

BUYERS SPECIFIC ADDITIONAL TERMS & CONDITIONS
ITEM NAME: POWER CABLE AND FS POWER CABLE

PROJECTS : Raipur Unit-1 & 2 (Ph-2), Raigarh-1 & 2 (Ph-II), Mirzapur Unit-1 & 2 (PH-1), Mahan Unit-1 & 2 (PH-III), Anuppur Unit-1 & 2 (Ph-I) , Kawai Unit-1 & 2 (PH -II)

SCOPE OF ENQUIRY:

E-bids on GeM portal are invited from bidders for the supply of Power Cable **and** Fs Power Cable for Raipur Unit-1 & 2 (Ph-2), Raigarh-1 & 2 (Ph-II), Mirzapur Unit-1 & 2 (PH-1), Mahan Unit-1 & 2 (PH-III), Anuppur Unit-1 & 2 (Ph-I) , Kawai Unit-1 & 2 (PH -II), as per requirement mentioned below:

Sl. No.	Material Code & Item Description	Total Quantity	Projects	LOT Quantity	Delivery Requirement
1.	W90318105160 POWER CABLE FOR 24V SOLENOID VALVE (ARMOURED) 4 X 2.5 MM2 SPEC: ST51020 REV: 03	1,20,000 MR	Raipur Unit-1 (Ph-2)	10000 MR	03/08/2026
			Raipur Unit-2 (Ph-2)	10000 MR	03/11/2026
			Raigarh Unit-1 (Ph-2)	10000 MR	30/03/2027
			Raigarh Unit-2 (Ph-2)	10000 MR	30/09/2027
			Mirzapur Unit-1 (PH-1)	10000 MR	30/08/2027
			Mirzapur Unit-2 (PH-1)	10000 MR	01/03/2028
			Mahan Unit-1 (PH-III)	10000 MR	30/01/2028
			Mahan Unit- 2 (PH-III)	10000 MR	30/07/2028
			Anuppur Unit-1 (PH-1)	10000 MR	30/04/2028
			Anuppur Unit-2 (PH-1)	10000 MR	30/10/2028
			Kawai Unit-1 (Ph-II)	10000 MR	28/05/2028
			Kawai Unit-2 (Ph-II)	10000 MR	28/11/2028
2.	W90318105241 FS POWER CABLE FOR 24V SOLENOID VALVE (ARMOURED) 4X2.5 SQMM AS PER SPEC NO ST51020 REV 03	48,000 MR	Raipur Unit-1 (Ph-2)	4000 MR	03/08/2026
			Raipur Unit-2 (Ph-2)	4000 MR	03/11/2026
			Raigarh Unit-1 (Ph-2)	4000 MR	30/03/2027
			Raigarh Unit-2 (Ph-2)	4000 MR	30/09/2027
			Mirzapur Unit-1 (PH-1)	4000 MR	30/08/2027
			Mirzapur Unit-2 (PH-1)	4000 MR	01/03/2028
			Mahan Unit-1 (PH-III)	4000 MR	30/01/2028
			Mahan Unit- 2 (PH-III)	4000 MR	30/07/2028
			Anuppur Unit-1 (PH-1)	4000 MR	30/04/2028
			Anuppur Unit-2 (PH-1)	4000 MR	30/10/2028
			Kawai Unit-1 (Ph-II)	4000 MR	28/05/2028
			Kawai Unit-2 (Ph-II)	4000 MR	28/11/2028

1. Project Detail with consignee address:

[A] Project Name	2X800 MW RAIGARH TPP (PH-II) PROJECT
Consignee Address	Adani Power Limited Village: Chhote Bhandar PO: Bade Bhandar Tehsil: Pussore Raigarh 496100
[B] Project Name	2X800 MW APL Raipur (Ph-II)
Consignee Address	Adani Power Limited Village: Raikheda Block: Tilda, Raipur 493225 Chhattisgarh
[C] Project Name	2X800 MW Mirzapur PH-I
Consignee Address	Mirzapur Thermal Energy (UP) Private Limited Village: Dadri Khurd; PO: Darhi Ram Tehsil: Sadar, District: Mirzapur 231 304 Uttar Pradesh
[D] Project Name	2X800 MW KAWAI PH-II
Consignee Address	Adani Power limited, Kawai, 2 x 800 MW(Phase-II) Thermal Power project, Village - Kawai, Tehsil - Atru, Baran -District, Rajasthan Pin-325219
[E] Project Name	2X800 MW ANUPPUR PH-I (APL)
Consignee Address	Anuppur Thermal Energy (MP) Private Limited Village Chhatai, Majhtoliya and Umarda Tehsil: Kotma, District: Anuppur, State: Madhya Pradesh
[F] Project Name	2X800 MW Mahan TPP (PH-III)
Consignee Address	Mahan Energen Limited 2x800 MW (Phase-III) Mahan Ultra Supercritical Thermal Power Project, Village: Bandhoura, Karsualal Tehsil: Waidhan, District-Singrauli, Pin - 486886, Madhya Pradesh

2. EARNEST MONEY DEPOSIT (EMD):

All interested vendors must submit their e-bid along with the proof of submission of following Earnest Money Deposit (EMD) details in GeM portal along with offer. EMD is exempted as per GeM provisions applicable on GeM & mentioned at para no. 3.2 of this ATC.

Details	Amount In INR	Type
EMD	INR 6,00,000/- (Six lakhs only)	Refundable

3.1: Modes of deposit: The EMD may be accepted only in the following forms:

- (i) Electronic Fund Transfer credited in BHEL account (before tender opening).
- (ii) Banker's cheque/ Pay order/ Demand draft, in favour of BHEL (along with offer).
- (iii) Fixed Deposit Receipt (FDR).
- (iv) Bank Guarantee from any of the Scheduled Banks.
- (v) Insurance Surety Bonds.
- (vi) The EMD shall remain valid for a period of 45 (forty-five) days beyond the final bid validity period as asked in NIT.

For E-Payment, the RTGS details are as mentioned below:

Bank Details	SWIFT Details of bank	Contact Details of Banker
STATE BANK OF INDIA RANIPUR BRANCH, OPP: BHEL MAIN GATE, SECTOR-5, RANIPUR, HARIDWAR, UTTRAHAND, INDIA PIN CODE: 249403	SWIFT NO : SBININBB225 CC ACCOUNT NO : 10667995458 IFSC CODE : SBIN0000586	Contact No. +91 1334 224201 +91 1334 226125 Fax: +91 1334 226512

3.2: Exemption of EMD

A. As per GeM GTC following are the exempted category of EMD/Bid Security.

- a. Micro and Small Enterprises (MSEs) who are holding valid Udyam Registration and are manufacturer of the offered Productor Service (Primary Product / Service - in case of bunch bid with total value wise evaluation) and give specific confirmation to this effect at the time of bid submission and claim EMD exemption and whose credentials are validated online through Udyam Registration website of Ministry of MSME and also through supporting document uploaded during bidding process and validated by the Buyer. State Government Buyers may, however, choose to exempt only MSEs from the State of Bid Inviting Authority by specifying the same in ATC of the Bid. In case no such ATC is included, eligible MSEs of all states are exempted.
- b. Start-ups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT), holding valid Start-up Recognition Certificate which is to be uploaded while bidding and claiming EMD exemption and to be validated by the Buyer. Bidder to ensure that turnover for any of the financial years has not exceeded beyond limits prescribed in the certificate / Start Up scheme of DPIIT.
- c. KVIC, ACASH, WDO, Coir Board, TRIFED and Kendriya Bhandar.
- d. Sellers who have got their credentials verified through the process of Vendor Assessment by Vendor Assessment Agencies for the Primary Product / Primary Service for which Bid / RA has been invited and holding valid Vendor Assessment or Vendor Assessment Exemption Report / confirmation (Seller to upload VA report / VAE confirmation to be validated by the Buyer).
- e. Sellers / Service Provider having annual turnover of INR 500 Crore or more, at least in one of the past three completed financial year(s)
- f. Sellers / Service Providers holding valid BIS License for the Primary Product Category whose credentials are validated through BIS database and through uploaded supporting documents to be validated by the buyer.
- g. Central / State PSUs.

B. In addition to above GeM conditions, offers directly from the manufacturer or their authorized agents are also exempted from submission of EMD.

3.3: Forfeiture of EMD:

- a. A bidder's EMD will be forfeited if the bidder withdraws or amends its/his tender or impairs or derogates from the tender in any respect within the period of validity of the tender or if the successful bidder fails to furnish the required performance security within the specified period mentioned in the Tender.
- b. EMD by the tenderer to be withheld in case any action on the bidder is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.
- c. Bid securities of the unsuccessful bidders shall be returned to them after expiry of the final bid validity period / latest by the 30th day after the award of the contract. Since it is a two-part bidding, bid securities of unsuccessful bidders during first stage i.e. technical evaluation shall be returned within 30 days of declaration of result of first stage i.e. technical evaluation.

- d. Bid security/EMD of the successful bidder shall be returned only on conclusion of the order and receipt of a Performance Security/Performance Bank Guarantee of 10% of contract value (excluding taxes) from contractor / Supplier.
- e. EMD/PBG/PS shall not carry any interest.

3. PERFORMANCE SECURITY/PERFORMANCE BANK GUARANTEE:

Successful bidder to submit Performance Security/Performance Bank Guarantee of 5% of the contract Value (Excluding Taxes). The Performance Security/PBG shall be submitted within 30 days of notification of the award of Contract and it should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier, including warranty obligations.

PS/PBG shall be returned to the contractor without interest, after the contractor duly performs and completes the contract in all respects but not later than 60 (sixty) days of completion of all such obligations including the warranty under the contract. The Performance Security/PBG shall not carry any interest.

3.1 Modes of deposit of PS/ PBG: Performance Security/Performance Bank Guarantee shall be furnished in the following forms:

- I. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- II. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
- III. Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
- IV. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).
- V. Insurance Surety Bond.

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

4.2: Forfeiture of Performance Security/Performance Bank Guarantee:

The Performance Security/ Performance Bank Guarantee will be forfeited and credited to BHEL's account in the event of a breach of contract by the supplier.

4.3: Performance Security shall be refunded to the Supplier/Vendor without interest, after the Supplier/Vendor duly performs and completes the contract in all respects but not later than 60(sixty) days of completion of all such obligations including the warranty under the contract.

4.4 : The Performance Security shall not carry any interest.

4.5 : There is no exemption of Performance security deposit submission for MSE Vendors.

3.BUYERS SPECIFIC ADDITIONAL TERMS & CONDITIONS IN ADDITION TO GTC

Sl. No.	Terms	Description	Supplier confirmation
1.	Documents Checklist:	Please submit signed and stamped copy of your offer on each page along with following documents; • Buyer Specific T&C. • Technical PQR & its supportive document. • Technical drawing & purchase specification. • Certificate/self-certification for minimum local content as per PPP-MII order. • Replica of price bid schedule without prices with part-I offer.	
2.	Special Instruction of Technical requirement	Datshasheets and type test reports shall be subject to BHEL approval.	
		Technical spec ST51020 rev 03 are to read along with add no 41810E2007	
		Technical Specification ST 51020 Rev 02 As Indicated in Material Code Description May Be Read as ST 51020 Rev 03.	
		Guarantee shall be 24 months from the date of dispatch.	
		Clause no 5.2 of specification ST51020 rev03 may be read as "The tolerance on overall ordered length of each type of cable shall be +5% & -0% without any price implication".	
		The type test reports shall be submitted for one size of LT PVC power cables carried out within last 05 years from the date of bid opening. However, if the vendor is not able to submit report of the type test(s) conducted within last 05 years period from the date of bid opening, or in the case of type test report are not found to be meeting the specification requirements, the vendor shall conduct all such tests under this contract at no additional cost to BHEL in presence of customer/BHEL representative and submit the report for approval. Type test shall be as per standard : IS-1554 Part-1	
		Indented item is used to supply power for 24VDC operated Solenoid valves for control through DCS. Hence the item falls under control cable category also.	
		Revised to add type test requirement as per Standard IS-1554 Part-1-Document.	
3.	Compliance of GTC on GeM	General Terms and Conditions on GeM 4.0 (Version 1.26) Dtd -06/11/2025 or it's latest revision on GeM portal shall be applicable against this enquiry. Kindly confirm to compliance the same for this tender.	
4.	Price Variation Clause	PVC (Price Variation Clause) shall be applicable as per enclosed PVC Annexure-A to NIT. Base date for initial prices for this tender shall be one month prior to date of GeM bid. All Suppliers shall quote as per the Price Variation Formulae provided in NIT. The price variation shall be limited to (+)20% of Total Ex-works actually supplied (Cable Size Wise) and negative price variation shall be unlimited. Base date for final prices shall be one month prior to date of schedule delivery as per PO (Including any agreed extension/Preponement). In case of delay in supply by vendor, Base date for final prices shall be one month prior to date of schedule delivery or one month prior actual delivery, whichever is lower. For calculation of all rates under PVC formula, prices published by IEEMA shall be considered.	
5.	Pre-Qualification Requirements	The Pre-Qualification Requirements have been compiled. All the bidders should ensure submission of complete details and documents as called for in these requirements. The Offers submitted by the bidders would be scrutinized with respect to Pre-Qualification Requirements first. Techno-Commercial offer of only those bidders shall be evaluated who meet the Pre-Qualification Requirements.	
6.	Customer approval requirement	Bidders are requested to submit their credentials along with offer (Credentials should include BHEL P.O.s on vendor for the same rating or higher rating turbines, Experience of vendor with state utilities and major PSU like NTPC, End User Certificate wherever available), in order to take up with end customer for approval	

