

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

DUE DATE

27.10.2025

BY 03:30 PM

Dear Sir/ Ma'am

Subject: Open tender Enquiry for "LT PVC Control Cable" for 3X800 MW PVUNL PATRATU TPP PHASE-I project

BHEL invites your offers for **LT PVC Control Cable** for scope as described in the various sections of the technical specification for **3X800 MW PVUNL PATRATU TPP PHASE-I project**.

Your offer shall be submitted in two parts strictly as per Clause-2.0 of the "Instructions to Bidders" of GCC Rev. 07, in sealed cover for the below mentioned equipment/system.

Item Description – LT PVC Control Cable			
Sl. No.	Project	TECHNICAL SPECIFICATION	Delivery completion schedule
1	3X800 MW PVUNL PATRATU TPP PHASE-I	PE-TS-434-507-E015, REV NO. 0	As per Documentation Requirement of Technical Specification

Your best quotation/offer for the above requirement, in line with tender terms and conditions, should be submitted **online via e-procurement system (NIC portal)**. It shall be the responsibility of the bidder to ensure that the tender is submitted **on or before the due date by 03:30 PM**. Part-I (techno-commercial) bids shall be opened at **05:00 PM on due date**.

Bidders to note that detailed tender documents have been uploaded on following website: -

<https://eprocurebhel.co.in>

Bidders are requested to upload their best offer on <https://eprocurebhel.co.in> only. In case bidders are not interested to quote, please send us the regret by e-mail or letter.

ENQUIRY TERMS AND CONDITIONS:

- Bidders who are participating in this tender please note that GeM seller ID is mandatory before placement of order.
- Offers should be submitted/uploaded separately in two parts **online through e-procurement system** as follows:

Part-I: TECHNO-COMMERCIAL BID

Part-II: PRICE BID

For detailed instructions, please refer GCC Rev 07- Instructions to Bidders & Corrigenda to GCC Rev. 07.

- Bidders shall submit their offers meeting the requirements of the following tender documents indicated in BHEL PEM GCC Rev- 07, Corrigenda to GCC Rev. 07 and other Terms and Conditions included in this Enquiry Letter. Web link of GCC Rev 07 shall be as below, **bidders may download the GCC Rev 07 from the given web link and go through the same before quoting: -**

<https://pem.bhel.com/Documents/GCC/GCCRev07.pdf>

<https://pem.bhel.com/gcc.aspx>

Nitish Manu /Manager/PG-II
PS-Project Engineering Management,
3rd Floor, New Building, BHEL,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
Phone: +91-9999891162

Regd. Office
BHEL House Siri Fort
New Delhi-110049

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

4. Bidders to note that following form the part of tender documents:
 - a. Enquiry terms & conditions (NIT)
 - b. Technical PQR
 - c. Special Conditions of Contract (SCC Rev. 0) of Project.
 - d. General Conditions of Contract (GCC) Rev 07 & corrigenda to GCC Rev. 07 comprising of: **Instructions to Bidders (ITB) and General Commercial Terms & Conditions (GCTC)**
 - e. Technical Specifications & BOQ
5. Any hidden conditions/deviations mentioned elsewhere in offer and standard pre-printed terms & conditions of the tenderers shall not be considered valid.
6. Tenders shall be submitted strictly in accordance with the requirements of the above-mentioned tender documents. Deviations (Technical as well as Commercial), if any, shall be listed out separately in Annexure-II of GCC Rev-07 along with reasons for taking such deviations in the bidding format in E-Procurement portal (NIC portal). Any deviations (Technical as well as Commercial) not mentioned in the Annexure-II shall not be considered. Bidders to note all the points mentioned in "Notes" of Annexure-II of GCC Rev.07.
7. Bidder has to submit "NO DEVIATION CERTIFICATE FOR COMMERCIAL TERMS AND CONDITIONS as per General Conditions of Contracts (GCC, Rev.07), Special Conditions of Contract and Notice Inviting Tender (NIT)" in case of no deviations.
8. Unsolicited fresh/revised bids shall not be entertained.
9. If any bidder has mentioned the term "Not Applicable" / "not required" / "not quoted" in BHEL price format, the same to be substantiated by the bidder. If such item is required to be supplied for system completion in future, same will be supplied free of cost by the successful bidder.
10. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/all tender(s) in part or full without assigning any reason whatsoever.
11. Tenderers must enclose the Quality Plan in the prescribed format, for approval. Equipment will be dispatched only after Purchaser's/Owner's inspection of the hold points specified in the approved Quality Plan and issue of Material Dispatch Clearance Certificate (MDCC).
12. Offers should be submitted separately in two parts online through e-procurement system only (NIC portal), however, all correspondence thereof, shall be addressed to the following persons and sent at the following address:

Mr. Nitish Manu
Manager, PG-II
E-mail: nitishmanu@bhel.in
Mob: 9999891162

Mr. Ashish Kumar Gupta
Sr. Manager, PG-II
E-Mail: ashishkumargupta@bhel.in
Mob: 9873412410

M/s. Bharat Heavy Electricals Ltd.,
Project Engineering Management,
3rd Floor, New Building, BHEL, Plot No 25, Sector-16A, Noida-201301, U.P., INDIA

13. Evaluation shall be done on Total Cost to BHEL basis excluding GST.
14. Package is divisible in nature.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

15. Integrity Pact : Integrity pact is not applicable for subject package.

16. **Govt. of India's Public Procurement Policy – Preference to 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), (PPP-MII) Order 2017 dt. 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”.

a) **Eligibility of Suppliers: only Class I Local Suppliers are eligible to quote against this tender.**

b) **Minimum Local Content required for qualifying a bidder as "Class I Local Supplier": 60%**

c) The local supplier at the time of tender, bidding or solicitation shall be required to provide a certificate w.r.t. minimum local content, in accordance with para 9 of PP-MII order revision dated 16.09.2020.

d) In accordance with para 9 (a) of DPIIT's PP-MII order 2017 revision dated 04/06/2020, " Class I Local Suppliers/ ~~Class II Local Supplier~~" at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for the " Class I Local Suppliers/ ~~Class II Local Supplier~~". They shall also give details of the location(s) at which the local value addition shall be made.

The package is divisible in nature.

17. Bidder to note that this is a conditional Open tender enquiry subject to following conditions: -

- a. Qualification of Technical and/or Financial PQR as applicable.
- b. Techno-commercial compliance to the NIT (Bid).
- c. Mandatory conformance to applicable Govt. of India rules/ guidelines/ notifications/ circulars as issued or amended time to time.
- d. Techno-commercial approval of bidder by BHEL / customer for which documents as asked by BHEL/customer to be submitted by bidder.
- e. Approval of bidder by Customer: - Approval shall be taken up by BHEL with end customer-based on the credentials / reference list. Hence, Bidders to submit the following (as part of their credentials) along with their offer
 - Sub-vendor questionnaire along with all the supportive documents against details furnished therein (signed & stamped on each page). Format enclosed with bid documents.

18. Compliance of model clauses as provided in Annexure-III of Ministry of Finance Order (Public Procurement No. issued on 23.07.2020 (Restrictions under Rule 144 (xi) of the GFR,2017) shall be applicable for subject tender. Model Certificates provided in same Annexure-III shall also be complied. Further, relevant clause of order no. 25-11/6/2018-PG dated 02.07.20 issued by MoP shall also be complied. An undertaking

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

regarding Model Clauses (as applicable from Annexure-III) shall be furnished by bidders along with bid documents.

19. CIF is not available for this package.
20. For bidders (who are not registered with BHEL-PEM) -Online Registration Portal is operational in BHEL. Registration in BHEL-PEM is not mandatory for this tender. However, Non-registered Vendors, who wish to apply for registration with BHEL-PEM, can apply through Online Registration Portal available at www.bhelpem.com → vendor section → Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration may be uploaded on the website and submit the application for registration.
21. All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on BHEL website only ([https:// eprocurebhel.co.in](https://eprocurebhel.co.in)) under subject tender reference. Bidders are requested to visit our website from time to time to keep themselves updated. Bidders may go through the Sellers' manual & Help documents provided on E-Procurement Portal website & obtain required Digital Signature Certificate for participating in the subject Tender. For Bidders' convenience, the Helpdesk Nos. of E-Procurement (NIC) Portal is available at website i.e. <https://eprocurebhel.co.in>.
22. If any bidder uploads price bid in the unpriced section (techno-commercial attachment page) of the tender in e- Procurement (NIC portal), in that case bidder(s) shall only be responsible for such mistake and any consequences thereof. Hence all bidders are requested to be more careful at the time of uploading the Unpriced and Price Bid for Part-I and Part-II respectively to avoid mismatch.
23. Bidders to note that "This item /package/system falls under the list of items defined in para 3 of ministry of finance guideline dated 20.09.16 (procurement of items related to public safety, health, critical security operations and Equipment etc.) & hence criteria of prior experience /turnover shall be same for all bidders including start-up /MSME".
24. PVC shall be applicable for this enquiry as per formulae enclosed with technical specification. The price variation shall be limited to +20% of total ex-works price actually supplied (cable size wise) and -ve price variation shall be unlimited.
25. Overall (%) variation in contract values (due to changes in the scope) shall be up to (-) 30% to (+) 30% of the total contract value", same shall supersede quantity variation in Cl. 6.0 of GCTC of GCC Rev. 07.
26. **Delivery & Payment terms:**

SCOPE	DELIVERY	PAYMENT TERM
Main Supply	<p>Delivery completion for Main supply shall be 150 days from the PO date.</p> <p>Delivery completion for Subsequent lot (for Quantity Variation) shall be 120 days from BHEL Clearance.</p>	As per Clause 9.1.1 of GCTC of GCC Rev. 07

27. **Guarantee Period:** Guarantee Period shall be as per clause no. 12 of General Commercial Terms & Conditions (GCTC) of GCC Rev. 07.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

28. Performance Security:

Supplier may opt any of the following for submission of Performance Security: -

28.1.1: Initially 10% of the contract value (Total Order value excluding PVC). 5% of the contract value (excluding PVC) will be released after completion of Main Supply based on certification by PG. However, balance 5% of the contract value (excluding PVC) will be released on completion of all contractual obligations, including guarantee/warranty obligations based on certification by PG.

Or

28.1.2: 5% of the contract value (total Order value excluding PVC). Additional 5% of the contract value (excluding PVC) will be deducted & retained from first bill & subsequent bill(s) of the same contract (in case the value of first bill is less than 5% of the contract value). The retention amount will be released after completion of Main Supply based on certification by PG. However, balance 5% of the contract value (excluding PVC) will be released on completion of all contractual obligations, including guarantee/warranty obligations based on certification by PG.

28.2: Modes of Deposit: Supplier has to furnish Performance Security 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.

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.

28.3: Performance Security is to be furnished within 14 days from the date of PO/LOA 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. Initial validity of Performance Security shall be as per NIT. However, Performance Security validity is to be extended based on the actual delivery of package.

Initial performance security (PBG) validity: 25 months from PO date

However, Performance Security validity is to be extended based on the actual delivery of package.

28.4: Performance Security value can be proportionately reduced after completion of Guarantee Period Unit-wise/ Stage-wise/Set-wise/Scope/Lot wise (Main Supply/Mandatory spares/Services excluding PG test) subject to the units/sets/stages/Scope/Lot (Main Supply/Mandatory spares) being explicitly specified in delivery terms in the contract. However, project wise Performance Security for the last unit/set/stage will be released only after completion of all contractual liability or guarantee period, whichever is later.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

28.5 Forfeiture and Release/Return of Performance Security:

- a) The Performance Security will be forfeited and credited to BHEL's account in the event of a breach of contract by the Supplier.
- b) Performance Security shall be refunded to the Supplier without interest, after he duly performs and completes the contract in all respects but not later than 60 (Sixty) days of completion of all such obligations including guarantee/warranty under the contract.
- c) The Performance Security shall not carry any interest.

