinc coating shall be uniform, clean, smooth and as free from spangle as possible. In the case of component parts the zinc coating shall weigh not less than 0.6 kg/m2 over the area covered and be not less than 0.09mm in thickness. All galvanizing shall comply with the requirements of the relevant ASTM standards/Indian Standards. All galvanized parts shall be protected from injury to the zinc coating due to differential aeration and abrasion during the period of transit, storage and erection. Damaged areas of the coating shall be touched up with an approved zinc dust paint or other approved flake metallic compound.

3.7.2.25 Pumps

All pumps forming part of the generating units and other plant and equipment shall be of high performance requisite type (viz. centrifugal, rotary etc.) and rating, of reputed make, and shall be directly coupled to their driving motors. The pumps shall be of self-priming type and with proper sealing systems and protection.

The materials of construction of pumps in general shall suit the service conditions. The materials of construction of the pumps handling water, such as drainage & dewatering pumps, turbine top cover drainage pumps etc. shall be resistant to abrasive effects of silt in such water. The pumps shall operate quietly without undue noise and vibration in their full operating range of head and flow. They shall be easy to maintain.

3.7.2.26 Embedded parts, Anchor Bolts and Fasteners

All embedded anchor bolts, rods, pipes, welding plates and support plates shall be provided by contractor. Anchor bolts shall consist of a threaded steel rod installed inside a pipe sleeve to provide lateral adjustment after the sleeve is embedded. The threaded end of the rod shall be provided with two steel nuts and two steel washers to permit leveling and anchoring the equipment prior to grouting.

Approved types of expansion or chemical anchors shall be used where practicable for small equipment.

3.7.2.27 Rust Prevention and Protection during Transit:-

Bright steel parts including all machined surfaces shall be given a thick coat of tar or tallow or any other approved rust resisting paint in plain colour to prevent rusting during shipment and transport.

3.7.2.28 Civil Works

Civil foundations for equipment of the generating units and other plant and equipment will be prepared by the Purchaser in accordance with the basic design data to be supplied by the Contractor.

The Contractor shall provide design for foundations and install the concrete inserts/embedment; support steels and/or components for foundation /supports purpose, shall do any chipping / levelling works, denting / painting etc.

3.7.3 Erection, Testing, Commissioning and performance of Guarantee Tests

3.7.3.1 Testing and inspection

Materials used for construction of major & important sub-assemblies shall be thoroughly Lab / shop tested and inspected by the Contractor at his own expense prior to dispatch. Lab / Shop test shall comprise of routine test & type tests.

The shop tests and inspections shall be as spelt out in individual equipment specifications as dealt in succeeding sections but shall not be limited to the same. Any other tests and inspection not specifically listed but are otherwise considered essential and advisable shall also be conducted.

The Bidders shall furnish schedule of the lab / shop tests and inspections on materials and equipment. Important tests/inspections shall be subject to witness by the purchaser for which the Contractor shall give sufficient advance notice. In case purchaser is unable to witness shop tests/inspections, the Contractor shall be so intimated and the tests/inspections may then be carried out in the absence of the Purchaser.

Equipment on which tests and inspections have been duly witnessed and approved by the Purchaser may be dispatched by the Contractor. Equipment on which tests and inspections have not been witnessed by the purchaser shall be dispatched only after the shop tests and inspection Certificates have been approved by the Purchaser.

3.7.3.2 Dimensional Checks and Visual Inspection

Dimensional checks shall be performed on all major parts, components and partial assemblies, especially when close tolerances and fits are involved (tolerance of shafts, between stationary and moving parts, connecting dimensions for the assembly with other supplies, etc.). If the dimensional checks show discrepancies in measurement, which may affect the fit, assembly or dismantling of the respective part or component, the same have to be corrected correspondingly. Such correction or modification shall, however, in no way lead to sacrifices with respect to reliability of operation or inter-changeability, and shall be performed only after the agreement of the Owner has been obtained. If the correction or modification cannot be carried out in accordance with the terms mentioned above, the part or component concerned may be subject to rejection. Faulty machine parts or equipment shall by no means be delivered.

3.7.3.3 Functional Tests

Functional tests on partial assemblies and/or complete assemblies shall be carried out as much as possible already in the manufacturer's workshops. Such tests shall be performed as far as possible under operation-like conditions.

When requested by the Owner, the functional tests shall be repeated until full proof has been obtained that the functioning of the assemblies will comply with the requirements of the Contract Documents.

3.7.3.4 Erection, commissioning & field tests

The Contractor has to do all the work related to assembly, erection, testing and commissioning complete in all respects. All necessary tools, plants, labour, materials including consumables for performing installation, testing and pre-commissioning shall be provided by the Contractor.

The Contractor shall submit the necessary data/information, layout and foundation/support drawings well in advance. The Contractor shall provide and install the concrete inserts/embedment, support steels and/or components for foundation/supports purpose as per approved erection drawings and coordinate the activities with civil contractors to keep his activities in synchronism with civil work. All installation for foundation shall be verified and accepted by the Engineer.

The Contractor shall use anchor fasteners for installation of piping, fixtures, mountings, conduits, cabling, panels etc. Minor Chipping of concrete is permitted. However, taking support from reinforcement bars shall not be allowed.

3.7.3.5 Installation procedure

The Contractor shall submit six copies of all detailed programs and the procedures to be adopted for erection / installation, testing and commissioning well in advance, before start of erection activities/ installation.

The installation procedure shall also have a section “site quality assurance plan” containing erection data sheets / site protocols for various components. These sheets should specify site measurements/ inspections required to be made for ensuring proper installation.

3.7.3.6 Cable laying

Wiring between equipment enclosures shall be made with cables, laid in trenches and/or cable trays and in cable conduits. The Contractor shall submit for review to the Engineer a cable route layout-showing location of trenches, conduits and trays. All material for cable laying such as cable trays supports and fastening material shall be furnished and placed by the Contractor. Cables shall be properly fastened and marked where they enter enclosures by either cable clamps or nipples.

Cables in horizontal cable trays shall be fastened properly with clamps or plastic strips. Power and control cables shall be placed in separate trays or conduits. Cables shall be clearly marked at each terminal point and appropriate intermediate locations as per Standard.

Conduits shall be of heavy gauge rigid steel, hot-dip galvanized, cut square reamed, threaded and screwed tight at all joints.

Conduit entrances to pull boxes and switches shall have double lock nuts & insulating bushings. No running thread shall be used.

Flexible metallic conduit shall be used for connection to equipment, which are subject to vibration, and also for connection to level/limit/pressure switches.

3.7.3.7 Field inspection

The Contractor shall permit Engineer to perform inspections of the assembly which will include a complete verification of the assembly of all parts as to their levels, clearances, pertinent fits, alignments and quality of workmanship. The field supervisor of the Contractor shall provide Engineer with three (3) copies of all the clearances, tolerances and data of all pertinent fits, alignments and levels, so that the latter may repeat the Contractor's measurement, if desired.

Unless otherwise specified, any rejection based on the inspection will be reported to Contractor within fifteen (15) days.

3.7.3.8 Field tests

All field tests including tests during installation, pre-commissioning, commissioning, performance and field acceptance tests shall be conducted by the Contractor, in the presence of representative of the Employer. Procedure to be adopted for conducting these tests shall be submitted well in advance, before start of relevant testing, for approval of the Employer.

The equipment / system shall be deemed to be commissioned and ready for trial run only after successful operation for a test service period specified in sub clause "Performance Testing". In the event of any failure this period shall be repeated for any number of times till the successful operation as described above is achieved.

All test equipment and instruments shall be furnished by the Contractor and will remain the Contractor's property after the fulfillment of all field tests.

Any defects or leaks disclosed in the tests shall be duly mended/ repaired to meet the desired function and retested. All necessary materials and labour for performing all the above tests shall be provided by the Contractor.

The Contractor shall prepare written test certificates in a form agreed upon by the Contractor and Employer of all tests results and hand them over to the Employer in due time.

The design, location and approval tests of anchoring rings for the fixing of lifting apparatus necessary for assembly and dismantling of equipment and plant accessories shall be the responsibility of the Contractor.

3.7.3.9 Taking over of facilities

Taking over" means that the Facilities (or a specific part thereof where specified) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of pre-commissioning of the Facilities or such specific part thereof has been completed and commissioning has been attained as per Technical Specifications. The contractor shall make formal request for taking over the facility to the EIC.

3.7.3.10 Operation acceptance

The operational acceptance by the Employer of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in parts), which certifies the Contractor's fulfillment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of Specification.

3.7.3.11 Consumables, oils and Lubricant

The Contractor shall deliver to the Owner all equipment complete with initial fill of fluids, grease or lubricants, transformer oil, Nitrogen, SF6 gas and other used gases in non returnable drums / containers and replace any quantity used up or lost during installation and testing.
The oil used for the lubrication and oil pressure systems for the turbine, governor, shutoff valve and generator shall be preferably of the same type.

Supply

The Contractor shall furnish the following:
(i) All oil for initial filling of all equipment supplied, plus additional oil equivalent to the first filling requirement of one unit.
(ii) Grease if required for initial filling of all of the equipment, plus 10% additional.
(iii) Gases for initial filling of all equipment supplied, plus 10 % additional quantity.
(iv) Flushing fluids to flush and clean all systems.

3.7.3.12 Deleted:

3.7.3.13 Submission of Drawings, Documents, Manual, software, Calculations, Safety Margin Details etc.

All drawings and documents shall be submitted to purchaser in hard form as well as in editable soft form. Bidder shall submit Ten (10) number hard copies of the documents & drawings to purchaser for reference / review / approval. A comprehensive list of all such drawings/documents planned to be submitted for reference/approval shall be provided beforehand to the purchaser.

Loading drawings

For all larger pieces of Works which, due to their dimensions and/or weight and transport limitations, will require special means for their transportation, the Contractor shall submit binding loading drawings indicating dimensions, weights, etc., of the respective pieces of Works and the necessary trailer for its transportation to the site.

Foundation drawings

If a piece of works requires its own foundation or needs a special area for installation, the contractor shall submit drawings indicating all pertinent dimensions, static and dynamic loads, etc. They shall include all essential details required for proper design and construction of the foundations and/or buildings.
In addition, they shall include openings, sleeves, slopes and the arrangement of any supporting structure, i.e. base-frames or other steel constructions for permanent fixing or erection purposes.
If conduits are to be installed in the foundations, the relevant information such as diameter, length, and purpose shall be indicated on the drawings.

Arrangement drawings

All arrangement drawings shall be drawn to scale. The General Arrangement Drawings shall show the physical arrangement of Works (constructions, machines, complete switchgears, control panels, instrument cubicles, etc.), civil constructions (buildings, rooms, foundations, ducts, etc.) and reserved areas (for pipes, cables, lines, etc.) in relation to each other and to

agreed co-ordinates and boundaries. Such drawings shall be prepared for the whole plot, for separate plots and for each building (building, hall, room, ducts and trenches, etc.).

Outline drawings

The Outline Drawing shall show all elements and the main dimensions of individual components where necessary in plan view, cross-section, side and top views. If reasonably possible such dimensions can be shown on Arrangement Drawings.

Design drawings

The Design Drawings shall include the shop drawings, assembly drawings, erection drawings, piping diagrams and piping arrangement drawings, etc., showing the dimensions, design and data of all constructions, apparatus and Works to be furnished under this Contract. The drawings shall - where applicable - substantially conform to the Contract Drawings and shall show:

- 3-D Assembly drawings for major components in hard and soft form.
- Details of manufacturing and treatment of major single work pieces specially manufactured for this Contract
- Assembly of the Works in plan and elevation with main dimensions Sub-assembly of the principal components of the Works with overall dimensions, adjustment and clearance tolerances, numbers of corresponding detail drawings
- Sub-assemblies in which the Contractor proposes to ship the Works
- All necessary details of the parts connecting to the Works supplied by others
- Location and sizes of auxiliary connections for oil, grease, water, air, electrical power etc.
- Location and size of the instruments and accessories provided
- Methods of lubrication and sealing
- Instructions for heat treatment, pressure tests, surface preparation and anticorrosive protection
- Full details of parts for which adjustment is provided or which are subject to wear
- Method and sequence of installation, field joints, erection and lifting devices, jacks, grout plugs, anchoring details, etc., if not shown on foundation drawings.

Installation drawings

The construction, mechanical, electrical and I & C Installation Drawings shall provide detailed information on the disposition of the various items of a system (e.g. lighting fixtures, socket outlets, connection boxes, transmitters, actuators, loudspeakers, telephones, pipes, valves, pumps, compressors, etc.) and of the piping and wiring respectively included in the installation or assembly. They shall be based on dimension drawings of cubicles, rooms, buildings or areas containing the Works.

Diagrams

Single-line diagrams

This is a simplified diagram of the essential electrical Works and their interconnections. Each circuit shall be represented by a single line only. It shall contain all required technical information of the Works represented, e.g. voltage, current, capacity, shortcircuit level, ratios,

voltage variations, positive and zero sequence impedances, measuring transformer and protection relay indices, interlocking, kind of switch drive, code designation, etc. as applicable.

Circuit diagrams

The Circuit Diagrams shall show the power circuits in all the phases with the main apparatus as well as the pilot circuits (measuring and control circuits). It shall show in full the functioning of part or all installations, Works or circuits with all required technical details.

Block diagrams

The Block Diagrams shall be used to show in a simplified manner the main inter - relationships between the elements of a system by means of symbols, block symbols and pictures without necessarily showing all the connections. The symbols used for the individual kinds of components, e.g. servomotors, computing modules, etc., shall clearly be explained on the diagram or on an attached legend.

Logic diagrams

The Logic or Functional Diagrams shall be used for representation of logic and sequence controls and interlocking by showing only binary logic elements and their effect on the various process equipment disregarding their electrical realisation. Logic function elements (AND, OR, NOR, NAND, STORAGE, etc.) shall be used for processing and combining binary signals.

Terminal diagrams

Such diagrams shall be prepared for any type of terminal box, marshalling rack, control cubicle, switchboard, etc., and shall show the terminals (properly numbered) and the internal and/or external conductors (wires or cables) connected to them.
The terminal diagram of each individual switchboard, terminal box, panel, etc., shall contain, but not be limited to the following information:

Protection co-ordination diagrams

These diagrams shall show in a graphical manner separately for each power supply circuit:

- A simplified single-line diagram of the circuit with technical data of all instrument transformers and relays
- Co-ordinated tripping curves of related protection devices
- Setting of the protection devices.

Emergency shutdown diagram

This diagram shall show the sequential steps and interdependencies during emergency closure.

Flow Charts

Flow charts shall be used for representing sequence of events for start / stop / shut down of the machine including associated equipment and auxiliaries.

Manuals

The following manuals covering all equipment of EM works shall be supplied as per the time schedule in both editable soft and hard form:-

Sr.No.	Manual Description
1.	Storage and preservation manual
2.	Safety manual
3.	Erection Manual
4.	Testing and commissioning manual
5.	Operation manual
6.	Maintenance manual
7.	Long term storage manual for Generator Transformer
8.	Long term storage manual for boxed up component / equipment.
9.	Repair process / procedure manual for equipment / system

As built drawing to be provided incorporating changes made during erection, testing and commissioning.

Drawing & Document Submission Schedule
Drawings & documents submission schedule of the EM package with the categorization (i.e. Approval / reference) & tentative submission date shall be submitted to purchaser.

Preliminary list of drawings under various categories have been prepared and appended at Section 1 of the Technical Specification.

3.8 DRAWINGS & DOCUMENTS TO BE SUBMITTED BY THE SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT

One set of soft copies of all the approved drawings, documents including as built drawings shall be furnished by the Bidder to the Owner / Consultant in compact discs.

White prints or other non-reproducible drawings can be mailed folded. Blue prints shall generally not be used.
All drawings, prepared by the Bidder shall be as per IS: 696. Supplier's standard drawings are exempted from the above size limitation, unless his "standard" includes drawings of very large size or length. There shall be sufficient reference notes on the drawings to permit identification of all the drawings which are required for a proper understanding.

Bills of material and drawings shall be cross-referenced for easy identification.

All drawings shall be dimensioned in the metric system. Where drawings are usually made in the British (or other) system, they shall also have metric system dimensions in parentheses or below dimension line. Titles and written notations shall be in English. If the original is in another language it shall carry English translation. The translations will appear immediately on the drawings. Attached lists of translated words shall not be accepted.

Drawings and bills of material shall be identified by a numbering system to be mutually agreed later on. Any additional identification numbers or symbols that the Bidder selects to

use for his own purposes are permissible so long as Owner's number is the prime means of identification.

The scale of the drawing shall be shown clearly in the title block of the drawing. Wherever possible, scales of drawings shall be:-

1:1	1 : 2.5	1 : 5	1 : 10	1 : 20	1 : 25
1:50	1 : 100	1 : 200	1 : 300	1 : 500	
1: 1000	1 : 2000	1 : 5000			

All reproducible must be made from original drawings.

All revised drawing shall clearly indicate the number, date and subject to each revision. All the revisions carried out in the drawings shall be clearly identified and marked.

Drawing list shall be kept up-to-date, incorporating all new additions, cancellations and changes, and will be reissued periodically with Progress Report.

General arrangement drawings shall be submitted for approval to the Owner/ Consultant prior to the commencement of detail engineering by the Bidder. These drawings shall show to scale all major equipment including electrical equipment and building outlines and overall dimensions as well as tie-in dimensions and clearances shall be clearly indicated. Approved arrangement drawings shall be used as basis for design and preparation of detail drawing to be prepared by the Bidder. The Bidder shall furnish all the necessary drawings, data etc., of the plant/equipment with appropriate "Status" stamp in adequate no. of copies as indicated below:

S. No.	DESCRIPTION	TENDER STAGE	CONTRACT STAGE FOR APPROVAL	FINAL DOCUMENTATION	
			Prints	Prints	CDs
1	Drawings and Data Sheets	1	6	10	-
2	Drawings “As Built “	-	-	10	-
3	Type Test Reports	1	6	10	02
4	Erection Manuals	-	6	10	-
5	Operation and Maintenance Manuals	-	6	10	-
6	Manufacturing Quality Plan	1	6	10	-
7	Field Quality Plan	1	6	10	-
8	Inspection Test Reports	-	-	10	-

All instruction manuals / O&M Manual/”as built drawing”: 10 copies each

3.8.1.1 QUALITY ASSURANCE PROGRAMME

The Bidder shall follow Quality Assurance Programme to ensure that the equipment and services under the scope of contract whether manufactured or performed at the Bidder's works or at his sub-vendor's premises or at the SAPDC's site or at any other place of work are in accordance with the technical specifications. Such programme shall be outlined by the Bidder and be submitted along with the bid. The QA programme shall be generally in line with IS/ISO- 9001 and generally cover the following:

- ORGANISATION STRUCTURE FOR THE MANAGEMENT AND IMPLEMENTATION OF THE
- PROPOSED QUALITY ASSURANCE PROGRAMME
- QUALITY SYSTEM MANUAL
- DESIGN CONTROL SYSTEMS
- DOCUMENTATION AND DATA CONTROL SYSTEMS
- QUALIFICATION/EXPERIENCE OF BIDDER'S KEY PERSONNEL.
- PROCEDURE FOR PURCHASE OF MATERIAL, PARTS, COMPONENTS AND SELECTION OF SUB-VENDOR'S SERVICES INCLUDING VENDOR ANALYSIS, SOURCE INSPECTION, INCOMING RAW-MATERIAL INSPECTION, VERIFICATION OF MATERIALS PURCHASED, ETC.
- SYSTEM FOR SHOP MANUFACTURING AND SITE ERECTION CONTROLS INCLUDING PROCESS, FABRICATION AND ASSEMBLY.
- CONTROL OF NON-CONFORMING ITEMS AND SYSTEM FOR CORRECTIVE ACTIONS AND
- RESOLUTION OF DEVIATIONS.
- CONTROL OF CALIBRATION AND TESTING OF MEASURING / TESTING EQUIPMENT.
- SYSTEM FOR QUALITY AUDITS.
- SYSTEM FOR IDENTIFICATION AND APPRAISAL OF INSPECTION STATUS.
- SYSTEM FOR AUTHORISING RELEASE OF MANUFACTURED PRODUCT TO THE PURCHASER.
- SYSTEM FOR TRANSPORTATION /DELIVERY, HANDLING, STORAGE AND PRESERVATION.
- SYSTEM FOR MAINTENANCE OF RECORDS.