		Supplier to submit following credentials for arranging Customer approval: - • Company Profile • List of Order Executed/ on hand for Power Sector/Gov. organization of same /similar items • Copy of Major Supply Orders • Performance Certificates for Satisfactory working of System/ Equipment from end users Item. The offer of only those bidders, who meet Pre-qualification requirement (PQR), Technical requirement and approved by the End Customer, will be considered for price-bid opening & RA for the requirement against this enquiry.	
7.	Make in India Clause	"For this procurement, the local content to categorize a supplier as a 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 19.07.2024 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". As per Make in India Order, only Class-1 and Class-2 local supplies are eligible to bid in this tender enquiry. For this eligibility criteria, bidders are required to submit certificate of Minimum local content as specified in attached Make In India Declaration format.	
8.	Compliance of Rule 144 (xi) of GFR 2017	Compliance of Restrictions under Rule 144 (xi) of GFR 2017 shall be as per GeM.	
9.	Bid validity/ Validity of offer	Please note that validity of the offer shall be 180 days from the date opening of Techno-Commercial bid (Part-I bid) on GeM portal. Offer of bidder's having validity less than 180 days shall liable to reject. Please confirm.	
		The required validity is considering that offer is complete & clear w.r.t. PQR and all techno-commercial conditions. Vendors need to extend their offer validity for the time taken by them in responding BHEL's comments/clarification sought during techno-commercial scrutiny of the offer. In case regret by any bidder for such validity extension, their offer shall liable to be reject. Please confirm.	
10.	Loading and unloading	Vendor's scope will not cover Loading & Unloading at Final destination of delivery. Unloading at final destination (i.e. BHEL site) is in BHEL 'scope. Loading and unloading at other intermediate places due to any permitted transshipment will be the responsibility of the vendor. Kindly note	
11.	Prices/Basis of Quotation	Vendor must quote prices All inclusive i.e Inclusive of Material cost, Freight & GST etc. on GeM portal.	
		Transit Insurance would be arranged by BHEL. Please quote your prices accordingly.	
		Delivery Term shall be Ex-Works with freight Pre-paid up to project destination basis. Bidders can dispatch goods through any Indian Bank Association approved transporters having their branch at HARIDWAR / destination. If material is dispatched through other than Indian Bank Association approved transporter, material to be delivered on door delivery basis. In case of dispatch of material through any other unapproved transporter, payment shall be made only after receipt of material and any additional charges payable to the transporter shall be to the bidder's account. Any demurrage / godown rent payable to the transporter /or to godown's owner due to any delay attributed by the supplier shall be recovered from supplier's account	
12.	Special Instructions:	a. ADADNI projects: • Please inform 8 digit HSN code for Leak Steam Valve along with spares.	

		• 08 DIGIT GST HSN CODE to be provided & mentioned in your invoice & packing list. • Invoice, GR/LR, packing list, Test certificate are required in original for billing to end user. • Loose items one marker board needs to be send for each bundle for fixing RFID tag at site. • Vendor to ensure submission billing documents in the same month of material despatch. If vendor fail to provide the despatch documents in the same month GST Penalty shall be applicable and bear by vendor as per GST rule.									
13.	Evaluation criteria	Evaluation shall be done on total landed cost up to BHEL Project Sites considering all material codes together for complete scope of enquiry.									
14.	Evaluation Currency	The evaluation currency for this tender shall be INR.									
15.	Payment terms:	For Material portion: The payment shall be done after receipt of Material at BHEL respective project site, within no. of days as defined in the below table from the date of receipt of Material at site i.e. MRC date). <table><tr><td>Type of Bidder</td><td>Payment Terms (Number of Days)</td></tr><tr><td>Micro & Small Enterprises (MSEs)</td><td>45 days</td></tr><tr><td>Medium Enterprises</td><td>60 days</td></tr><tr><td>Non MSME</td><td>90 days</td></tr></table> The Payment terms are subject to receipt of non-discrepant document from supplier.	Type of Bidder	Payment Terms (Number of Days)	Micro & Small Enterprises (MSEs)	45 days	Medium Enterprises	60 days	Non MSME	90 days	
Type of Bidder	Payment Terms (Number of Days)										
Micro & Small Enterprises (MSEs)	45 days										
Medium Enterprises	60 days										
Non MSME	90 days										
16.	GeM charges	GeM charges if any shall be either side only i.e. buyer's GeM charges shall be in buyer's account and seller's GeM charges shall be on seller's account. Please confirm.									
17.	Contract execution	Bidder's are advised to read GeM related query & clarification carefully on GeM portal. Order shall be executed through GeM.									
18.	Reverse Auction (E-bidding)	BHEL shall be resorting to Reverse Auction (RA) on GEM portal as per GEM functionalities for this tender. RA shall be conducted among the techno-commercially qualified bidders.									
19.	Quantity Variation	BHEL reserves the right to cancel tender or reject any or all the quotations without assigning any reasons thereof. BHEL also reserves the right to Increase or decrease the tendered quantities or quantity of individual material code may be dropped as a whole also. Vendors should be prepared to accept order for reduced Quantity without any extra charges. Vendor should also be prepared for giving discount in case of Increase in Quantity. Vendor has to take manufacturing clearance from BHEL before starting manufacturing of material. In case ordered quantity is reduced at the time of manufacturing clearance, then payment shall be made accordingly as per decreased quantity. Kindly confirm.									
20.	Delivery Period	Please note that BHEL's Delivery requirements are mentioned above under heading Scope of Enquiry. Early delivery w.r.t. above lot delivery will be accepted only after written confirmation from BHEL. BHEL reserve right to reject early delivery request of bidders / suppliers. Delivery period indicated in GeM bid is only indicative and final delivery of tender shall be taken as mentioned above. Accordingly bidders to confirm the above deliveries or quote their best possible delivery in no of months / weeks from the date of placement of Purchase order,									

		including all activities like document approval, inspection by TPI time etc.	
21.	Technical Document/ Drawing approval conditions	Drawings/Data sheets/documents/QAP etc. as called for in the specifications shall be submitted by Vendor for BHEL/ Customer approval within 30 days of purchase order. BHEL shall approve these drawings/data sheets/ documents / QAP etc. within 30 days of receipt. Any comments on the documents shall be given by BHEL within 7 days of submission and vendor shall submit revised document / reply to comments, within 7 days of BHEL comments. However, total time for Document submission and approval shall not exceed 30 days for respective party. Delivery is from the date of PO, accordingly, delay in submission / revision of the documents by the vendor will automatically account for to vendor. In case of delay on account of BHEL in comments / approval of the documents, the delivery shall be re-scheduled by the no of days taken by BHEL in excess to 30 days. For delay analysis cumulative no of days (including time taken in comments), shall be considered for delivery extension.	
22.	Liquidated Damages (LD) for late delivery	Liquidated Damages shall be lot wise as per clause no. 15 (iii) of General terms and conditions on GeM 4.0 (Version 1.26) as under: kindly confirm. "If the Seller/Service Provider fails to deliver any or all of the Goods/Services within the original/re-fixed delivery period(s) specified in the contract, the Buyer will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 0.5% of the contract value of delayed quantity per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value of delayed quantity without any controversy/dispute of any sort whatsoever". The date of LR would be treated as the date of delivery for penalty purposes.	
23.	MDCC clause	Please note that, material shall be dispatched only after issue of Material dispatch clearance certificate (MDCC) from end customer. For issue of MDCC, vendors are required to submit all test certificates (TC) and inspection report of third party (IR) to BHEL. After review & acceptance of the quality document, BHEL will forward the same to end customer for issuance of MDCC. MDCC shall be issued within 7 days of receipt of complete quality documents / TCs,. In case of delay in issuance of MDCC, only delivery shall be extended by no of days taken by BHEL in excess to 7 days and all other terms and conditions of PO shall remains same & binding. In case any material is dispatched without MDCC and any loss is incurred by Supplier/Vendor for any reason whatsoever, BHEL shall not be responsible in any manner to compensate the supplier in this regard. Kindly confirm.	
24.	BREACH OF CONTRACT, REMEDIES AND TERMINATION:	The following shall amount to breach of contract: I. Non-supply of material/ non-completion of work by the Supplier/Vendor within scheduled delivery/ completion period as per contract or as extended from time to time. II. The Supplier/Vendor 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. III. The Supplier/Vendor delivers equipment/ material not of the contracted quality. IV. The Supplier/Vendor fails to replace the defective equipment/ material/ component as per guarantee clause.	

		V. Withdrawal from or abandonment of the work by the Supplier/Vendor before completion as per contract. VI. Assignment, transfer, subletting of Contract by the Supplier/Vendor without BHEL's written permission resulting in termination of Contract or part thereof by BHEL. VII. Non-compliance to any contractual condition or any other default attributable to Supplier/Vendor. VIII. Any other reason(s) attributable to Vendor towards failure of performance of contract. In case of breach of contract, BHEL shall have the right to terminate the Purchase Order/ Contract either in whole or in part thereof without any compensation to the Supplier/Vendor. IX. Any of the declarations furnished by the contractor at the time of bidding and/ or entering into the contract for supply are found untruthful and such declarations were of a nature that could have resulted in non-award of contract to the contractor or could expose BHEL and/ or Owner to adverse consequences, financial or otherwise. X. Supplier/Vendor is convicted of any offence involving corrupt business practices, antinational activities or any such offence that compromises the business ethics of BHEL, in violation of the Integrity Pact entered into with BHEL has the potential to harm the overall business of BHEL/ Owner. Note-Once BHEL considers that a breach of contract has occurred on the part of Supplier/Vendor, BHEL shall notify the Supplier/Vendor by way of notice in this regard. Contractor shall be given an opportunity to rectify the reasons causing the breach of contract within a period of 14 days. In case the contractor fails to remedy the breach, as mentioned in the notice, to the satisfaction of BHEL, BHEL shall have the right to take recourse to any of the remedial actions available to it under the relevant provisions of contract. Remedies in case of Breach of Contract. i) Wherein the period as stipulated in the notice issued under above clause has expired and Supplier/Vendor has failed to remedy the breach, BHEL will have the right to terminate the contract on the ground of "Breach of Contract" without any further notice to contractor. ii) Upon termination of contract, BHEL shall be entitled to recover an amount equivalent to 10% of the Contract Value for the damages on account of breach of contract committed by the Supplier/Vendor. This amount shall be recovered by way of encashing the security instruments like performance bank guarantee etc available with BHEL against the said contract. In case the value of the security instruments available is less than 10% of the contract value, the balance amount shall be recovered from other financial remedies (i.e. available bills of the Supplier/Vendor, retention amount, from the money due to the Supplier/Vendor etc. with BHEL) or the other legal remedies shall be pursued. iii) wherever the value of security instruments like performance bank guarantee available with BHEL against the said contract is 10% of the contract value or more, such security instruments to the extent of 10% contract value will be encashed. In case no security instruments are available or the value of the security instruments available is less than 10% of the contract value, the 10% of the contract value or the balance amount, as the case may be, will be recovered in all or any of the following manners: iv) In case the amount recovered under sub clause (a) above is not sufficient to fulfil the amount recoverable then; a demand notice to deposit the balance amount within 30 days shall be issued to Supplier/Vendor. v) If Supplier/Vendor fails to deposit the balance amount within the period as prescribed in demand notice, following action shall be taken for recovery of the balance amount: a) from dues available in the form of Bills payable to defaulted Supplier/Vendor against	
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		the same contract. b) If it is not possible to recover the dues available from the same contract or dues are insufficient to meet the recoverable amount, balance amount shall be recovered from any money(s) payable to Supplier/Vendor under any contract with other Units of BHEL including recovery from security deposits or any other deposit available in the form of security instruments of any kind against Security deposit or EMD. vi) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier/Vendor. vii) It is an agreed term of contract that this amount shall be a genuine pre-estimate of damages that BHEL would incur in completion of balance contractual obligation of the contract through any other agency and BHEL will not be required to furnish any other evidence to the Supplier/Vendor for the purpose of estimation of damages. viii) In addition to the above, imposition of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract. Note: 1) The defaulting Supplier/Vendor shall not be eligible for participation in any of the future enquiries floated by BHEL to complete the balance work. The defaulting contractor shall mean and include: (a) In case defaulted Supplier/Vendor is the Sole Proprietorship Firm, any Sole Proprietorship Firm owned by same Sole Proprietor. (b) In case defaulted Supplier/Vendor is The Partnership Firm, any firm comprising of same partners/ some of the same partners ; or sole proprietorship firm owned by any partner(s) as a sole proprietor.	
25.	Suspension of Business Dealings with Suppliers / Contractors:	The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms / principal / agents, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com. If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution stage indulges in any act, including but not limited to, mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or tampers the tendering process or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860(Bhartiya Nyaya Samhita 2023) or any other law in force in India, or does anything which is actionable under the Guidelines for Suspension of Business dealings, action may be taken against such bidder / supplier / contractor as per extant guidelines of the company available on www.bhel.com and / or under applicable legal provisions. Guidelines for suspension of business dealings is available in the webpage: http://www.bhel.com/vender_registration/vender.php.	
26.	Settlement of Dispute, CONCILIATION & ARBITRATION:	Settlement of Dispute If any dispute or difference of any kind whatsoever shall arise between BHEL and the Supplier/Vendor, arising out of the contract for the performance of the work whether during the progress of contract termination, abandonment or breach of the contract, it shall in the first place referred to Designated Officer / IEM for amicable resolution by the parties. Designated Officer / IEM who within 60 days after being requested shall give written notice of his decision to the contractor. Save as hereinafter provided, such decision in respect of every matter so referred shall forthwith be given effect to by the Supplier/Vendor who shall proceed with the work with all due diligence, whether he or BHEL desires to resolve the dispute as hereinafter provided or not. If after the Designated Engineer has given written notice of this decision to the party and no intention to pursue the dispute has been communicated to him by the affected party within 30 days from the receipt of such notice, the said decision shall become final and binding on the parties. In the event the Supplier/Vendor being dissatisfied with any such decision or if amicable settlement cannot be reached then all such disputed issues shall be resolved through conciliation in terms of the BHEL Conciliation Scheme 2018 as per 'CONCILIATION' Clause.	

CONCILIATION:

Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure as per BHEL Conciliation Scheme 2018. 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 - "Procedure for conduct of conciliation proceedings" (as available in www.bhel.com).