Note - In case of BG from private banks, a clause shall be incorporated in the text of bank guarantee that it can be enforced by being presented at any branch of the bank located in the Delhi-NCR.

This clause shall prevail over clause no. 11.0 of GCTC of GCC rev 07.

29. Earnest Money Deposit: EMD is not applicable

30. Validity of contract (PO rates, terms and conditions): Vendor has to make supply of goods/services as per the delivery time mentioned above. However, due to unavoidable circumstances if delay happens in providing inputs/ clearances (inputs, Engineering approvals, deputing inspector for inspection, issuance of MDCC and any hold imposed owing to site issues etc.) for which delivery time extension is admissible, in such situation it shall be obligatory at vendor part to execute the contract at PO rates, terms and conditions where inputs/ clearances has been accorded within validity of contract. Validity period for various activities shall be as defined below or as mentioned in the NIT.

30.1. Validity of the contract for main supply including quantity variation.

Contract shall be valid for 540 days (C days) from the PO date. However, delay at Supplier's end (if any) shall be added to the validity period and contract validity shall get extended by the delay period at Supplier's end.

For example: Original Delivery period for main supply: A (in days)

Delay at Supplier's end: B (in days beyond "A" days)

Contract validity: C+B (in days) where C is 540 days

Supplier to note that B is the Supplier delay days beyond original contractual delivery period for main supply /extended delivery period owing to time taken by BHEL.

Notes:

- a. Main supply including quantity variation, released/ cleared for manufacturing within contractual validity period, to be supplied by vendor/supplier at PO rates, terms and conditions.
- b. Execution of the contract quantities released beyond contract validity period shall be decided on mutual consent basis at PO rates, terms and conditions.

31. Delivery Extension: Extension of contractual delivery time:

Delivery time mentioned in the NIT includes Engineering completion time (time for drawing/document submission/resubmission by the vendor and review/approval of the same by the BHEL/End customer), manufacturing, inspection, Packing and dispatch time. Due diligence is to be observed by the vendor to ensure timely completion of engineering and supply.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

During the execution of the contract, time loss occurred owing to the reason attributable to BHEL besides force majeure shall be considered for delivery time extension to the vendor as given below:

- I. Any Delay in providing comments/ approval on Primary drawing/documents beyond the stipulated time as specified in NIT.
- II. Time Loss in approval of the drawing/document as a result of increase in the iteration not attributable to the vendor (i.e. resubmission owing to end customer comments) as certified by BHEL. Time extension equivalent to the resubmission time noted in the tech. spec and consequential increase in the approval time in lieu of increase in iteration shall be applicable. However, for incomplete re- submission time loss shall be in vendor account.
- III. Delay in providing engineering input/material by BHEL.
- IV. Delay in deputing inspector for inspection and delay in release of MDCC in line with GCC Rev 07 terms.
- V. Any hold put by BHEL for whatever reasons during execution of contract (within contract validity period), time extension equivalent to hold period shall be admissible. However, in the event hold period continues for more than 30 days then, an additional fifteen days for the purposes of mobilization and demobilization of resources shall also be admissible.

Note: Extension in delivery period if any with or without imposition of LD shall be considered after detailed delay analysis based on provisions given above. However, no delay analysis will be applicable if supply is completed within delivery schedule as specified in Purchase order.

32. Evaluation Conditions: (Reverse Auction) -BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking. "Vendors to note that above RA clause will supersede clause no 13 of "Instruction to Bidders" of GCC Rev 07".

33. Liquidated Damages:

33.1 Supply : Buyer reserves the right to recover from the Supplier, as agreed liquidated damages and not by way of penalty, a sum equivalent to half ($\frac{1}{2}$) percent of the undelivered portion of main supply contract value excluding GST per week or part thereof, subject to a maximum of ten (10) percent of the total of main supply contract price excluding GST, if the Supplier fails to deliver any part of the ordered goods/stores within the period stipulated in the Order/ Contract.

33.2 In case of any amendment/ revision, LD shall be linked to the amended/ revised contract value and delivery date(s).

33.3 LR/RR date for indigenous supplies shall be treated as the date of dispatch for delay analysis and levying LD. Deduction of LD from vendor bills shall be on proportionate basis. However, it shall be vendor's responsibility to ensure material receipt at site for indigenous supply within maximum validity of E-way bill as per extant Government GST law.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

33.4 If Order/ Contract involves two or more Units/ Sets/lots/Stages, then Liquidated Damages shall be levied on order/ contract value excluding GST for undelivered portion of the delayed Unit/ Set/ Stage, provided delivery stipulated in the Order/ Contract is Unit/ Set/ Stage/Lot wise and total LD amount shall be limited to 10% of total Order/ amended Order value excluding GST of delayed Unit/ Set/ Stage/ Lot.

33.5 The sum specified above is not a penalty but a genuine pre-estimate of the loss/ damage which will be incurred by the Buyer directly or indirectly on account of delay in delivery of material/equipment/services on the part of the Supplier and the said amount will be deductible without proof of actual loss or damage caused by such delay.

"Supplier to essentially quote prices against each line item of the BOQ in the respective columns. 'NIL', 'Free of Cost', 'Zero' etc. shall not be mentioned for any line item of the BOQ. In such case, Liquidated Damages shall be levied on the Total order/ contract value instead of undelivered portion of the Order/ contract. Also, if price of any line item (X) is mentioned 'Included' in any other line item (Y), then in case of delay in delivery of item (X), LD shall be applicable on value of item (Y)."

34. Breach of Contract, Remedies and Termination:

In case of Breach of Contract, BHEL shall recover 10% of the contract value from the Supplier using following instruments:

- (i) encashment of security instruments like EMD, Performance Security with PEM against the said contract.
- (ii) balance amount (if value of security instruments is less than 10% of the contract value) from other financial remedies i.e. available bills of the Supplier, retention amount etc. with PEM.
- (iii) balance amount from security instruments like EMD, Performance Security and other financial remedies i.e. available bills of the Supplier, retention amount etc. with other units of BHEL.
- (iv) Any other mode as deemed fit by the Buyer at its sole discretion.
- (v) if recovery is not possible then legal remedies shall be pursued.

However, Supplier shall continue performance of the Order/ Contract, under all circumstances, to the extent not cancelled.

35. CONFLICT OF INTEREST:

"Bidders having a conflict of interest shall not be eligible to participate in the tender process. In this regard, declaration as per 'Annexure A' duly signed by authorised signatory of the bidder is to be mandatorily provided by the bidder along with the bid.

(Note: Authorised Signatory should be either Board member/owner of the firm or person authorised for signing by board/owner of the firm)"

36. 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.

Type under MSE	SC/ST Owned	Women Owned	Others excluding SC/ST& Women Owned)
Micro			
Small			

Note: If the bidder does not furnish the above in the tender, offer shall be processed construing that the bidder is not falling under MSE category.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

37. Detailed offers are to be uploaded including the following along with the Price schedule as per BHEL format enclosed with NIT:

- Acceptance of BHEL-PEM GCC (Rev.-07) & Corrigenda to GCC Rev. 07
- Acceptance of Special Conditions of Contract (SCC Rev. 0) for the project
- Technical & Commercial Deviations if any along with Cost of withdrawal in Annexure-II of GCC Rev 07
- Technical Pre-Qualifying Requirement (Tech PQR)
- Along with your offer, please submit a copy of this letter duly signed & stamped on each page as token of acceptance of terms & instructions conveyed
- Un-Priced price format duly filled in 'Quoted' or 'Q' in each column/row.
- Filled Format of Certification reg. Local content
- Land Border
- Declaration for conflict of interest

All the above Tender Documents shall automatically become a part of the Order/Contract after its finalisation.

Please note that all correspondence from BHEL-PEM before Part-I opening shall also be part of NIT.

Thanking You

Yours faithfully,
For and on behalf of BHEL-PEM

Nitish Manu
(MANAGER/PG-II/BHEL PEM)

Enclosures:

1. Technical Specification No. **PE-TS-434-507-E015, REV NO. 0**
2. Technical PQR
3. Conflict of interest – Declaration (Annexure-A)
4. Drawing / Document schedule (Annexure-B)
5. Format of Certification reg. Land Border (Annexure-C)
6. Format of Certification reg. Local Content (Annexure-D)
7. Commercial compliance (Annexure-E)
8. Unpriced format (Annexure-I)
9. Unpriced Deviation schedule (Annexure-II)
10. SCC Rec. 0

Annexure-A
(on Letter head of Company/Firm)

Ref......

Date.....

To,
Bharat Heavy Electricals Limited
PEM, BHEL Sadan, Plot No 25,
Sector -16A, Noida (UP)-201301

Subject: - Conflict of interest – Declaration

Reference (s):

Bid No.:

Name of Package: LT PVC Control Cable
Project: 3 x 800 MW PVUNL PATRATU TPP PHASE-I

Dear Sir/Madam,

I...(Name)..., (Designation).... on behalf of M/s.... (Name of the bidding company/firm)
.... - the authorised signatory of the reference bid, hereby submit the declaration as below.

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:

- i) 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;
- ii) The bidder (or his allied firm) provided services for the need assessment/ procurement planning of the Tender process in which it is participating;
- iii) 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 Authorised distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under a Proprietary Article Certificate.
- iv) 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

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

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.

Yours truly


..... (Authorised Signatory)

..... (Firm name)

Note: Authorised Signatory should be either Board member/owner of firm or person authorised for signing by board/ owner of the firm. In case the authorised signatory is other than board/owner of the firm, then authorisation letter from the board/owner of the firm is also to be enclosed.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

Annexure-B (Drawing/Document schedule)

	3 X 800 MW PATRATU STPS TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	PE-TS- 434-507-E015
		Issue No: 01
		Rev. No. 00
		Date :22.11.2024
DOCUMENTATION REQUIREMENT		

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY ALL THE BIDDERS ALONG WITH THE BID	
Sl. No.	DOCUMENT TITLE
1	PQR CREDENTIALS
2	COMPLIANCE SHEET

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT ALONG WITH SUBMISSION SCHEDULE					
Sl. No.	DOCUMENT TITLE	SUBMISSION SCHEDULE			
		Vendor submission (Days)*	BHEL Comment (Days)	Vendor submission (Days)#	BHEL & Customer comment/ approval (Days)
I	Primary documents				
1	Datasheet and Cross Section Drawings for Control Cable	7	3	2	18
2	QAP for Control cables	7	3	2	18
II	Secondary documents				
1	Type Test Report for Control cable	7\$	3	2	18
NOTES:					
a) * 1st submission within indicated days from date of purchase order.					
b) # Submission (within indicated days) after incorporating all BHEL comments.					
c) Primary documents shall be considered for Delay analysis					
d) \$: 1st submission within indicated days from the date of purchase order (in case Type Test reports are availableY from the date of conduction of test.					

DRAWINGS & DOCUMENTS TO BE SUBMITTED AS FINAL/AS-BUILT DOCUMENT	
Sl. No.	DOCUMENT TITLE
1	APPROVED DOCUMENTS
2	APPROVED QUALITY PLAN.
3	ALL TEST CERTIFICATES

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

Annexure-C

(Letter head of Company)

Bid No. & Date _____

Ref.....

Date.....