GENERAL REQUIREMENTS - QUALITY ASSURANCE

All materials, components and equipment covered under scope and its technical specifications shall be procured, manufactured, erected, commissioned and tested at all the stages, as per a comprehensive Quality Assurance Programme agreed mutually.

Minimum Quality Assurance Test Requirement (QATR) to be followed during Manufacturing and Field erection indicating requirement of various tests / inspections, on major equipment / items, to be carried out as stipulated in technical specification and standards mentioned therein, are attached hereto and are part of bidding documents.

Clarification, if any, on these quality assurance test requirement, raised by bidder shall be discussed and resolved during pre-bid meeting.

After the award of contract, the contractor shall submit the detailed Manufacturing & Field Quality Assurance Plans for complete equipment / material during detailed engineering in the format attached hereto (format of quality plan F-060-02 issue 2.0 rev. 01, Total 1 Page) for

approval and acceptance by SAPDC/Consultant in line with technical specification, Quality Assurance – General & Test Requirements and detailed engineering.

Manufacturing Quality Assurance Plans shall detail out for all the components and equipment & various tests/inspection, to be carried out in conformity with relevant latest IEC/IS/ISO etc, quality practices and procedures to be followed by Contractor's / Subvendor's Quality Control Organization, the relevant reference documents, standards and acceptance norms etc. during all stages of material procurement, manufacture, assembly and final testing / factory acceptance tests.

The Field Quality Assurance Plans shall detail out the various tests/inspection to be carried out in conformity with relevant latest IEC/IS/ISO, quality practices and procedures etc. to be followed by the contractor's / sub-contractor's site Quality Control Organisation during various stages of site activities from receipt of material/equipment at site till final commissioning/ acceptance/handover.

All major items/ equipment/ components to be manufactured in house as well as procured from sub-vendors (Bought out Items, BOI) to be listed in the bid. Bidder shall submit Quality Assurance Plan submission schedule in the bid for above listed items in attached Format (duly filled in the format F-060-05 Issue 2.0 Rev. 00, Total 1 Page) in line with L2 Schedule.

For components / equipment / Bought out Items procured by the contractor for the purpose of the contract, the Contractor's purchase specifications and inquiries shall call for quality plans to be submitted by the sub-vendors.
The quality plans called for from the sub-vendors shall detail out, during the various stages of manufacture and installation, the quality practices and procedures followed by the sub-vendor's quality control organisation, the relevant reference documents/standards used, acceptance level, inspection of documentation raised, etc.

Such quality plans of the successful sub-vendors shall be finalized with the SAPDC/Consultant in line with requirement mentioned above and such approved Quality Plans shall form a part of the purchase order/contract between the contractor and his sub-vendor.

The Quality Plans shall be submitted on electronic media e.g. CD or E-mail in addition to hard copy, for review and approval of SAPDC/Consultant. After approval, the same shall be submitted in compiled form on CD-ROM by contractor.

For all spares, replacement items and additional similar items, the quality requirements/Quality Plans as agreed for the main equipment supply shall be applicable.

All material of construction shall be as per technical specification / approved drawings / GTP.

Contractor's Plant internal standards must be traceable to acceptable International / National standards & salient points of difference (if any) shall be clearly stated with submission of plant standards. The contractor shall furnish copies of reference documents, plant standards,

acceptance norms, test and inspection procedure etc. as referred in Quality Plans along with Quality Plan to SAPDC/Consultant. These Quality Plans and reference documents/standards etc. will be subject to approval of SAPDC without which manufacturer shall not proceed. These documents shall form a part of the contract.

Tests on components and sub-assemblies shall be carried out at various stages of manufacturing, till the product undergoes the final tests in conformity with the relevant standards.

The Customer Hold Points (CHPs), identified in approved quality plan, i.e. testing checks which shall be carried out in the presence of the SAPDC, beyond which the work will not proceed without written consent of SAPDC's authorized representative.
The contractor / sub-vendor shall carry out routine test on 100% items at his works. The quantum of check / test for routine and acceptance test by SAPDC/Consultant shall be generally as per criteria / sampling plan defined in referred standards. Wherever standards have not been mentioned, quantum of check / test for routine / acceptance test shall be as agreed during detailed engineering.
The quantum of check when specified in percentage (%) / sampling basis shall be treated as per lot per sub-vendor. When the quantum of check is indicated to in whole no., then same quantum of check shall be applicable to each sub-vendor supplying the same equipment.

For sub-vendors identified during pre-award stage for submission of vendor details/ credentials (category "DR"), contractor shall submit documents in format F-060-01 after placement of award in the manner as specified as under prior to any procurement and within a month after placement of award or a period as agreed at the time of pre-award discussions.

The proposed sub-vendors should be registered vendors of the bidder and must have proven experience for successful operation for similar equipment / items / processes as mentioned elsewhere in technical specification.

Before assigning any portion of work to the sub-vendor, other than one specified and duly accepted in the contract, the contractor will take prior approval of BHEL/SAPDC.

Normally no request for change of sub-vendors or inclusion shall be entertained by SAPDC. But in exceptional circumstances, if the request for change of sub-vendors or inclusion is found reasonable and justified, then the same shall be entertained and the decision of SAPDC in this respect shall be final and binding. The time consumed for the change / inclusion of sub-vendors shall not be excluded from the stipulated time of the completion of the contract. This change shall not relieve the contractor from the responsibility to complete the work within stipulated time in any manner.

The contractor's proposal shall include sub-vendor's facilities established at the respective works, the process capability, process stabilization, Q.C. system followed, experience list etc. along with his own technical evaluation of sub-vendor. (Format F- 060-01 issue 2.0 rev. 01, Supplier / Sub-vendor Assessment Sheet, Total 14 pages).

However, whenever felt necessary, sub-vendor assessment will also be carried out by SAPDC/Consultant in accordance with the above procedure and by factory visits; for existing/proposed vendors/sub-vendors. This approval shall not relieve the contractor from any obligation, duty or responsibility under the contract & SAPDC shall not be responsible for any complications arising between the contractor and his subcontractor(s) / sub-vendor (s) and / or any other liabilities.

SAPDC/Consultant reserves the right to carry out quality audit and quality surveillance of the system and procedures of the contractor / or their sub-vendor. The contractor shall provide all necessary assistance to enable SAPDC/Consultant to carry out such details & surveillance including Quality Manuals, if required by SAPDC/Consultant.

All welding and brazing shall be carried out as per procedure drawn and qualified in accordance with requirement of ASME section-VIII/IX or other International equivalent standard acceptable to SAPDC/Consultant. All welding/brazing procedures shall be submitted to SAPDC/Consultant/BHEL for review / verification prior to carrying out the welding/brazing. However, wherever required by the SAPDC/Consultant, tests shall be conducted in presence of SAPDC's authorized representative.

All Brazers, Welders and welding operators employed on any part of the contract either in Contractor/his sub-vendor's works or at site or elsewhere shall be qualified as per ASME section-VIII/IX or other equivalent International Standards acceptable to SAPDC/Consultant.

Unless otherwise proven and specifically agreed with SAPDC/Consultant, welding of dissimilar material and high alloy materials shall be carried out at shop only.

All non-destructive examination shall be performed in accordance with written procedures as per International Standards. The NDT operator shall be qualified as per SNT-TC-IA (of the American or Indian Society of non-destructive examination). NDT shall be recorded in a report, which include detail of methods and equipment used, result/evaluation, job data and identification of personnel employed and details of correlation of the test report with the job.

All material used for equipment manufacture including castings and forgings, etc. shall be of tested quality as per relevant codes/standards. Details of results of the tests conducted to determine the mechanical properties; chemical analysis and details of heat treatment procedure recommended and actually followed shall be recorded on certificates and time temperature chart. Tests shall be carried out as per applicable material standards and/or agreed details.

Contractor shall submit Field Welding Schedule for field welding activities like field welding location, numbers, welding procedure to be used, requirements, codes and NDT requirement along with all supporting documents, like welding procedures, heat treatment procedures, NDT procedures, etc. to SAPDC/Consultant for review at least ninety days before schedule start of erection work at site.
Any other statutory requirements as applicable for the equipment / systems shall also be complied with.

The inspection calls (duly filled in the format F-060-06 Issue 2.0 Rev. 00, total 1 Page) shall be placed at least 06 weeks in advance for overseas inspections excluding India and 15 days in advance for inspections within India and Nepal.
Before submitting the inspection call to SAPDC for witnessing the Customer Hold Points (CHP's) and/or requesting SAPDC for issuance of Material Dispatch Clearance Certificate (MDCC) based on Test Certificate (TC) review / Certificate of Conformance (COC), the contractor shall ensure that all Drawings / documents / GTP / technical data sheet, relevant to respective CHP / MDCC requirement, has been duly approved /accepted / noted by SAPDC.
Contractor shall ensure readiness of offered equipment by all means, before raising such call to SAPDC to attend CHP inspections. In case, SAPDC engineer (s) on reaching at a place of inspection found that material is not ready for inspection due to whatsoever reason, the complete inspection expenditure of SAPDC engineer(s) as per actual shall be chargeable to the contractor.

Only calibrated testing & measuring instruments shall be used while performing tests during manufacturing and erection, testing & commissioning at site by the contractor. Copy of the calibration certificates will be submitted to SAPDC/Consultant by the contractor during inspection as an evidence.

Non-conformities observed during manufacturing, shop testing, handling, packaging, transportation, storage, preservation, erection, testing & commissioning are required to be intimated by the contractor (Format for reporting, F-060-04 issue 2.0 rev 01, Total 5 pages). The acceptance/rejection of the non-conformities will be at the discretion of SAPDC.

Repair/rectification procedures to be adopted to make the job acceptable shall be subject to the acceptance of SAPDC. Action taken in accordance with decision of disposal of non-conformity for repair / rework / modification of the item / equipment and to prevent re-occurrence. The corrective and preventive action may involve modification of item / equipment, change in procedure and system etc. to achieve quality improvement at all stages and levels.

Quality audit/surveillance/approval of the results of the tests and inspection will not, however, prejudice the right of the SAPDC to reject the equipment if it does not comply with the specification when erected or does not give complete satisfaction in service and the above shall in no way limit the liabilities and responsibilities of the Contractor in ensuring complete conformance of the materials/equipment supplied to relevant specification, standard, data sheets, drawings etc.

No material shall be dispatched from the manufacturer's works before the same is duly accepted, subsequent to pre dispatch/final inspection including verification of records of all previous tests/inspection by SAPDC and duly authorised for Dispatch by issuance of Material Dispatch Clearance Certificate (MDCC).

The test reports of type tests conducted as per contract, in line with requirement stipulated in the technical specification / quality plan should be got accepted from SAPDC/Consultant before final inspection / issuance of MDCC.

All materials used or supplied shall be accompanied by valid and approved material certificates and tests and inspection reports. These certificates and reports shall indicate the heat numbers or other such acceptable identification numbers of the material. The material certified shall also have the identification details stamped on it to ensure physical correlation and traceability of material vis-a-vis test certificate. Such identification no. shall remain same and verifiable for all stages of manufacturing and installation.

3.8.1.2 QA DOCUMENTATION

The contractor shall be required to submit the QA Documentation in two hard copies and two CD ROMs, as identified in respective quality plan.

Each QA Documentation shall have a project specific Cover Sheet bearing name and identification number of equipment including index of its contents with page control on each document. The QA Documentation file shall be progressively completed by the Contractor/sub-vendor to allow regular reviews by all parties during the manufacturing.

Before dispatch / commissioning of any equipment, the Contractor shall make sure that the corresponding quality document or in the case of protracted phased deliveries, the applicable section of the quality document file is completed. The Contractor will then notify the Inspector regarding the readiness of the quality document (or applicable section) for review.

The contractor shall be required to submit copies of the following quality assurance documents in original duly reviewed and accepted by contractor along with the request letter for issuance of MDCC (Material Dispatch Clearance Certificate):

- QUALITY PLAN CHECK LIST.
- MATERIAL MILL TEST REPORTS ON COMPONENTS AS SPECIFIED IN QUALITY PLAN.
- SKETCHES AND DRAWINGS USED FOR INDICATING THE METHOD OF TRACEABILITY OF THE
- RADIOGRAPHS TO THE LOCATION ON THE EQUIPMENT.
- NON-DESTRUCTIVE EXAMINATION RESULTS REPORTS INCLUDING INTERPRETATION REPORTS.
- CALIBRATION CERTIFICATE OF ALL METERS & MEASURING INSTRUMENTS PROPOSED TO
- BE SUPPLIED AS PART OF RELEVANT BILLING BREAKUP ITEM.
- ROUTINE TEST REPORTS FOR TESTING REQUIRED AS PER APPLICABLE CODES AND
- STANDARDS REFERRED IN THE SPECIFICATIONS.
- INSPECTION REPORTS DULY SIGNED BY AUTHORIZED REPRESENTATIVE OF SAPDC AND
- CONTRACTOR FOR THE AGREED CUSTOMER HOLD POINTS.
- ALL THE ACCEPTED DEVIATIONS SHALL BE INCLUDED WITH COMPLETE TECHNICAL DETAILS.
- LIST OF BALANCE POINTS IF ANY.
- CERTIFICATES IN RESPECT OF CALIBRATION, WELDERS & BRAZERS QUALIFICATION ETC.

- COPY OF ALL REFERENCE DRAWINGS AND REFERENCE TECHNICAL DOCUMENTS
- ACCEPTANCE OF TYPE TEST REPORTS BY SAPDC/CONSULTANT.

Similarly, the Contractor shall be required to submit two sets (two hard copies and soft copy), containing QA Documentation pertaining to field activities as per Approved Field Quality Plans and other agreed manuals/procedures, within 2 weeks after commissioning of individual system.

On release of QA Documentation by Inspector, one set of quality document shall be forwarded to Consultant and other set to SAPDC. For the particular case of phased deliveries, the complete quality document to the SAPDC/Consultant shall be issued not later than 3 weeks after the date of the last delivery of equipment.

ASSOCIATED DOCUMENTS / FORMATS
- F-060-01 VENDOR / SUB-VENDOR ASSESSMENT SHEET
- F-060-02 QUALITY PLAN SUBMISSION BY CONTRACTOR.
- F-060-04 NON-CONFORMANCE REPORT (NCR)
- F-060-06 INSPECTION CALL REQUEST.

3.8.1.3 Safety

Safety of personnel

All equipment and services provided under this contract shall abide by international standards commonly accepted in the hydroelectric utility industry for safety of personnel whether involved with operation or maintenance.

Safety of operation

All equipment and services provided under this contract shall abide by commonly accepted standards for safety of operation.
The various system and sub-systems supplied under this contract shall be designed to follow and operate under a clear hierarchical structure:
- Plant control level,
- Unit control level,
- Functional control level, functional drive group level,
- Local drive level.

Each hierarchical control level shall perform its specific tasks and always depend on the subordinate lower control levels. In general, should a higher control level failure occur, the lower control level shall not be affected and shall be able to control the power plant with full safety.

The Contractor shall accordingly build into the "Electrical & Mechanical System" adequate levels of autonomy, independence, redundancy and functional distribution to insure that safety is maintained at all times.

3.8.1.4 Earthing

Earthing terminals for equipment of these specifications shall form part of equipment supplies. The contractor shall connect the earthing conductors to these terminals as required.

Risers from earthing bus shall be in the scope of purchaser. However, extension from these risers to the equipment shall be in the scope of supplier in the Power House, Transformer Hall, Switchyard and Butterfly Valve House.

However, overall earthing arrangement required for HT panel, LT panel, DG set, motor & motor control panels etc. at isolated location such as Dam Site, TRT Outfall area and Surge Shaft either by pit earthing or counter poise etc. shall be in the scope of supplier including civil works, design, material supply (for main earthing risers, interconnection, charcoal, salt, Bentonite etc.), erection, testing & commissioning etc.

A copper ground bus, sized to carry maximum short circuit current, shall run along the entire length of panel structure and shall have terminal connector at each end for connection to station ground grid (50 X 6 mm G.I. flat).

Tests

Each panel shall be completely assembled, wired, adjusted and tested at the factory prior to shipment. The test shall include wiring continuity tests, insulation tests and functional tests to ensure satisfactory operation and control of individual equipment.

Special Cables

Special cables for specific purpose, as required, shall be supplied and installed by the Bidder.

3.8.1.5 Completeness of the specification

Any fittings, accessories, equipment or any other things required for successful commissioning of Arun-III Hydro Electric Project, though may not have been specifically mentioned in the specification but are usually necessary for the completeness of the equipment shall be deemed to be included in the specification and shall be supplied by the contractor without any extra cost to the Employer.

3.8.1.6 Packaging and Shipment

The Contractor shall provide such packing of the Goods as it is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination of Goods and the absence of heavy handling facilities at all points in transit.

The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to any subsequent instruction ordered by the Employer consistent with the requirements of the Contract.

After unpacking of Goods the packing material shall become the property of Employer

The contractor shall wrap, pack and crate all plant included in the work or part thereof, suitable for shipment to a tropical location, facilitating proper handling and protection from damage in rail, truck, ocean or air shipment as applicable. An approved drying agent, such as Silica Gel, shall be packed in containers or packages holding plant which may be adversely affected by moisture or excessive humidity.

All packing crates shall be clearly marked before shipping to indicate the contract number, shipping address, volume, weight, name, number and unit number of the contents, slinging and weight bearing points.

All plant parts shall be marked to facilitate erection. Each packing crate shall contain a packing list in a waterproof envelope. Parts shall be described and also identified by their numbered marking in the packing list.

Three copies of the packing list shall be forwarded to the purchaser prior to dispatch. The ownership of packaging materials shall be of Employer. All wooden packaging crates and steel support structures shall be dumped to the designated area within 5kms of the power house as per the direction of Engineer in charge.

The supplier shall be entirely responsible for the insurance, shipment, handling and transportation.

The equipment shall not be dispatched by the Bidder from the place of manufacture to the site until the dispatch instructions are issued by the Owner.