ARBITRATION:

Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided herein above or otherwise) 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 (hereinafter referred to as the 'Dispute'), then, either Party may, refer the disputes to Arbitral Institution and such dispute to be adjudicated by Sole Arbitrator appointed in accordance with the Rules of said Arbitral Institution.

A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving notice to the other party in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the 'Notice') before referring the matter to arbitral institution. The Notice shall be addressed to the Head of the Region, Power Sector/ Unit, BHEL, executing the Contract and shall contain the particulars of all claims to be referred to arbitration with sufficient detail and shall also indicate the monetary amount of such claim including interest, if any.

After expiry of 30 days from the date of receipt of aforesaid notice, the party invoking the Arbitration shall submit that dispute to the Arbitral Institutions (shall be identified by the contract issuing agency) and that dispute shall be adjudicated in accordance with their respective Arbitration Rules. The matter shall be adjudicated by a Sole Arbitrator who shall necessarily be a Retd Judge having considerable experience in commercial matters to be appointed/nominated by the respective institution. The cost/expenses pertaining to the said Arbitration shall also be governed in accordance with the Rules of the respective Arbitral Institution. The decision of the party invoking the Arbitration for reference of dispute to a specific Arbitral institution for adjudication of that dispute shall be final and binding on both the parties and shall not be subject to any change thereafter. The institution once selected at the time of invocation of dispute shall remain unchanged.

The fee and expenses shall be borne by the parties as per the Arbitral Institutional rules.

The Arbitration proceedings shall be in English language and the seat and venue of Arbitration shall be at the court(s) of Haridwar.

Subject to the above, the provisions of Arbitration & Conciliation Act 1996 and any amendment thereof shall be applicable. All matters relating to this Contract and arising out of invocation of Arbitration clause are subject to the exclusive jurisdiction of the Court(s) situated at Haridwar , shall have exclusive jurisdiction.

Notwithstanding any reference to the Designated Engineer or Conciliation or Arbitration herein, a. the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree. Settlement of Dispute clause cannot be invoked by the Contractor, if the Contract has been mutually closed or 'No Demand

		Certificate' has been furnished by the Contractor or any Settlement Agreement has been signed between the Employer and the Contractor. It is agreed that Mechanism of resolution of disputes through arbitration shall be available only in the cases where the value of the dispute is less than Rs. 10 Crores. In case the disputed amount Claim, Counter claim including interest is Rs. 10 crores and above, the parties shall be within their rights to take recourse to remedies other than Arbitration, as may be available to them under the applicable laws after prior intimation to the other party. Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof as amended from time to time, shall apply to the arbitration proceedings under this clause. In case, multiple arbitrations are invoked (whether sub-judice or arbitral award passed) by any party to under this contract, then the cumulative value of claims (including interest claimed or awarded) in all such arbitrations shall be taken in account while arriving at the total claim in dispute for the subject contract for the purpose of clause mentioned above. Disputes having cumulative value of less than 10 crores shall be resolved through arbitration and any additional dispute shall be adjudicated by the court of competent jurisdiction.													
27.	Action against Bidders / vendor / supplier / contractor in case of default:	In order to protect the commercial interests of BHEL, BHEL shall take action against supplies / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc. Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier/ contractor or a bidder and shall be as per "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" available at BHEL's website "https://www.bhel.com/guidelines-suspension-business-dealings-supplierscontractors"													
28.	MICRO AND SMALL ENTERPRISES (MSE):	Any Bidder falling under MSE category shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer. <table border="1"> <thead> <tr> <th>Type under MSE</th><th>SC/ST owned</th><th>Women owned</th><th>Others (excluding SC/ ST & Women Owned)</th></tr> </thead> <tbody> <tr> <td>Micro</td><td></td><td></td><td></td></tr> <tr> <td>Small</td><td></td><td></td><td></td></tr> </tbody> </table> Note: If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category. a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration. Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non-submission of supporting document in GeM portal will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not uploaded at the time of bid submission. Documents submitted by the bidder shall be verified by BHEL for rendering the applicable benefits.	Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women Owned)	Micro				Small				
Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women Owned)												
Micro															
Small															
29.	JURISDICTION:	This contract shall be governed by the Law for the time being in force in the Republic of India. Subject to clause(s) mentioned above of this contract, the Civil Court having original Civil Jurisdiction at Haridwar shall alone have exclusive jurisdiction in regard to all matters in respect of the Contract.													

30.	Force Majeure	"Force Majeure" shall mean circumstance which is: a) beyond control of either of the parties to contract, b) either of the parties could not reasonably have provided against the event before entering into the contract, c) having arisen, either of the parties could not reasonably have avoided or overcome, and d) is not substantially attributable to either of the parties And Prevents the performance of the contract, Such circumstances include but shall not be limited to: i) War, hostilities , invasion, act of foreign enemies. ii) Rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war. iii) Riot, commotion or disorder by persons other than the contractor's personnel and other employees of the contractor and sub-contractors. iv) Strike or lockout not solely involving the contractor's personnel and other employees of the contractor and sub-contractors. v) Encountering munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the contractor's use of such munitions, explosives, radiation or radio-activity. vi) Natural catastrophes such as earthquake, tsunami, volcanic activity, hurricane or typhoon, flood, fire, cyclones etc. vii) Epidemic, pandemic etc. The following events are explicitly excluded from Force Majeure and are solely the responsibilities of the non-performing party: a) any strike, work-to-rule action, goslow or similar labour difficulty (b) late delivery of equipment or material (unless caused by Force Majeure event) and (c) economic hardship. If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 15 (fifteen) days after the occurrence of such event. The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended by a period of time equal to period of delay caused due to such Force Majeure event. Delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall not i) Constitute a default or breach of the Contract. ii) Give rise to any claim for damages or additional cost expense occasioned thereby, if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure. BHEL at its discretion may consider short closure of contract after 1 year of imposition of Force Majeure in line with extant guidelines. In any case, Supplier/Vendor cannot consider deemed short-closure after 1 year of imposition of Force Majeure	
31.	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.	
32.	Order of Precedence:	In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below: - Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL. - Buyer Added Bid Specific ATC - GeM Bid Technical Conditions of Contract (TCC) - GeM GTC	
33.	Conflict of interest:	A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be	

		considered to have a conflict of interest with one or more parties in this bidding process, if: a) they have controlling partner (s) in common; or b) they receive or have received any direct or indirect subsidy/financial stake from any of them; or c) they have the same legal representative/agent for purposes of this bid; or d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from. one bidding manufacturer in more than one bid; or f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following: 1. The principal manufacturer directly or through one Indian agent on his behalf; and 2. Indian/foreign agent on behalf of only one principal. or g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid. or h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business.	
34.	Guarantee clause	Kindly confirm that Guarantee shall be provided for a period of “24 months from the date of Despatch”. In case of any failure or trouble reported from site, the supplier should depute their representative immediately to attend the problem and replace the defective component/part if required, without any additional cost to BHEL.	
		Supplier shall be responsible for free replacement of defective equipment / material at our site	
		Please note that offers with guarantee period lesser than above mentioned guarantee period may result in rejection of the offer.	
35.	Order Acceptance:	Ink signed order acceptance shall be furnished within 15 days of order placement. In case, order acceptance do not received within 15 days of order placement, PO deemed to be accepted by you.	
36.	Beneficiary of PO	Kindly confirm on whom the PO will be placed in the event of ordering.	
37.	IP Address	The bids received from same IP address shall be outrightly rejected and shall not be considered for further evaluation.	
38.	Dispatch documents	Following dispatch documents to be provided immediately after directly dispatch to BHEL Project site for billing purpose: • Guarantee/Warrantee Certificates • E- Invoice and commercial invoice • GeM invoice • Original consignee copies of GR/LR/RR (Material shall be dispatched on door delivery basis without consignee copy) • Packing list • Original GST compliance certificate • E-way bill • MRC/POD/Receipted LR/RR/GR copy (as per proof of delivery of material at BHEL Project site)	

39.	Integrity Pact	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. <table><tr><th>SI</th><th>IEM</th><th>Email</th></tr><tr><td>1.</td><td>Dr. Sarat Kumar Acharya, Ex-CMD, NLC</td><td>iem1@bhel.in</td></tr><tr><td>2.</td><td>Shri R. Mukundan, IRPS (Retd.)</td><td>iem2@bhel.in</td></tr><tr><td>3.</td><td>Shri Madan Lal Meena, IAS (Retd.)</td><td>iem3@bhel.in</td></tr></table> (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 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 email only. Note: Note: <i>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:</i> <table><tr><td>Mithlesh Kumar Maurya Designation: Addl. Engineer (PPX-BOI) 4th Floor, Main Administrative Building, HEEP, BHEL, Hardwar- 249403 Uttarakhand, India Email ID: mithleshkumar.maurya@bhel.in Tel: +91 1334 28 1690</td><td>Mr. Yash Pal Designation: Manager (PPX-BOI) 4th Floor, Main Administrative Building, HEEP, BHEL Hardwar- 249403 Uttarakhand, India Email ID: yash-pal@bhel.in Tel: +91 1334 28 1747</td></tr></table>	SI	IEM	Email	1.	Dr. Sarat Kumar Acharya, Ex-CMD, NLC	iem1@bhel.in	2.	Shri R. Mukundan, IRPS (Retd.)	iem2@bhel.in	3.	Shri Madan Lal Meena, IAS (Retd.)	iem3@bhel.in	Mithlesh Kumar Maurya Designation: Addl. Engineer (PPX-BOI) 4 th Floor, Main Administrative Building, HEEP, BHEL, Hardwar- 249403 Uttarakhand, India Email ID: mithleshkumar.maurya@bhel.in Tel: +91 1334 28 1690	Mr. Yash Pal Designation: Manager (PPX-BOI) 4 th Floor, Main Administrative Building, HEEP, BHEL Hardwar- 249403 Uttarakhand, India Email ID: yash-pal@bhel.in Tel: +91 1334 28 1747	
SI	IEM	Email															
1.	Dr. Sarat Kumar Acharya, Ex-CMD, NLC	iem1@bhel.in															
2.	Shri R. Mukundan, IRPS (Retd.)	iem2@bhel.in															
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Mithlesh Kumar Maurya Designation: Addl. Engineer (PPX-BOI) 4 th Floor, Main Administrative Building, HEEP, BHEL, Hardwar- 249403 Uttarakhand, India Email ID: mithleshkumar.maurya@bhel.in Tel: +91 1334 28 1690	Mr. Yash Pal Designation: Manager (PPX-BOI) 4 th Floor, Main Administrative Building, HEEP, BHEL Hardwar- 249403 Uttarakhand, India Email ID: yash-pal@bhel.in Tel: +91 1334 28 1747																
40.	Additional Conditions for Assessment	BHEL reserves the right to consider / Not-consider the offers based on the evaluation of documents submitted for the Pre-Qualification Criteria (PQR). BHEL also reserves the right to have on-site assessment of the facilities at supplier's works during the bid evaluation.															
41.	Quality Requirement	Vendor to confirm and endorse BHEL QP "QA/BE/QP/318/20243540 REV00. Vendor to confirm that pre-despatch inspection shall be done by BHEL nominated inspection agency/BHEL TPIA as per BHEL QP "QA/BE/QP/318/20243540 REV00. The Charges for Pre-Inspection would be borne by BHEL. However at least 15 days' notice is to be provided for arranging Pre-Inspection.															
42.	Bidder Contact details	Please provide Contact details of your representative for techno-commercial clarifications: Mobile no. & Email id (minimum 2 person)															

SPECIAL NOTE FOR BIDDERS:

- In the event of our customer order covering this tender being cancelled /placed on hold /otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution.
- BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL even after negotiation.
- Any change in applicable rates of Tax or any other statutory levies (Direct / Indirect) or any new introduction of any levy by means of statute and its corresponding liability for the deliveries beyond the agreed delivery date for reasons not attributable to BHEL will be to vendors account. BHEL will not reimburse the same and any subsequent claim in this respect will be summarily rejected.
- BHEL reserves its right to reject an offer due to unsatisfactory past performance by the respective Vendor in the execution of any contract to any BHEL project / Unit.

- e. The offers of the bidders who are under suspension and also the offers of the bidders, who engage the services of the banned firms /principal/agents, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.
- f. Recovery / deduction as applicable as per Direct and Indirect taxes as notified by Govt. Of India from time to time will be made and information/certificate for such deduction/recoveries shall be provided by BHEL to the vendor.
- g. If the delivery of supply as detailed above gets delayed beyond the delivery period, the Supplier/Vendor shall request for a delivery extension and BHEL at its discretion may extend the Contract. However, if any 'Delivery extension' is granted to the Supplier/Vendor for completion of supply, due to backlog attributable to the Supplier/Vendor, then it shall be without prejudice to the rights of BHEL to impose LD for the delays attributable to the Supplier/Vendor.
- h. In case BHEL increase the quantity during currency of the contract in line with quantity variation clause of GeM bid, delivery extension on pro-rata basis shall be given for supply of these additional quantity.

Following documents are an integral part of this Tender Enquiry and endorsed copies of these documents (duly signed and stamped on each page, as a token of acceptance) are to be submitted/uploaded along with offer on GeM portal against this bid.