To,
Bharat Heavy Electricals Limited
PEM, PPEI Building, Plot No 25,
Sector -16A, Noida (U.P)-201301

Subject: - DECLARATION REGARDING LAND BORDER

Dear Sir,

This has reference to: -

1. Our offer for Supply of **LT PVC Control cable** package for **3X800 MW PVUNL PATRATU TPP PHASE-I** against above mentioned Tender.
2. Order dated 23.07.2020 reg. restriction under rule 144 (xi) of GFR issued by Ministry of Finance, Department of Expenditure Public Procurement Division.

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I hereby certify that **M/s**, is not from such a country and is eligible to be considered.

Thanking you,

Sign & Signature (Not below Director/owner of the company)

Nitish Manu /Manager/PG-II
PS-Project Engineering Management,
3rd Floor, New Building, BHEL,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
Phone: +91-9999891162

Regd. Office
BHEL House Siri Fort
New Delhi-110049

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

Annexure-D

(Letter head of Company)

Ref.....

Date.....

To,
Bharat Heavy Electricals Limited
PEM, PPEI Building, Plot No 25,
Sector -16A, Noida (U.P)-201301

Subject: - Certification Regarding Local Content

Reference: Bid No.
Name of Package: LT PVC Control Cable

Dear Sir,

We hereby certify that items offered by us for **LT PVC Control Cable** for **3X800 MW PVUNL PATRATU TPP PHASE-I** project meets the requirement of minimum local content of NIT and Public Procurement (Preference to Make in India), Order 2017 dated-15.06.2017, 28.05.2018, 29.05.2019, 04.06.20, 16.09.20, 16.11.21 and 19.07.2024.

Local content of the items being offered by us is %age.

We further confirm that:

- a. Details of location at which the local value addition is made will be our registered works at
.....
..... (complete address of the works)
- b. Imported items sourced locally from resellers/distributors shall be excluded from calculation of local content.
- c. The licence fees/royalties paid/technical charges paid out of India shall be excluded from local content calculation.

We hereby certify that local content calculation has been done in line with revised Public procurement order 2017, dated 19.07.2024.

Yours truly

..... (Authorized Signature of company)

..... (Firm name)

Nitish Manu /Manager/PG-II
PS-Project Engineering Management,
3rd Floor, New Building, BHEL,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
Phone: +91-9999891162

Regd. Office
BHEL House Siri Fort
New Delhi-110049

Annexure-E

Commercial compliance

S No.	Description	Bidder reply/confirmation
1.	All commercial terms and conditions shall be as per NIT. Any commercial terms & conditions found anywhere else in your offer shall be treated as null. Please confirm.	
2.	Please provide freight amount as percentage (%) w.r.t. total ex-works. Detailed Price Break shall be reverse calculated based on freight percentage furnished by bidder. If Freight Percentage is different for the line items, same may please be furnished along with line item description.	
3.	Please inform GST percentage considered in your offer.	
4.	Duly filled, signed and stamped Annexure-A “Conflict of interest – Declaration” is submitted with offer.	
5.	Duly filled, signed and stamped Annexure-C “Land border certificate” is submitted with offer.	
6.	Duly filled, signed and stamped Annexure-D “Local content certificate” is submitted with offer.	

Sign & Stamp

Nitish Manu /Manager/PG-II
PS-Project Engineering Management,
3rd Floor, New Building, BHEL,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
Phone: +91-9999891162

Regd. Office
BHEL House Siri Fort
New Delhi-110049

Annexure-I

3X800 MW PATRATU STPS

BILL OF QUANTITIES (1.1kV LT PVC CONTROL CABLES)

- 1) 1.1 kV /Copper conductor / PVC insulated / Innersheath PVC type ST1 / Outersheath PVC Type ST1 with FRLS property
Unarmoured Control cable

S.No.	Item code	Item name	UOM	Ordered Quantity	Drum Length	UNIT Price	Total Price	Make/ Model
1	507-0300030-00-A	7C-1.5-UNARMoured	MTR	21000	1000			
2	507-0300002-00-A	12C-1.5-UNARMoured	MTR	22000	1000			

- 2) 1.1 kV /Copper conductor / PVC insulated / Innersheath PVC type ST1 / Outersheath PVC Type ST1 with FRLS property / GS
(formed wire / Round wire) armoured control cable

S.No.	Item code	Item name	UOM	Ordered Quantity	Drum Length	Unit Price	Total Price	Make/ Model
1	507-0300019-00-A	5C-1.5-ARMoured	MTR	2000	1000			
2	507-0300021-00-A	5C-2.5-ARMoured	MTR	10000	1000			
3	507-0300029-00-A	7C-1.5-ARMoured	MTR	2000	1000			
4	507-0300049-00-A	10C-2.5-ARMoured	MTR	4000	1000			
5	507-0300003-00-A	12C-2.5-ARMoured	MTR	20000	1000			
6	507-0300041-00-A	14C-2.5-ARMoured	MTR	2000	1000			

NOTES –

- Quantities indicated above shall be known as Order Quantities. The variation in quantities shall be as per NIT.
- The bidder shall indicate the unit price of each type and size of cables listed as per the BOQ-Cum-Price Schedule. The unit prices shall apply for adjustment of variation in quantity as stipulated in NIT.
- Manufacturing of the cables shall be taken up by the successful bidder only after approval of technical and quality documentation. Subsequent qty. shall be cleared for manufacture based on progress of engineering & site requirements.
- Delivery schedule shall be as per NIT.
- The standard drum length shall be 1000 meters as indicated above. Tolerance on individual drum length shall be $\pm 5\%$.
- Overall tolerance on total dispatched quantity of each size shall be (-) 2% and (+) 0% except where the total ordered quantity is one single drum length of 1000m, in which case it shall be -5%/0%. Cables consumed for testing and inspection shall be to bidder's account.

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

7. For each individual cable size, one short length of not less than 200m may be accepted only in the final drum length to complete the supply (except where the total ordered quantity is one single drum length of 1000m). The overall tolerance limits stipulated above shall continue to apply (in case short lengths are accepted).
8. "Supplier to essentially quote prices against each line item of the BOQ in the respective columns. 'NIL', 'Free of Cost', 'Zero' etc. shall not be mentioned for any line item of the BOQ. In such case, Liquidated Damages shall be levied on the Total order/ contract value instead of undelivered portion of the Order/ contract. Also, if price of any line item (X) is mentioned 'Included' in any other line item (Y), then in case of delay in delivery of item (X), LD shall be applicable on value of item (Y)."
9. Bidder to indicate 'Make' & 'Model' of each item offered in their unpriced schedule.

Sign & Stamp

Nitish Manu /Manager/PG-II
PS-Project Engineering Management,
3rd Floor, New Building, BHEL,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
Phone: +91-9999891162

Regd. Office
BHEL House Siri Fort
New Delhi-110049

Ref. Enquiry No.: 77/25/6162/NIT dated 16.10.2025

Letter head of Company

Ref.....

Date.....

Reference: Tender Enquiry Ref. no.

Name of Package: LT PVC Control Cable

Projects Name: 3X800 MW PVUNL PATRATU TPP PHASE-I

NO COMMERCIAL DEVIATION

Yours very truly
..... (authorized signatory of company)
..... (firm name)
Company's Seal/stamp

3 X 800 MW PATRATU STPS EXPANSION PH-I

TECHNICAL SPECIFICATION

FOR

LT PVC CONTROL CABLES

SPECIFICATION NO: *PE-TS-434-507-E015*

REVISION: 0



BHARAT HEAVY ELECTRICALS LIMITED

POWER SECTOR

PROJECT ENGINEERING MANAGEMENT

NOIDA, UP (INDIA) – 201301



3 X 800 MW PATRATU STPS

**TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES**

SPECIFICATION NO. PE-TS- 434-507-E015

VOLUME II

REVISION 0

DATE: 16.05.2019

SHEET

CONTENTS

<u>S. NO.</u>	<u>DESCRIPTION</u>	<u>NO. OF SHEETS</u>
1.	CONTENTS	01
2.	COMPLIANCE CERTIFICATE	01
3.	SECTION – I	
	a. SPECIFIC TECHNICAL REQUIREMENTS	01
	b. DATA SHEET-A	03
	c. DATA SHEET-C (GUARANTEED TECHNICAL PARTICULARS)	02
4.	SECTION – II	
	a. GENERAL TECHNICAL SPECIFICATION	01
	b. QUALITY PLAN (ALONGWITH ANNEXURE A to QP)	13
	c. ANNEXURE-B TO SECTION-II	02
	d. ANNEXURE-C	04
	DOCUMENTATION REQUIREMENT	01
	TOTAL NO. OF SHEETS=	38
	(INCLUDING COVER/ SEPARATOR SHEETS)	



3 X 800 MW PATRATU STPS

TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES

SPECIFICATION NO. PE-TS- 434-507-E015

VOLUME II

REVISION 0

DATE: 16.05.2019

SHEET 1 of 1

COMPLIANCE CERTIFICATE

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

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ-Cum-Price schedule' of the specification shall not be considered (i.e., technical description & quantities as per the specification shall prevail).

BIDDER'S STAMP & SIGNATURE



3 X 800 MW PATRATU STPS

**TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES**

SPECIFICATION NO. PE-TS- 434-507-E015

VOLUME II

SECTION I

REVISION - 0

DATE: 16.05.2019

SECTION - I

SPECIFIC TECHNICAL REQUIREMENTS



3 X 800 MW PATRATU STPS

TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES

SPECIFICATION NO. PE-TS- 434-507-E015

VOLUME II

SECTION I

REVISION - 0

DATE: 16.05.2019

SHEET 1 OF 2

1.0 SCOPE OF ENQUIRY

- 1.1 Design, Manufacture, Inspection and Testing at Manufacturer's works, proper packing and delivery to site of LT PVC Control cables conforming to this specification.
- 1.2 General technical requirements of the LT PVC Control cables are indicated in Section-II. Project specific technical/ quality requirements / changes are listed in Section-I.
- 1.3 The stipulations of Section-I, followed by those of Data Sheet-A shall prevail in case of any conflict between the stipulations of Section-I, Data Sheet - A & Section-II.
- 1.4 The documents shall be in English Language and MKS system of units.

2.0 BILL OF QUANTITIES:

- 2.1 Quantity requirements shall be as per 'BOQ-cum-price schedule' as part of NIT.

3.0 SPECIFIC TECHNICAL REQUIREMENTS

<u>S.No.</u>	<u>Reference Clause No. of Section- II</u>	<u>Specific Requirement/ Change</u>
1	3.1	BHEL Standard Quality Plan (PE-QP-999-507-E003) shall be read as "QP. NO. 0000-999-QOE-S-040, REV-00". Additionally, The QP. NO. 0000-999-QOE-S-040 REV-00 shall be read in conjunction with Annexure C (Quality Assurance & Inspection). However, Type testing on cables shall be conducted as per attached BHEL QP along with Annexure-A..

4.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

Schedule of drawing & documents to be submitted is part of **NIT**

Note:

* Standard Quality Plan as enclosed in the technical specification is to be appended with cover sheet bearing document number and description as stated above. The signed and stamped copy of the same shall be submitted to BHEL without making any changes in the contents of the document.