3.8.1.7 PACKAGING, HANDLING AND SITE STORAGE

The Contractor shall pack all the consignment in sea worthy packaging strong enough to withstand rough handling during transit. Machine surface shall be suitably protected against scratches, corrosion, shocks, impact etc. Packages shall be suitably and distinctly identified for type of handling and kind of storage.

Electronic equipment shall be packaged, shipped and stored in anti-static packing. All packages shall be stored indoor. Packages containing electronic equipment shall be stored in humidity controlled environment.
The Bidder shall indicate the number of packages of consignment together with the size (L x W x H) and weight for transporting the equipment in the Bidding Document.

3.9 SPECIAL INSTRUCTIONS TO BIDDERS

General

The Bidder shall base the equipment design on the information given in this specification. The equipment shall be complete in all respects. Any item which is not specifically mentioned

herein but found essential for safe and efficient operation and maintenance and satisfactory performance of the system shall be deemed to have been included in the scope of the Bidder. It shall be presumed that the Bidder has studied the site, all the drawings, tender documents and is fully aware of the scope of work involved and the site conditions prevailing.

3.10 Codes and Standards

a) All equipment, systems and works covered under this specification shall comply, in all respect, with requirements of applicable latest statutes and that of latest editions of codes and standards. Latest regulations and safety & environmental requirements as applicable in India / state of installation shall also be complied with.

b) All codes and standards mentioned shall mean as relevant and applicable to a particular equipment / system.

c) All other codes/standards not covered in Section 1 / Section 2 but required for the plant and system offered shall also be referred / followed by the Bidder. The Bidder, along with the bid, shall submit a comprehensive list of codes and standards to be followed for various equipment / system.

d) In all cases where IBR does not govern, German, American, British, ISO or other international standards established to be equivalent or superior to the codes specified are also acceptable. In the event of any conflict between the requirements of equivalent codes and standards and the requirements of Indian standards / regulations, the latter will govern unless specified otherwise in the specifications.

e) The Bidder shall be responsible to be in possession of all the specified Codes / Standards and ensure reference to the same before submitting the offer/ bid.

f) Mandatory codes / local regulations to be followed for safety, design, fabrication and operation of the switchyard shall be, followed:

g) If the equipment supplied does not conform to the codes and standards mentioned in this specification, but is manufactured to the Bidder's own standard, developed as a result of his experience, is also acceptable provided the same is found to be superior to the above mentioned codes and standards. The Bidder shall identify such equipment and shall also present sufficient data to the Owner / Consultant to support his design and to establish the superiority. The design may be accepted by Owner/ his Consultants only if the Purchase / his consultant is satisfied that sufficient experience exists with the design proposed.

h) Design not meeting the stipulations of the codes and standards will not be acceptable.

i) Apart from various codes and standards mentioned in Section 1/2, the Manufacturer shall comply with other requirements of codes and standards mentioned in this Specification for detailed design, manufacture, testing, erection, construction etc.

Control System	IEEE – 122 , 1992
Metering / Dosing pumps	API 675 – 1987 (Positive displacement pumps – controlled volume) API 676 – 1987 (Positive displacement pumps – Rotary).
Centrifugal pumps	API 610 – 1990, ASME PTC 8.2 – 1965
Gear Box	API 613 – 1993 & AGMA 420 & 421
Coupling	API 671 – 1993
Structural	IS 1893 – 1991, IS 875-1992 & IS 800 – 1991
Pressure Vessel	ASME Sec. VIII, Div. 1 – 1995
Piping	ANSI B 31.1-1995 / 31.3 – 1993, IBR
Valve	API
Instrument	ISA, API
Electrical	As per specification attached & relevant
	IS/IEC
Tanks	API 650- 1993
Electrodes	AWS, IS
Painting	IS Standards
Performances Tests	
Overload test of crane and hoists	IS 3177

3.11 Deviations and Assumptions

Bidders requested to carefully examine and understand the specifications and seek clarifications, if required, to ensure that they have understood the specifications. The Bidder's offer should not carry any sections like clarifications, interpretations and/or assumptions. In the event of conflict between the Technical Specifications and the condition of contract, the requirements as indicated in the technical specification shall govern, unless confirmed otherwise by the Owner in writing before the award of contract, based on written request from the bidder for such a clarification.

In the event of conflict between requirements of any two clauses of the specification documents, the more stringent requirements shall apply, unless otherwise confirmed by the Owner in writing before the award of this contract, based on a written request from the Bidder for such clarification.

The Bidders are advised that while making their Bid Proposals and quoting prices, all terms and conditions of bidding documents may appropriately be taken into consideration. Bidders are required to furnish a certificate indicating their full compliance to the terms and conditions of the bidding documents.

3.12 Limit of Contract

Equipment furnished shall be complete in all respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment and/ or needed for erection, completion and safe operation of the equipment as required by applicable codes though they may not have been specifically detailed in the respective specifications, unless included in the list of exclusions. All similar standard components/ parts of similar standard equipment provided shall be interchangeable with one another.

This review by the Owner's Engineer / Consultant may not indicate a thorough review of all dimensions, quantities and details of the equipment, materials, any devices or items indicative of the accuracy of the information submitted. This review and/ or approval by the Engineer shall not be construed by the Bidder, as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements specified under these specifications and documents.

3.13 Latent Defects

Notwithstanding the issue of the Take Over Certificate, the Contractor shall be responsible for making good with all possible speed any Latent Defect in any Works /equipment of the plant which appears at any time before the expiry of defect liability period. And shall remedy such defect at its own cost and expense. The latent defect liability period shall be a minimum of 5 years from the end of defect liability period. The defects to which this applies are defects in design, materials or workmanship or defects arising from any act or omission of the Contractor done or omitted prior to Take-over of the portion of the Plant affected by the defects or during the Warranty Period which a reasonable examination at the end of the Warranty Period would not have disclosed.

3.14 Completion Schedule

The Bidder shall submit Time Bar chart indicating completion date of major activities such as submission of design data / calculations and drawings for approval, manufacturing of components / units, supply, inspection etc. without which the Tender shall not be considered. Time Bar Chart furnished shall afterwards form part of the contract and cannot be altered arbitrarily except Force Majeure conditions as may be agreed with the Owner.

3.15 Drawings & Documents for Owner's use and Archives

The Bidder shall submit all final drawings, documents, manuals for Owner's use and for reference / record required during course of operation and maintenance of the plant. Numbers of copies and their form (hard copy, electronic form, reproducible) to be submitted and the details of the documents, drawings, manual etc. to be furnished by the Bidder are described elsewhere in the specification.

Drawings, documents, calculation, data & Information to be submitted by the Bidder along with the offer:

Technical Data to be submitted with the Tender

1) List of performance tests proposed by the Bidder to demonstrate the guaranteed parameters for generator and other electrical equipment.
2) Specific energy consumption.
3) Type test certificates for major categories of equipment, issued by independent testing authority.
4) Guaranteed Technical Parameters.
5) Technical catalogues.
6) Manufacturing Quality Plan

Operation & Maintenance Manuals

Instruction manuals, presenting the basic categories of information for the operating and/or maintenance personnel, as detailed herein below shall be furnished by Bidder.
The instruction manuals shall present the following basic categories of information in particular complete and comprehensive manner and prepared for the use by operating and/or maintenance personnel.

i. Instructions for initial commissioning, short duration and long duration shut down.
ii. Instruction for operation, routine inspection and maintenance including preventive maintenance.
iii. Recommendation for inspection points, method of inspection and period of inspection.
iv. Information on detection, cause and rectification of troubles and faults.
v. Instructions on normal repairs and overhaul.
vi. Complete parts list with proper and complete identification (Tag nos./Serial nos. as shown in the respective approved drawings) and ordering information for all replaceable parts. The identification details of equivalent and alternative makes for these spare parts which are not manufacturer's own product shall also be listed.
vii. List of all special tools and tackle & spares and instructions for use of such tools and tackle & spares.
viii. One complete set of as built drawings of the entire systems.
ix. The information shall be organized in a logical and orderly sequence. A general description of equipment including significant technical characteristics shall be included to familiarize operating and maintenance personnel with the equipment. Such description and technical characteristics shall not differ from the approved data.
x. Necessary drawings, curves and other illustrations shall be included or copies of appropriate approved drawings shall be bound in the manuals. Tests, adjustment and calibration information, as appropriate, shall be included. Safety and other warning notices and installation, maintenance and operating cautions shall be emphasized.
xi. Write-up, figures, part list etc., shall be clearly legible. The manuals shall be prepared on good quality paper securely bound in durable folders.
xii. The instruction manuals shall be subject to Consultant's approval in the same fashion as that for drawings.

xiii. Instruction manual shall give step by step procedure for Erection, testing and commissioning
xiv. Operation, Maintenance and Repair Instruction manual shall also contain:
xv. List of spare parts with ordering specifications and manufacturer's catalogues
xvi. List of consumables, lubricants, chemicals with specifications, brand names and annual consumption figures.
xvii. Drawings relevant for erection, operation, maintenance and repair of the equipment.
xviii. Procedure for ordering spares.
xix. Maintenance Manual shall also include:
xx. Diagnostic trouble shooting / fault location charts
xxi. Tests for checking of proper functioning.

Drawings / documents for approval

Quality Control & Quality Assurance plan.
G.A. and Cross Sectional drawings of all equipment indicating weights, material of construction, bill of material, dimension, specification etc.
Final design calculations and assumptions.
Actual performance data and characteristic curves based on the testing at site.

Technical specification of all equipment, motors, for all system and all other accessories.
Final list of drawings.
As built drawings.

Miscellaneous

i. General arrangement and cross sectional drawings of all major components with bill of material.

ii. Foundation drawings, load data & design calculation for all equipment.

iii. Erection drawings for all equipment and structures showing complete erection details.

iv. Engineering and design calculations of installations and units.

v. QAPs

vi. Detailed procedures of shop testing of all the items applicable shall be submitted to the Owner/ Consultant for approval before conducting tests.
vii. Following shop test certificates/test curves/data, shall be furnished.

- Materials and components test certificates.
- Performance test results and characteristic curves of all fans, pumps, and electric drive motors etc.
- Non-destructive test results as applicable.
- Reports and test certificates of shop tests.
- Type test & routine test certificates.

viii. Detailed quality assurance program along with quality plan shall be submitted.

Following data shall be furnished:-

a) Technical data of all the plant, equipment, drive motors, instruments, panels, etc. shall be furnished.

b) Following lists/tables / write ups shall be furnished, complete with tag nos. and brief specification. Proper numbering system as approved by Consultant/Owner shall be adopted.

i) Instrument schedule (with service, range, make of instrument).
ii) Flow element schedule.
iii) Valve schedule.
iv) Pipe schedule.
v) Cable schedule (Power & Control).
vi) Schedule of actuators (electric/pneumatic)

The scheduled dates for the submission of these as well as for, any data/information to be furnished by the Employer would be discussed and finalized at the time of award. The supplier shall also submit required no. of copies as mentioned in this specification of all drawings/design documents/test reports for approval by the Employer.

Note: The contractor may please note that all resubmissions must incorporate, all comments given in the submission by the Employer failing which the submission of documents is likely to be returned. Every revision shall be a revision number, date and subject, in a revision block provided in the drawing, clearly marking the changes incorporated.

3.16 Workmanship and Quality Control

All moving parts of equipment, which can conceivably cause injury to the operator and otherwise authorized personnel within the vicinity of working area shall be suitably guarded and warning displays shall be put at prominent places.

The Bidder shall clearly indicate and identify the plans and procedures, which shall be followed in the design, manufacture and installation of plant and equipment to control and assure to the Owner of the desired quality.

FUNGI STATIC VARNISH

Besides the space heaters, special moisture and fungus resistance varnish shall be applied on parts which may be subjected or predisposed to the formation of fungi due to the presence or deposit of nutrient substances. The varnish shall not be applied to any surface of part where the treatment will interfere with the operation or performance of the equipment. Such surfaces or parts shall be protected against the application of the varnish.

3.16.1 Equipment Mounting

All instruments, switches etc. mounted on the front face of the panels shall be of flush type.

All equipment shall be so mounted that removal and replacement may be accomplished individually without interruption of service to others.

All equipment inside the panel shall be so located that their terminals and adjustments are readily accessible for inspection and maintenance. Adequate ventilation shall be provided in enclosed panel.

Each of the LV switchboards shall be designed for 1.1 times the required rating as a spare capacity. Further all LV Switchboard shall be provided with 20 % spare modules of each rating and type of module.

3.18 Performance Test:

If nothing unusual has been observed in load run and load rejection tests, the test service period of 72 hours shall follow. During this test service period, the unit must operate continuously at rated condition without any interruption except of those beyond the control of the Contractor. However, such interrupted period shall not be counted for in the test service period. There should be one-month reliability run of the complete unit reckoned from the date of taking over by employer. During reliability run, machine shall be operated by employer and any problem observed during this run shall be attended by the contractor including replacement of components and providing requisite manpower.

3.17 Title Block :

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<tr><td>Project</td><td colspan="4">4x225MW Arun-3 (HEP),Nepal</td></tr>
<tr><td>Customer</td><td colspan="4">SJVN Arun-3 Power Development Company (P) Ltd. (SAPDC)</td></tr>
<tr><td>Consultant</td><td colspan="4">SJVN Ltd</td></tr>
<tr><td rowspan="4">BHEL</td><td rowspan="4">BHARAT HEAVY ELECTRICALS LTD.
TRANSMISSION BUSINESS GROUP
NOIDA</td><td></td><td>Name</td><td>Sign</td></tr>
<tr><td>Drawn</td><td></td><td></td></tr>
<tr><td>Checked</td><td></td><td></td></tr>
<tr><td>Approved</td><td></td><td></td></tr>
<tr><td colspan="2">Title</td><td colspan="2">Drawing Number :</td><td>Rev</td></tr>
</table>

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SCHEDULE-II

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS

A. **POWER & CONTROL CABLE**

1.0	General:
1.1	Manufacturer's name and address
1.2	Location of factory
2.0	Cable Wire
2.1	Type and size of cable
2.2	Standard applicable
2.3	Voltage rating
2.4	Permissible variation in voltage frequency and combined voltage and frequency
2.5	Suitable for earthed/unearthed system
2.6	No. of cores
3.0	Conductor and its hardness
3.1	Standard applicable

3.2	Material copper/aluminium/grade
3.3	Nominal cross-sectional area
3.4	Form of conductor circular/shaped
3.5	No. of strands
3.6	Nominal dia of each strand
3.7	Whether strands are tinned or not
3.8	Temperature co-efficient of resistance at 20 deg.C.
4.0	Armour/Unarmoured
4.1	Material
4.2	Thickness (minimum)
4.3	Standard applicable
5.0	Conductor Screen
5.1	Standard applicable
5.2	Material
5.3	Minimum thickness
5.4	Whether extruded
6.0	Insulation

6.1	Standard applicable
6.2	Material (mention type)
6.3	Minimum average thickness
6.4	Tolerance on the smallest of the measured values of thickness of insulation
6.5	Dia of core over insulation
6.6	(a) Minimum volume resistivity at 27 deg. C.
	(b) Minimum volume resistivity at 70 deg.C.
6.7	Colour scheme of identification of cores
6.8	Average dielectric strength
6.9	Suitability with regard to moisture ozone, acid, oil and alkaline surroundings
7.0	Insulator Screen
7.1	Standard applicable
7.2	Whether extruded semi-conducting screen is applied
7.3	Material of the semi-conducting screen
7.4	Thickness of the semi-conducting screen

7.5	Whether extruded under triple extrusion process
7.6	Whether copper type screening is applied
7.7	Thickness of the copper tape
7.8	For braided screen material and dia of screen wire and min. percentage coverage
8.0	Inner Sheath
8.1	Standard applicable
8.2	Material thickness of inner sheath
8.3	Whether extruded
8.4	Minimum thickness of inner sheath
8.5	Calculated diameter over stranded cores of the cables
8.6	Whether the inner sheath and the filling material are suitable for the operating temperature of the cable
9.0	Outer Sheath/Overall Covering
9.1	Standard applicable
9.2	Material (mention type if any)
9.3	Whether extruded
9.4	Minimum average thickness

9.5	Tolerance on the smallest of the measured values of thickness of outer sheath
9.6	Calculated dia. under the sheath
9.7	Whether anti-termite treatment has been given in the outer sheath
9.8	Whether flame retardant low smoke compound added in outer sheath
10.0	Electrical Properties
10.1	Conductor resistance at 20 deg. C. per km.
10.2	Maximum permissible conductor temperature: a) Under continuous full load b) Under transient conditions
10.3	Loss tangent at normal frequency
10.4	Reactance at 50 C/S per km.
10.5	Capacitance at 50 C/S per km.
10.6	Current ratings
10.6.1	In air (continuous)
10.6.2	In duct (continuous)
10.6.3	Reference ambient temperature of the above
10.6.4	Short circuit current rating for 1 sec. duration

10.7	Derating factors
10.7.1	For an ambient temperature of 50 deg.C.
10.7.2	For grouping of 6 to 9 cables in cable trench/cable rack trays and in 4 to 6 tiers for different spacings and also touching each other
11.	Mechanical Data
11.1	Overall dia of the cable
11.2	Dia of the cable under the sheath
11.3	Diameter under armouring
11.4	Diameter over the stranded cores
11.5	Weight of cable per km.
11.6	Drum length
11.7	Tolerance on drum length
11.8	Total weight of the drum
11.9	Dimension of the drum
11.10	Recommended minimum installation radius
11.11	Maximum safe pulling force
11.12	Whether identification as per clause 11.14 of the specification is being provided

11.13 Whether packing has been done as per clause 11.13 of the specification

B. CABLE Trays

GENERAL

1.1 Manufacturer's name and address

1.2 Location of factory

1.3 Type and width of

a)Trays

b) Ladders

1.4 Standard applicable

1.5 Thickness

a) Trays

b) Supports

c) Brackets

1.6 Earthing system

1.7 Weight per 1000m

a) Trays

b) Supports

c) Brackets

1.8 Distance between parallel layer of trays

1.9 Galvanization of

a) Trays

b) Supports

c) Brackets

d) Nuts and Bolts

1.10 Painting of support system

1.11 Supporting arrangement system

a) Material & Type

b) Spacing between supporting structures

c) Total weight of supporting steel used

C. CABLE CLAMPS

2.1 Material

2.2 Type

2.3 Thickness

D. CABLE TERMINATION KITS

3. 1 Manufacturer

3.2 Applicable standard

3.3 A.C. withstand voltage (Phase/Ground & Time duration)kV

3.4 Partial Discharge at 1.1 Phase/ground volt

3.5 Impulse withstand 1.2/50 us kV

3.6 Short circuit current 1 sec KA

3.7 Dynamic Short Circuit withstand kV

3.8 Type test report for above tests

a) humidity

b) salt-fog tests furnished (Yes/No)

3.9 Kit particulars:

a) Material of tubing/ moulded part

b) Method of stress control

c) Method of environmental seal

d) List of items included in the kit furnished (Yes/No)

1. For terminations

2. For splices

E. CABLE LUGS

4.1 Make

4.2 Type

4.3 Material

4.4 Applicable Standard

F CABLE GLANDS

5.1 Make

5.2 Type

5.3 Material

5.4 Surface Treatment

5.5 Applicable Standard

G FIRE SEALING SYSTEM

6.1 Type

6.2 Make

6.3 Material of fire stop

6.4 Pressure withstand capacity of fire stop

6.5 Weight of fire stop assembly system

6.6 Shelf life of fire stop material

6.7 Life of fire stop assembly

Note:-

1. **Bidder can supply above information for different types of power & control cables.**

Date:
Place:

Signature of Bidder
Name:
Status
Whether authorized attorney
Of tendering company
Name of Tendering Company

SECTION 5
CHECK LIST FOR INFORMATION TO BE FURNISHED WITH OFFER RETURN
THIS CHECKLIST AS PART OF THE OFFER DULY SIGNED

The offer may not be considered if the following information and this Checklist are not enclosed with the Offer.