1. Please submit replica of Price schedule (without prices) showing "quoted" in place of price along with techno-commercial bid (Part-I).
2. Please submit signed & Stamped copy (each page) of duly filled of confirmation column of "Buyers Specific Additional Terms & Conditions (ATC)" and its clause wise supporting documents where required.
3. Please submit signed & stamped copy (each page) for qualifying PQR with proper filled information and related supporting documents as mentioned in PQR.
4. Please submit signed & stamped copy (each page) of **Integrity Pact**.
5. Please submit signed & stamped copy (each page) of BHEL QP "QA/BE/QP/318/20243540 REV00.
6. Please submit certificate of Minimum local content as specified in the Make In India Certificate of the tender



CONTROLS & INSTRUMENTATION
PRE-QUALIFICATION REQUIREMENT (PQR) GUIDELINES
CABLES REQUIREMENT - 4 CORE 2.5MM SQ POWER CABLE

Sl. No.	Description	Bid Requirements	Vendor remarks
1	Type of Vendor	Vendor shall be the Original Equipment Manufacturer (OEM) of 5x2.5 mm ² 1.1kv power cables.	Accepted / Not accepted
2	Proven Track record/Past Experience	Vendor shall demonstrate their capability of track record of having supplied at least one customer order of similar lot size and variety of cables, as per the present enquiry, to be deployed in any power plant in India, with at least 30 kms in single order, within last 4 years as on the date of enquiry. • Vendor shall submit the reference list (signed and sealed) with details of customer, project/site, year of supply, contact details & recent PO copies. • Vendor shall submit the copy of the largest purchase order for LT power cables in terms of Quantity & value, executed by them in last 3 years. Vendor should have experience of supplying	Accepted / Not accepted
3	Facilities required	All machineries and facilities that are required for the complete manufacturing of cables, shall be available in house. None of the major stages/processes (wire drawing, stranding, bunching, sheathing (extrusion/wrapping), armouring, printing, embossing) involved in the manufacturing of the cable, shall be off loaded or outsourced. Vendor to furnish details of manufacturing facility and testing facility.	Accepted / Not accepted
4	Testing Facilities	Vendor shall have the facility to conduct acceptance, routine and type tests as per the enquiry, either in-house or at NABL accredited labs.	Accepted / Not accepted
5	Past Supply Association / Experience with BHEL	Previous purchase orders executed with BHEL, NTPC or State electricity boards, if any shall be referred to. Vendor to inform if party is registered vendor with any BHEL sister unit.	For information.

PREPARED- KAVITA
CHECKED - DEEPAK GOYAL
CHECKED - SURESH CHANDRA

DATE-15.05.24
1 of 1

ITEM: POWER CABLES 4X2.5 sqmm (ARMOURED)

ADDENDUM NO: 41810E2007 :-

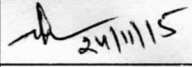
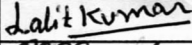
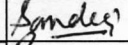
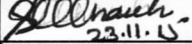
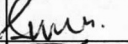
ADDENDUM TO SPECIFICATION NO ST51020 REV 03.

1. The power cable shall be armoured conforming to IS :3975 and IS: 1554.
2. For fire survival cable material code W90318105241 required taping of fibre glass or any other proven material shall be provided over conductor to meet the requirement of IEC 331, and for it minimum thickness of the tape shall be 0.13 mm and overlapping shall not be less than 30%.
3. All cables shall be anti-rodent and anti-termite with moisture resistant and anti-fungus properties. Test for anti-rodent and anti termite shall be conducted as per vendor standard.
4. Heat Shrinkable end cap to be provided at both end of the all the cable drums to protect the ingress of water during transportation and storage of drums.
5. All Cable Drum shall be of good quality & shall meet the requirement of IS:10418. Drums shall be treated with Anti termite solution.

Kamla
22/5/24
Sr. Eng (CIE)

Deepak
22/5/24
Manager
(CIE)

Sur
22/5/24
Sr. DAM
(CIE)

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD STEAM TURBINE ENGINEERING		ST 51020				
				पृष्ठ 3 का 1 Page 1 of 3				
SUPERSEDES सामग्री सूची संख्या को अधिकृतित करता है । INVENTORY NO.	BASED ON OWN EXPERIENCE							
	<u>PURCHASE SPECIFICATION OF POWER CABLE(2.5mm²)</u> <u>FOR 24V SOLENOID VALVES</u>							
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	1.0 APPLICATION: Fire retardant low smoke (FRLS) type, 1100 V voltage grade multicore power cable for power plant application. The cable shall be suitable for laying in wet or dry locations in trays, conduits, ducts, trenches and underground-buried installation. Cable shall be suitable for ambient conditions of (-) 10 °C to 60 °C and relative humidity 85%.							
	2.0 REFERENCE STANDARD: The standard is based on IS:1554 (Pt 1)-1988 in general.							
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।	3.0 CONSTRUCTION: 3.1 Conductor: Each core shall be stranded copper (untinned) circular shape material of 2.5 mm ² cross sectional area as per IS:8130. The conductor shall be made of annealed high conductivity conductor complying IS :8130. 3.2 Insulation: Each core shall be insulated by extrusion process with PVC type A , as per IS:5831, and thickness shall be as per IS:1554(Pt 1) 3.3 Number of cores and cross-sectional area: As per enquiry. 3.4 Identification of cores: Colour codes as per IS: 1554(Pt-1) 3.5 Inner sheath: The cable shall be sheathed with FRLS PVC type ST-1, as per IS: 5831 by extrusion process and thickness shall be as per IS: 1554(Pt- 1) Overall diameter and tolerance of cable shall be indicated in offer.							
	3.6 Armouring: As per enquiry.							
P-6298 20/11/15	PSC Member		Vinod kr.		अनुवादक TRANSLATED BY	नाम NAME	हस्ताक्षर एवं दिनांक SIGN. & DATE	
	TSX		Lalit kumar		निर्माणकर्ता WORKED BY	Sandeep Gupta		18.11.15
	QAX		SK Chauhan		परीक्षणकर्ता CHECKED BY	Suresh Chandra		18.11.15
	सहमत विभाग AGREED DEPTT.		नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	B S Rana		18.11.15
	(SUPERSEDES)				स्वीकृति : APPROVED BY: K B Batra, AGM (CIE&TCX)		ST 3.50	
Rev. No. 03				निर्माण : PREPARED	ज़ारी : ISSUED	दिनांक : DATE		
Date 18.11.2015				CIE	TSX	18.11.2015		

सामग्री सूची संख्या INVENTORY NO.	हस्ताक्षर एवं दिनांक SIGN & DATE	स्वत्वधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	सामग्री सूची संख्या को अधिकृतित करता है। INVENTORY NO.	ST 51020	उत्पाद मानक PRODUCT STANDARD STEAM TURBINE ENGINEERING								
					पृष्ठ 3 का 2 Page 2 of 3								
3.7 Outer sheath: The cable shall be sheathed with extrusion process distinctly over inner sheath, with FRLS PVC type ST1 as per IS:5831 and thickness as per IS:1554(Pt-I). The sheath shall be resistant to fungus, termite and rodent attacks & test for same shall be conducted as per manufacturer's standard practice. Colour of sheath shall be black. 3.8 Identification marking: Durable identification marking shall be provided at every 1000 mm distance on the outer sheath as per the following example- A 4 core cable of conductor cross section 2.5 mm² shall be marked as:FRLS -1100 V-4Cx2.5-BHEL (HW). 4.0 INSPECTION: At supplier works by BHEL's representative. The test shall include the following: 4.1 Cable shall be visually inspected as per cl.3.0 Following measured values shall be recorded. Conductor cross sectional area, numbers of cores, thickness of insulation, inner sheath & outer sheath. 4.2 Routine, Acceptance and type tests for the material used for conductor, insulation, inner sheath, outer sheath. and finished cable shall be conducted as per IS: 1554(Pt-I) and other applicable standards. 4.3 Following Acceptance tests for FRLS properties of inner and outer sheath material/finished cable are required. 4.3.1 Value of oxygen index as per ASTM-D2863 shall be minimum 29. 4.3.2 Temperature index of outer sheath as per ASTM-D2863. The test shall be carried out by extrapolation as per BICC Hand book, chapter 6 on "cable in fire". A number of measurements up to 120 °C shall be taken and results plotted in a graph and then extrapolated. Minimum value of temp index shall be 250 °C. 4.3.3 Acid gas generation by weight as per IEC-754-1 shall be 20% (max). 4.3.4 Smoke generation of sheath material under fire as per ASTM-D2843 shall have maximum smoke density rating of 60%. 4.3.5 Flammability characteristics of complete cable as per IEEE-383.													
REV NO. 03	<table border="1"> <tr> <td>निर्माणकर्ता Worked by</td> <td>S. Gupta</td> <td><i>Sandeep</i></td> <td>18/11/15</td> </tr> <tr> <td>जांचकर्ता Checked by</td> <td>S.Chandra</td> <td><i>Sush</i></td> <td>18/11/15</td> </tr> </table>					निर्माणकर्ता Worked by	S. Gupta	<i>Sandeep</i>	18/11/15	जांचकर्ता Checked by	S.Chandra	<i>Sush</i>	18/11/15
निर्माणकर्ता Worked by	S. Gupta	<i>Sandeep</i>	18/11/15										
जांचकर्ता Checked by	S.Chandra	<i>Sush</i>	18/11/15										

सामग्री सूची संख्या INVENTORY NO.	हस्ताक्षर एवं दिनांक SIGN & DATE	स्वत्वधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	सामग्री सूची संख्या को अधिकृत किया जाता है। COPYRIGHT AND CONFIDENTIAL	उत्पाद मानक PRODUCT STANDARD STEAM TURBINE ENGINEERING	ST 51020
				पृष्ठ 3 का 3 Page 3 of 3	
4.3.6 Flammability characteristics of complete cable as per Swedish standard SS-4241475 for class F3. 4.3.7 Flammability characteristics of cable as per IEC332 part3. 5.0 PACKING & MARKING: 5.1 Cable shall be supplied in non-returnable drums as per IS:10418. Ends of cables shall be properly sealed and secured to the drum. A layer of water proof shall be applied to the surface of drum and over the outer cable layer. 5.2 Standard length of cable shall be 1000M/500M(+/-5%) meters. The tolerance on the overall ordered length of each type of cable shall be +5% and -0 % . 5.3 Identification marking and type of cable (as per Cl. 3.8 above) shall be marked on each drum besides name of manufacturer. 6.0 DOCUMENT: 6.1 Quality plan and detail data sheet shall be submitted by vendor for approval. 7.0 CROSS REFERRED STANDARDS: IS:- 1554, ASTM-D2863 IEEE-383, IS-10418, ASTM D2843 IS:- 5831, IS: 8130 IEC-754-I, SS-4241475 cl F3, IEC332 part3					
REV NO. 03			निर्माणकर्ता Worked by जांचकर्ता Checked by	S. Gupta S.Chandra	18/11/15 18/11/15

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN					TO BE FILLED BY BHEL		TO BE FILLED BY BHEL			
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540								
				REV.	00								
		DRG. NO.	BHEL Approved Data Sheet										
		SPEC.	ST 51020 Rev 03 with addendum 41810E2007										
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS	
								M	B	N			
1	2	3	4	5	6	7	8	9	D	10		11	

1.0	RAW MATERIAL												
1.1	Copper Rod												
1.1.1		Make/Type/Grade	Major	Visual	100%	IS 8130	IS 8130	TC	√	P	√		
1.1.2		Size	Major	Measurement	100%	Mfg's Std	Mfg's Std	TC	√	P	√		
1.1.3		Tensile Strength & elongation	Major	Mechanical	1 Sample/lot	IS 10810	IS 8130	TC	√	P	√		
1.1.4		Resistivity	Major	Electrical	1 Sample/lot	IS 8130	IS 8130	TC	√	P	√		
1.1.5		Purity	Major	Chemical	1 Sample/lot	IS 8130	IS 8130	TC	√	P	√		
1.2	Insulation – extruded HR PVC Type-C												
1.2.1		Make/Type/Grade	Major	Visual	100%	Mfg's Std	Mfg's Std	TC	√	P	√		
1.2.2		Specific Gravity	Major	Physical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.3		Volume Resistivity	Major	Electrical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.4		Tensile Strength & Elongation at break	Major	Physical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.5		Loss of mass	Major	Physical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.6		Hot Deformation	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.7		Heat Shock	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.8		Shrinkage Test	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.2.9		Thermal stability Test	Major	Thermal	1Sample/Lot	IS 5831	IS 5831	TC	√	P	√		
1.3	Inner & Outer sheath- extruded FRLS PVC Type-ST2												
1.3.1		Make/Type/Grade	Major	Visual	100%	Mfg's Std	Mfg's Std	TC	√	P	√		
1.3.2		Specific Gravity	Major	Physical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.3.3		Tensile Strength & Elongation at break before & after ageing	Major	Physical	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		

		LEGEND: D: RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS 'V' VERIFICATION 'ADS' APPROVED DATA SHEET 'In R' INTERNAL RECORDS 'ADS' APPROVED DATA SHEET 'IR' INSPECTION REPORT 'TC' TEST CERTIFICATE	FOR CUSTOMER USE	
MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY  Digitally signed by Nishant Kumar Date: 2025.02.20 11:35:01 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540								
				REV.	00								
		DRG. NO.	BHEL Approved Data Sheet										
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SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY		REMARKS
										M	B	N	
1	2	3		4	5	6	7	8	9	D	10		11

1.3.4		Loss of mass in air oven	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.3.5		Hot Deformation	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.3.6		Heat Shock	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.3.7		Shrinkage Test	Major	Thermal	1Sample/Lot	IS 10810	IS 5831	TC	√	P	√		
1.3.8		Thermal Stability	Major	Thermal	1Sample/Lot	IS 5831	IS 5831	TC	√	P	√		
1.3.9		Oxygen Index	Major	Physical / Chemical	1Sample/Lot	ST51020	ASTMD-2863	TC	√	P	√		
1.3.10		Temperature Index	Major	Physical / Chemical	1Sample/Lot	ST51020	ASTMD-2863	TC	√	P	√		
1.3.11		Acid gas generation	Major	Physical / Chemical	1Sample/Lot	ST51020	IEC-754-I	TC	√	P	√		
1.3.12		Smoke Generation	Major	Physical / Chemical	1Sample/Lot	ST51020	ASTMD-2843	TC	√	P	√		
1.4	Galvanized single round Steel Wire / Strip for Armoring												
1.4.1		Chemical Composition	Major	Chemical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		
1.4.2		Tensile strength & % of elongation	Major	Physical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		
1.4.3		Torsion Test	Major	Physical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		
1.4.4		Wrapping Test	Major	Physical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		
1.4.5		Resistance Measurement	Major	Electrical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		
1.4.6		Mass of Zinc coating	Major	Chemical	1Sample/Lot	IS 3975 & IS1554	IS 3975 & IS1554	TC	√	P	√		