3 X 800 MW PATRATU STPS
TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES

SPECIFICATION NO. PE-TS- 434-507-E015


VOLUME II

SECTION I

REVISION - 0

DATE: 16.05.2019

DATA SHEET A

	3 X 800 MW PATRATU STPS	SPECIFICATION NO. PE-TS- 434-507-E015
	TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	Rev No. 00
		15.05.2019

DATASHEET-A

1.0	Type of Cable	Flame Retardant Low Smoke (FR-LSH)
2.0	Standard applicable in general(Latest amendment to be referred if any)	IS:1554 (Part-1), IS:8130, IS:5831, IS:10810, IS:3975, ASTM D:2843, ASTM D:2863, ASTM D 3137:81, IEC-754-1, IEC:60332 Part-3-23,IS-10418
3.0	Voltage Grade	1.1kV
4.0	Number of cores, cross sectional area of conductors and quantities	As per Annexure-C
5.0	CONDUCTOR	
(a)	Material	Copper
	Grade and Class	Stranded, annealed plain high conductivity, Class 2
(b)	Standard Applicable	IS: 8130
(c)	Shape	Circular
(d)	Min. number of strands	7
6.0	INSULATION	
(a)	Material	PVC TYPE-A
(b)	Standard Applicable	IS: 5831
(c)	Continuous withstand temperature	70°C
(d)	Short-circuit withstand temperature	160°C
(e)	Method of application	By extrusion; sleeve extrusion not permitted.
(f)	Nominal Thickness of insulation	As per Table-2 of IS: 1554 (Part-1)
7.0	CORE IDENTIFICATION	
(a)	Control Cables up to 5 core	<p>Cores of the cables of upto 5 cores shall be identified by colouring of insulation. Following colour scheme shall be adopted.</p> <p>1 core - Red, Black, Yellow or Blue 2 core - Red & Black 3 core - Red, Yellow & Blue 4 core - Red, Yellow, Blue and Black 5 core - Red, Yellow, Blue, Black and Grey</p>
(b)	Control Cables above 5 cores	<p>For cables having more than 5 cores, core identification shall be done by numbering the insulation of cores sequentially, starting by number 1 in the inner layer (e.g. say for 10 core cable, core numbering shall be from 1 to 10). The number shall be printed in Hindu- Arabic numerals on the outer surfaces of the cores. All the numbers shall be of the same colour, which shall contrast with the colour of insulation. The colour of insulation for all the cores shall be grey only. The numerals</p>



3 X 800 MW PATRATU STPS


SPECIFICATION NO.
PE-TS- 434-507-E015

TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES


Rev No. 00

15.05.2019

		shall be legible and indelible. The numbers shall be repeated at regular intervals along the core, consecutive numbers being inverted in relation to each other. When the number is a single numeral, a dash shall be placed underneath it. If the number consists of two numerals, these shall be disposed one below the other and a dash placed below the lower numeral. The spacing between consecutive numbers shall not exceed 50 mm.
8.0	INNER SHEATH	
(a)	Material	PVC Type ST-1
(b)	Standard Applicable	IS: 5831
(c)	Colour	Black
(d)	Whether FR-LSH	NO
(e)	Thickness of inner sheath	As per Table-4 of IS: 1554 (Part-1)
(f)	Fillers	Acceptable
(g)	Material of fillers (if permitted)	Same as inner sheath (Material of filler to be compatible with that of inner sheath)
(h)	Method of application	
(1)	Multi-core cables:	
(i)	With fillers	Pressure/Vacuum extruded
(ii)	Without fillers	Pressure extruded
9.0	ARMOUR	
(a)	Applicable	Only for one size
(b)	Material:	Galvanised steel round/formed wire (IS: 3975)
(i)	Multi-core cables	
(ii)	Standard Applicable	IS 1554 (part-1) & IS: 3975
(c)	Minimum Coverage	90%
(d)	Gap between armour wires	shall not exceed one armour wire space(no cross over/ overriding)
(e)	Breaking load of joint	95% normal armour wire
10.0	OUTERSHEATH	
(a)	Material	PVC Type ST1
	Standard Applicable	IS: 1554 (Part-1) & IS: 5831
(b)	Colour	Grey
(c)	Whether FR-LSH	Yes
(d)	Method of application	Extruded
(e)	Thickness of outer sheath	As per Table-7 of IS: 1554 (Part-1)
(f)	Marking	Cable size (cross section area and no. of cores) and voltage grade @ 5m (by embossing) Word "PVC", "FRLSH" @ 5m (by embossing) Manufacturer's name and/ or trade name, and year of manufacture @ 5m (by embossing) 'BHEL-PEM' and 'NTPC' Name @5m (by embossing) Progressive sequential marking @ 1m (by embossing/ printing)
11.0	FR-LSH CHARACTERISTICS	
(a)	Oxygen index	Min 29 (As per IS 10810 Part-58)
(b)	Temperature index	Min. 250°C(As per ASTM D 2863)
(c)	Acid gas generation	Max. 20% by weight (As per IEC-754-1)

	3 X 800 MW PATRATU STPS	SPECIFICATION NO. PE-TS- 434-507-E015
	TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	Rev No. 00
		15.05.2019

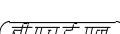
(d)	Smoke density rating	Max. 60% (As per ASTM D 2843)
(e)	Flammability Test	
(i)	Flammability test for all cables	As per: IEC-60332 Part-3, CAT-B
13.0	TOLERANCE ON OUTER DIAMETER	+ 2mm.
14.0	MINIMUM BENDING RADIUS	
(a)	Multi core cables	12 x O.D.
15.0	SAFE PULLING FORCE	
(a)	Copper conductor cable	50 N/ sq. mm.
16.0	CABLE DRUMS	
(a)	Type of Drum	Wooden as per IS 10418. OR Steel drum.
(b)	Standard drum length	1000m (±) 5%.
(c)	Painting	Entire surface to be painted
(d)	Wooden Drum	The surface of the drum and the outer most cable layer shall be covered with water proof cover. Both the ends of the cables shall be properly sealed with heat shrinkable PVC/ rubber caps secured by 'U' nails so as to eliminate ingress of water during transportation, storage and erection. Wood preservative anti-termite treatment shall be applied to the entire drum.
(e)	Particular information on Drum	Each drum shall carry manufacturer's name, purchaser's name, address and contract no., item no. & type, size & length of cable and net gross weight stencilled on both sides of drum. A tag containing same information shall be attached to the leading end of the cable. An arrow & suitable accompanying wording shall be marked on one end of the reel indicating the direction in which it should be rolled.

	3 X 800 MW PATRATU STPS TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	SPECIFICATION NO. PE-TS- 434-507-E015	
		VOLUME	II B
		SECTION I	
		REV NO.	DATE 15.06.2019
		SHEET 1	OF 2

DATA SHEET C
GUARANTEED TECHNICAL PARTICULARS
(TO BE SUBMITTED BY SUCCESSFUL BIDDER)

- 1.1 Name of manufacturer :
- 1.2 Place of manufacture :
- 2.0 **INFORMATION TO BE FILLED IN FOR EACH SIZE CABLE IN THE FORM OF TABLE**
- 2.1 No. of cores x size :
- 2.2 Current rating of cable confirms to :
- 2.3 Short circuit rating of cable confirms to :
- 2.4 **CONDUCTOR**
- a) Material type & grade :
- b) No. & dia of wires in each core before stranding : no x mm
- 2.5 **PVC INSULATION**
- a) Type :
- b) Minimum & Nominal thickness of insulation : mm
- 2.6 **PVC ST1 INNERSHEATH**
- a) Thickness (min.) : mm
- b) Method of application
- 1) Multi-core cables
- i) with fillers
- ii) without fillers :

NAME OF VENDOR			SEAL	REV.	
NAME	SIGNATURE	DATE			

	3 X 800 MW PATRATU STPS TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	SPECIFICATION NO. PE-TS- 434-507-E015	
		VOLUME	II B
		SECTION I	
		REV NO.	DATE 15.06.2019
		SHEET	2 OF 2

- c) Type of fillers (if used) :
Shape of fillers (if used) :

2.7 ARMOUR

- a) Material :
i) Multi-core cables
- b) Size / dimensions :
- c) Minimum no. of wires :
- d) Maximum resistivity of GS wire :
- e) Maximum resistivity of Aluminium round wire :

2.8 PVC ST1 FRLS OUTERSHEATH

- a) Minimum thickness of outer sheath : mm
- b) Colour :

2.9 Diameters

- a) Diameter of insulated conductor : mm
- b) Cable diameter under armour : mm
- c) Cable diameter over armour : mm
- d) Overall diameter of cable : mm

2.10 Weight of cable : kg./km

2.11 Dimension of drum : mm

2.12 Shipping weight : kg.

NAME OF VENDOR			SEAL	REV.	
NAME	SIGNATURE	DATE			



3 X 800 MW PATRATU STPS
TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES

SPECIFICATION NO. PE-TS-434-507-E015

VOLUME II

SECTION II

REVISION 0

DATE: 20.05.2019

SECTION - II

GENERAL TECHNICAL SPECIFICATION



3 X 800 MW PATRATU STPS
TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES

SPECIFICATION NO. PE-TS-434-507-E015

VOLUME II

SECTION II

REVISION 0

DATE: 15.05.2019

SHEET 1 OF 1

1.0 TECHNICAL REQUIREMENTS

- 1.1 Technical requirements for LT PVC CONTROL CABLES shall be as indicated in this section, in addition to those specified in Section I & Datasheet-A.
- 1.2 It is not the intent to specify herein all the details of design & manufacture. However, the equipment shall conform in all respects to high standards of design engineering and workmanship and shall be capable of performing in Continuous commercial operation at site conditions.

2.0 CODES & STANDARDS

- 2.1 The design, material, construction, manufacture, inspection, testing and performance of LT PVC CONTROL CABLES shall conform to the latest revision of relevant standards and codes of practices mentioned in Data Sheet - A.
- 2.2 In case of conflict between the applicable reference standard and this specification, this specification shall govern.

3.0 QUALITY ASSURANCE REQUIREMENTS

- 3.1 Bidder shall confirm compliance with the BHEL Standard Quality Plan (PE-QP-999-507-E003) as attached with the specification without any deviations. At contract stage, the successful bidder shall submit the same QP for BHEL/ultimate customer's approval. In case bidder has reference QP agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ultimate customer's approval. There shall be no commercial implication to BHEL on account of minor changes in QP during contract stage.
- 3.2 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved Quality Plan.
- 3.3 Type testing requirements, routine / acceptance testing and special testing requirements shall be as per Annexure –A to QAP. Charges for all these tests for all the equipments & components shall be deemed to be included in the bid price (except UV Radiation & Hydraulic Stability test).
- 3.4 The charges of UV Radiation test & Hydrolytic Stability test (if applicable) shall be reimbursed extra at actual against original money receipt of Govt. Lab. (CPRI/ ERDA etc).
- 3.5 Cost of cables consumed for testing shall be to bidder's account.

4.0 Packing

- 4.1 Cables shall be supplied in non-returnable drums. Material of cable drums shall be as specified in Datasheet-A.
- 4.2 In case of wooden drums, all wooden parts shall be manufactured from seasoned wood treated with copper naphthenates / zinc naphthenates (refer IS: 401). Dimensions of wooden drums shall be as per IS 10418. All ferrous parts shall be treated with suitable rust protective finish or coating to avoid rusting during transit and storage. BIS certification mark shall be stamped on each cable drum.
- 4.3 In case of Steel drums, New or practically new cable drums made of steel and painted with epoxy resin paint are to be used. Cable ends are carefully protected before packing. Over the cables polyethylene sheet shall be wrapped and then sealed properly. For Typical details of Steel drums, Annexure-A to Section-II, may be referred by the bidder. Bidder may modify, to choose appropriate dimensions of steel drums to suite various sizes/weight/ lengths of LT PVC CONTROL CABLES.