BHEL ENQUIRY. NO:

BIDDER: OFFER REFERENCE:

A) **TECHNICAL PARAMETERS-**

S. No.	Parameters	Data	Confirmation	Remarks
1.	Applicable Standards	Latest IS -1554, 5831, 8130, 3975, 613, ASTM-D2843, ASTM-D2863, IEC60754, IEC60332, IS3961, IS 10418, NEMA WC-70, IEEE-383	Yes	
2.	Rated Voltage	1100V Grade	Yes	
3.	Type & Category	FRLS & C1	Yes	
4.	**Construction feature for PVC Control cable**			
4.1	Material of Conductor for Control cables	Conductor shall be Stranded non-compacted and circular, high conductivity annealed plain copper	Yes	
4.2	Conductor Insulation	HR-PVC, Type-C	Yes	
4.3	Inner sheath	Extruded PVC, Type ST-2 as per IS-5831	Yes	
4.4	Armouring for Control Cables	Unarmoured	Yes	
4.5	Outer sheath	PVC extruded, FRLS, Type ST-2 as per IS:1554)	Yes	
5.	**Construction feature for XLPE Aux Power cable**			
5.1	Material of Conductor for Power cables	a) Stranded high conductivity annealed plain copper conductor b) Stranded and compacted plain aluminium conductor of grade H2.	Yes Yes	
5.2	Conductor Insulation	Extruded Cross linked polyethylene (XLPE) insulation conforming to IS:7098	Yes	
5.3	Inner sheath	Extruded inner sheath of PVC type ST2 material	Yes	
5.4	Armouring for XLPE Aux Power Cables	**NOT APPLICABLE**	NA	
5.5	Outer sheath	PVC extruded, FRLS, Type ST-2, C2 category as per IS:1554	Yes	
6.	**FR properties of Outer sheath**			
6.1	Minimum Oxygen index	29	Yes	
6.2	Minimum Temperature index	21 at 250°C	Yes	
7.	Allowable Tolerance on overall diameter	**± 2mm**	Yes	
8.	Chemicals added to outer sheath to protect from rodent, vermin and termite attack	Yes	Yes	
9.	Standard lengths of each Power & Control Cable	500m / 1000m	Yes	
10.	Tolerance on Cable Length per Drum.	+/-5% of the standard drum length.	Yes	
11.	Layer of water proof paper shall be applied to surface of the drums and over the outermost cable layer.	Yes	Yes	
12	Minimum bending radius for multicore cables	**12 x D**	Yes	
13	Core Identification	Core identification for multicore cable shall be provided by colour coding.	Yes	
14	For Control cable maximum conductor temperature for normal operation is 90 °C and for short circuit conditions, 250 °C.	Yes	Yes	
15	For Auxiliary Power Cables maximum conductor temperature for normal operation is 90 °C and for short circuit conditions, 250 °C.	Yes	Yes	
16	Filler shall be of same material as of inner sheath and outer sheath shall be suitable for the operating temperature of the cable	Yes	Yes	

B) QUALIFYING REQUIREMENT:

S. No	Requirement	Confirmation of Bidder	Remarks
1.	Bidder has submitted the supporting documents to meet technical pre-qualifying requirement as per Annexure-TQR	Yes / No	

Date:

Signature of the authorized representative of Bidder

Company Seal

ANNEXURE - A

SCHEDULE OF TECHNICAL DEVIATIONS

Bidder shall list out all technical potential deviation/ change request (s) along with clause with respect to technical specifications.(To be provided in editable format along with signed copy)

Sno	Page No	Clause No.	Extract from Specification	Bidders Comment/Clarification
Bill of Quantity (Annexure 1)				
Section 1				
Section 2				
Section 3				

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:

Bidder's Stamp & Signature

ANNEXURE-B:
COMPLIANCE CERTIFICATE OF TECHNICAL SPECIFICATION

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same.

2. There are no deviation(s) with respect to specification other than those furnished in the 'schedule of deviations'.

3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.

4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.

5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ' of the specification shall not be considered (i.e., technical description & quantities as per the specification shall prevail).

Date: Bidder's Stamp & Signature

Annexure C

	Manufacturing Quality Assurance Test Requirements		
	Project Name (MW): ARUN-III HEP (4X225 MW)	**Doc. No.:** QAI/A/M/EM/CB/01	**Rev. No.:** 02
	Item Description: Cables (Power, Control, Instrumentation, Coaxial, Cable Tray, Termination Kit & Cable Accessories)	**Issue Date:** 30.05.2017	**Page No.** 2
Sr. No.	**Component, Operation & Characteristics**	**Applicable Standard**	**Remark**
1	2	3	4
A	**Cables (Power, Control, Instrumentation and Coaxial)**		
1	**Incoming Material**		
1.1	**Aluminium Rod/ Copper Rod**		
	Make & Surface Finish, Dimensional Check, Purity, Breaking Load, Conducitvity	IS 8130/ TS/ DRG	V
1.2	**Aluminium Wire/ Copper Wire/Conductor**		
	Diameter, Resistivity or Conductivity at 20C, Mechanical Properties(Tensile, % Elongation/ Wrapping test, Annealing), Surface Finsh, Joints, Chemical properties	IS 8130/ TS/ DRG	V
1.3	**PVC Compound (Insulation)**		
	Make , Specific Gravity, Visual Check for PVC Granules i.e. Foreign Burnt Particle, Elongation Before & After Ageing, Loss of Mass, Thermal Stability	IS 5831/ TS/ DRG	V
1.4	**XLPE Compound (Insulation)**		
	Make , Specific Gravity, Visual Check for PVC Granules i.e. Foreign Burnt Particle, Elongation Before & After Ageing, Loss of Mass, Thermal Stability	IS 7098/ Rel IEC	
1.5	**FRLS PVC Compound**		
	Oxygen Index test, Temperature Index test, HCL Gas Emission test, Smoke Density Rating	ASTMD 2863/ IEC 745(I)	V
1.5	**Amour/ Wire Strip (as applicable)**		
	Tensile Strength, Make, % Elongation, Torsion/ Winding, Mass of Zinc Coating, Resistance, Diameter Size, Uniformity of Zinc Coating	IS 3975/ IS 1554/ TS/ DRG	V
1.6	**Drum**		
	Visual Check, Dimensions, Anti termite/ rodent treatment	IS 10418/ TS/ DRG	V
1.9	**FRLS PVC Compound for Instrumentation/ Coaxial Cables**		
	Oxygen Index test, Temperature Index test, HCL Gas Emission test, Smoke Density Rating	ASTMD 2863/ IEC 745(I)	V
2	**In process Stage**		
2.1	**Conductor**		
	Surface Finish, Lay length constant & nozzing, Resistance/ km at 20C, Dimension, Dia over conductor, Direction of Lay	IS 8130/ TS/ DRG	V
2.2	**PVC Insulated Core Marking**		
	Type of Material, Process Control (Speed, Temperature), Color of Core, Core Identification, Core Numbering, Surface Finish, Thickness of Insulation (Nominal & Minimum), Insulation Resistance, Ovality/ Concentricity, HV Test(Spark Testing), Shrinkage Test, Hot Deformation, Volume Resistivity	IS 1554/ TS/ DRG	V
1.4	**PVC (Sheath) (inner & outer)**		
	Make & Visual Check, Tensile & Elongation Before & After Ageing, Loss of Mass, Thermal Stbility, Specific Gravity, Volumne Resistivity	IS 5831/ TS/ DRG	V
	Oxyegen/ Temperature Index, Smoke Density (Rating) Test, Acid Gas Generation (For Outer Sheath Only)	ASTMD 2863/ IEC 745(I) / TS/ DRG	V
2.3	**Conductor Bunching for instrumentation/ coaxial cables**		
	No of Strands, Size of Wire (Before Stranding), Conductor Resistance, Annealing (Before Stranding) for Copper, Finish	IS 8130	V
2.4	**Pair/ Triad Twisting/ Core Laying for instrumentation/ coaxial cables**		
	Color Sequence, Core/Pair/ Triad Identification, T/M (for pair/triad), HV & CR	DRG/ TS	V
2.5	**Screening (Individual or overall as applicable)**		
	Coverage/ Tape Overlap, Size of wire/ size of tape	DRG/ TS	V
2.6	**Laying of Cores**		
	Construction, Sequence of Laying, Lay length, Laid up diameter, Direction, HV & Continuity	DRG/ TS	V
2.7	**Inner Sheath**		
	Thickness of Inner Sheath, Diameter over inner sheath, Surface Finish, Color	IS 1554/ TS/ DRG	V
2.8	**Amouring**		
	Construction, Dimension, Surface finish, coverage, gap between two wire/ formed wire, Dia over, joint/ cross	IS 1554/ IS 3975/ TS/ DRG	V
2.9	**Outer Sheath**		
	Thickness of sheath (Min/Nom), Surface Finish, Type of Material/Color, Overall dia, Embossing, Progressive Sequence Marking	IS 5831/ TS/ DRG	V
2.10	**Drum Winding**		
	Drum Condition, Cable length, Cable & Sealing before dispatch, Drum marking, Lagging	/ TS/ DRG	V
3	**Final Inspection**		
3.1	**Type Test (as aaplicable for type of cable as per TS)**		
	Annealing test (for Copper), Tensile Strength (for Al), Wrapping test (for Al), Conductor Resistance test, Partial discharge test, dielectric power factor test, bending test followed by partial discharge test, heating cycle test followed by partial discharge test, test for thickness of insulation and sheath, , cold bend test (up to 6mm sq) size, , fire resistance test, measurement of insulation resistance, impulse withstands test, high voltage test (cable immersed in wate), high voltage test at room temperature, oxygen index, smoke density test, flammability test, swedish chimney test, ladder test	TS/ DRG/ Rel Std.	W
3.2	**Type test on Insulation and Sheath**		
	Tensile strength and elongation test, ageing test, loss of mass test, shrinkage test, hot deformation test, Cold impact test, heat shock test, thermal stability test, test for bleeding and blooming of pigments for PVC	TS/ DRG/ Rel Std.	W
3.3	**Routine Tests**		

	Conductor Resistance, HV test, Dimension, Insulation Resistance test, Partial Discharge test for screended cables	IS 1554/ TS/ DRG	W
3.4	**Acceptance Test**		
	Check for cable identification/ marking of cables at 100 meters, Conductor Resistance, Tensile Wrapping,Test for thickness of Insulation & Sheath, Tensile Strength and Elongation Test, Verification of Cable length & Surface Finish, High Voltage test at room temperature, IR test,	IS 1554/ TS/ DRG	W
	(For Outer Sheath Only) Oxygen Index, Temperature Index, Smoke Density Rating, Acid Gas Generation test, Flame Retardant test etc.	ASTMD 2863/ IEC 745(I)/ TS/ DRG	W
3.4	**Additional Tests for Coaxial Cables**		
	Capacitance, Impedance, Voltage Withstand test etc.	REL STD	W
4	**Packing in Drums**		
	Finish & Markings on drums	TS/ DRG/ Rel Std.	V
B	**Optical Fiber Cable**		
1	**Measurement of Dimensions**		
	Diameter of cladding, Non-circularities, Concentricity errors, Diameter of primary coating, Concentricity error of primary coating, Fiber stripping, Thickness of insulation- electrical conductir, thickness of sheath	IEC 60794/ TS/ DRG/ REL STD	V
2	**Measurement of Mechanical Characterisitcs**		
	Tensile performance, crush, impact, torsion, bend, water penetration, abrasion, bending under tension, repeated bending, flexing, kink, cut through resistance, compound flow	IEC 60794/ TS/ DRG/ REL STD	V
3	**Measurement of Electrical Characteristics**		
	Conductor, Resistance, Dielectric strength of insulation, Insulation resistance	IEC 60794/ TS/ DRG/ REL STD	V
4	**Measurement of Transmission & Optical Characteristics**		
	Attenuation, Point Defect, Optical Continuity, Change in optical transmittance during mechanical & Envrionmental condtions, Refractive index profile, Microbending sensitivity & Macrobending sensitivity, Fiber cut-off wavelength, Mode Field diameter	IEC 60794/ TS/ DRG/ REL STD	V
5	**Measurement of Environmental Characterisitcs**		
	Temperature cycling, Ageing, Fire Performance, Sheath integrity, Nuclear Radiation, Pneumatic Resistance, Hydrostatic pressure	IEC 60794/ TS/ DRG/ REL STD	V
C	**Cable Tray**		
1	**Incoming Material**		
1.1	**M.S. Sheet/ Stainless Steel Channels/ Angels**		
	Physical Properties, Chemical Properties, Check for Waiveness, Dimension, Lamination	DRG/ TS	V
2	**In Process Stage**		
2.1	**Fabrication**		
	Surface Defects, Deburring, Dimensions, Welding Quality, DPT	DRG/ ASME Sec IX, ASME Sec VII	V
3	**Final Inspection**		
	Dimesions, Galvanizing test, Mass of Zinc Coating, Thickness and uniformity of Coating, Adhesion test	IS 2629	W
D	**Termination Kit**		
	Routine & Acceptance Test	TS/ DRG/ Rel Std.	V
E	**Cable Accessories (Glands, Termination lugs, Markers, Ties, Tages, Tool for termination, MS Pipe, Marshalling Boxes, MCB, Insulating tapes)**		
	Visual & Dimensional Verification, Finish & Smoothness	DRG	V

LEGENDS

TS: TECHNICAL SPECIFICATIONS	REL. TS/ DRG/ Rel STD.: RELEVENT STANDARD
V: VERIFICATION OF REPORTS/TCs	DRG: DRAWING
W: CUSTOMER HOLD POINT (CHP)	

NOTES

1	Any test at any stage not covered in Quaility Assurance Test Requirement (QATR), but part of technical specification of contract, shall also be carried out by Contractor/ firm.
2	QATR shall be read in conjunction with General Quality Assurance Requirement given as part of Technical Specification
3	This QATR is applicable for all types of cables being supplied under this contract.

Field Quality Assurance Test Requirements

	Project Name (MW): ARUN-III HEP (4X225 MW)	**Doc. No.:** QAI/A/F/EM/CB/01	**Rev. No.:** 02
	Item Description: Cables (Power, Control, Instrumentation, Coaxial, Cable Tray, Termination Kit & Cable Accessories)	**Issue Date:** 30.05.2017	**Pages.:** 1

S.No.	Component, Operation & Characteristics	Applicable Standard	Remark
1	2	3	4
A			
1	**Material Received**		
	Visual check of Drum	DRG/ TS/ Rel. Std.	W*
	Check for Transit damage	DRG/ TS/ Rel. Std.	W*
	Cross check with packing list & SJVN's dispatch clearance	DRG/ TS/ Rel. Std.	W*
2	**Storage of Material**		
	Proper Placement of equipment as per the Instruction Manual.	TS/ DRG/ REL STD	W*
	Ensure that no damage or rusting takes place during storage	TS/ DRG/ REL STD	W*
	Ensure that all delicate Equipment are stored in protected area.	TS/ DRG/ REL STD	W*
3	**Erection test of Cable tray**		
	The dimensions of the rack and trays. Support and spacing between tray	DRG/ TS/ Rel. Std.	W*
	Provision and distribution of perforations	DRG/ TS/ Rel. Std.	W*
	Glanding, dressing, clamping and putting address tags of cables	DRG/ TS/ Rel. Std.	W*
	Earthing of racks and trays	DRG/ TS/ Rel. Std.	W*
4	**Pre Erection Checks on Cables**		
	Size of cables/ cable tray erection of cables to be laid are completed	DRG/ TS/ Rel. Std.	W*
	Marking/ Identification of Cable Drums	DRG/ TS/ Rel. Std.	W*
	IR Value of Cables	DRG/ TS/ Rel. Std.	W*
	Ground Roller shall be used every 2 meter interval	DRG/ TS/ Rel. Std.	W*
	Securing of cables	DRG/ TS/ Rel. Std.	W*
	Lying of Control cables and Power cable in different layers of trays	DRG/ TS/ Rel. Std.	W*
	Fire proofing arrangement	DRG/ TS/ Rel. Std.	W*
	Earthing and bonding (Metal sheathing, Metal screening and armour of cable should be earthed at both ends)	DRG/ TS/ Rel. Std.	W*
	Cable Identification tag	DRG/ TS/ Rel. Std.	W*
	GI conduits earthing	DRG/ TS/ Rel. Std.	W*
	Sealing of end of conduits after cable laying	DRG/ TS/ Rel. Std.	W*
	Clearing of cable trench & cover the cable	DRG/ TS/ Rel. Std.	W*
	Laying of sand bricks/ slabs for buried cables	DRG/ TS/ Rel. Std.	W*
5	**Erection Test of Cables**		
	Cable Checking	DRG/ TS/ Rel. Std.	W*
	Continuity Checking	DRG/ TS/ Rel. Std.	W*
	Resistance Checking	DRG/ TS/ Rel. Std.	W*
	IR before and after HV Test	DRG/ TS/ Rel. Std.	W*
	Verification of Phase Orders in power cables	DRG/ TS/ Rel. Std.	W*
	HV tests for Cables	DRG/ TS/ Rel. Std.	W*
	Visual checking in respect of tagging, laying, dressing, glanding, earthing of complete cable system	DRG/ TS/ Rel. Std.	W*
6	**Performance Test as per TS**	TS	W*

LEGENDS

TS: TECHNICAL SPECIFICATIONS	REL. STD.: RELEVENT STANDARD
V: VERIFICATION OF REPORTS/TCs	DRG: DRAWING
W: CUSTOMER HOLD POINT	W*: WITNESS BY SAPDC/ MAIN CONTRACTOR

NOTES

1	Any test at any stage not covered in Quaility Assurance Test Requirement (QATR), but part of technical specification of contract, shall also be carried out by Contractor/ firm.
2	QATR shall be read in conjunction with General Quality Assurance Requirement given as part of Technical Specification
3	Responsibitiy for witnessing (W*) at site shall be decided mutually at the time of finalization of FQAP as per the criticality of test.