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MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY  Digitally signed by Nishant Kumar Date: 2025.02.20 11:35:14 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN					TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540									
				REV.	00									
		DRG. NO.	BHEL Approved Data Sheet											
		SPEC.	ST 51020 Rev 03 with addendum 41810E2007											
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
										D	M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11

2.3	Insulation of core												
2.3.1		Type of insulation	Major	Chemical	-do-	ST 51020	ADS	In R	√	P	√		
2.3.2		Insulation thickness	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.3.3		Dia of core	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.3.4		Color of core	Major	Visual	-do-	ST 51020	ADS	In R	√	P	√		
2.3.5		Spark testing	Major	Electrical	-do-	No failure is permitted	No failure permitted	In R	√	P	√		
2.3.6		Numbering of cores	Major	Visual	-do-	ST 51020	ADS	In R	√	P	√		
2.3.7		Surface finish	Major	Visual	-do-	Smooth & free from defects	Smooth & free from defects	In R	√	P	√		
2.3.8		Tensile strength of insulation	Major	Mechanical	-do-	IS 10810	ADS	In R	√	P	√		
2.3.9		Elongation of insulation	Major	Mechanical	-do-	IS 10810	ADS	In R	√	P	√		
2.3.10		Shrinkage test	Critical	Chemical	-do-	IS 10810	ADS	In R	√	P	√		
2.3.11		Thermal stability	Critical	Chemical	-do-	IS 5831	IS 5831	In R	√	P	√		
2.3.12		Volume resistivity	Critical	Electrical	-do-	IS 10810	ADS	In R	√	P	√		
2.4	Laying up for multi core cables												
2.4.1		Direction of lay	Major	Visual	-do-	Mfg's std	Mfg's std	In R	√	P	√		
2.4.2		Sequence of laying	Major	Visual	-do-	Mfg's std	Mfg's std	In R	√	P	√		
2.4.3		Shape of laid up assembly	Major	Visual	-do-	Mfg's std	Mfg's std	In R	√	P	√		
2.5	Inner sheath for multicore cables only												As applicable

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MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY  Digitally signed by Nishant Kumar Date: 2025.02.20 11:35:37 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540								
				REV.	00								
		DRG. NO.	BHEL Approved Data Sheet										
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SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
									D	M	B	N	
1	2	3	4	5	6	7	8	9	D	10			11

2.5.1		Radial thickness	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.5.2		colour	Major	visual	-do-	ST 51020	ADS	In R	√	P	√		
2.5.3		Surface finish	Major	visual	-do-	Smooth & free from defects	Smooth & free from defects	In R	√	P	√		
2.6	Armouring												
2.6.1		Size of wire / strip	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.6.2		Dia over armouring	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.6.3		Direction of lay & % of coverage	Major	Visual	-do-	Mfg's Std.	ADS	In R	√	P	√		
2.6.4		Tightness	Major	Physical	-do-	Mfg's Std.	Mfg's Std.	In R	√	P	√		
2.6.5		Surface finish	Major	Visual	-do-	Smooth	Smooth	In R	√	P	√		
2.7	Inner / Outer sheaths												
2.7.1		Dia of cable	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.7.2		Color of cable	Major	Visual	-do-	ST 51020	ADS	In R	√	P	√		
2.7.3		Radial thickness	Major	Physical	-do-	ST 51020	ADS	In R	√	P	√		
2.7.4		Embossing / identification marking	Major	Visual	-do-	ST 51020	ST 51020/ ADS	In R	√	P	√		
2.7.5		Surface finish	Major	Visual	-do-	Surface shall be smooth & free from defects	Surface shall be smooth & free from defects	In R	√	P	√		
3.0	FINAL INSPECTION												

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MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY  Digitally signed by Nishant Kumar Date: 2025.02.20 11:35:50 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL					
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540									
				REV.	00									
		DRG. NO.	BHEL Approved Data Sheet											
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SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
										D	M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11

3.1	Type Tests (The type test reports shall be submitted for one size of LT PVC power cables carried out within last 05 years from the date of bid opening. However, if the vendor is not able to submit report of the type test(s) conducted within last 05 years period from the date of bid opening, or in the case of type test report are not found to be meeting the specification requirements, the vendor shall conduct all such tests under this contract at no additional cost to BHEL in presence of customer/BHEL representative and submit the report for approval).													
3.1.1	Tests on conductor													
a.		Annealing	Major	Process	As per IS	IS 10810	IS 8130	In R	√	P	√			
b.		Conductor resistance	Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	√			
3.1.2	Test for armoring wires/strips													
a.		Chemical composition	Major	Chemical	As per IS	IS 3975	IS 3975	IR	√	P	√			
b.		Tensile strength & % of elongation	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
c.		Torsion test	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
d.		Wrapping test	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
e.		Resistance measurement	Major	Electrical	As per IS	IS 3975	IS 3975	IR	√	P	√			
f.		Mass of zinc coating	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
g.		Uniformity of zinc coating	Major	Visual	As per IS	IS 3975	IS 3975	IR	√	P	√			
h.		Adhesion test	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
i.		Size	Major	Physical	As per IS	IS 3975	IS 3975	IR	√	P	√			
3.1.3	Test for thickness of insulation & sheaths													
a.		Thickness	Major	Physical	As per IS	IS 10810	IS 5831 & Addendum	IR	√	P	√			

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MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY
				 Digitally signed by Nishant Kumar Date: 2025.02.20 11:36:00 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL			
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540							
				REV.	00							
		DRG. NO.	BHEL Approved Data Sheet									
		SPEC.	ST 51020 Rev 03 with addendum 41810E2007									
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
									M	B	N	
1	2	3	4	5	6	7	8	9	D	10		11

3.1.4	Physical tests for insulation and sheaths													
a.		Tensile strength & elongation at break		Critical	Physical	As per IS	IS 10810	IS 5831	IR	√	P	V		
b.		Ageing in air oven		Critical	Thermal	As per IS	IS 10810	IS 5831	IR	√	P	V		
c.		Shrinkage		Critical	Thermal	As per IS	IS 10810	IS 5831	IR	√	P	V		
d.		Hot deformation		Critical	Thermal	As per IS	IS 10810	IS 5831	IR	√	P	V		
e.		Loss of mass in air oven		Critical	Thermal	As per IS	IS 10810	IS 5831	IR	√	P	V		
f.		Heat shock		Critical	Thermal	As per IS	IS 10810	IS 5831	IR	√	P	V		
g.		Thermal stability		Critical	Thermal	As per IS	IS 5831	IS 5831	IR	√	P	V		
h.		Insulation resistance		Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	V		
i.		High Voltage test at RT		Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	V		
j.		High Voltage test (water immersion)		Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	V		
k.		Flammability		Critical	Chemical	As per IS	IS 10810	ADS	IR	√	P	V		
l.		Volume Resistivity		Critical	Electrical	As per IS	IS 10810	IS 5831	IR	√	P	V		
m.		Cold bend / Cold impact test		Critical	Physical	As per IS	IS 10810	IS 5831	IR	√	P	V		
n.		Color fastness test		Critical	Physical	As per IS	IS 10810	IS 5831	IR	√	P	V		
o.		Bleeding & blooming test		Critical	Physical	As per IS	IS 10810	IS 5831	IR	√	P	V		
p.		Test on cable for anti-rodent & anti-termite & Anti fungus		Critical	Chemical	As per vendor's practice	Vendor's standard	Vendor's standard	IR	√	P	V		

MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	
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		M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER		
		INDICATE 'P' PERFORM 'W' WITNESS 'V' VERIFICATION 'ADS' APPROVED DATA SHEET 'In R' INTERNAL RECORDS 'ADS' APPROVED DATA SHEET 'IR' INSPECTION REPORT 'TC' TEST CERTIFICATE		
		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		
				APPROVED BY
				 Digitally signed by Nishant Kumar Date: 2025.02.20 11:36:12 +05'30'

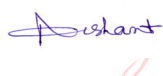
MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
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										M	B	N	
1	2	3		4	5	6	7	8	9	D	10		11

q.		Test for suitability of cable for -10 deg C to +45 deg C ambient temperature.	Critical	Chemical/ Thermal/ Physical	As per vendor's practice	International standard	International standard	IR	√	P	V		
3.2	Routine tests												
3.2.1		Conductor resistance	Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	V		
3.2.2		High Voltage test at RT	Critical	Electrical	As per IS	IS 10810	ADS	IR	√	P	V		
3.3	Acceptance tests												
3.3.1		Conductor resistance	Critical	Electrical	Sample as per IS 1554-I	IS 10810	ADS	IR	√	P	W		
3.3.2		Conductor annealing	Critical	Mechanical	-DO-	Annealing process	Annealing process	In R	√	P	V		
3.3.3		Test for thickness of insulation & sheaths	Critical	Physical	-DO-	IS 10810	ADS & Addendum	IR	√	P	W		
3.3.4		Tapping of Fibre Glass(for Mat codeW90318105241)	Critical	Physical	-DO-	IEC331	ADS & Addendum	IR	√	P	W		
3.3.5		Tensile strength & elongation at break of insulation and sheaths	Critical	Physical	-DO-	IS 10810	ADS	IR	√	P	W		
3.3.6		Volume resistivity	Critical	Electrical	-DO-	IS 10810	ADS	IR	√	P	W		
3.3.7		Thermal stability of insulation & sheath	Critical	Chemical	-DO-	IS 5831	ADS	IR	√	P	W		
3.3.8		Insulation Resistance	Critical	Electrical	-DO-	IS 10810	ADS	IR	√	P	W		
3.3.9		High Voltage test at RT	Critical	Electrical	-DO-	IS 10810	ADS	IR	√	P	W		

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MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY  Digitally signed by Nishant Kumar Date: 2025.02.20 11:36:24 +05'30'

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL					
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540									
				REV.	00									
		DRG. NO.	BHEL Approved Data Sheet											
		SPEC.	ST 51020 Rev 03 with addendum 41810E2007											
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										D	M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11

3.3.10		Dia. of cable		Major	Physical	-DO-	ST 51020	ADS	IR	√	P	W		
3.3.11		Color of cable		Major	Visual	-DO-	ST 51020	ADS	IR	√	P	W		
3.3.12		Embossing / identification marking		Major	Visual	-DO-	ST 51020	ADS	IR	√	P	W		
3.3.13		Surface finish of cable		Major	Visual	-DO-	Surface shall be smooth & free from any defects	Surface shall be smooth & free from any defects	IR	√	P	W		
3.3.14		Dia. over armouring		Major	Physical	-DO-	ST 51020	ADS & Addendum	IR	√	P	W		
3.3.15		Size of armouring wire / strip		Major	Physical	-DO-	ST 51020	ADS & Addendum	IR	√	P	W		
3.3.16		Mass of zinc coating of armouring wire / strip		Major	Physical	-DO-	IS 3975	IS 3975	IR	√	P	W		
3.3.17		Uniformity of zinc coating of armouring wire / strip		Major	Visual	-DO-	IS 3975	IS 3975	IR	√	P	W		
3.3.18		Adhesion test on armouring wire / strip		Major	Physical	-DO-	IS 3975	IS 3975	IR	√	P	W		
3.3.19		No. of cores & Dia of core		Major	Physical	-DO-	IS 3975	ADS	IR	√	P	W		
3.3.20		Color of core		Major	Visual	-DO-	ST 51020	ADS	IR	√	P	W		
3.3.21		Conductor cross section area		Major	Physical	-DO-	ST 51020	ADS	IR	√	P	W		
3.3.22		No. of wires & Dia of wire		Major	Physical	-DO-	ST 51020	ADS	IR	√	P	W		

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MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN					TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540									
				REV.	00									
		DRG. NO.	BHEL Approved Data Sheet											
		SPEC.	ST 51020 Rev 03 with addendum 41810E2007											
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
											M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11

3.3.23		Constructional details of cable	Major	Physical	-DO-	ST 51020	ADS	IR	√	P	W		
3.4	FRLS tests on sheath												
3.4.1		Oxygen Index	Critical	Physical / Chemical	1 sample/lot	ST 51020	ASTMD-2863/ADS	IR	√	P	W		
3.4.2		Temperature Index	Critical	Physical / Chemical	-do-	ST 51020	ASTMD-2863/ADS	IR	√	P	W		
3.4.3		Acid Gas Generation	Critical	Physical / Chemical	-do-	ST 51020	IEC 754-I /ADS	IR	√	P	W		
3.4.4		Smoke Generation	Critical	Physical / Chemical	-do-	ST 51020	ASTMD - 2843/ ADS	IR	√	P	W		
3.4.5		Flammability characteristics	Critical	Chemical	-do-	ST 51020	SS 4241475 Class 3/ ADS	IR	√	P	W		
3.4.6		Flammability characteristics	Critical	Chemical	-do-	ST 51020	IEEE 383/ ADS	IR	√	P	W		
3.4.7		Flammability characteristics	Critical	Chemical	-do-	ST 51020	IEC-332 Part-3	IR	√	P	W		
3.4.8		Flammability characteristics	Critical	Chemical	-do-	ST 51020	SS4241475 class F3	IR	√	P	W		
3.4.8		Completion of documents	Critical	Physical / Visual	100%	ST 51020	ST 51020/ QP/ADS	Docum ents	√	P	√		
4.0	PACKING & MARKING												
		Identification Marking	Critical	Physical / Visual	100%	ST 51020	ST 51020 & ADS	Docum ents	√	P	W		

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MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL					
BHEL	VENDOR'S NAME	ITEM	POWER CABLE FOR 24 V SOLENOID VALVES (4X2.5MM2)	QP NO.	QA/BE/QP/318/20243540									
				REV.	00									
		DRG. NO.		BHEL Approved Data Sheet										
		SPEC.		ST 51020 Rev 03 with addendum 41810E2007										
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											M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11

4.1		End sealing		Major	Visual	100%	ST 51020	ST 51020 . Heat Shrinkable end cap to be provided	In R	√	P	√		
4.2		Stenciling / marking on drum		Major	Visual	100%	ST 51020 & IS10418	ST 51020 & IS10418	In R	√	P	√		
4.3		Packing		Physical / Visual	Physical / Visual	100%	As per PO	As per PO	In R	√	P	√		

Note:

1. Approved Data Sheet means BHEL approved Data Sheet.
2. Type tests clearance from BHEL Engineering to be verified by Inspection Engineer during Inspection at vendor's works & the same to be recorded in Inspection documents/TCs.
3. All page of inspection documents shall be numbered in chronology with the QAP clause, duly mentioning the corresponding QAP clause nos. at the top of each page. One index page containing the documents descriptions, their page no & QAP clause shall be attached upfront the inspection documents.

MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	APPROVED BY
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		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		
				Digitally signed by Nishant Kumar Date: 2025.02.20 11:39:00 +05'30'

ANNEXURE-A

(PVC FORMULA & FACTORS : Ref.IEEMA(PVC)/CABLE(R-1)/2017)

Price variation formula for Copper conductor PVC insulated 1.1 kV control cables

$$P = P_o + CuF (Cu - Cuo) + CCFCu (PVCc-PVCco) + FeF (Fe-Feo)$$

Tables References:

CUC Copper conductor (for CuF)

P5 PVC compound (for CCFCu)

P6 Steel armour (for FeF)

PVC FACTORS

Item No	Item Code	Item Description	CuF	CCFCu	FeF
1	W90318105160	POWER CABLE FOR 24V SOLENOID VALVE (ARMOURED) 4 X 2.5 MM2	0.094	0.179	0.314
2	W90318105241	FS POWER CABLE FOR 24V SOLENOID VALVE (ARMOURED) 4X2.5 SQMM			

Note :

1 Since in GEM price inclusive all to be quoted and there is no further break up for freight portion, hence Ex. Works cost shall be derived by considering freight portion as 5% of quoted rate on GeM excluding GST.

Example for Ex Works cost calculation :

Suppose Per Meter quoted rates in GEM : INR 100/- (Including GST)

Per Meter Quoted Rates excluding GST @18%: (=100/1.18)=INR 84.75

So Ex. Works Per Meter Cost work out as (deducting 5% freight) : (=84.75/1.05)=INR 80.71

2. **P_o** shall be INR (Derived Ex. works Per Meter cost X1000)

3. As per NIT Conditions, Base date for initial prices to be quoted for this tender, shall be one month prior to date of GeM bid. Accordingly, following are the initial Price of Cuo, PVCco and Feo shall be considered for submitting offer.:

Cuo : INR 10,27,752/MT

PVCco : INR 1,56,825/MT

Feo : INR 76,250/MT

Cir. No. 35/DIV/ CAB/05/

24th April 2018

To Members of the Cable Division, Utilities, Railways & Listed purchasing organizations

Sub: Correction in PV formulae of LT XLPE Power Cable and addition of factors for HT XLPE Power Cables

We have recently published revised Price Variation Clause for LT&HT XLPE Power Cables and made it effective from 1st November 2017 vide Cir. No.111/DIV/CAB/05 dated 5th December 2017

While replying to a query of a buyer it is observed that the polymer factor for LT XLPE Power Cables (both aluminium and copper) was incorrectly represented by Table P2.

We have now corrected the anomaly by correcting the PV formulae of LT XLPE Aluminium and Copper Insulated Cables (Sl. No. D & E) by representing Polymer factor by Table L2.

We have also worked out factors for XLPE, Copper and Steel for 3 core HT XLPE Power Cables for 500 and 630 sq.mm.

We now enclose complete PV clause of Cable by including all the PV formulae of different types of power cable (Sl. No. A to I), polymer factor Table L2 and updated XL4, H2 and H5 Table of factors for your perusal & record.

We request to replace PV clause of Cable already circulated vide Cir. 111/DIV/CAB/05 dated 5th December 2017 with the enclosed PV clause in your records for future use.


Senior Director
Encl: as above

IEEMA (PVC)/CABLE(R-1)/2017**Effective from: 1st November 217****Material Price Variation Clause For PVC And XLPE Insulated Cables**

The Price quoted/confirmed is based on the input cost of raw materials/components as on the date of quotation, and the same is deemed to be related to the prices of raw materials as specified in the price variation clause given below. In case of any variation in these prices, the price payable shall be subject to adjustment up or down in accordance with the formulae provided in this document.

Terms used in price variation formulae:

P Price payable as adjusted in accordance with above appropriate formula (in Rs/Km)

Po Price quoted/confirmed (in Rs/Km)

ALUMINIUM

AIF Variation factor for aluminium

AI Price of Aluminium. This price is as applicable of first working day of the month, one month prior to the date of delivery.

Alo Price of aluminium. This price is as applicable on first working day of the month, one month prior to the date of tendering.

COPPER

CuF Variation factor for copper

Cu Price of CC copper rods. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cuo Price of CC copper rods. This price is as applicable on first working day of the month, one month prior to the date of tendering.

PVC COMPOUND

PVCc price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

PVCco Price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

CCFAI Variation factor for PVC compound/Polymer for aluminum conductor cable.

CCFCu Variation factor for PVC compound/Polymer for copper conductor cable.

IEEMA (PVC)/CABLE(R-1)/2017
XLPE COMPOUND

Effective from: 1st November 217

Cc price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cco Price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

XLFAL Variation factor for XLPE compound for aluminum conductor cable.

XLFCU Variation factor for XLPE compound for Copper conductor cable.

STEEL

FeF Variation factor for steel

FeW Variation factor for round wire steel armouring

Fe Price of Steel Strips/steel wire. This price is as applicable on the first working day of the month, one month prior to the date of delivery.

Feo Price of steel strips/steel wire. This price is as applicable on first working day of the month, one month prior to the date of tendering.

The above prices and indices are as published by IEEMA vide Circular reference IEEMA (PVC)/CABLE R(1)/--/-- prevailing as on 1st working day of the month i.e. one month prior to the date of tendering.

The date of delivery is the date on which the cable is notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes

- (a) All prices of raw materials are exclusive of GST amount.
- (b) All prices excluding Aluminium & Copper are as on first working day of the month.
- (c) The details of prices are as under:

1. Price of Aluminium is LME average Cash SELLER Settlement price of Primary Aluminium in US\$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium Ingot in US\$ per MT is converted in Indian Rs./MT.
2. Price of PVC Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer.
3. Price of XLPE Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer
4. Price of CC copper rods (in Rs/MT) is ex-works price as quoted by the primary producer.
5. Price of galvanized steel strip / steel wire (in Rs/MT) is ex-works price as quoted by the manufacturer for Round steel Wire and Flat steel strip (the relevant price of steel strip or steel wire is to be selected depending upon the type of armouring of the cable).

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IEEMA (PVC)/CABLE(R-1)/2017**Effective from: 1st November 217****Price variation formulae for 'Power Cables'****A. Aluminum conductor PVC insulated 1.1 kV power cables**

$$P = P_o + AIF (AL - ALo) + CCFAI (PVCc - PVCco) + FeF (Fe - Feo)$$

For unarmoured multicore cables (without steel armour); $FeF = 0$ Table References:

ALP	Aluminium conductor in single core unarmoured & multicore cables
P1	Aluminium conductor aluminium armour in single core armoured cables
P2	PVC compound
P3	Steel armour

B. Copper conductor PVC insulated 1.1 kV power cables

$$P = P_o + CuF (Cu - Cuo) + CCFCu (PVCc - PVCco) + FeF (Fe - Feo) + AIF (Al - ALo)$$

For steel armoured cables; $AIF = 0$ For aluminium armoured cables; $FeF = 0$ For unarmoured cables; $FeF, AIF = 0$ Tables References:

CUP	Copper conductor
P2	PVC compound
P3	Steel armour
P4	Aluminium armour

C. Copper conductor PVC insulated 1.1 kV control cables

$$P = P_o + CuF (Cu - Cuo) + CCFCu (PVCc - PVCco) + FeF (Fe - Feo)$$

For unarmoured cables; $FeF = 0$ Tables References:

CUC	Copper conductor
P5	PVC compound
P6	Steel armour

D. Aluminum conductor XLPE insulated 1.1 kV power cables

$$P = P_o + AIF (AL - ALo) + XLFAL(CC-Cco) + CCFAI (PVCc - PVCco) + FeF (Fe - Feo)$$

For unarmoured multicore cables (without steel armour); $FeF = 0$ Table References:

ALP	Aluminium conductor in single core unarmoured & multicore cables
P1	Aluminium conductor aluminium armour in single core armoured cables
L2	Polymer (CCFAI)
P3	Steel armour
XL1	XLPE Compound (XLFAL)

E. Copper conductor XLPE insulated 1.1 kV power cables

$$P = P_o + CuF (Cu - Cuo) + XLFCU (CC-Cco) + CCFCu (PVCc - PVCco) + FeF (Fe - Feo) + AIF (Al - ALo)$$

For steel armoured cables; $AIF = 0$ For aluminium armoured cables; $FeF = 0$

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IEEMA (PVC)/CABLE(R-1)/2017**Effective from: 1st November 217**

For unarmoured cables; FeF, AIF = 0

Tables References:

CUP	Copper conductor
L2	Polymer (CCFCu)
P3	Steel armour
P4	Aluminium armour
XL1	XLPE Compound (XLFCu)

F. Copper conductor XLPE insulated 1.1 kV control cables

$$P = P_o + CuF (Cu - Cu_o) + XLFCU (CC-Cco) + CCFCu (PVCc-PVCco) + FeF (Fe-Fe_o)$$

For unarmoured cables; FeF = 0

Tables References:

CUC	Copper conductor
P5	PVC compound
P6	Steel armour
XL2	XLPE Compound

G. For Aluminium conductor XLPE insulated 3.3 to 33 kV power cables

$$P = P_o + AIF (Al - Al_o) + XLFAL(CC-Cco) + CCFAI (PVCc - PVCco) + FeF (Fe - Fe_o)$$

For unarmoured multicore cables (without steel armour); FeF = 0

Table References:

ALP	Aluminium conductor in single core unarmoured & multicore cables
H1	Aluminium conductor + aluminium armour in single core armoured cables
H2	Polymer
H3/H5	Steel armour (Flat/Round)
XL3/XL4	XLPE Compound (Single core /Multicore)

H. Copper conductor XLPE Insulated 3.3 to 33 kV power cables

$$P = P_o + CuF (Cu - Cu_o) + XLFCU (CC-Cco) + CCFCu (PVCc - PVCco) + FeF (Fe - Fe_o) + AIF (Al - Al_o)$$

For steel armoured cables; AIF = 0 For aluminium armoured cables; FeF = 0

For unarmoured cables; FeF, AIF = 0

Table References:

CUP	Copper conductor
H2	Polymer
H3/H5	Steel armour (Flat/Round)
H4	Aluminium armour
XL3/XL4	XLPE Compound (Single core /Multicore)

I. Copper conductor XLPE insulated 1.0 and 1.5 kV Solar PV DC cables

$$P = P_o + CuF (Cu - Cu_o)$$

Table CUcdc Copper Conductor


Authorized Signatory

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE ALP

VARIATION FACTOR FOR ALUMINIUM (AIF)
POWER CABLES WITH ALUMINIUM CONDUCTOR
(EXCLUDING SINGLE CORE ARMoured CABLES)

Nominal Cross Sectional Area (in Sq. mm.)	1 core	2 core	3 core	3.5 core	4 core
2.5	0.007	0.014	0.021	-	0.028
4	0.011	0.023	0.034	-	0.046
6	0.017	0.034	0.052	-	0.069
10	0.029	0.053	0.087	-	0.116
16	0.046	0.091	0.137	-	0.183
25/16	0.073	0.146	0.219	0.262	0.292
35/16	0.101	0.202	0.302	0.345	0.404
50/25	0.137	0.273	0.410	0.478	0.547
70/35	0.197	0.395	0.593	0.687	0.791
95/50	0.274	0.548	0.821	0.949	1.095
120/70	0.346	0.691	1.035	1.221	1.382
150/70	0.425	0.853	1.279	1.464	1.706
185/95	0.533	1.070	1.605	1.861	2.140
225/120	0.655	1.310	1.965	2.287	2.620
240/120	0.703	1.400	2.099	2.421	2.799
300/150	0.879	1.757	2.635	3.033	3.514
400/185	1.126	2.249	3.374	3.873	4.498
500	1.418	2.838	4.256	-	5.675
630	1.828	3.663	5.494	-	7.326
800	2.340	4.679	7.018	-	9.357
1000	2.951	5.890	8.934	-	11.779

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE CUP

VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)
POWER CABLES WITH COPPER CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm.)	1 core	2 core	3 core	3.5 core	4 core
2.5	0.023	0.046	0.069	-	0.092
4	0.036	0.076	0.112	-	0.151
6	0.056	0.112	0.171	-	0.227
10	0.095	0.174	0.286	-	0.382
16	0.151	0.299	0.451	-	0.602
25/16	0.240	0.480	0.720	0.862	0.960
35/16	0.332	0.664	0.993	1.135	1.329
50/25	0.451	0.898	1.348	1.572	1.799
70/35	0.648	1.299	1.950	2.260	2.602
95/50	0.901	1.802	2.700	3.121	3.601
120/70	1.138	2.273	3.407	4.016	4.545
150/70	1.398	2.806	4.207	4.815	5.611
185/95	1.753	3.519	5.279	6.121	7.038
225/120	2.154	4.309	6.463	7.522	8.617
240/120	2.312	4.605	6.904	7.963	9.206
300/150	2.891	5.779	8.667	9.976	11.558
400/185	3.703	7.397	11.097	12.738	14.794
500	4.664	9.334	13.998	-	18.665
630	6.012	12.048	18.070	-	24.095
800	7.696	15.389	23.082	-	30.775
1000	9.706	19.372	29.055	-	38.741

TABLE CU_{sd}c

VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)
1.0 & 1.5KV Solar PV DC Cables with Copper Conductor