3 X 800 MW PATRATU STPS

**TECHNICAL SPECIFICATION FOR
LT PVC CONTROL CABLES**

SPECIFICATION NO. PE-TS-434-507-E015

VOLUME II-B

SECTION II

REVISION 0

DATE: 16.05.2019

QUALITY PLAN



Item: 1.1 KV PVC Insulated FRLS Control cables														STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)										QP NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11 Page 1 of 9				REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJEEV GARG				APPROVED BY A.K. GARG			
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check		Reference Document	Acceptance Norms	Record Format	Agency			Remarks																						
					M	C/N				D*	M	C		N																					
1	2	3	4	5	6		7	8	9	10			11																						
Instructions: 1) Cable manufacturer to maintain records to show co- relation of raw materials to finished cables i.e raw material batch/ lot no. should be traceable to the cable drum. 2) Cable manufacturer to maintain all quality control records identified as per all QP stages enumerated below whether it is identified for NTPC verification or witness or not.																																			
A Raw material/ Brought out Items																																			
1.01	Copper	1.Make	MA	Verify	100%	--	MANUFACTURER APPROVED SOURCES	MANUFACTURER APPROVED SOURCES	QCR		V	--	--																						
		2. Resistivity	MA	Elect	As per cable Mnfr Std.	--	IS 613	IS 613	--do--		P	--	--																						
1.02	PVC compound for insulation	1. Make	MA	Verify	--do--	100%	MANUFACTURER APPROVED SOURCES	MANUFACTURER APPROVED SOURCES	--do--		V	V	--																						
		2. Type/ Grade	MA	Verify	100%	As per manufacturer norms	NTPC ADS	NTPC ADS	--do--		V	V	V	Refer note 1																					
		3. All acceptance test as per manufacturer norms including Thermal Stability test	MA	Verify	As per manufacturer norms		--do--	--do--	--do--		V	V	V																						
1.03	PVC Compound for Inner sheath	1. Make	MA	Verify	--do--	--do--	MANUFACTURER APPROVED SOURCES	MANUFACTURER APPROVED SOURCES	--do--		V	V	V																						
		2. Type/ Grade	MA	Verify	--do--	--do--	NTPC ADS	NTPC ADS	--do--		V	V	V																						
1.04	Steel wire / Formed Wire (As applicable)	1. Make	MA	Verify	--do--	--do--	MANUFACTURER APPROVED SOURCES	MANUFACTURER APPROVED SOURCES	--do--		V	V	V																						
		2. Dimension	MA	Meas	1 sample from each size / lot	--	NTPC APPROVED DATA SHEET & IS 3975	NTPC APPROVED DATA SHEET & IS 3975	--do--		P	--	--																						
		3. All acceptance tests as per IS 3975	MA	Verify	As per IS 3975	--	IS 3975	IS 3975	Supplier TC		V	V	--																						
1.05	PVC compound for Sheath	1. Make	MA	Verify	As per manufacturer norms	100%	MANUFACTURER APPROVED SOURCES	MANUFACTURER APPROVED SOURCES	QCR		V	V	--																						
		2. Type / Grade	MA	Verify	100%		NTPC ADS	NTPC ADS	--do--		V	V	V																						
		3. All acceptance test as per manufacturer norms	MA	Verify	As per manufacturer norms	As per manufacturer norms	--do--	--do--	--do--		V	V	V	Refer note 1																					
		4. Thermal Stability	MA	Chem	One sample / Batch	--	NTPC ADS	NTPC ADS	QCR		P	--	--																						
		5. Oxygen Index	MA	Chem	--do--	--	NTPC ADS/ IS 10810 Part 58	NTPC ADS	--do--		P	--	--																						

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS, V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

FORMAT NO:QS-01-QAI-P-10/F3-R1

ofc



Item: 1.1 KV PVC Insulated FRLS Control cables			STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)				QP. NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11 Page 2 of 9 VALID UP TO: 24-11-14		REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJEEV GARG		APPROVED BY M. T. K. Garg		
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check		Reference Document	Acceptance Norms	Record Format	Agency			Remarks
					M	C/ N				D*	M	C	N
1	2	3	4	5	6		7	8	9			10	11
		6. Acid Gas Emission	MA	Chem	One sample / Batch		NTPC ADS / IEC60754	NTPC ADS	QCR		P	--	--
1.06	Wooden Drum	1. Dimension 2. Anti termite treatment	MI MI	Meas Chem	Manuf. Std. Cable manuf. std		IS 10418 CABLE MANUF. STD.	IS10418 CABLE MANUF. STD.	--do-- COC		P V	-- V	-- V
1.07	Steel Drum	1. Dimension 2. Surface finish	MI MI	Meas Meas	--do-- --do--		--do-- --do--	--do-- --do--	QCR --do--		P P	-- --	-- --
B	Process & Stage Inspection												
2.01	Wire Drawing	1.Surface finish	MA	Visual	One sample/Settling of each size	--	SHOULD BE SMOOTH & FREE FROM SCRATCHES	SHOULD BE SMOOTH & FREE FROM SCRATCHES	QCR		P	--	--
		2. Wire Diameter	MA	Meas	--do--	--	NTPC ADS	NTPC ADS	--do--		P	--	--
		3. Annealing Test	CR	Mech	--do--	Same as 6M	IS8130/NTPC ADS	IS8130/NTPC ADS	--do--		P	V	Refer Sl. No. 3.03(iii).
2.02	Bunching / stranding	1. No. of wires 2.Dia of wire 3. Dimension of Conductor 4.Direction of lay 5.Records of strand breakage / welding during conductor stranding 6.Surface finish 7. DC Resistance	MA MA MA MA MA MA CR	Meas Meas Meas Visual Verify Visual Meas	--do-- --do-- --do-- --do-- --do-- --do-- --do--	-- -- -- -- -- -- -	NTPC ADS --do-- --do-- --do-- IS 8130 --do-- IS8130/NTPC ADS NTPC spec	NTPC ADS --do-- --do-- --do-- IS8130 --do-- IS8130/NTPC ADS SHOULD BE SMOOTH. NO POROSITY IS PERMITTED.	--do-- --do-- --do-- --do-- --do-- --do-- --do--		P P P P P P P	-- -- -- -- -- -- --	PVC compound shall be preferably loaded in to extruder by suction method.
2.03	Insulation extrusion	1. Surface finish 2.Colour of cores	MA MA	Visual Visual	--do-- --do--	- -	NTPC ADS	NTPC ADS	--do--		P	--	--

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M-MANUFACTURER/SUPPLIER, C-MAIN SUPPLIER, N-NTPC, P-PERFORM W-WITNESS, V-VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

FORMAT NO: QS-01-QAI-P-10/F3-R1



Item: 1.1 KV PVC Insulated FRLS Control cables

STANDARD QUALITY PLAN
(CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)

QP. NO. 0000-999- QOE- S-040
REV-00 DATE: 25-11-11
Page 3 of 9
VALID UP TO: 24-11-14

REVIEWED BY
INDERJIT SINGH
VIKRAM TALWAR
RAJEEV GARG

APPROVED BY
Dt. A.K. Garg
NTPC, NOIDA

Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check		Reference Document	Acceptance Norms	Record Format	Agency				Remarks
					M	C/N				D*	M	C	N	
1	2	3	4	5	6		7	8	9					11
		3 Core identification	MA	Visual	One sample/Setting of each size	--	NTPC ADS	NTPC ADS	QCR		P	--	--	Core printing shall be legible & indelible
		4. Thickness	CR	Meas	--do--	--	--do--	--do--	--do--		P	--	--	
		5. Spark Test	CR	Elect	100%	100%	CABLE MANUF. STD.	No FAILURE	--do--		P	V	V	1. Spark test failure record is to be verified. 2. Core repairing not permitted
2.04	Laying up	1. Core sequence	MA	Visual	One sample/Setting of each size	--	IS 1554 (Part I)	IS 1554 (Part I)	--do--		P	--	--	
		2. Direction of lay	MA	Visual	--do--	--	--do--	--do--	--do--		P	--	--	
		3. Dia over laid up core	MA	Meas	--do--	--	NTPC ADS	NTPC ADS	--do--		P	--	--	
2.05	Inner Sheath	1. Colour	MA	Visual	--do--	-	--do--	--do--	--do--		P	--	--	
		2. Surface Finish	MA	Visual	100%	-	NTPC SPECIFICATION	FISH EYE, BLOW HOLE NOT PERMITTED	--do--		P	--	--	
		3. Thickness	MA	Meas	One sample/Setting of each size	-	NTPC ADS	NTPC ADS	--do--		P	--	--	
2.06	Armouring (As Applicable)	4. Dia over inner sheath	MI	Meas	--do--	-	--do--	--do--	--do--		P	--	--	
		1. Dimension	MA	Meas	--do--	-	--do--	--do--	--do--		P	--	--	
		2. No. of wires / strip	MA	Meas.	--do--	-	--do--	--do--	--do--		P	--	--	

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W."

FORMAT NO:QS-01-QAI-P-10/F3-R1



Item: 1.1 KV PVC Insulated FRLS Control cables		STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)				Q.P. NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11		REVIEWED BY		APPROVED BY	
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check	Reference Document	Acceptance Norms	Record Format	D*	Agency	Remarks
1	2	3	4	5	6	7	8	9		10	11
		3. Direction of lay	MA	Visual	One sample/Settling of each size	IS 1554 (Part 1)	IS 1554 (Part 1)	QCR		P	
		4. Coverage & Quality of armouring	MA	Meas.	100%		Min. area of coverage of armouring shall be 90%. The gap between amours / formed wires shall not exceed one amour wire/ formed wire space & there shall be no cross over/ over riding of amour wire / formed wire. Zn rich paint shall be applied on amour joint surface of G.S. Wire /formed wire. The breaking load of amour wire joint shall not be less than 95% of that amour wire / formed wire. (As per NTPC specification)	--do--		P	
		5 Dia over armouring	MA	Meas.	One sample/Settling of each size		NTPC ADS	--do--		P	
2.07	Outer Sheath	1. Surface finish	MA	Visual	100%		Pimple, Fish Eye, Burnt particles, Blow Hole not permitted. Repairing on outer sheath not permitted. (As per NTPC specification)	--do--		P	PVC FRLS compound shall be preferably loaded in to extruder by suction method.
		2. Colour of sheath	MA	Visual	One sample/Settling of each size		NTPC ADS	--do--		P	
		3. Dia over outer sheath	MA	Meas	--do--		--do--	--do--		P	
		4. Thickness of outer sheath	CR	Meas	--do--		--do--	--do--		P	
		5. Embossing quality	MA	Visual	100%		Drum no., IS1554 Part -1, Cable size, Voltage grade & Words "FRLS" at every 5 meter is to be embossed. Embossing shall be automatic, in line & marking shall be legible & indelible. (As per NTPC specification)	--do--		P	Drum no. on cable may be embossed/ printed.