Annexure-D

ELECTRO MECHANICAL PACKAGE FOR
ARUN-3 HYDRO ELECTRIC PROJECT 900 (4X225) MW

(CHECK LIST FOR DOCUMENT SUBMISSION BY BIDDER WITH REGARD TO QUALITY ASSURANCE PROGERAMME)

Bidder's Name and Address:

To,

Addl. General Manager
Electrical Contract Department,
SJVN Limited,SJVN Complex,
2nd floor, Shanhan,
Shimla- 171 006 (HP)

Dear Sirs,

We hereby confirm that, we will follow the Quality Assurance Programme (containing overall Quality Management and procedures), as provided in the bid documents and all relevant details/documents required to be submitted alongwith the bid as per the QATR has been enclosed as per details given herein under:

Sr.no.	Document Description	Submitted(yes/No)
1.	Organization structure for the management and implementation of the proposed quality assurance programme.	
2.	Quality system manual.	
3.	Design control systems.	
4.	Documentation and Data control systems.	
5.	Qualification/experience of bidder's key personnel.	
6.	Procedure for purchase of material, parts, components and selection of sub-vendor's services including vendor analysis, source inspection, incoming raw-material inspection, verification of materials purchased, etc.	
7.	System for shop manufacturing and site erection controls including process, fabrication and assembly.	
8.	Control of non-conforming items and system for corrective actions and resolution of deviations.	
9.	Control of calibration and testing of measuring/testing equipment.	
10.	System for quality audit.	
11.	System for identification and appraisal of inspection status.	

12.	System for authorizing release of manufactured product to the purchaser.	
13.	System for transportation /delivery, handling, storage and preservation.	
14.	System for maintenance of records.	

I hereby confirm that general Quality Assurance Requirements and Quality Assurance Test Requirements (QATRs) have been read in detail and same are *accepted/accepted with deviations mentioned in schedule for deviation.

Date: (Signature)……

Place : (Printed Name)……

(Designation) ……..

(Common Seal)……

Note: Continuation sheets of like size and format may be used as per the Bidder's requirements and shall be annexed to this Schedule.

*strike whichever is not applicable

Annexure –E

QA&I Formats

	SJVN	FORM NO.: F-060-01 PAGE: 1 of 14 ISSUE: 2.0 REV. 01 DATE: 30/06/2016
	FORM	

VENDOR / SUB-VENDOR ASSESSMENT SHEET

TO BE FILLED-IN BY SUPPLIER / SUB-VENDOR

NAME OF SUPPLIER / SUB-VENDOR IN FULL		
	REGISTERED OFFICE	FACTORY / WORKS
ADDRESS		
TELEPHONE NO.		
FAX NO.		
EMAIL ID		
PERSON(S) TO BE CONTACTED (NAME & DESIGNATION & MOBILE NO.)		
WEEKLY OFF		

SHIFT WORKING		**Type of Company (Pl. Tick)**		**Type of Industry (Pl. Tick)**	
OFFICE	WORKS	**Pvt. Ltd**	**Public Ltd.**	**MSME**	**Large Scale**
ONE ☐	ONE ☐	☐	☐	☐	☐
TWO ☐	TWO ☐	**Proprietary** ☐	**Partnership** ☐	**Govt.** ☐	**Contractor** ☐
THREE ☐	THREE ☐	**Public Sector** ☐			

	SJVN	FORM NO.: F-060-01 PAGE: 2 of 14 ISSUE: 2.0 REV. 01 DATE: 30/06/2016
	FORM	

Sr. No.	**Items / Services / Process for which Approval is desired for**	**Rating / Size & Type**	**Applicable Standards IS/DIN/BS/IEC Etc.**

REGISTRATION DETAILS #

PAN / TAN NO.	CENTRAL SALES TAX REG. NO.	STATE SALES TAX / TIN NO.	EXCISE DUTY REGISTRATION NO.
EXCISE CONTROL CODE NO.	**SERVICE TAX REG. NO.**	**CATEGORY OF INDUSTRY**	**REGISTRATION NO. & VALIDITY DATE**
		Micro ☐ Small ☐ Medium ☐ Large ☐	

SJVN	FORM NO.: F-060-01 PAGE: 3 of 14 ISSUE: 2.0 REV. 01 DATE: 30/06/2016
FORM	

A.	ORGANISATIONAL SOUNDNESS			
SR. NO.	DESCRIPTION		DETAILS TO BE FURNISHED	
1.	Nature of Business (Strike whichever is not applicable)		Manufacturing Unit / Engineering Consultant / Agents / Distributors / Stockists / Dealers / Traders / Indian Subsidiary / EPC contractor / Channel Partner (Attach authorization certificate of principal) / Erection contractor / Other	
2.#	Year of commencement of Business / Factory Establishment			
3.	Year of Commencement of Manufacture / Services			
4.	Total Area/Covered Area in Sq. m.		Total Area	Covered Area
5.	Electric Power-Connected Load			
6.#	Electric Power Standby Load & System			
7.	Details of Directors			
Sr. No.	Name	Designation	Qualification	Experience
8.	Details of Employees			

Pleases attach copy of Company's Organization Chart (For Unit)

Division Status	Graduate		Diploma	Skilled	Un-Skilled	Remarks
	Technical	Non-Technical				
Production						
Engineering & Quality Control						
Administration & Other Supporting activities.						

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9.	Brief Details of Product and Manufacturing Capability				
Sr. No.	Item & Material	Description (Type, Size Rating)	Annual Production for Last Three Years		
			I	II	III
10.#	Details of Foreign or Indigenous Collaborator				
Sr. No.	Product	Name & Address of Collaborator	Collaboration		
			Scope	Year	Valid up to
11#	Have your product been type tested by any external agency? If so, give details				
Sr. No.	Product	Test (Size / Type & class	Test Report No.		Next Due date

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12.#	Have you been approved by any Statutory agency / third party agency like LLOYD, ASME, NTPC, PGCIL, EIL, Railways etc. ? If so, indicate details and enclose copies of approval letters				
Sr. No.	Item / Material / Service / Process	Description (Size, Type & Class)	Agency	Date of approval	Next Due date

13.#	Indicate Approval / Certification by National / International Standards / Agencies applicable for the subject product.		
Sr. No.	Product	Codes / Standards	License No. & Date

14.#	Reference List (Experience in Particular Type of Equipment / Service / Process). Please indicate since how many years similar type of item / equipment / service / process provided (please furnish documentary evidence).				
Sr. No.	Item / Material / Service / Process	Type & Capacity / Rating	Customer (End User with Address)	Date of Supply / Service provided	Under Operation since year / Month

#Note: Please furnish the performance feedback certificate for proposed item / equipment / process / service form end user in line with requirement stipulated in Technical Specification.

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15.#	Business Commenced with SAPDC/SJVN in past		
Sr. No.	Year	Name of Department / Project Dealt with	Item Supplied / Services Offered.

16.A#	Machinery, Instrument & other Equipment Specific to Process & Product Facilities / service				
Sr. No.	Description of Machine	Capacity & Nos.	Location Shop	Make	Year of Manufg.

16.B#	Other General Facilities				
Sr. No.	Description of Machine	Capacity & Nos.	Location Shop	Make	Year of Manufg.
i	Material Handling Mobile Crane Fork Lift Over Head Cranes				
ii	Metal Cutting &				

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	Bending				
iii	Casting				
iv	Forging				
v	Fabrication				
vi	Welding				
vii	Machining				
viii	Heat Treatment				
ix	Sheet Metal				
x	Fettling & Cleaning, Sand Blasting, Shot Blasting & Pickling				
xi	Painting				
xii	Metal Coating				
xiii	Protection before packing				
xiv	Packing				
xv	Other				
17.#	If In-House Manufacturing Facilities not available, inform source of manufacturing details along with their facilities and experience				
Sr. No.	Process outsourced	Name of the company	Description of machine / Equipment		Remarks
18. A#	Facilities for In-house Testing & Inspection				
Sr. No.	Description	Capacity & Nos.	Make & Year of Mfg.	Calibration Status	Approval Qualification

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18.#@	If In-house testing facilities are not available, indicate source of testing with relevant details.					
Sr. No.	Source of Testing	Description	Capacity & Nos.	Make & Year of Mfg.	Calibration Status	Approval Qualification
Note: In case of outsourcing of major testing such as NDT, Electrical & Mechanical testing, no marks will be awarded. However, material composition testing by chemical method from NABL Lab shall not attract negative marking.						
18 C #	Details of any Government Laboratory facility available in area					
	Product related testing facility (type / Performance / Routine / Acceptance Test)					
19	Sources of Raw Material and Bought out Items					
Sr. No.	Description of Raw Material / Bought Out Items				Source	
20 #	Storage Area Availability					
	Storage for finished goods (Open / Close)					
	Raw Material storage and identification					

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21 #	Do you have in-house Design / R&D departments?	
22 #	Details of pending legal issues on contractual aspects with customers, if any.	
23 #	Please furnish details of Labour problems in the last three years, if any?	

B.	FINANCIAL SOUNDNESS OF ORGANIZATION			
	Financial Information for last Three Years (Please furnish copy of annual report)			
Sr. No.	Parameters	Year 20	Year 20	Year 20
1#	Please furnish annual turnover of the company.			
	Growth in annual turnover w.r.t. previous years (%)			
2#	Please furnish Profit before tax (PBT) of the company.			
	Growth in PBT w.r.t. previous years (%).			
3#	Please indicate the net worth (Net current assets – Net current liabilities) of the company?			
4#	Whether the vendor has been referred to BIFR / NCLT / any other similar Govt. agency.			
5#	Whether the supplier is a potentially sick company.			
6	Please mention current order book position, as on date in terms of Value and time			

C.	QUALITY SYSTEM	
SR. NO.	DESCRIPTION	Sub-vendor response (along with supporting document)
1#	Are you an ISO 9001 company? If yes, please furnish the certificate and what is your quality policy?	
2#	Is the company an ISO 14000 approved?	
3#	Is the company an OHSAS approved?	
4#	Have your company won any Quality award like Rajeev Gandhi National Quality Award, IMC Ramkrishna Bajaj National Quality Award, Golden Peacock National Quality Award etc? If yes provide documentary evidence.	
5#	Have you received appreciation letter from your customer. Please provide evidence.	
6	To whom your Q.C./Q.A. Chief reports to ? (Please furnish your organization structure)	
7#	If you have a written quality control manual/procedure, then please furnish the same.	

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7 (i)#	Incoming Material Control System (Furnish a copy of system and organization)	
7 (ii)#	Process Control: Are written procedure defining stage wise operations and functions on shop floor established and followed? (Furnish copy of work instruction and record of process control parameter)	
7 (iii)#	Manufacturing/Testing Procedure Qualification & Personnel Qualification (Procedure qualification specification & Record of personnel qualification (PQR) to be submitted).	
7 (IV)#	Are written Quality Control Instruction sheets prepared & properly used? (Please furnish evidence)	
7 (V)#	Are records generated during inspection maintained & available for review? (Please furnish evidence)	
7 (VI)#	Are quality control checks / procedure adequate to maintain desired quality level right from the incoming stage to final stage? Please furnish copy of such control checks / procedure.	
8.#	**Documentation Control**	
8 (i)	Does a system for clear and precise stipulation of responsibilities for documentation issue & change control exists?	
8 (ii)	Are changes made in writing?	
9#	**Control of Inspection, measuring and testing equipment**	
9 (i)	Are necessary gauges, testing and measuring equipment's, available and used?	
9 (ii)	Are testing and measuring equipment properly maintained?	
9 (iii)	Is recorded control on calibration of equipment available?	
10#	System of Identification & Traceability of materials, tools, jigs, fixtures & processed components, etc. (Copy of procedure to be submitted).	
11#	System of Storage / Preservation / Painting and Packing (copy of Procedure to be submitted)	
12#	Do you have written procedure for disposing off the non-conformities? If yes, please furnish the copy of the same also furnish three copies of NCR & CAPA.	
13#	Safety measures (Submit copy of safety system & record of accidents for last two years)	
14#	What type of Sampling Inspection Plan is used in your factory/company? Please furnish details.	
15	How good are you in keeping your dispatch commitments? Please give details of last ten deliveries stating details as below (Provide documentary evidence) Within delivery period:	

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	Delayed but accepted by user: Delayed but accepted with penalty:	
16#	Have you ever been de-listed or put in under temporary suspension by any customer / contractor.	
D.	**AFTER SALES SERVICE**	
SR. NO.	DESCRIPTION	Sub-vendor response (along with supporting document)
1#	For overcoming product deficiencies what are the analytical methods used at Customer's premises?	
2#	What is the strength of your "after-sales service" team?	
3#	What is the response time after receiving complaints from the customers? Provide evidence.	
4#	Customer complaints handling system (Submit list of customer complaints & status for the last three years) Please furnish complete list of complaints attended to during last one year.	
5#	How do you keep your "after-sales service" team updated?	
6#	Provide certificate from 02 customers (end user) for satisfactory after sails services.	

Declaration by Director/ Partner/ Proprietor

I declare that the information furnished above and attached documents are correct to the best of my knowledge, I undertake to inform you at the earliest any change(s) in the details mentioned above.

Signature and Date

Name & Designation

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TO BE FILLED BY MAIN CONTRACTOR FOR SUB-VENDOR (MC)

Sr. No.	Parameters	Supplier response (along with supporting document)
1	Name and address of sub-vendor:	
2 (a)	Type of equipment / item / process / service for which approval is sought:	
2 (b)	Details of equipment / item / process / service for which approval is sought (i.e. Rating, capacity, type, size, weight, etc.):	
3	Experience of main contractor with sub-vendor:	
(a)#	Since how many years sub-vendor is registered with you for proposed type of equipment / item / process / services (furnish documentary evidence):	
4#	Whether sub-vendor is meeting the qualification criteria indicated in the technical specification (furnish documentary evidence).	
5#	Sub-vendor rating as per contractor's internal procedure in the scale 0-10 or 0-100% (furnish documentary evidence).	
6#	Any dispute of main contractor with vendor during execution of last 05 contracts.	
7#	Have you ever de-listed or put in temporary suspension the proposed sub-vendor? If yes, please provide the reason for same.	
8	Please indicate the reason for re-approving / re-listing the sub-vendor.	

I declare that the information furnished by Sub-vendor has been verified and found in order / minor changes which have been marked and initialed on this form itself / observed the following discrepancies.

(Signature & Designation)

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GUIDELINES TO SUPPLIERS FOR FILLING-UP VENDOR/SUPPLIER REGISTRATION FORM

1. All columns are to be filled up properly in the space provided for. Wherever it is not applicable / not available, please mention "Not Applicable" / "Not Available". All pages of the form are to be signed along with seal by the authorized signatory.
2. A separate sheet may be attached if the space provided is insufficient or additional information is to be given, Please put proper identification tag on the separately attached sheet.
3. Any information / clarification required by SAPDC/ Consultant during evaluation must be given expeditiously.
4. Please ensure that all required enclosures are attached with the filled up Vendor Registration Form.
5. Marks shall be awarded on the basis of documentary evidences submitted by Vendor / sub-vendor wherever called in vendor / sub-vendor assessment form.
6. Incomplete or incorrect forms will be rejected.
7. Please fill up the check list given below and send along with the vendor registration forms to SAPDC/Consultant.
8. In case any information found incorrect / false, the vendor shall be rejected / de-listed at any stage.
9. Information with # marks is score able.
10. Accepting or rejecting a vendor is sole discretion of SAPDC.
11. Product catalogue / manual for the proposed item / equipment / process / service, if available, shall be submitted alongwith other documents.

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Furnish following information/Documents:-

Sr. No.	Description	Yes / No	Page No / Annexure
1	Latest audited annual account.		
2	Balance Sheet.		
3	Valid Income Tax Clearance Certificate.		
4	Details of Pending Arbitration cases.		
5	Details of pending disputes with Statutory Authorities.		
6	Organization chart		
7	Copy of Performance certificate (minimum 03)		
8	Copy of minimum three (03) completion certificates of similar work / service.		
9	Letter of approval from ASME / NTPC/ EIL / Railway / Lloyds / Power Grid etc. if any.		
10	ISO: 9001 certificate		
11	Quality Manual		
12	ISO: 14000 certificate		
13	OHSAS, ISO 18000 certificate		
14	Experience list		
15	Type test report & approval certificate		
16	Product Approval certificate from national / international agency.		
17	Quality award certificate		
18	Process and Personnel qualification certificates		
19	Copy of registration / enlistment with reputed / large organizations		
20	Detail of existing clients and details such as address, contact number and mail address.		
21	List of works / projects of similar nature executed with documentary evidences of works executed in last 02 years.		
22	Other documents mentioned elsewhere in vendor / sub-vendor assessment form.		

(Signature & Designation)

	SJVN	FORM NO.: F-060-02 PAGE: 1 of 1 ISSUE: 2.0 REV. 01 DATE: 30/06/2016
	FORM	

PROJECT NAME (MW)	MANUFACTURING / FIELD QUALITY ASSURANCE PLAN				CONTRACTOR NAME, ADDRESS & LOGO
ITEM DESCRIPTION	SUB-ITEM	QAP NO.	REV. NO	ISSUE DATE	SUB-CONTRACTOR NAME, ADDRESS & LOGO

SR. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M/C	S				M	C	S	
1	2	3	4	5	6		7	8	9	10			11

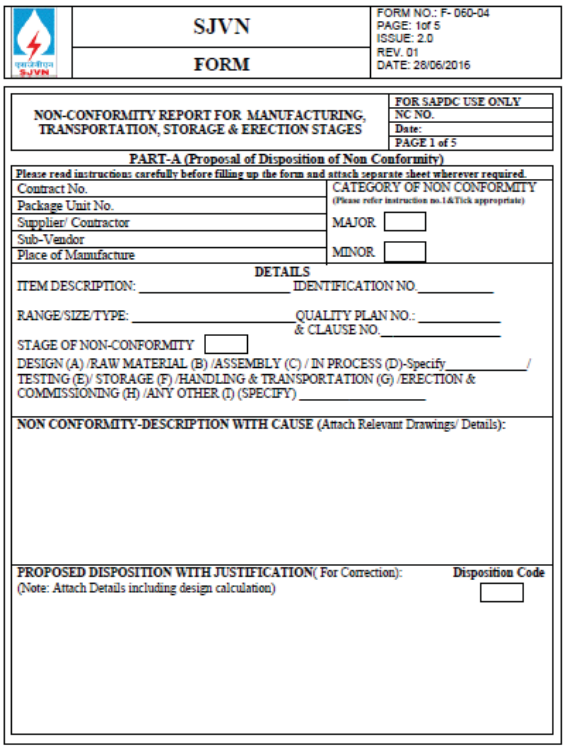
LEGENDS

M	MANUFACTURER.	C	CONTRACTOR.	S	SAPDC LTD.
P	PERFORM	V	VERIFICATION OF RECORDS	W	WITNESS / CHP
IR	INSPECTION REPORT	DRG	DRAWING	CHP	CUSTOMER HOLD POINT
MA	MAJOR.	MN	MINOR.	CR	CRITICAL
ME	MEASUREMENT	NDT	NON DESTRUCTIVE TESTING	HT	HEAT TREATMENT
TR1	CERTIFICATE OF COMPLIANCE TO TS/STANDARD REQUIREMENT WITHOUT ANY CHECK LIST OF TESTS CARRIED OUT.	TR2	CERTIFICATE OF COMPLIANCE TO TS/STANDARD REQUIREMENT WITH CHECK LIST OF TESTS CARRIED OUT.	TR3	TEST REPORT/TEST CERTIFICATE WITH TEST RESULTS BASED ON SPECIFIC INSPECTION & TESTING AT MANUFACTURER FACILITY/NABL APPROVED LAB.