Cable Size in sq.mm.	Copper content in MT/km
2.5	0.023
4	0.038
6	0.058
10	0.090

IEEMA (PVC)/CABLE(R-1)/2017

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TABLE CUC

**VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)
CONTROL CABLES WITH COPPER CONDUCTOR**

No of Cores	Core size 1.5 sq mm	Core size 2.5 sq mm
2	0.026	0.047
3	0.039	0.070
4	0.052	0.094
5	0.065	0.117
6	0.078	0.141
7	0.091	0.164
8	0.110	0.182
9	0.117	0.205
10	0.130	0.235
12	0.157	0.282
14	0.183	0.329
16	0.209	0.376
18	0.246	0.410
19	0.248	0.446
20	0.260	0.456
24	0.313	0.563
27	0.352	0.634
30	0.391	0.704
37	0.483	0.869
44	0.573	1.033
52	0.678	1.221
61	0.796	1.432

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE P1

VARIATION FACTOR FOR ALUMINIUM (AIF)
ALUMINIUM ARMoured SINGLE CORE PVC INSULATED 1.1 KV CABLES

Nominal cross sectional area (in Sq.mm)	Aluminium factor for Aluminium armoured cable with aluminium conductor
4	0.0685
6	0.0795
10	0.1017
16	0.1303
25	0.1693
35	0.2090
50	0.2597
70	0.3360
95	0.4567
120	0.5443
150	0.6427
185	0.7743
240	0.9737
300	1.2582
400	1.5502
500	1.8958
630	2.3650
800	2.9306
1000	3.7666

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE P2

VARIATION FACTOR FOR PVC COMPOUND (CCFAI/CCFCu)
PVC INSULATED 1.1 KV POWER CABLES WITH COPPER/ALUMINIUM CONDUCTOR

Nominal cross Sectional Area (in Sq. mm)	1 core	2 core		3 core		3.5 core		4 core	
	Unarm	Unarm	arm	Unarm	arm	Unarm	arm	Unarm	arm
2.5	0.079	0.125	0.139	0.141	0.157	-	-	0.161	0.179
4	0.094	0.140	0.156	0.164	0.182	-	-	0.188	0.209
6	0.101	0.154	0.171	0.179	0.199	-	-	0.198	0.220
10	0.114	0.194	0.216	0.214	0.238	-	-	0.249	0.277
16	0.142	0.234	0.246	0.279	0.290	-	-	0.328	0.345
25	0.171	0.288	0.303	0.364	0.383	0.422	0.444	0.443	0.466
35	0.189	0.321	0.338	0.403	0.429	0.489	0.515	0.498	0.524
50	0.211	0.411	0.433	0.508	0.535	0.613	0.645	0.647	0.681
70	0.241	-	-	0.613	0.645	0.707	0.744	-	-
95	0.284	-	-	0.795	0.811	0.908	0.927	-	-
120	0.339	-	-	0.866	0.884	1.024	1.045	-	-
150	0.388	-	-	1.070	1.092	1.289	1.315	-	-
185	0.450	-	-	1.310	1.337	1.499	1.530	-	-
225	0.521	-	-	1.586	1.618	1.840	1.878	-	-
240	0.534	-	-	1.649	1.683	1.990	2.031	-	-
300	0.653	-	-	2.007	2.048	2.361	2.409	-	-
400	0.770	-	-	2.437	2.487	2.616	2.669	-	-
500	0.936	-	-	3.117	3.181	3.687	3.762	-	-
630	1.175	-	-	-	-	-	-	-	-
800	1.433	-	-	-	-	-	-	-	-
1000	1.642	-	-	-	-	-	-	-	-

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 2017

TABLE P3

VARIATION FACTOR FOR STEEL (FeF)
PVC INSULATED 1.1 KV POWER CABLES WITH COPPER/ALUMINIUM CONDUCTOR

Nominal Cross sectional Area (in Sq. mm)	2 core	Shape	3 core	Shape	3 ½ core	Shape	4 core	Shape
4	0.305	W	0.335	W	-	-	0.363	W
6	0.348	W	0.363	W	-	-	0.407	W
10	0.392	W	0.407	W	-	-	0.293	F
16	0.235	F	0.293	F	-	-	0.323	F
25	0.293	F	0.352	F	0.382	F	0.382	F
35	0.323	F	0.382	F	0.411	F	0.440	F
50	0.382	F	0.440	F	0.469	F	0.499	F
70	0.411	F	0.499	F	-	F	0.587	F
95	0.499	F	0.587	F	0.616	F	0.645	F
120	0.528	F	0.616	F	0.675	F	0.731	F
150	0.587	F	0.675	F	0.731	F	0.790	F
185	0.645	F	0.761	F	0.820	F	0.879	F
240	0.731	F	0.879	F	0.937	F	0.996	F
300	0.820	F	0.966	F	1.055	F	1.113	F
400	0.937	F	1.083	F	1.172	F	1.231	F
500	1.055	F	1.231	F	1.348	F	1.406	F
630	1.172	F	-	-	-	-	-	-

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE P3 (Additional)

VARIATION FACTOR FOR ROUND WIRE 'W' STEEL (FeF)
PVC INSULATED 1.1 KV POWER CABLES WITH COPPER/ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in sq. mm)	2 Core	3 Core	3 .5 Core	4 Core
1.5	0.247	0.259		0.288
2.5	0.273	0.289		0.329
4	0.305	0.335		0.363
6	0.348	0.363		0.407
10	0.392	0.407		0.533
16	0.439	0.523	0.014	0.573
25	0.526	0.625	0.664	0.685
35	0.591	0.685	0.729	0.761
50	0.661	0.790	0.864	1.108
70	0.745	1.122	1.200	1.256
95	1.085	1.286	1.376	1.443
120	1.147	1.386	1.479	1.562
150	1.267	1.526	1.684	2.173
185	1.403	2.090	2.315	2.421
240	1.994	2.397	2.641	2.722
300	2.180	2.642	3.670	3.842
400	2.987	3.728	4.126	4.292
500	3.517	4.226	5.958	6.301
630	4.774	6.018	6.737	7.141

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE P4

VARIATION FACTOR FOR ALUMINIUM (AIF)
PVC INSULATED 1.1 KV POWER CABLES WITH COPPER CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	Aluminium Factor for Aluminium armoured cable with copper conductor
4	0.058
6	0.063
10	0.073
16	0.084
25	0.096
35	0.108
50	0.123
70	0.139
95	0.183
120	0.198
150	0.218
185	0.241
240	0.271
300	0.379
400	0.424
500	0.478
630	0.537
800	0.591
1000	0.816

TABLE P5

VARIATION FACTOR FOR PVC COMPOUND (CCFCu)
PVC INSULAYTED CONTROL CABLES WITH COPPER CONDUCTOR

No of cores	Core size 1.5 sq mm		Core size 2.5 sq mm	
	Unarm	Arm	Unarm	Arm
2	0.118	0.121	0.125	0.139
3	0.121	0.131	0.141	0.157
4	0.137	0.152	0.161	0.179
5	0.157	0.174	0.187	0.206
6	0.179	0.199	0.234	0.260
7	0.179	0.199	0.234	0.260
8	0.193	0.215	0.292	0.325
9	0.216	0.241	0.300	0.335
10	0.236	0.262	0.303	0.337
12	0.249	0.277	0.334	0.371
14	0.311	0.327	0.389	0.409
16	0.344	0.362	0.435	0.458
18	0.352	0.371	0.474	0.500
19	0.375	0.395	0.476	0.501
20	0.391	0.412	0.519	0.546
24	0.457	0.481	0.584	0.615
27	0.491	0.517	0.631	0.664
30	0.529	0.557	0.706	0.743
37	0.615	0.647	0.835	0.879
44	0.739	0.778	1.019	1.026
52	0.845	0.889	1.100	1.158
61	0.952	1.002	1.246	1.312

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 2017

TABLE P6

VARIATION FACTOR FOR STEEL (FeF)
PVC INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

No of cores	Core size 1.5 sq mm	Shape of armour	Core size 2.5 sq mm	Shape of armour
2	0.243	W	0.277	W
3	0.257	W	0.289	W
4	0.277	W	0.314	W
5	0.303	W	0.342	W
6	0.329	W	0.379	W
7	0.329	W	0.379	W
8	0.341	W	0.456	W
9	0.383	W	0.275	F
10	0.408	W	0.325	F
12	0.289	F	0.342	F
14	0.306	F	0.360	F
16	0.317	F	0.372	F
18	0.332	F	0.350	F
19	0.343	F	0.397	F
20	0.368	F	0.400	F
24	0.398	F	0.475	F
27	0.414	F	0.478	F
30	0.425	F	0.503	F
37	0.461	F	0.548	F
44	0.507	F	0.601	F
52	0.556	F	0.641	F
61	0.585	F	0.685	F

IEEMA (PVC)/CABLE(R-1)/2017
TABLE P6 (Additional)

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VARIATION FACTOR FOR ROUND WIRE 'W' STEEL (FeF)
PVC INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

No. of Cores	Core size 1.5 sq mm	Core size 2.5 sq mm
2	0.243	0.273
3	0.257	0.289
4	0.277	0.314
5	0.303	0.342
6	0.329	0.379
7	0.329	0.379
8	0.341	0.456
9	0.383	0.508
10	0.408	0.535
12	0.510	0.572
14	0.546	0.625
16	0.581	0.660
19	0.608	0.696
24	0.714	0.819
25	0.679	0.798
27	0.732	0.837
28	0.696	0.815
30	0.758	0.881
33	0.747	0.883
37	0.820	1.217
44	0.926	1.355
48	1.122	1.308
50	1.122	1.308
52	1.149	1.361
56	1.202	1.388
61	1.299	1.520

IEEMA (PVC)/CABLE(R-1)/2017

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TABLE L2

VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)
XLPE INSULATED 1.1 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	1 core	2 core		3 core		3.5 core		4 core	
	Unarm	Unarm	Arm	Unarm	Arm	Unarm	Arm	Unarm	Arm
2.5	0.055	0.163	0.175	0.166	0.177	-	-	0.177	0.188
4	0.075	0.201	0.204	0.205	0.213	-	-	0.218	0.213
6	0.085	0.213	0.234	0.205	0.230	-	-	0.242	0.232
10	0.082	0.252	0.280	0.217	0.251	-	-	0.285	0.298
16	0.089	0.278	0.341	0.289	0.246	-	-	0.300	0.279
25	0.101	0.307	0.278	0.276	0.247	0.295	0.264	0.331	0.290
35	0.109	0.330	0.319	0.305	0.270	0.328	0.292	0.368	0.319
50	0.124	0.482	0.685	0.348	0.311	0.372	0.335	0.422	0.394
70	0.146	0.354	0.335	0.469	0.397	0.489	0.420	0.528	0.464
95	0.163	0.436	0.389	0.504	0.441	0.544	0.471	0.591	0.523
120	0.176	0.475	0.421	0.556	0.498	0.599	0.538	0.722	0.656
150	0.217	0.510	0.490	0.690	0.611	0.717	0.633	0.840	0.762
185	0.236	0.631	0.608	0.836	0.738	0.854	0.756	1.007	0.899
240	0.273	0.750	0.726	1.002	0.842	1.079	0.952	1.238	1.119
300	0.303	0.919	0.887	1.161	1.012	1.170	1.031	1.457	1.414
400	0.372	1.093	1.040	1.376	1.283	1.545	1.379	1.778	1.626
500	0.413	1.342	-	1.568	1.400	1.806	1.456	-	-
630	0.469	1.546	-	-	-	-	-	-	-
800	0.569	-	-	-	-	-	-	-	-
1000	0.667	-	-	-	-	-	-	-	-

IEEMA (PVC)/CABLE(R-1)/2017

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TABLE XL1
VARIATION FACTOR FOR XLPE COMPOUND (XLFAL/XLFCU)
XLPE INSULATED 1.1 KV POWER CABLES WITH COPPER/ALUMINIUM CONDUCTOR

Nominal cross Sectional Area (in Sq. mm)	1 core		2 core		3 core		3.5 core		4 core	
	Unarm	Arm	Unarm	Arm	Unarm	arm	Unarm	Arm	Unarm	arm
2.5	0.007	0.010	0.014	0.014	0.021	0.021			0.028	0.028
4	0.009	0.012	0.018	0.018	0.027	0.027			0.036	0.036
6	0.010	0.015	0.022	0.022	0.033	0.033			0.043	0.043
10	0.013	0.018	0.025	0.025	0.039	0.039			0.053	0.053
16	0.016	0.023	0.034	0.034	0.049	0.049			0.065	0.065
25	0.021	0.030	0.048	0.048	0.070	0.070	0.084	0.084	0.093	0.093
35	0.025	0.035	0.059	0.059	0.084	0.084	0.099	0.099	0.112	0.112
50	0.033	0.044	0.075	0.075	0.108	0.108	0.130	0.130	0.144	0.144
70	0.042	0.054	0.095	0.095	0.137	0.137	0.160	0.160	0.179	0.179
95	0.048	0.062	0.110	0.110	0.160	0.160	0.190	0.190	0.211	0.211
120	0.060	0.076	0.138	0.138	0.200	0.200	0.239	0.239	0.266	0.266
150	0.078	0.095	0.180	0.180	0.259	0.259	0.296	0.296	0.344	0.344
185	0.097	0.116	0.224	0.224	0.324	0.324	0.369	0.369	0.430	0.430
240	0.116	0.137	0.266	0.266	0.388	0.388	0.446	0.446	0.518	0.518
300	0.138	0.164	0.325	0.325	0.467	0.467	0.540	0.540	0.620	0.620
400	0.175	0.214	0.357	0.357	0.536	0.536	0.619	0.619	0.714	0.714
500	0.217	0.260	0.440	0.440	0.660	0.660	0.769	0.769	0.880	0.880
630	0.265	0.318	0.542	0.542	0.814	0.814	0.941	0.941	1.085	1.085
800	0.323	0.389								
1000	0.375	0.444								