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

FORMAT NO:QS-01-QA1-P-10/F3-R1

Item: 1.1 KV PVC Insulated FRLS Control cables		STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART I AND NTPC TECHNICAL SPECIFICATION)				Q.P. NO. 0000-999- QOE- S-040 REV-00 DATE : 25-11-11 Page 5 of 9		REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJEEV GARG		APPROVED BY 377 A.K. Garg		
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check	Reference Document	Acceptance Norms	Record Format	D*	M	N	Remarks
					M	C/N						
1	2	3	4	5	6	7	8	9				11
		6. Sequential marking	MA	Visual	Full length	--	Sequential marking of length of cable in meter at every one meter is to be embossed / printed. Embossing / printing shall be progressive, automatic, in line & marking shall be legible & indelible. (A s per NTPC specification)	QCR		P	--	
C	Finished Cables											
3.01	Type test reports clearance from NTPC Engineering Routine Tests	All type tests as per NTPC specification	CR	Doc.	100%	100%	NTPC SPECIFICATION / NTPC ADS / IS 1554 (Part I)	-do--	✓	P	V	V
3.02		1. High Voltage test at room temperature	CR	Elect	100%	100%	NTPC ADS / IS 1554 (Part I)	Test certificate	✓	P	W	W
		2. Conductor Resistance	CR	Elect	100%	100%	NTPC ADS / IS 1554 (Part I)	-do--	✓	P	W	W
3.03	Acceptance Tests											
3.03(i)	Construction of finished Cable	1. OD of Cable	MA	Meas.	Each type & size of cables as per sampling plan of IS 1554 (Part I)		NTPC ADS	-do--	✓	P	W	W
		2. Laying of core	CR	Visual	--do--		IS 1554 (Part I)	-do--	✓	P	W	W
		3. Core Identification	CR	Visual	--do--		--do--	-do--	✓	P	W	W
		4. Colour of outer sheath	MA	Visual	--do--		NTPC ADS	-do--	✓	P	W	W
		5. Inner sheath thickness	CR	Meas	- do -		--do--	-do--	✓	P	W	W
		6. Inner sheath colour	MA	Visual	- do -		- do -	-do--	✓	P	W	W
3.03 (ii)	Armour wires/ Formed wires (if applicable)	1 Dimensions	CR	Meas	Each type & size of cables as per sampling plan of IS 1554 (Part I)		NTPC ADS /IS1554(Part I)/IS3975	-do--	✓	P	W	W
		2. No. of wires/ formed wire	CR	Mech	-- do --		--do--	-do--	✓	P	W	W
		3. Tensile test	CR	Mech	--do--		--do--	-do--	✓	P	W	W

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W" FORMAT NO:QS-Q1-QAL-P-10/F3-R1



Item: 1.1 KV PVC Insulated FRLS Control cables

STANDARD QUALITY PLAN
(CONFORMING TO CODE: IS 1554 PART 1
AND NTPC TECHNICAL SPECIFICATION)

QP. NO. 0000-999- QOE- S-040
REV-00 DATE: 25-11-11
Page 6 of 9
VALID UP TO: 24-11-14

REVIEWED BY
INDERJIT SINGH
VIKRAM TALWAR
RAJEEV GARG

APPROVED BY
A.K. Garg

Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check		Reference Document	Acceptance Norms	Record Format	Agency				Remarks
					M	C/N				D*	M	C	N	
1	2	3	4	5	6		7	8	9	✓	P	W	W	11
		4. Elongation test	CR	Mech	Each type & size of cables as per sampling plan of IS 1554 (Part 1)	--do--	NTPC ADS /IS1554(Part1)/IS3975	NTPC ADS /IS1554(Part1)/IS3975	Test certificate	✓	P	W	W	
		5. Torsion test (for round wires only)	CR	Mech	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		6. Wrapping test	CR	Mech	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		7. Resistance test	CR	Mech	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		8. Mass of Zinc coating	CR	Meas	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		9. Uniformity of Zinc Coating	CR	Chem.	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		10. Adhesion test	CR	Mech	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		11. Freedom from defects	CR	Visual	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
3.03 (iii)	Conductor	1. Annealing Test	CR	Mech	--do--	--do--	NTPC ADS/ IS 8130	NTPC ADS/ IS 8130	--do--	✓	P	V	V	Refer Sl. No. 2.01
		2. Resistance Test	CR	Elect	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		1. Thickness of insulation & sheath	CR	Meas.	--do--	--do--	NTPC ADS/ IS 1554(Part1)	NTPC ADS/ IS 1554(Part1)	--do--	✓	P	W	W	
		2. Tensile strength & elongation at break of insulation & outer sheath (before ageing)	CR	Mech	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	Refer Note 3 also
		3. Tensile strength & elongation at break of insulation & outer sheath (after Ageing)	CR	Mech	Refer Note 3		NTPC ADS/ IS 1554(Part1)	NTPC ADS/ IS 1554(Part1)	--do--	✓	P	W	W	Refer Note 3
		4. Insulation resistance (Volume resistivity method)	CR	Elect	Each type & size of cables as per sampling plan of IS 1554 (Part 1)	--do--	--do--	--do--	--do--	✓	P	W	W	
		5. High voltage test at room temperature	CR	Elect	--do--	--do--	--do--	--do--	--do--	✓	P	W	W	
		6. Thermal stability on PVC Insulation and outer sheath	CR	Chem	One sample of each offered lot of all offered sizes	--do--	--do--	--do--	--do--	✓	P	W	W	
		7. Oxygen index Test on outer sheath	CR	Chem	--do--	--do--	NTPC ADS / IS10810 Part 58	NTPC A.D.S	--do--	✓	P	W	W	
		8. Smoke density rating test on outer sheath	CR	Chem	--do--	--do--	NTPC ADS & ASTM D2843	NTPC ADS	--do--	✓	P	W	W	



LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"
FORMAT NO:QS-01-QA1-P-10/F3-R1

Item: 1.1 KV PVC Insulated FRLS Control cables		STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)				QP. NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11 Page 7 of 9 VALID UP TO: 24-11-14 Reference Document		REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJNEESH GARG		APPROVED BY A.K. Garg					
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check		Reference Document	Acceptance Norms	Record Format	Agency			Remarks		
					M	C/N				D*	M	C		N	
1	2	3	4	5	6		7	8	9		10	11			
		9. Acid gas generation test on outer sheath	CR	Chem	One sample of each offered lot of all offered sizes		NTPC ADS & IEC 60754-1	NTPC ADS	Test certificate	✓	P	W	W		
		10. Flammability test on completed cable	CR	Chem	Refer Note 4	Refer Note 4	NTPC ADS & IEC 60332 Part-3 (Category-B)	NTPC ADS	--do--	✓	P	W	W		
		11. Surface finish & length measurement.	CR	Visual & Meas	One length of each size	One length of each size	(1) Drum no. (2) IS 1554 -Part-1 (3) Cable size, Voltage grade & Words " FRLS" at every 5 meter is to be embossed. Embossing shall be automatic, in line & marking shall be legible & indelible. (4) Sequential marking of length of cable in meter at every one meter is to be embossed / printed. Embossing / printing shall be progressive, automatic, in line & marking shall be legible & indelible	--do--	✓	P	W	W	W	Pimple, Fish Eye, Burnt particles, Blow Hole etc. not permitted. Repairing on outer sheath not permitted.	
		12. Sequence of cores armour coverage, gap between two consecutive armour/ formed wire	CR	Visual & Meas	One length of each size	One length of each size	Min. area of coverage of armouring shall be 90%. The gap between armour wires / formed wires shall not exceed one armour wire/ formed wire space & there shall be no cross over/ over riding of armour wire / formed wire. Zn rich paint shall be applied on armour joint surface of G.S. Wire /formed wire	--do--	✓	P	W	W	W		
4	Packing	1. Sealing	MA	Visual	100%	100%	(1) IS1554(Part-1) (2) The surface of the drum and the outer most cable layer shall be covered with water proof cover. (3) Both the ends of cables shall be properly sealed with heat shrinkable PVC/ rubber caps secured by "U" nails.	QCR	✓	P	--	--	--		
4.01	Identification	NTPC Sealing	MA	Visual	100%	100%	Sealing shall be visible	Sealing shall be visible	--do--	✓	P	V	V	V	

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.


-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"
FORMAT NO:QS-01-QAI-P-10/F3-R1

		Item: 1.1 KV PVC Insulated FRLS Control cables		STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART 1 AND NTPC TECHNICAL SPECIFICATION)		QP. NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11 Page 8 of 9 VALID UP TO: 24-11-14 Reference Document	REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJEEV GARG Acceptance Norms Record Format	APPROVED BY  A.K. Garg Agency Remarks
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check	Notes:		
1)						If the compound manufacturer is carrying out Ageing test , test report of compound manufacturer is to be reviewed. If the compound manufacturer is not carrying out ageing test, then cable manufacturer is to carry out ageing test & test report is to be reviewed (quantum of ageing test sample shall be one sample /batch)		
2)						(a) In case of manufacturers / supplier who have supplied cables in the past through Corporate Centre/ Regional Offices :- Routine Test of manufacturer internal test report are to be verified by NTPC at the time of final inspection. 2(b) In case of manufacturers / supplier WHO HAVE NOT SUPPLIED cables in the past through Corporate Centre/ Regional Offices, :- Routine Test are to be witnessed by Main Contractor & NTPC. This is in addition to manufacturer internal test report to be verified by NTPC at the time of final inspection. Refer table on page 8 of 8 for Sampling & Acceptance criteria.		
3)								
4)						The test shall be carried out on every size & type of control cable offered for inspection as an acceptance test. This test will be carried out using composite sampling i.e. irrespective of sizes of cables of a particular type, may be tested together as per calculations in line with the IEC (all sizes will be covered)		
LEGEND: NTPC ADS: NTPC approved data sheet, QCR: quality control records of cable manufacturer, CABLE MANUF STD- cable manufacturer's internal plant standard, MI: minor, MA: major, CR: critical, COC- certificate of conformance								

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

FORMAT NO:QS-01-QA1-P-10/F3-R1

		Item: 1.1 KV PVC Insulated FRLS Control cables		STANDARD QUALITY PLAN (CONFORMING TO CODE: IS 1554 PART I AND NTPC TECHNICAL SPECIFICATION)		QP. NO. 0000-999- QOE- S-040 REV-00 DATE: 25-11-11 Page 9 of 9	REVIEWED BY INDERJIT SINGH VIKRAM TALWAR RAJEEV GARG	APPROVED BY A.K. Garg		
Sl. No	Component & Operations	Characteristics	Class	Type of check	Quantum of check	VALID UP TO: 24-11-14 Reference Document	Acceptance Norms	Record Format	Agency	Remarks


SAMPLING & ACCEPTANCE CRITERIA


Criteria	Manufacturer experience prerequisite	Condition	Testing procedure	Remarks
Samples as per relevant IS from every size of cable in the offered lot shall be tested for Tensile Strength & Elongation (before ageing). The values will be compared with corresponding values mentioned in the Type Test report accepted by NTPC. These values of Tensile Strength & Elongation (before ageing) should be within +/- 15% tolerance (final values should be more than the minimum values indicated in relevant standard) of the Type Test report	In case of Manufacturers/ Supplier who have supplied cables in the past through Corporate Centre / Regional offices	In case of sizes which meet the criteria	1 Sample per type out of sizes which have met the criteria, will be put on accelerated ageing test (refer IRS specification no. IRS: S-63/2007 Rev 3.0). The samples shall be aged in air oven at temperature of 130°C +/- 20°C for 5 hours. After wards the samples shall be tested for Tensile Strength & Elongation. Acceptance norms shall be as per relevant IS. This test shall be witnessed by NTPC.	In case the samples do not meet the requirement in accelerated ageing test then 1 sample of that size will be put on ageing test as per IS.
	In case of Manufacturers/ Supplier WHO HAVE NOT SUPPLIED cables in the past through Corporate Centre / Regional offices	In case of size which do not meet the criteria	Particular size will be put on ageing test as per IS. This test shall be witnessed by NTPC.	----
		In case of size which meet the criteria	1 Sample per type out of all sizes which have met the criteria, will be put on aging test and witnessed by NTPC as per relevant IS	----
		In case of size which do not meet the criteria	Particular size will be put on ageing test as per IS. This test shall be witnessed by NTPC	----