NOTE: QAP SHALL BE READ IN CONJUNCTION WITH QUALITY ASSURANCE REQUIREMENT GIVEN AS PART OF TECHNICAL SPECIFICATION.

MANUFACTURER / SUB-CONTRACTOR:		CONTRACTOR:	FOR SAPDC USE:	REFERENCE DOC NO. OF SJVN:	
PREPARED BY:	REVIEWED BY	REVIEWED & RECOMMENDED BY	REVIEWED BY	RECOMMENDED BY	APPROVED BY
NAME, DESIGNATION & SIGNATURE	NAME, DESIGNATION & SIGNATURE	NAME, DESIGNATION & SIGNATURE	NAME & SIGNATURE	NAME & SIGNATURE	SIGNATURE & SEAL

Prepared By:	Reviewed By:	Approved By: Process Owner



SJVN	FORM NO.: F- 060-04 PAGE: 1of 5 ISSUE: 2.0 REV. 01 DATE: 28/06/2016
FORM	

NON-CONFORMITY REPORT FOR MANUFACTURING, TRANSPORTATION, STORAGE & ERECTION STAGES	FOR SAPDC USE ONLY NC NO. Date: PAGE 1 of 5

PART-A (Proposal of Disposition of Non Conformity)

Please read instructions carefully before filling up the form and attach separate sheet wherever required.

Contract No.	CATEGORY OF NON CONFORMITY (Please refer instruction no.1&Tick appropriate)
Package Unit No.	
Supplier/ Contractor	MAJOR ☐
Sub-Vendor	
Place of Manufacture	MINOR ☐

DETAILS

ITEM DESCRIPTION: _____ IDENTIFICATION NO._____

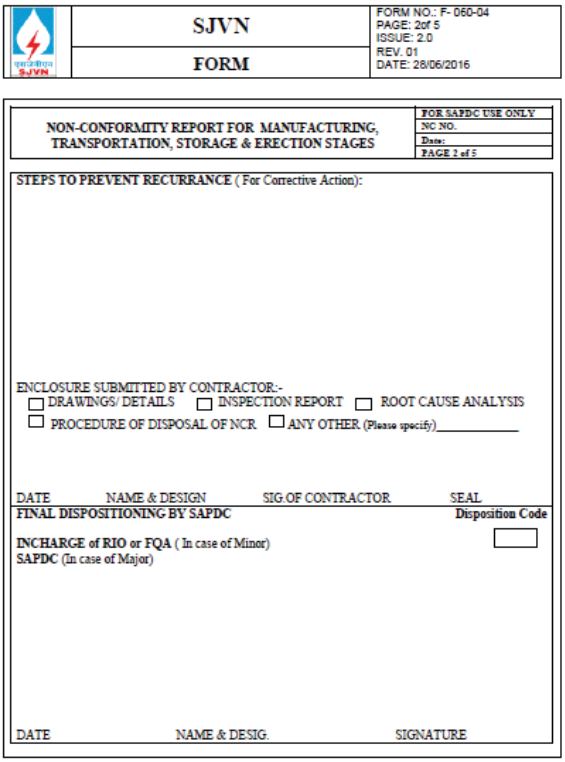
RANGE/SIZE/TYPE: _____ QUALITY PLAN NO.: _____
& CLAUSE NO._____

STAGE OF NON-CONFORMITY ☐

DESIGN (A) /RAW MATERIAL (B) /ASSEMBLY (C) / IN PROCESS (D)-Specify_____/
TESTING (E)/ STORAGE (F) /HANDLING & TRANSPORTATION (G) /ERECTION & COMMISSIONING (H) /ANY OTHER (I) (SPECIFY) _____

NON CONFORMITY-DESCRIPTION WITH CAUSE (Attach Relevant Drawings/ Details):

PROPOSED DISPOSITION WITH JUSTIFICATION(For Correction): **Disposition Code** ☐
(Note: Attach Details including design calculation)



SJVN	FORM NO.: F- 060-04 PAGE: 2of 5 ISSUE: 2.0 REV. 01 DATE: 28/06/2016
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NON-CONFORMITY REPORT FOR MANUFACTURING, TRANSPORTATION, STORAGE & ERECTION STAGES	FOR SAPDC USE ONLY NC NO. Date: PAGE 2 of 5

STEPS TO PREVENT RECURRANCE (For Corrective Action):

ENCLOSURE SUBMITTED BY CONTRACTOR:-
☐ DRAWINGS/ DETAILS ☐ INSPECTION REPORT ☐ ROOT CAUSE ANALYSIS
☐ PROCEDURE OF DISPOSAL OF NCR ☐ ANY OTHER (Please specify)_____

DATE NAME & DESIGN SIG.OF CONTRACTOR SEAL

FINAL DISPOSITIONING BY SAPDC **Disposition Code** ☐

INCHARGE of RIO or FQA (In case of Minor)
SAPDC (In case of Major)

DATE NAME & DESIG. SIGNATURE

SJVN	FORM NO.: F- 060-04 PAGE: 3of 5 ISSUE: 2.0 REV. 01 DATE: 28/06/2016
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NON-CONFORMITY REPORT FOR MANUFACTURING, TRANSPORTATION, STORAGE & ERECTION STAGES	FOR SAPDC USE ONLY NC NO. Date: PAGE 3 of 5

FOR SAPDC INTERNAL USE ONLY

RECOMMENDATION of INCHARGE of RIO or FQA (In case of Major)/ **CONCERNED SAPDC 's INSPECTION/ SITE ENGINEER** (In case of Minor) **Disposition Code** ☐

DATE NAME & DESIG. SIGNATURE

RECOMMENDATION OF SAPDC CONCERNED ENGINEER **Disposition Code** ☐

DATE NAME & DESIG. SIGNATURE

GROUP HEAD

DATE NAME & DESIG. SIGNATURE

RECOMMENDATION OF SAPDC (FOR MAJOR CATEGORY)
(Comments of Engineering / Others deptt as applicable to be considered)

DATE NAME & DESIG. SIGNATURE

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FORM	

NON-CONFORMITY REPORT FOR MANUFACTURING, TRANSPORTATION, STORAGE & ERECTION STAGES	FOR SAPDC USE ONLY NC NO. Date: PAGE 4 of 5

PART B (Verification of Corrections of Non- Conformity)
(Filled after Completion of corrections of Non-Conformity)

ACTION TAKEN BY SUPPLIER/ CONTRACTOR (Attach Report of verification)

DATE NAME & DESIGN SIG.OF SUPPLIER/ CONTRACTOR SEAL

VERIFICATION BY SAPDC'S SITE ENGINEER/ INSPECTION ENGINEER

DATE NAME & DESIG. SIGNATURE

IN-CHARGE of RIO/ FQA

DATE NAME & DESIG. SIGNATURE

COMMENTS OF SAPDC ENGINEER

DATE NAME & DESIG. SIGNATURE

GROUP HEAD

DATE NAME & DESIG. SIGNATURE

HOD

DATE NAME & DESIG. SIGNATURE

SJVN	FORM NO.: F- 060-04 PAGE: 5of 5 ISSUE: 2.0 REV. 01 DATE: 28/06/2016
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NON-CONFORMITY REPORT FOR MANUFACTURING, TRANSPORTATION, STORAGE & ERECTION STAGES	FOR SAPDC USE ONLY NC NO. Date: PAGE 5 of 5

INSTRUCTIONS

1. 'MAJOR' NONCONFORMITY IS DEFINED AS DEPARTURE FROM SPECIFICATION WHICH AFFECTS PERFORMANCE RELIABILITY. SAFETY INTERCHANGEABLITY. ERECTION, COMMISSIONING OR WORKING LIFE ALL OTHER NON-CONFORMITIES SHALL BE TREATED AS CATEGORY 'MINOR'.
2. ACCEPTANCE OF DISPOSITIONED NO N-CONFORMANCE IS WITHOUT PREJUDICE TO SAPDC RIGHT TO CLAIM COMMERCIAL REBATE AND DOES NOT ABSOLVE CONTRACTUAL OBLIGATIONS.
3. OBTAINING APPROVAL OF STATUTORY AUTHORITY IF ANY W.R.T. ABOVE NON CONFORMANCE IS THE RESPONSIBILITY OF SUPPLIER/ CONTRACTOR.
4. DISPOSITIONING OF THIS NON-CONFORMANCE IS FOR THIS SPECIFIC CASE ONLY AND NOT TO BE REGARDED AS PRECEDENCE.
5. **DISPOSITION CODE** THE NON-CONFORMANCE SHALL BE DISPOSITIONED AS UNDER BY SAPDC AND SUPPLIER. (GIVE CODE AT APPROPRIATE BOXES):- **(01)** NC-REJECTED **(02)** NC- CONDITIONALLY ACCEPTED (SPECIFY CONDITION) **(03)** NC-ACCEPTED AS-IT-IS **(04)** NC-ACCEPTED WITH REPAIR.
6. **NC NUMBER** - THIS NO. SHALL BE ALLOTTED BY SAPDC AND SHALL HAVE SAPDC PROJECT NAME, PACKAGE, FOLLOWED BY RUNNING SERIAL NO. & ENTER TO NC REPORT BY RIO / FQA / CQAI.

RESPONSIBILITIES OF CONTRACTOR

1. ASCERTAIN EXACT NATURE OF NON-CONFORMANCE AND ALONGWITH SUPPORTING DRAWING OF ITEMS/ EQUIPMENT ETC WITH WHICH NON-CONFORMANCE EXISTS.
2. IDENTIFY THE CAUSE OF NON CONFORMITY.
3. DECIDE ON CODE OF DISPOSING.
4. FINALISE THE CAUSE OF NON-CONFORMITYAND PROPOSE CORRECTIVE ACTION.
5. ENSURE AND CERTIFY THAT THE PRODUCT QUALITY PERFORMANCE. RELIABILITY AND WORKING LIFE IS NOT AFFECTED FOR MINOR NON-CONFORMITIES AND QUANTIFY THE EXTENT TO WHICH IT IS AFFECTED IN THE CASE OF CATEGORY 'MAJOR' NON-CONFORMITIES.
6. IMPLEMENT AGREED CORRECTIVE ACTION IN A TIME BOUND PROGRAMME AND PROVIDE FEEDBACK AS PER PART-B OF THE FORMAT

RESPONSIBILITIES OF RIO/ FQA

1. IDENTIFY THE PRODUCT APPROPRIATELY.
2. ANALYSE THE CAUSE OF NON-CONFORMITYAND PROPOSE RECOMMENDATION

	SJVN	FORM NO.: F-060-06 PAGE: 1 of 1 ISSUE: 2.0 REV. 00 DATE: 30/06/2016
	FORM	

INSPECTION CALL REQUEST

Inspection Call No.			Date:			
Project:			Contract No. :			
Contractor/Supplier's Name & Address:			Sub-vendor/Sub-Supplier's Name & Address:			
Contact Person:			Contact Person:			
Telephone/Mobile No.:			Telephone/Mobile No.:			
Fax No.			Fax No.			
email ID:			email ID:			
Details of Equipment with Unit No.:						
Sr. No.	Equipment/Item Description and Sr. No.	Unit No.	BBU Ref.	QAP No. & Rev. No.	Relevant QAP Clause No.	Approved Drawing No. & Rev. No.
Status of Type Tests	Approved / Not Approved / Not Applicable		Place of Inspection:			
Proposed date of Inspection:			Anticipated Working Days Required			
Status of internal inspection by Vendor/sub-vendor			Completed ☐	In-progress ☐	Yet to be done ☐	
Tentative date of completion of internal inspection in case inspection is in-progress/yet to be done:						
Note: Readiness status is to be submitted separately after completion of internal inspection by Manufacturer.						

Date:
Place:

Signature
Name
Designation
Department
Company

Annexure F - Export Worthy Packing

1.0 SCOPE:

For export jobs, sea worthy packing capable of performing all necessary functions like prevention of damage to the contents, sufficient to support frequent handling and lengthy periods of outdoor storage in adverse weather conditions are required. Workmanship and material used shall meet the technical requirements and be in accordance with best commercial export packing practices. Vendor shall be responsible for the packing, however, it shall meet the minimum requirements specified herein. Equivalent or better packing methods may be deployed subject to approval of the purchaser. Vendor shall submit the packing procedure for its equipment for purchaser's approval during detailed engineering.

2.0 TECHNICAL SPECIFICATION OF WOOD:

The wood shall be Fir, Chir, Silver Oak (Grevillea Robusta) or chemically treated mango with moisture content not exceeding 50 %. The wood shall have flextural & compressive strength, stiffness, shock absorption and nail retention properties. The wood shall be free from common defects such as warp, bone, twist, knot, cracks, splits, end splits, bend, visible sign of infection and any kind of decay caused by insects, fungus etc. Surface cracks with a maximum depth of 3 mm are permissible. A continuous crack of any depth all along the length is not allowed.

The wood shall be chemically treated to provide protection against deterioration due to fungi and attack by termites, borers, marine organism and any other kind of infection. It shall be treated only after final processing like cutting, planing, joint grooving etc.

3.0 TYPE, DESIGN & DIMENSION OF WOODEN PACKING CASES:

3.1.1 PACKING OF EQUIPMENTS:

Various mechanical, electrical and C&I equipment e.g. pumps, motors, equipment skids, heat exchangers, control panels, switch gears, transformers etc. shall be wrapped in weather proof packing and then secured in wooden packing cases. The construction of wooden packing cases shall be as per details given below and also in figures 1 to 11.

3.1.1 BOTTOM FRAME:

The construction of bottom frame shall be as per fig. 2. The number of slides/runners for bottom frames shall be selected depending upon the weight and overall dimension of the load to be carried. The equipment shall be secured by fixing their base frame/plate with the help of bolt & nuts etc to the bottom frame of the wooden packing cases. The equipment not provided with the base frame/plate like

cylindrical vessels etc. to be secured to the bottom frame of the wooden case with 'C' clamps fabricated from steel channels/angle irons.

3.1.2 TOP FRAME:

The construction of top frame shall be as per fig. 3.

3.1.3 END PANELS:

The dimensions of the end and lateral panels shall be calculated according to overall dimensions of the items to be packed.

Diagonal braces shall be used for packing cases having height exceeding 500 mm. Detail of bracing shall be as per figure 5 to 8.

3.1.4 SLING PLATE:

To facilitate lifting of cases, longitudnal under slide boards shall be fixed. To avoid damage to the box while lifting sling plates shall be provided. Refer fig. 11.

3.1.5 ANGLE IRON CLEATS :

Angle iron cleats shall be used for strengthening the joints as indicated in fig. 10.

3.1.6 OTHER REQUIREMENTS:

The thickness of planks for top, bottom, side and end panels shall be atleast 25 mm. Planks used for this purpose shall be joined with each other by tongue & groove joint. The groove dimension shall be such that tongue fits tightly into groove to make good joint.

Runners/slides, traverse bars etc. shall be of single length i.e. without any joint. Planks for sheathing, diagonal bracing etc shall also be of single length upto 2400 mm. For sizes larger than 2400 mm, proper jointing is permitted for planks for sheathing and diagonal bracing.

Each equipment to be individually covered with double polyethylene petticoat. Sheet thickness of polyethylene sheet shall not be less than 0.175 mm (175 microns). The sealing shall be such so as not to allow moisture inside.

The inner surface of 4 sides of shooks shall be nailed with bituminised water proof kraft paper. Whereever 2 pieces of kraft paper are used, the joint shall have an overlap of minimum 20mm.

All the inner sides of the box shall be nailed with bitumen coated hessian polyethylene kraft paper. For top frame it shall project on all sides by 100mm and shall be nailed on sides. Wherever 2 pieces of kraft paper are used, the joint shall have an overlap of minimum 20mm.

For delicate equipment like control panels, switchgears etc suitable cushioning material like rubberized coir shall be provided on their bottom support. The thickness of coir shall be 50 mm (minimum) and width 100 mm (minimum).

For control panels and switchgears, the gap between the panel and casing shall be filled with rubberized coir with distance between consecutive supports less than 500 mm (ref fig 15). For other equipment suitable support from sides of the casing to be provided.

Switchgear cubicles, control panels and control desks shall be packed and shipped in separate convenient sections. The components e.g. circuit breakers relays and instruments etc. which are removed from panels for shipping purpose shall be separately packed and shipped as per packing instructions in clause 3.2.

Packing case for control panels & switchgear panels shall be finally covered with GI sheet of minimum thickness of 0.4 mm.

Packing cases shall be bound at edges by nailing MS clamps/brackets at sufficient intervals. Further, heavier boxes shall be strapped with 'C' clamps (ref fig 4) fabricated from steel channels/angles and lighter boxes shall be strapped with hoop iron strips.

3.1.7 ALTERNATIVE PACKING CASES FOR CONTROL PANELS AND SWITCHGEARS

If required, for control and switchgear panels, construction of wooden packing cases may be provided as per fig 14 & 15 and as detailed below:

Thickness of planks for all sides, binding and jointing battens shall be atleast 25 mm. Width of planks shall be at least 125mm and that of binding and jointing planks shall be at least 100 mm.

Top frame shall be suitable so that it does not collapse due to sandwitching between slings while lifting. Longitudnal and traverse bars for the bottom wooden pallet to be suitably selected.

Diagonal bracings shall be as per clause 3.1.3 and All other requirements shall be as per clauses 3.1.4 to 3.1.6.

3.2 PACKING OF LOOSE ITEMS:

Loose mechanical, electrical and C&I items eg valves, fittings, pressure/temperature gauges/switches, circuit breakers, relays etc shall be individually wrapped using polyethylene sheets/U foam/thermocole sheets/air bubbled sheets depending upon the item and then packed in wooden boxes. The left out spaces and top of the boxes shall be filled with rubberized coir to get proper cushioning effect. Special attention is to be paid to relays, instruments etc for arresting the movement of their operating mechanisms during transportation.

The construction of wooden packing case shall be as per clause 3.1 retaining its all features concerning strength of box. The construction of wooden packing case for loose electrical and C&I items shall be as per fig. 16.

Inner surface of 6 sides of the box shall be lined with Bitumen coated hessian polyethylene kraft paper. Rubberized coir of min. 25 mm thickness and 100 mm width shall be nailed to inner surfaces of bottom and 4 sides of the box.

Loose items such as Galvanised Steel Structure, Cable support racks, Cable Trays and GI Pipes etc. shall be individually wrapped using polyethylene sheets and further lots may be wrapped in Bitumen coated hessian cloth.

4.0 MOISTURE ABSORBER:

Silica gel is used for this purpose to protect contents over sufficiently long time from corrosion. Silica gel shall be of indicating type conforming to IS-304-1979 packed in cotton bags placed at different positions inside the packing for absorbing moisture and shall not come directly into contact with the equipment / material inside the package. The quantity of silica gel shall be enough for storage period of one (1) year, however, it shall not be less than 4 gms per litre volume of case subject to minimum of 400 gms per case.