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 2017

TABLE XL2
VARIATION FACTOR FOR XLPE COMPOUND (XLFCU)
XLPE INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

No of cores	Core size 1.5 sq mm		Core size 2.5 sq mm	
	Unarm	Arm	Unarm	Arm
2	0.010	0.010	0.012	0.012
3	0.016	0.016	0.018	0.018
4	0.021	0.021	0.025	0.025
5	0.026	0.026	0.031	0.031
6	0.031	0.031	0.037	0.037
7	0.036	0.036	0.043	0.043
8	0.036	0.036	0.043	0.043
9	0.042	0.042	0.049	0.049
10	0.052	0.052	0.061	0.061
12	0.062	0.062	0.074	0.074
14	0.073	0.073	0.086	0.086
16	0.083	0.083	0.098	0.098
18	0.094	0.094	0.110	0.110
19	0.099	0.099	0.116	0.116
20	0.104	0.104	0.123	0.123
24	0.125	0.125	0.147	0.147
27	0.140	0.140	0.165	0.165
30	0.156	0.156	0.184	0.184
37	0.192	0.192	0.227	0.227
44	0.229	0.229	0.270	0.270
52	0.270	0.270	0.319	0.319
61	0.317	0.317	0.374	0.374

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 2017

TABLE XL3

VARIATION FACTOR FOR XLPE(XLFAL/XLFCU)

SINGLE CORE ARMoured /UNARMoured XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH
CU / AL CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm.)	XLPE Factor for Armoured/ Unarmoured Cable with AL /CU Conductor					
	3.3 KV	6.6 KV (E)	11 KV (E)/ 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
25	0.110	0.131	0.170	0.279		
35	0.122	0.137	0.175	0.284	0.317	0.522
50	0.135	0.151	0.191	0.307	0.341	0.563
70	0.155	0.172	0.215	0.342	0.379	0.615
95	0.174	0.193	0.241	0.377	0.417	0.670
120	0.192	0.212	0.262	0.407	0.449	0.713
150	0.209	0.229	0.283	0.437	0.481	0.757
185	0.228	0.250	0.308	0.471	0.518	0.809
240	0.255	0.279	0.343	0.519	0.569	0.883
300	0.280	0.322	0.372	0.560	0.613	0.943
400	0.326	0.392	0.420	0.625	0.683	1.041
500	0.388	0.461	0.469	0.694	0.757	1.142
630	0.467	0.520	0.529	0.777	0.845	1.265
800	0.567	0.593	0.602	0.874	0.949	1.407
1000	0.656	0.665	0.660	0.955	1.036	1.525

Note : XLPE factors include Semicons for Conductor & Insulation screen

TABLE – XL4

VARIATION FACTOR FOR XLPE (CCF1AL / CCF1Cu)

3 CORE XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	3.3 KV ARM	6.6 KV (E) ARM	6.6 KV (UE) / 11 KV (E) ARM	11 KV (UE) ARM	22 KV (E) ARM	33 KV (E) ARM
25	0.315	0.394	0.511	0.838		
35	0.339	0.427	0.545	0.880	0.982	1.638
50	0.378	0.474	0.600	0.957	1.065	1.751
70	0.435	0.541	0.679	1.067	1.183	1.916
95	0.489	0.604	0.755	1.171	1.295	2.071
120	0.537	0.661	0.822	1.265	1.396	2.210
150	0.585	0.719	0.890	1.359	1.497	2.350
185	0.642	0.784	0.968	1.468	1.614	2.513
240	0.717	0.873	1.074	1.615	1.773	2.732
300	0.781	1.006	1.167	1.744	1.928	2.919
400	0.886	1.227	1.314	1.948	2.130	3.229
500	0.956	1.421	1.445	2.148	2.381	3.538
630	1.129	1.582	1.609	2.382	2.630	3.940

Note : XLPE factors include Semicons for Conductor & Insulation screen

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE H1
VARIATION FACTOR FOR ALUMINIUM (AIF)
ALUMINIUM ARMoured SINGLE CORE XLPE INSULATED 3.3 TO 33 KV CABLES

Nominal Cross Sectional Area (in Sq. mm.)	Aluminium Factor for Aluminium Armoured Cable with Aluminium Conductor					
	3.3 KV	6.6 KV (E)	11 KV (E)/ 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
35	0.251	0.284	0.301	0.344	0.358	0.473
50	0.312	0.336	0.352	0.397	0.408	0.672
70	0.385	0.409	0.423	0.469	0.501	0.723
95	0.476	0.500	0.518	0.637	0.656	0.856
120	0.561	0.586	0.601	0.726	0.744	0.949
150	0.653	0.678	0.696	0.823	0.842	1.050
185	0.773	0.797	0.893	0.949	0.965	1.183
240	0.997	1.063	1.083	1.139	1.154	1.387
300	1.209	1.271	1.283	1.333	1.307	1.753
400	1.438	1.556	1.565	1.620	1.636	2.046
500	1.873	1.901	1.910	2.110	2.128	2.484
630	2.337	2.361	2.369	2.580	2.595	2.978
800	3.007	3.071	3.080	3.145	3.163	3.588
1000	3.737	3.741	3.749	3.804	3.822	4.565

TABLE H2
VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)
3 CORE XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	3.3 KV ARM	6.6 KV (E) ARM	6.6 KV (UE) / 11 KV (E) ARM	11 KV (UE) ARM	22 KV (E) ARM	33 KV (E) ARM
35	0.374	0.990	1.142	1.604	1.782	-
50	0.445	1.119	1.260	1.834	2.046	2.864
70	0.547	1.290	1.396	2.011	2.284	3.219
95	0.594	1.440	1.647	2.269	2.428	3.367
120	0.732	1.692	1.877	2.498	2.715	3.646
150	0.812	1.906	2.061	2.767	2.931	3.927
185	0.960	2.086	2.406	3.028	3.180	4.166
240	1.130	2.484	2.744	3.398	3.580	4.589
300	1.219	2.912	3.161	3.840	4.016	5.029
400	1.313	3.530	3.664	4.353	4.666	5.736
500	1.652	3.925	3.971	4.621	4.878	5.913
630	1.949	4.487	4.982	5.225	5.477	6.696

Fillers added in PVC consumption

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE H3
VARIATION FACTOR FOR STEEL (FeF)
XLPE INSULATED 3.3 TO 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area Sq. mm.	3.3 KV	6.6 KV (E)	11 KV (E) / 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
25	0.551	0.604	0.656	0.814		
35	0.645	0.645	0.731	0.879	0.937	-
50	0.675	0.703	0.761	0.937	0.966	1.181
70	0.761	0.761	0.849	0.996	1.055	1.289
95	0.820	0.849	0.907	1.083	1.113	1.348
120	0.879	0.907	0.966	1.142	1.172	1.406
150	0.966	0.966	1.055	1.201	1.259	1.494
185	1.025	1.055	1.113	1.259	1.318	1.553
240	1.142	1.142	1.231	1.377	1.406	1.641
300	1.231	1.259	1.318	1.465	1.524	1.758
400	1.348	1.406	1.435	1.582	1.641	1.876

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1st November 217

TABLE H4
VARIATION FACTOR FOR ALUMINIUM (AIF)

XLPE INSULATED SINGLE CORE 3.3 TO 33 KV POWER CABLES WITH COPPER CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm.)	Aluminium Factor for Aluminium Armoured Cable with Copper Conductor					
	3.3 KV	6.6 KV (E)	11 KV (E)/ 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
35	0.153	0.187	0.204	0.247	0.258	0.372
50	0.179	0.203	0.220	0.262	0.275	0.425
70	0.196	0.219	0.233	0.278	0.311	0.444
95	0.213	0.237	0.254	0.373	0.392	0.470
120	0.228	0.253	0.268	0.393	0.410	0.488
150	0.243	0.269	0.287	0.414	0.432	0.504
185	0.261	0.285	0.381	0.437	0.455	0.526
240	0.324	0.389	0.410	0.465	0.480	0.556
300	0.365	0.428	0.440	0.490	0.510	0.737
400	0.432	0.471	0.480	0.536	0.552	0.783
500	0.489	0.517	0.526	0.726	0.744	0.844
630	0.544	0.568	0.572	0.787	0.801	0.902
800	0.706	0.787	0.797	0.862	0.880	0.982
1000	0.824	0.865	0.867	0.923	0.940	1.324

TABLE - H5
VARIATION FACTOR FOR STEEL (FeW)

XLPE INSULATED 3.3KV TO 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area in Sq. mm	3.3/3.3 KV	3.3/6.6 KV	11 KV (E) / 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
25	1.258	1.457	1.612	2.509	1.503	--
35	1.361	1.569	1.853	2.644	2.797	2.517
50	1.682	1.687	2.321	2.800	2.921	4.569
70	2.033	1.979	2.503	3.219	3.347	4.809
95	2.202	2.507	2.718	4.019	4.200	5.437
120	2.371	2.675	2.882	4.241	4.416	6.713
150	2.870	2.847	3.265	4.447	4.621	6.976
185	3.121	3.309	4.148	4.726	5.289	7.356
240	3.758	4.227	4.442	5.442	6.651	7.718
300	4.099	5.024	5.182	6.894	7.084	8.187
400	5.750	6.572	6.658	7.433	7.657	8.760
500	6.716	6.777	6.861	7.588	7.797	8.830
630	7.492	7.465	7.477	8.209	8.386	9.413

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (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 _____¹ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at _____² hereinafter referred to as the ' Vendor / Contractor / Supplier ', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank 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 any sum or sums upto a maximum amount of Rs -- -----⁶ (Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

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 Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, 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 Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We thebank 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/satisfactory completion of the performance guarantee period as per the terms of the 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.

WeBANK 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 Vendor / 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 Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / 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 Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including.....⁷ 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 Vendor / 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 the⁸we 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.....⁶
- b) This Guarantee shall be valid up to⁷
- c) Unless the Bank is served a written claim or demand on or before⁸ 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.....

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)/ Contractor (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 (to be reckoned from date of bid submission) with any other company in any country conforming to the anti-corruption approach in India that could justify his exclusion from the tender process. The date of such transgression, for the purpose of disclosure by the bidders in this regard, would be the date on which cognizance of the said transgression was taken by the competent authority. The transgression(s), for which cognizance was taken even before the said period of three years, but are pending conclusion, shall also be reported by the bidders.
- 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 Suspension 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 a joint venture, all the partners of the joint venture should sign the Integrity Pact. In case of Sub-contracting, the Principal Contractor shall be solely responsible for the adherence to the provisions of IP by the sub-contractor(s).
- 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 on receipt of any complaint by them from the bidder(s).
- 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 /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.

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- 8.5 The role of IEM is advisory and the advice of IEM is non-binding on the Organization. However, as IEMs are invariably persons with rich experience who have retired as senior functionaries of the government, their advice would help in proper implementation of the IP.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of the tendering process, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an examination, and submit their joint recommendations to the Management. In case the full panel is not available due to some unavoidable reasons, the available IEM(s) will conduct examination of the complaints. Consent of the IEM(s), who may not be available, shall be taken on record.
- 8.7 The IEMs shall examine all the representations/grievances/ complaints received by them from the bidders or their authorized representative related to any discrimination on account of lack of fair play in modes of procurement and bidding systems, tendering method, eligibility conditions, bid evaluation criteria, commercial terms & conditions, choice of technology/ specifications etc.
- 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 Principal 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.
- 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. 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.

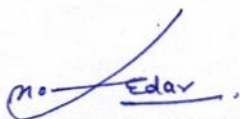
Section 10 - Other Provisions

- 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.

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- 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. If required, the Principal may adopt any mediation rules for this purpose. However, not more than five meetings shall be held for a particular dispute resolution. The fees/expenses on dispute resolution shall be equally shared by both the parties. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as per the terms & conditions of the Contract.



For & On behalf of the Principal **कुमार**
 (Office Seal) **Manoj Kumar**
 वरि. प्रबंधक (क्रय-बी.ओ.आई.)
 Sr. Manager (Purchase- BOI)
 Place **BHEL, Ranipur, HARIDWAR**
 Date _____

Witness: **यशपाल**
 (Name & Address) **यशपाल**
प्रबंधक (क्रय-बी.ओ.आई.)
Manager (Purchase-BOI)
बी.एच.ई.एल., हीप हरिद्वार
BHEL, HEEP, HARIDWAR

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

Witness: _____
 (Name & Address) _____



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version Jun-2025, Rev: 08)

Annexure-3

Declaration for treatment of cases regarding conflict of interest

The bidder notes that a conflict of interest would said to have occurred in the tender process and execution of the resultant contract, in case of any of the following situations:

- a) If its personnel have a close personal, financial, or business relationship with any personnel of BHEL who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of BHEL directly or indirectly;
- b) The bidder (or his allied firm) provided services for the need assessment/ procurement planning of the Tender process in which it is participating;
- c) Procurement of goods directly from the manufacturers/suppliers shall be preferred. However, if the OEM/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 both the manufacturer/ supplier and the agent, bid received from the agent shall be ignored. However, this shall not debar more than one Authorized distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under a Proprietary Article Certificate.
- d) A bidder participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of an entity as a sub-contractor in more than one bid if he is not bidding independently in his own name or as a member of a JV.

The Bidder declares that they have read and understood the above aspects, and the bidder confirms that such conflict of interest does not exist and undertakes that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s), in this regard. 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, the same will be considered as a violation of the tender conditions, and suitable action shall be taken by BHEL as per extant policies/ guidelines.

(Signature of the authorized signatory of the bidder)

DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017- REVISION
DATED 19TH JULY, 2024 AND SUBSEQUENT ORDER(S)

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,
(Write Name & Address of Officer of BHEL inviting the Tender)
Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 19th July, 2024 and subsequent order(s).

Ref: 1) Tender Enquiry No:

2) All other pertinent issues till date

We hereby certify that the items offered by (specify the name of the organization here) has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017Revision dated 19.07.2024 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| ... | |

Thanking you,
Yours faithfully,

(Signature, Date & Seal of Authorized Signatory of the Bidder)

** - Strike out whichever is not applicable.

Note:

1. Bidders to note that above format, duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.