LEGEND:- *RECORDS, IDENTIFIED WITH "TICK" UNDER COLUMN "D" SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

-M:MANUFACTURER/SUPPLIER, C:MAIN SUPPLIER, N:NTPC, P:PERFORM W:WITNESS,V:VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W" FORMAT NO:QS-01-QA1-P-10/F3-R1

BHEL QP APPLICABLE FOR
TYPE TEST

		QUALITY PLAN		CUSTOMER :		PROJECT : 3X800 MW PATRATU STPS			SPECIFICATION :			
				BIDDER/ VENDOR :		TITLE			NUMBER :			
				SHEET 5 of 8		QUALITY PLAN NUMBER PE-QP-999-507-E003, R-1			SPECIFICATION TITLE TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLE			
		SYSTEM		ITEM :LT PVC CONTROL CABLE			SECTION			VOLUME III		
SL. NO.	COMPONENT/OPERATION	CHARACTERISTICS CHECK	CAT.	TYPE/ METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
									P	W	V	
1	2	3	4	5	6	7	8	9	10			11
3.0	Final Inspection	6. Type Tests (Refer Note-A)	CR	Phy & Elect. Tests FRLS Tests	Sample#	BHEL Specn. Apprd.Data Sheet	BHEL Specn. Apprd.Data Sheet	Test Report	2	1	-	# Refer Annexure -A to QAP enclosed.
NOTES:- (A) FOR LISTS OF ROUTINE TESTS , ACCEPTANCE TESTS & TYPE TESTS REFER ANNEXURE TO QAP. LEGEND : P : PERFORMER W: WITNESSER V: VERIFIER 1- BHEL 2-VENDOR 3- SUB VENDOR CHP: CUSTOMER HOLD POINT WHICH WILL BE DECIDED AT CONTRACT STAGE.												
			PARTICULARS		BIDDER/VENDOR							
BHEL			NAME									
			SIGNATURE									
			DATE					BIDDER'S/VENDORS COMPANY SEAL				

	ANNEXURE TO QP	CUSTOMER:	PROJECT TITLE	SPECIFICATION NUMBER: PE-TS-434-507-E015
		BIDDER/VENDOR:	QUALITY PLAN NUMBER : PE-QP-999-507-E003, R1	SPECIFICATION TITLE:
	SHEET 6 OF 8	SYSTEM	ITEM: LT PVC CONTROL CABLE	DOC. NO.

TYPE/ ACCEPTANCE/ ROUTINE TEST REQUIREMENTS

A. Type Test Conduction:

- Tests for which "T" is indicated in the 'Test Conduction Required As' column below shall be conducted as Type Test.
- Sampling:
 - Type test to be conducted on one size of cable for every lot of cable.
 - FRLS & Flammability Test to be conducted only on one sample/ lot.

B. Acceptance Test Conduction:

- Tests for which "A" is indicated in the 'Test Conduction Required As' column below shall be conducted as Acceptance tests.
- Sampling:

Sampling for acceptance tests shall be as per Appendix-B of IS: 1554 Part-I (control cable).
- Flammability Test to be conducted only on one sample/ lot.

C. Routine Test Conduction:

- Tests for which "R" is indicated in the 'Test Conduction Required As' column below shall be conducted as Routine tests.


D. Tests listed in S. No-7.0 & 8.0 shall be conducted only on one sample / lot.

NOTE

LOT shall be defined as per IS: 1554 Part-I (control cable).


S. No.	TEST	APPLICABLE FOR	TEST CONDUCTION REQUIRED AS	REFERENCE STANDARD	REMARKS
1.0	Tests for Conductor				
I.	Annealing test	For copper conductor	T, A	IS 10810 Pt 1	<i>In process records shall be furnished to inspector at the time of inspection.</i>
II.	Resistance test	For copper conductor	T, A, R	IS 10810 Pt 5	
2.0	Tests for Armour Wires/Strips				
I.	Measurement of dimensions	Applicable for GS wire/Strip	T,A	IS 10810 Pt 36	
II.	Tensile test	Applicable for GS wire/Strip	T, A	IS 10810 Pt 37	
III.	Elongation at break test	Applicable for GS wire/Strip only	T, A	IS 10810 Pt 37	
IV.	Torsion test	For GS round wire only	T, A	IS 10810 Pt 38	
V.	Winding / Adhesion Test	For GS strip only	T, A	IS 10810 Pt 39	

BHEL	PARTICULARS	BIDDER/ VENDOR	
	NAME		
	SIGNATURE		
	DATE		BIDDER'S / VENDORS COMPANY SEAL

	ANNEXURE TO QP	CUSTOMER:	PROJECT TITLE	SPECIFICATION NUMBER: PE-TS-434-507-E015
		BIDDER/VENDOR:	QUALITY PLAN NUMBER : PE-QP-999-507-E003, R1	SPECIFICATION TITLE:
	SHEET 7 OF 8	SYSTEM	ITEM: LT PVC CONTROL CABLE	DOC. NO.

S. No.	TEST	APPLICABLE FOR	TEST CONDUCTION REQUIRED AS	REFERENCE STANDARD	REMARKS
VI.	Resistivity test	Applicable for GS wire/Strip	T, A	IS 10810 Pt 42	
VII.	Uniformity of Zinc coating test	For G. S. wires/Strip only	T, A	IS 10810 Pt 40	
VIII.	Mass of Zinc coating test	For G. S. wires/Strip only	T, A	IS 10810 Pt 41	
IX.	Wrapping Test	For G. S. wires/Strip only	A	IS 10810 Pt 3	
3.0	<u>Physical Tests for PVC Insulation & PVC sheath</u>				
I.	Test for thickness	Applicable for PVC insulation, PVC inner sheath & PVC outer sheath	T, A	IS 10810 Pt 6	
II.	Tensile strength and elongation test at break	Applicable for PVC insulation & PVC outer sheath			
(a)	Before ageing		T, A	IS 10810 Pt 7	
(b)	After ageing		T, A	IS 10810 Pt 7	
III.	Ageing in air oven	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 11	
IV.	Loss of mass in air oven test	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 10	
V.	Hot deformation test	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 15	
VI.	Heat shock test	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 14	
VII.	Shrinkage test	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 12	
VIII.	Thermal stability test	Applicable for PVC insulation & PVC outer sheath	T	IS 10810 Pt 60	
4.0	<u>Improved Fire performance (FR-LSH) Tests</u>				
I.	Oxygen index test	For PVC outer sheath only	T, A	IS 10810 Pt 58 / ASTM D 2863	<u>Applicable for Inner Sheath also, if the same is indicated in Datasheet-A</u>
II.	Smoke density test	For PVC outer sheath only	T, A	IS 10810 Pt 63 / ASTM D 2843	
III.	Acid gas generation test	For PVC outer sheath only	T, A	IS 10810 Pt 59 / IEC-754-1	
IV.	Temperature Index Test	For PVC outer sheath only	T	IS 10810 Pt 64 / ASTM D 2863	
5.0	<u>Flammability Tests</u>				
I.	Flammability test for bunched cables	For complete cable	T	IS 10810 Pt 62/ IEC-60332 (Part-3-23-Cat-B)	<u>Test & Category applicable</u>

BHEL	PARTICULARS	BIDDER/ VENDOR	
	NAME		
	SIGNATURE		
	DATE		BIDDER'S / VENDORS COMPANY SEAL


	ANNEXURE TO QP	CUSTOMER:	PROJECT TITLE	SPECIFICATION NUMBER: PE-TS-434-507-E015
		BIDDER/VENDOR:	QUALITY PLAN NUMBER : PE-QP-999-507-E003, R1	SPECIFICATION TITLE:
	SHEET 8 OF 8	SYSTEM	ITEM: LT PVC CONTROL CABLE	DOC. NO.


S. No.	TEST	APPLICABLE FOR	TEST CONDUCTION REQUIRED AS	REFERENCE STANDARD	REMARKS
II.	Flammability test for single cable	For complete cable	T,A	IS: 10810 Pt 61 / IEC:60332 Part-1	as indicated in Datasheet-A
III.	Swedish chimney test	For complete cable	A	SEN SS 424 1475 (Class F3)	
IV.	Flammability test	For complete cable	A	IEEE: 60383	
6.0	Electrical Tests				
I.	High Voltage Test (Water immersion test)	On cores	T	IS 10810 Pt 45	
II.	High Voltage Test at room temperature	For complete cable	T, A, R	IS 10810 Pt 45	
III.	Insulation Resistance Test (Volume resistivity method)	For complete cable	T, A	IS 10810 Pt 43	
7.0	Anti-rodent and Termite Repulsion test	For PVC outer sheath only	A	Refer Note	Test applicable if indicated in Datasheet-A
8.0	Anti-Fungal Test	For PVC outer sheath only	A	--	
9.0	Special Tests				
I.	Hydrolytic Stability Test	For complete cable	**	ASTM D 3137:81	Test applicable if indicated in Datasheet-A
II.	Ultraviolet Radiation Test	For complete cable	**	BS EN ISO 4892-2	

**** These tests shall be conducted on one sample for the entire contract and duration of these tests shall be 14 days.**

Note: A few chipping of the PVC compound is slowly ignited on a porcelain dish or cubicle in a muffle furnace at about 60-degree C. The resulting ignited ash is boiled with a little ammonium acetate solution (10%). Place a drop of aqueous sodium sulphide solution on a thick filter paper and allow soaking. Touch the spot with a drop of above extract. A black spot indicates the presence of lead, the anti-termite and rodent compound.