5.0 INDICATION MARKS ON THE BOXES:

Markings shall be provided on the boxes indicating position of boxes for handling, storage and nature of consignment. For guidelines refer figure 12. The ink used for this purpose as well as for marking despatch instruction shall be indelible/nonwashable marking ink.

6.0 DESPATCH DETAILS:

External front and rear sides of the boxes to be planed for writing instructions.

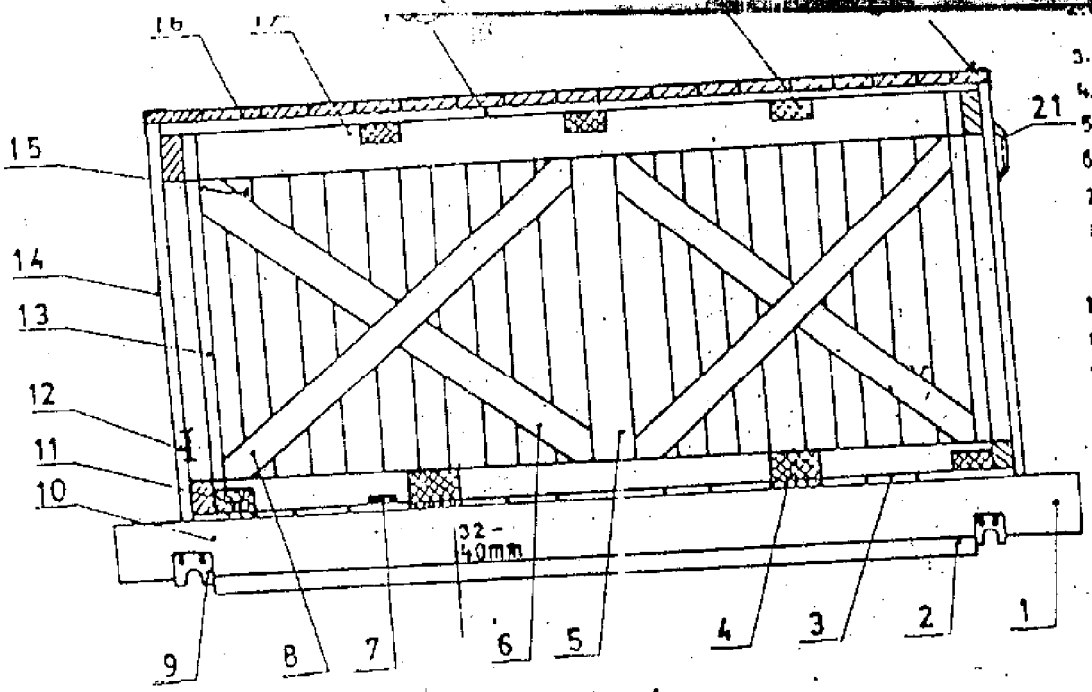
Dispatch details such as consignor/consignee address, contract and case details, country of origin , port of delivery, stacking instructions shall be written on one of the side of boxes. An anodised aluminium plate shall be provided on one side of the boxes.

One copy of packing slip wrapped in polyethylene bag covered with aluminium packing slip holder to be nailed on the external surface of the box. One more copy of the packing slip wrapped in polyethylene bag to be kept inside the box at the prominent place.

7.0 INSPECTION:

There shall be a Customer Hold Point (CHP) for inspection of final assembly of packing. During above inspection, the records for Chemical Treatment shall be reviewed.

- - x x - -



F1 -1

2. BOARD
3. BOTTOM BOARD
4. CARRIER TRAVERSE BAR
5. INTERMEDIATE VERTICAL SUPPORT
6. DIAGONAL BRACING
7. DRAINAGE HOLES
8. BATTEN
9. SLING PLATE
10. NUT, BOLT, WASHER
11. END TRAVERSE BAR
12. WATER PROOF LINING OF BITUMANISED PAPER
13. VERTICAL SUPPORTS
14. END SHEATING BOARD
15. SIDE SHEATING BOARD
16. TOP SHEATING BOARD
17. LONGITUDINAL SUPPORT
18. TOP HORIZONTAL BEAM
19. TOP TRAVERSE BARS
20. TOP CORNER STRIPS (FOR STRENGTHENING)
21. OUT SIDE DOCUMENTS CONTAINER.

NOMENCLATURE OF PARTS OF PACKING CASES

FIG.-1

EC 009

BOTTOM FRAME ARRANGEMENTS

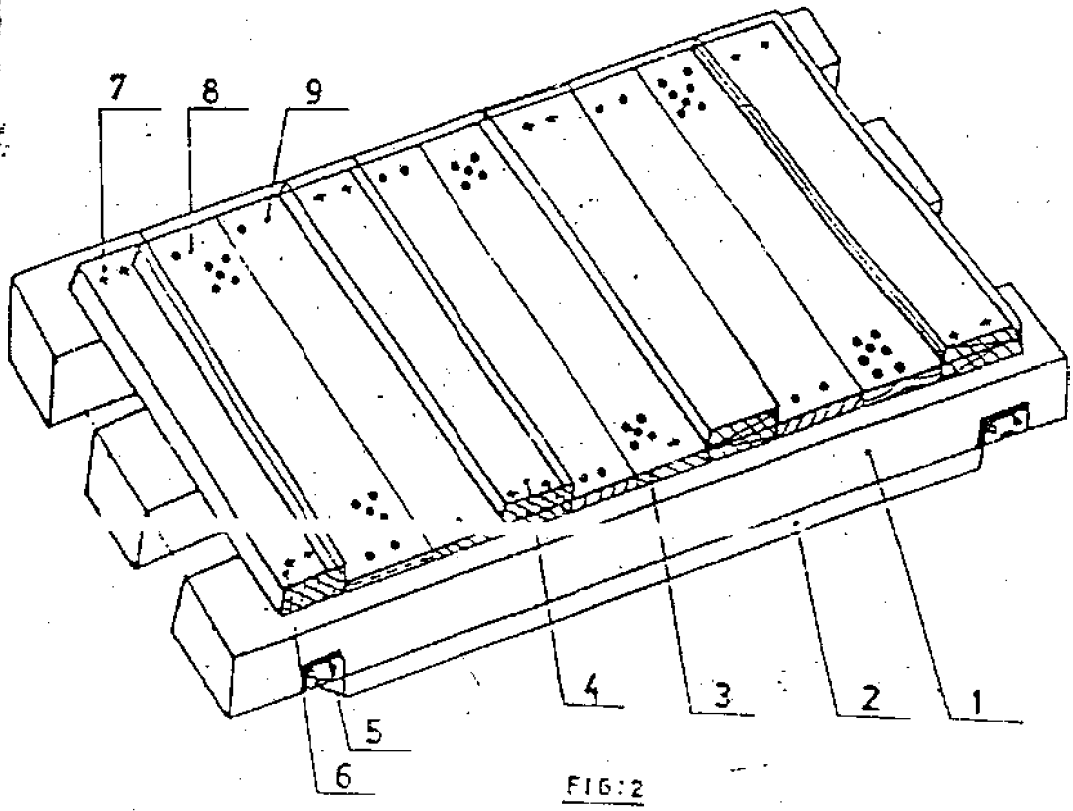


FIG:2

Nos. of slides : Minimum 2 nos.
For length more than 1800 mm or load more than 1000 kg, nos. of slides shall be minimum 3 nos.
For dimensions of slides, refer Table 1
Cross section of end traverse bolt; 100 x 100 mm (minimum)

1. SLIDE
2. UNDER SLIDE BOARD
3. BOTTOM BOARD
4. CARRIER TAVERSE BAR
5. SLING PLATE (END)
6. TRAVERSE BAR
7. BOLT, NUT & WASHER
8. DRAINAGE HOLES
9. NAILS

TOP FRAME ARRANGEMENT

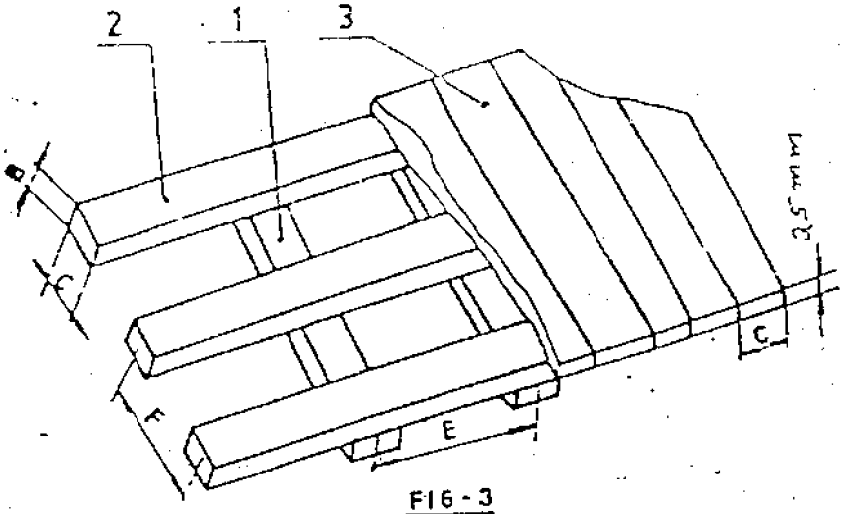


FIG-3

Dim F : 700 to 1000 mm
Dim E : 500 to 900 mm
B X C : 30 X 100 mm.

1 – Treverse Bars
2 – Horizontal Beams
3 – Top Board

ARRANGEMENT OF C-CLAMPS AROUND CASES

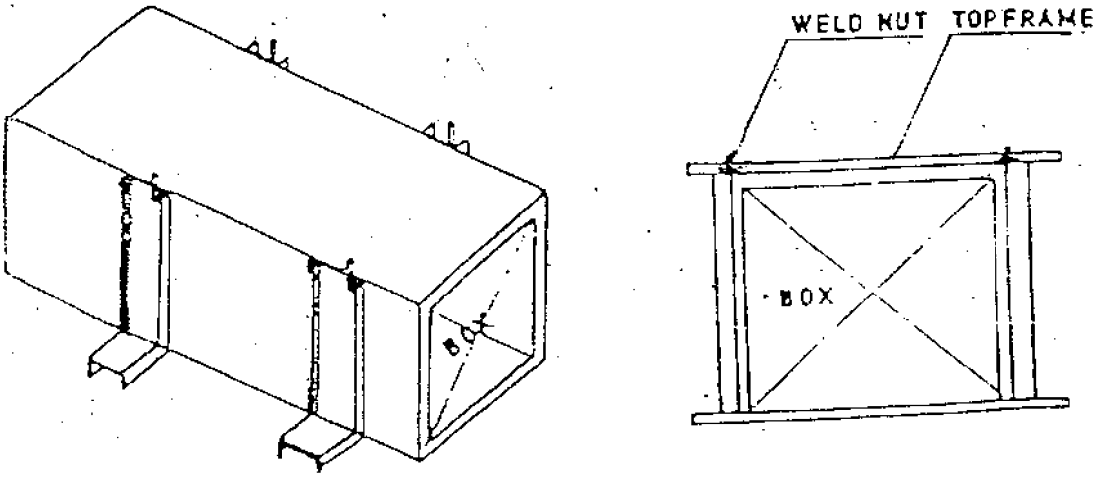


FIG: 4

ARRANGEMENT OF DIAGONAL BRACING AND HORIZONTAL SUPPORT

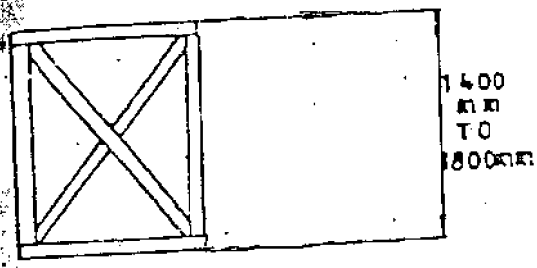


FIG: 6

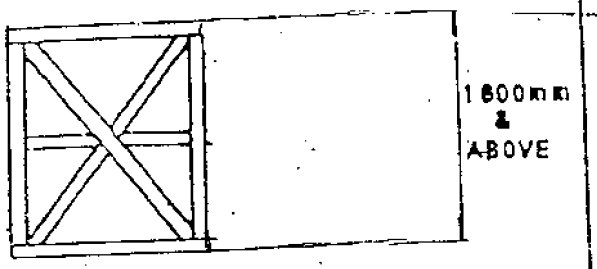


FIG: 8

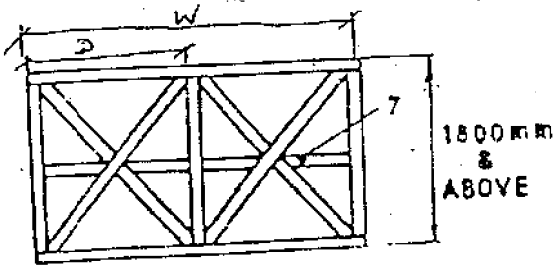


FIG: 9

7- Middle Horizontal Support

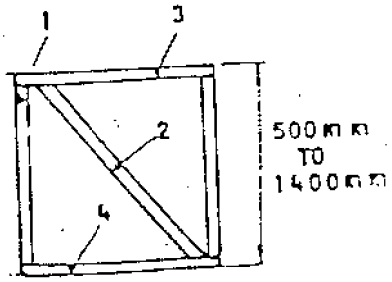


FIG: 5

1- Vertical Support
2- Diagonal Bracing
3- Upper Horizontal Support
4- Lower Horizontal Support

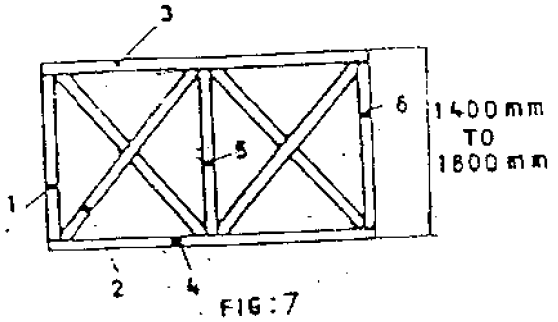
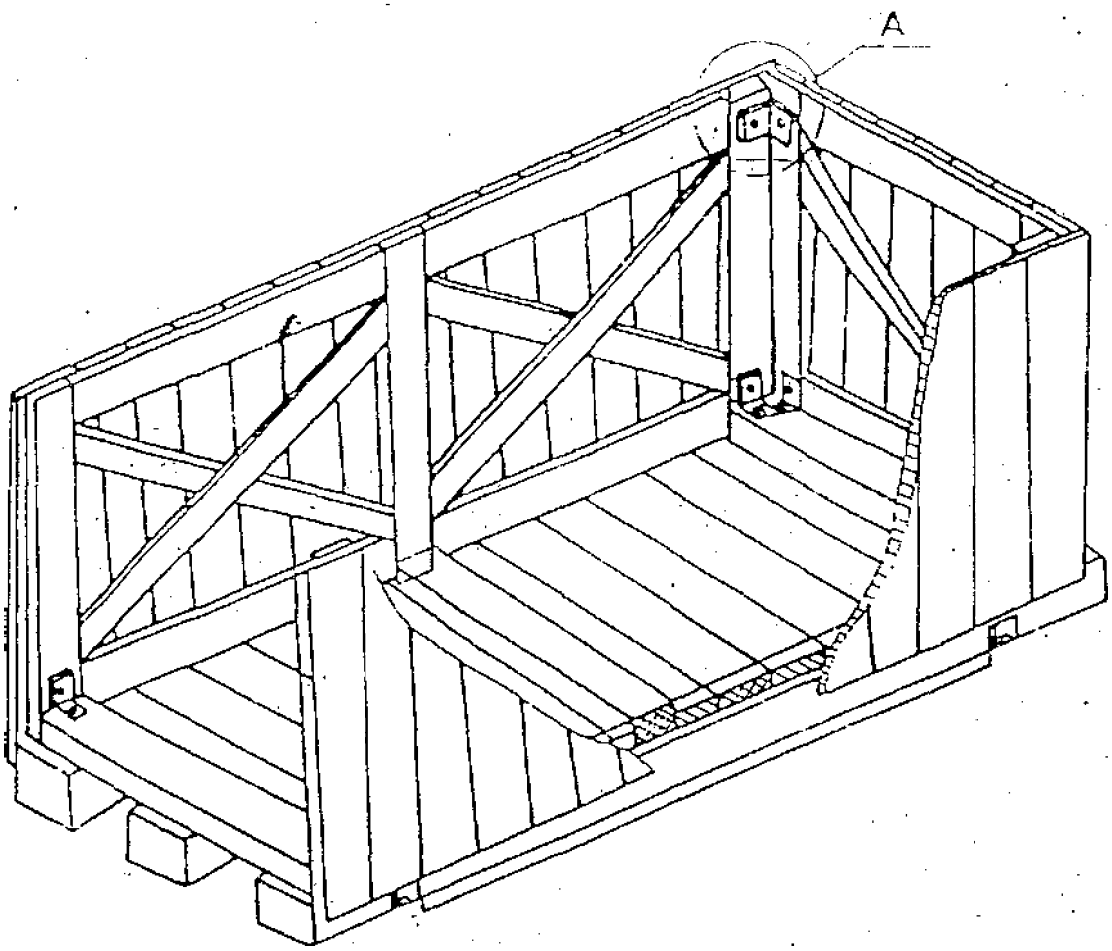


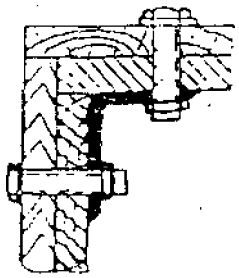
FIG: 7

1, 5, 6 - Vertical Support
2 - Diagonal Bracing
3 - Upper Horizontal Support
4 - Lower Horizontal Support

The dimensions of various items shall be as Table - 2

ARRANGEMENT OF PACKING CASE





DETAIL-A

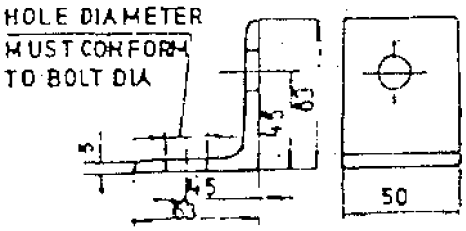


FIG:10

ARRANGEMENT OF SLING - PLATE ON CASES

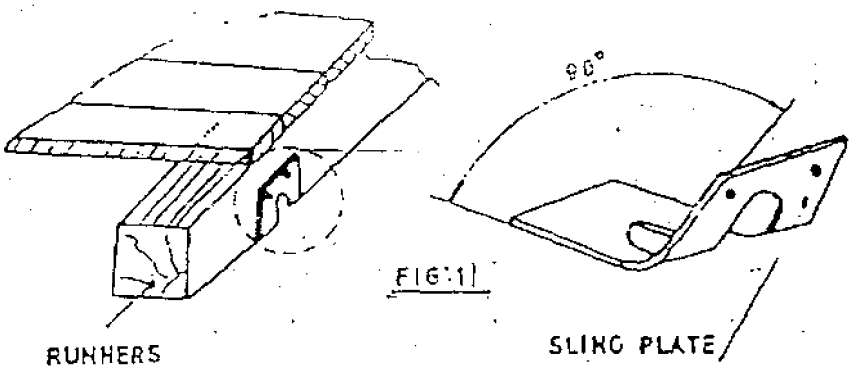


FIG:1

Table 1

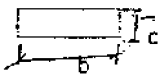
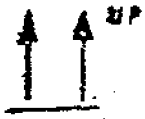
Load	Length of Slides 600	800	1000	1200	1300	1500	2000
	Cross Section b x c 						
500	50 x 100	50 x 100	50 x 100	50 x 100	75 x 100	75 x 100	100 x 100
800	50 x 100	50 x 100	75 x 100	75 x 100	75 x 100	75 x 100	100 x 100
1000	75 x 100	75 x 100	75 x 100	100 x 100	100 x 100	100 x 110	100 x 150
1500	75 x 100	75 x 100	100 x 100	100 x 100	100 x 100	100 x 150	100 x 150
2000	75 x 100	100 x 100	100 x 100	100 x 150	100 x 150	100 x 150	150 x 150
2500	75 x 100	100 x 100	100 x 150	100 x 150	100 x 150	150 x 150	150 x 150
3000	100 x 100	100 x 150	150 x 150	150 x 150	150 x 150	150 x 150	

Table 2

End and side Panels	Width of the panel W	Distance between longitudinal support DIM 'D'						
		600	800	1000	1200	1400	1600	1800
		Cross Section (b : c)			Item 1 to 7			
Fig 5	600 to 1200	30 x 100	30 x 100	30 x 100	30 x 130	30 x 130	30 x 130	30 x 130
to	1201 to 1600	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
	1601 to 2000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
Fig 9	2001 to 3000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	40 x 150
	3001 to 4000	30 x 130	30 x 130	40 x 150	40 x 150	40 x 150	40 x 150	40 x 150

INDICATION MARKS ON CASES

Sl. No.	INDICATION MARK	MEANING
1		TOP SIDE
2		KEEP AWAY FROM HEAT
3		SLINGING POSITION
4		FRAGILE MATERIAL TO BE HANDLED WITH CARE
5		CENTRE OF GRAVITY
6		KEEP DRY

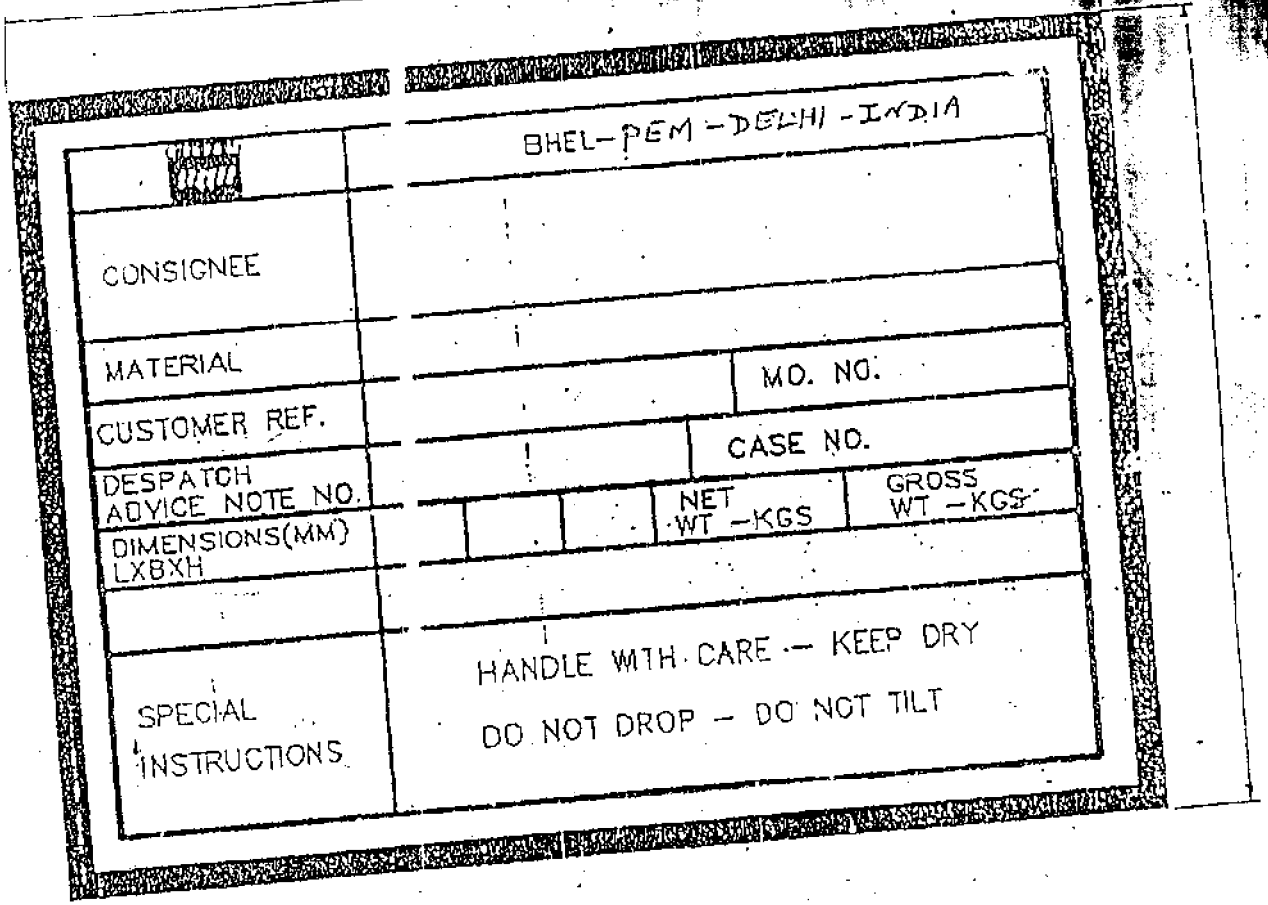
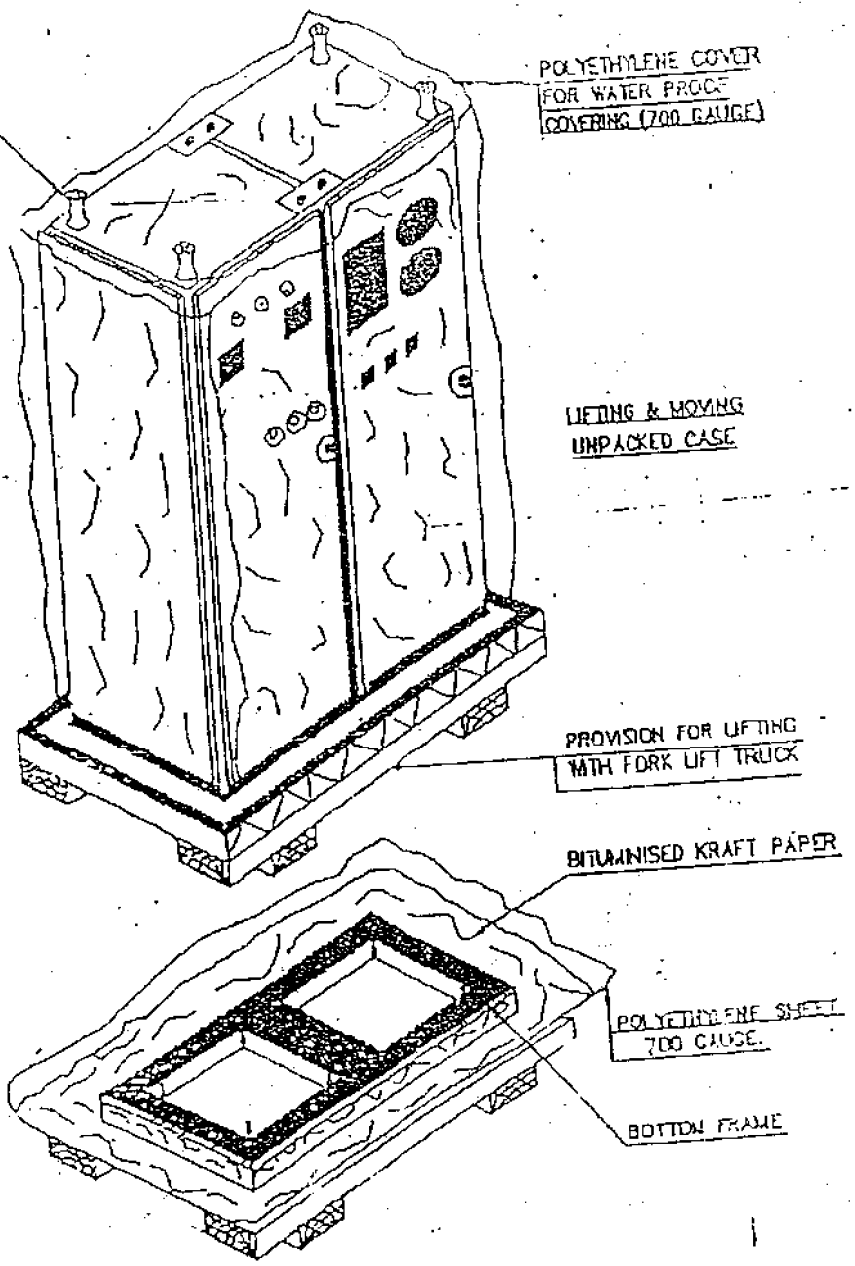


FIG-13: MARKING PLATE


EYE BOLT
POLYETHYLENE COVER FOR WATER PROOF COVERING (700 GAUGE)
LIFTING & MOVING UNPACKED CASE
PROVISION FOR LIFTING WITH FORK LIFT TRUCK
BITUMINISED KRAFT PAPER
POLYETHYLENE SHEET 700 GAUGE.
BOTTOM FRAME

FIGURE–14

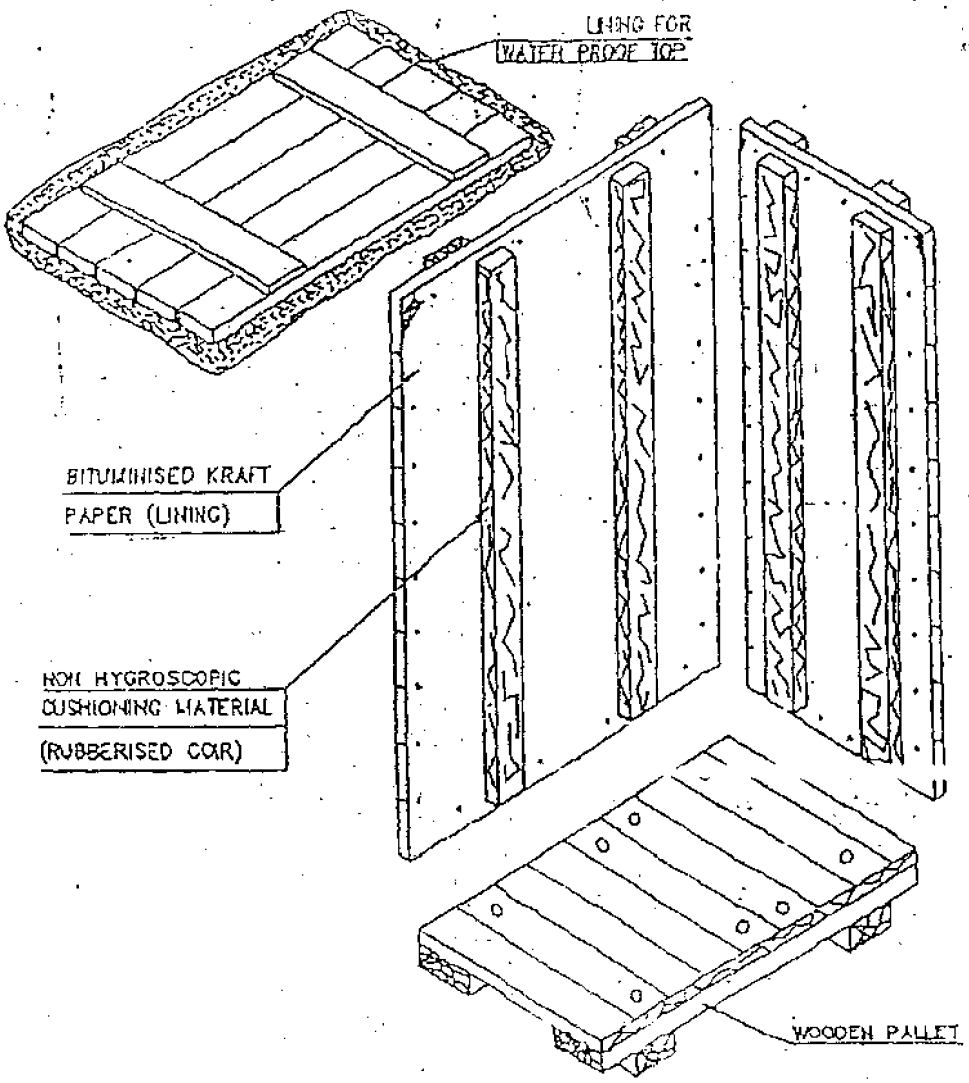

LINING FOR
WATER PROOF TOP
BITUMINISED KRAFT
PAPER (LINING)
NON HYGROSCOPIC
CUSHIONING MATERIAL
(RUBBERISED COIR)
WOODEN PALLET

FIGURE-15

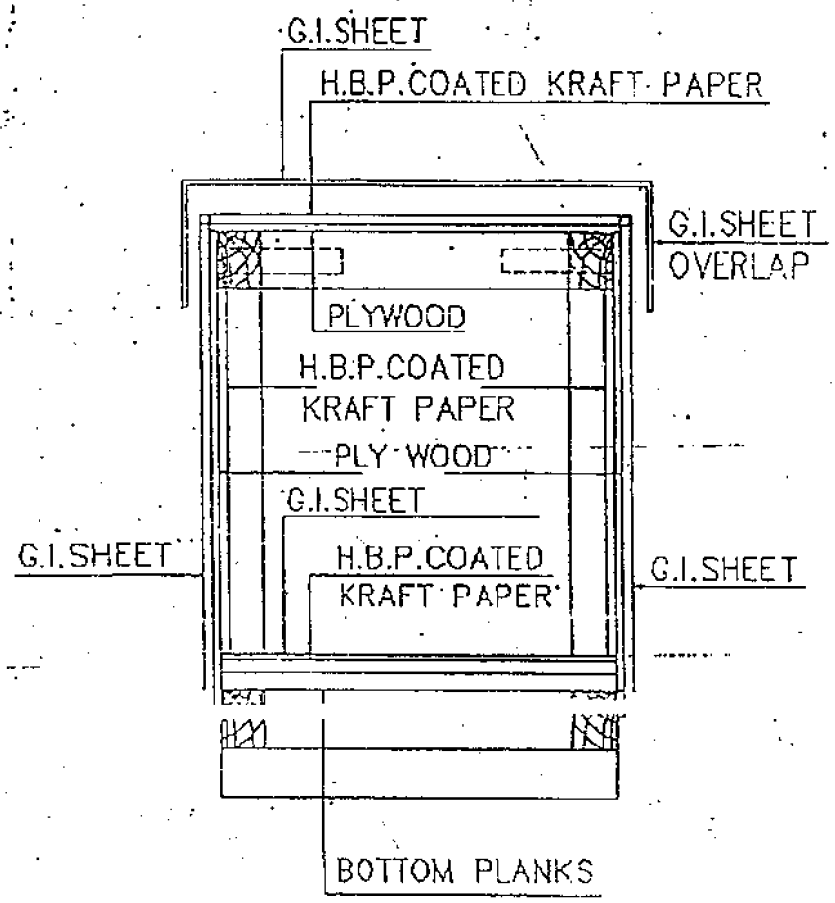


FIG-16 : CLOSED PACKING CASE WITH G.I.SHEET SHOWING LAYERS OF PACKING MATERIALS.

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited [1] (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at BHEL House Siri Fort New Delhi-110049 through its Unit at BHEL, TBG, Noida having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at_____[2] hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No PO No……dated ……..[3] valued at Rs……[4] (Rupees ----------)/FC……(in words……..) for ……[5] (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to ……% (…. Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we, ……., (hereinafter referred to as the Bank), having registered/Head office at ……. and inter alia a branch at …… being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ---------- (Rupees ----------) without any demur, immediately on a demand from the Employer, .
Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We the ……bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We …….. BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including…….. [6] and shall be extended from time to time for such period as may be desired by Employer.
This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the ……[7]we shall be discharged from all liabilities under this guarantee thereafter.

We …… BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.
Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed…… [8]
b) This Guarantee shall be valid up to ……[9]
c) Unless the Bank is served a written claim or demand on or before _____[10] all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated……..

Place of Issue…….

[1] *NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited*

[2] *NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.*

[3] *DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE*

[4] *PROJECT/SUPPLY DETAILS*

[5] *BG AMOUNT IN FIGURES AND WORDS*

[6] *VALIDITY DATE*

[7] *DATE OF EXPIRY OF CLAIM PERIOD*

[8] *BG AMOUNT IN FIGURES AND WORDS.*

[9] *VALIDITY DATE*

[10] *DATE OF EXPIRY OF CLAIM PERIOD*

Note:

1. **Units are advised that expiry of claim period may be kept 2/3 months after validity date.**

2. **In Case of Bank Guarantees submitted by Foreign Vendors-**

   a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.

   b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**

   b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.

   b.2 **In case, Foreign Vendors intend to provide BG from** Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.

   b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.

   b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.

Sl.	Name of the bank	
1	State Bank of India	
2	Canara Bank	
3	Axis Bank	
4	Bank of Baroda	
5	Central Bank	
6	Citi Bank N.A.	
7	Deutsche Bank **	
8	Exim Bank	
9	Federal Bank Limited	
10	HDFC Bank Limited	
11	Hongkong and Shanghai Banking Corporation Ltd	
12	Indian Bank	
13	ICICI Bank Limited	
14	IDBI Bank Limited	
15	IndusInd Bank Limited	
16	Indian Overseas Bank	
17	Kotak Mahindra Bank Limited	
18	Punjab National Bank	
19	RBL Bank Ltd.	
20	Standard Chartered Bank	
21	Union Bank of India	
22	Yes Bank Limited	
	TOTAL	

SCHEDULE OF TECHNICAL DEVIATION

Enquiry No: 90Q2300074 Date 17.06.2022
Item: Supply of low Voltage Cable: 1.1 kV Control Cable
Project: 4 x 225 MW, Arun-3 (HEP), Nepal

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

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

In case, 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.

All deviations must be mentioned in this format only. Deviation(s) to terms mentioned else where will not be considered.

Signature of the authorised representative of

Place: ……
Date : ……

Bidder's name :……
Designation:……..
Company Seal:……

SCHEDULE OF COMMERCIAL DEVIATION

Enquiry No: 90Q2300074 Date 17.06.2022
Item: Supply of low Voltage Cable: 1.1 kV Control Cable
Project: 4 x 225 MW, Arun-3 (HEP), Nepal

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

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

In case, 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 Gerneal Terms and Conditions.

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

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All deviations must be mentioned in this format only. Deviation(s) to terms mentioned else where will not be considered.

Signature of the authorised representative of

Place: ……

Date : …….

Bidder's name :…….

Designation:……..

Company Seal:……