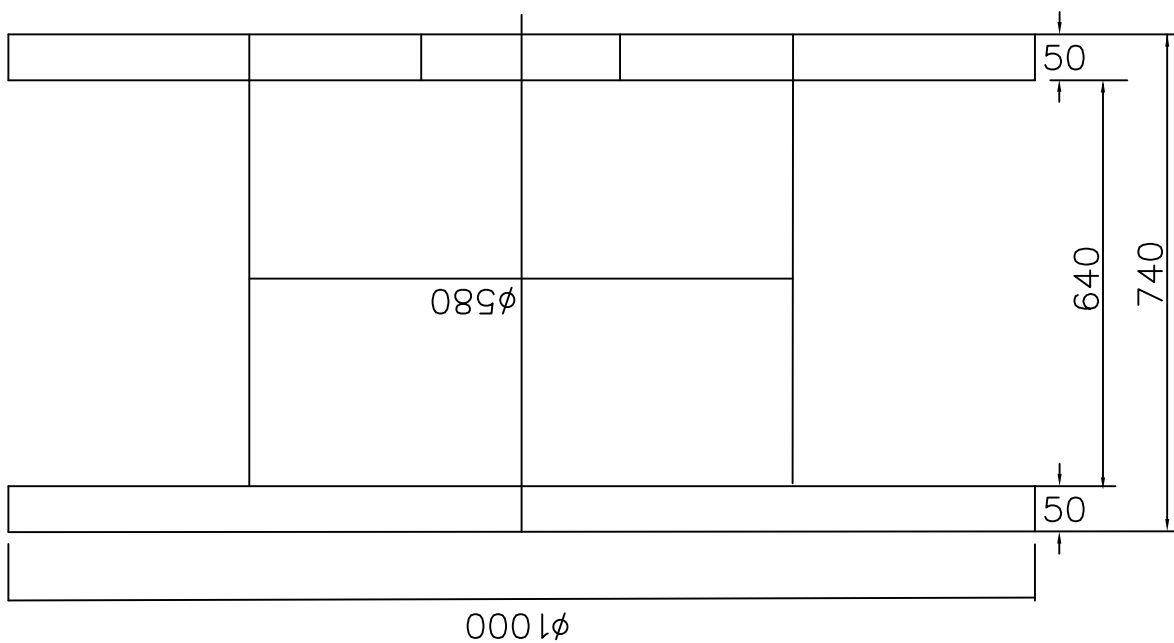
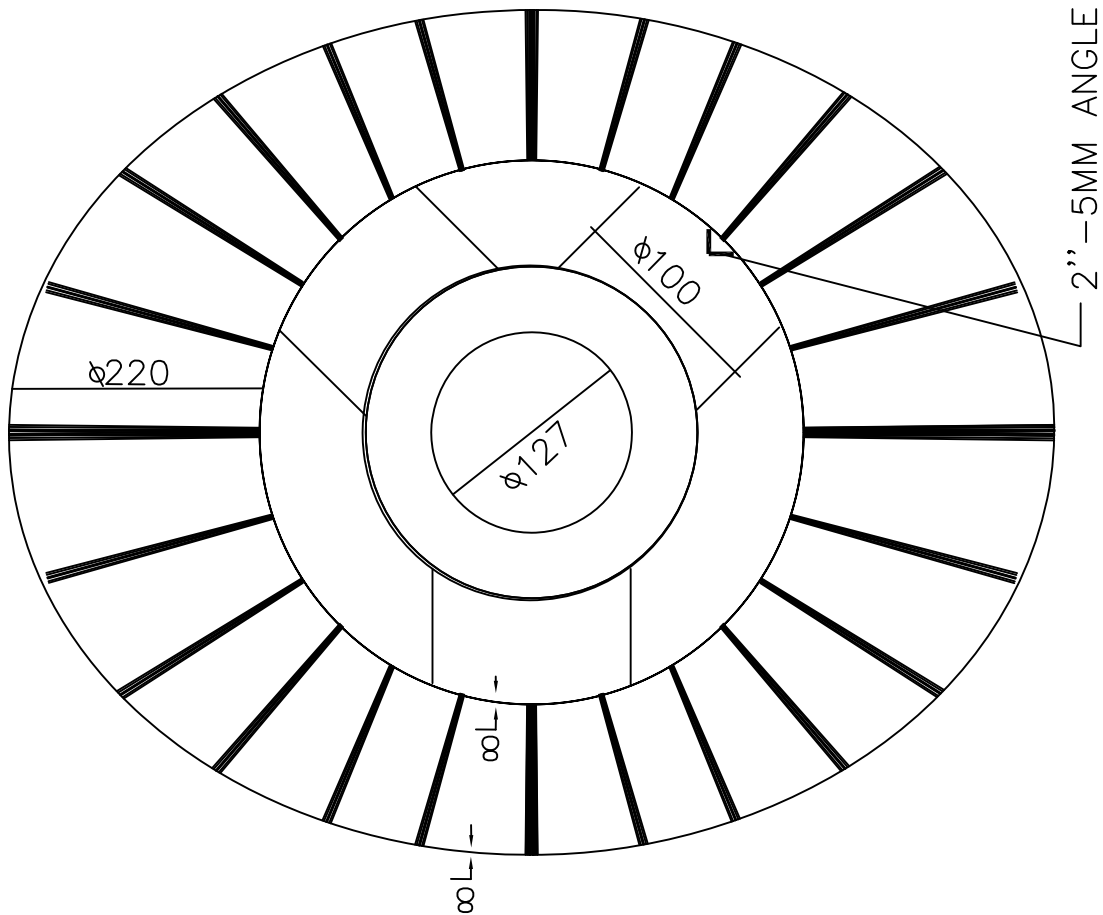
BHEL	PARTICULARS	BIDDER/ VENDOR	
	NAME		
	SIGNATURE		
	DATE		BIDDER'S / VENDORS COMPANY SEAL

CLAUSE NO.	TECHNICAL REQUIREMENTS			
	S. No.	Type Test	Remarks	
		For Conductor		
	1.	Resistance test		
		For Armour Wires / Formed Wires (If applicable)		
	2.	Measurement of Dimensions		
	3.	Tensile Test		
	4.	Elongation test		
	5.	Torsion test	For round wire only	
	6.	Wrapping test	For aluminium wires / formed wires only.	
	7.	Resistance test		
	8(a).	Mass of zinc Coating test	For GS wires/formed wires only	
	8(b).	Uniformity of zinc coating	For GS wires/formed wires only	
	9.	Adhesion test	For GS wires/formed wires only	
		For PVC insulation & PVC Sheath		
	10.	Test for thickness		
	11.	Tensile strength and elongation test	before ageing and after ageing	
	12.	Ageing in air oven		
	13.	Loss of mass test	For PVC insulation and sheath only	
	14.	Hot deformation test	For PVC insulation and sheath only	
	15.	Heat shock test	For PVC insulation and sheath only	
	16.	Shrinkage test		
	17.	Thermal stability test	For PVC insulation and sheath only	
EPC PACKAGE FOR PATRATU SUPER THERMAL POWER STATION EXPANSION PHASE –I (3X 800MW)		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS- 9585-001-2	SUB-SECTION-B-21 LT CONTROL CABLES	PAGE 5 OF 6

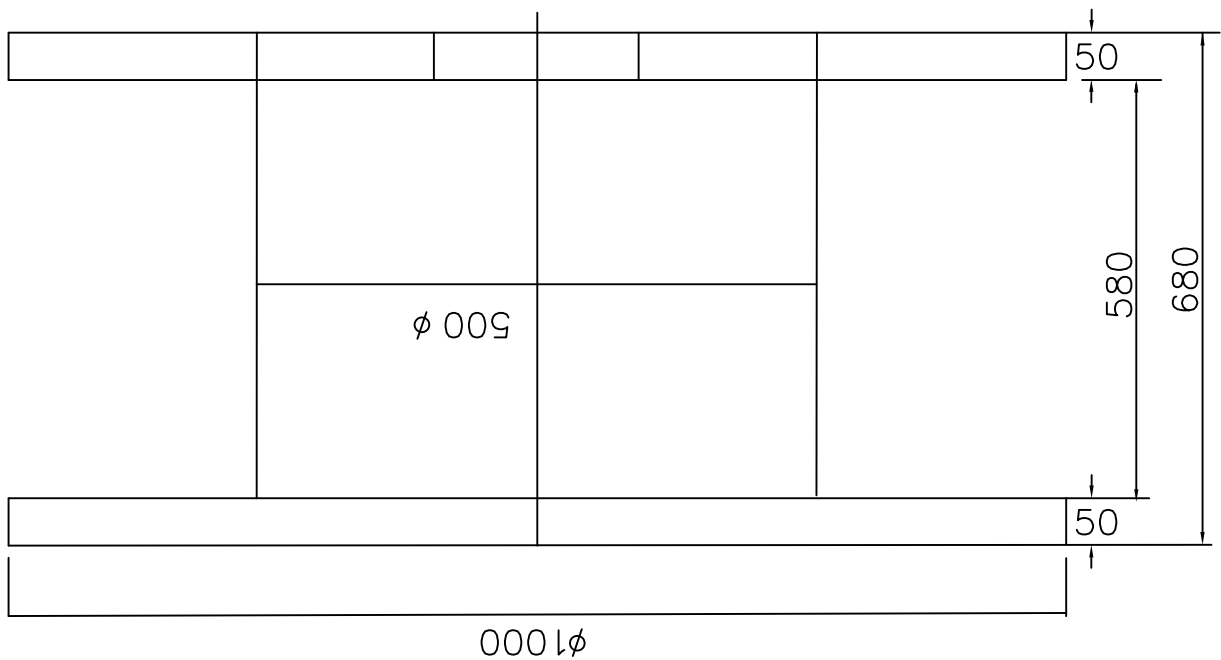
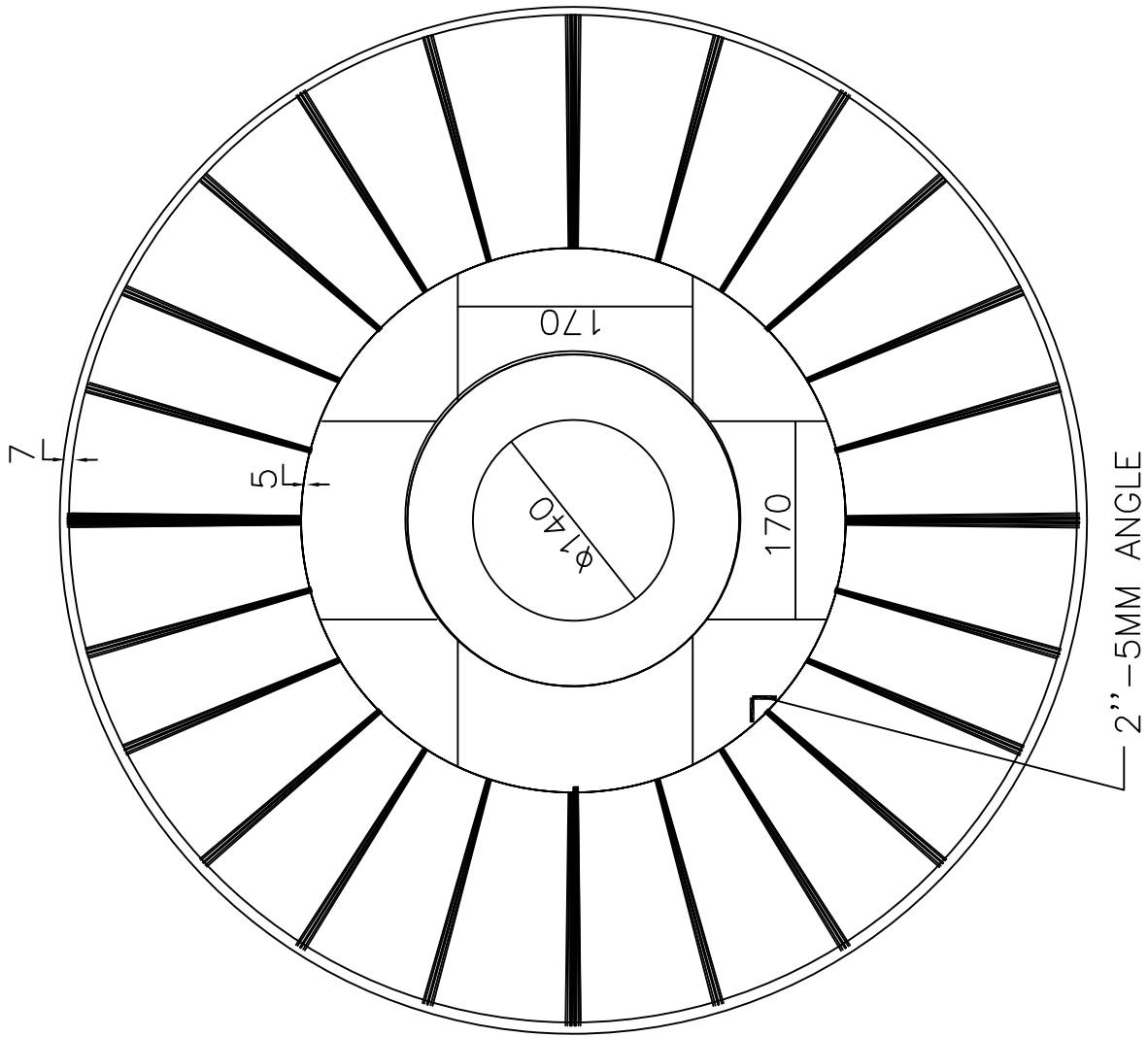
CLAUSE NO.	TECHNICAL REQUIREMENTS			
5.02.00	S. No.	Type Test	Remarks	
	18.	Oxygen index test	For outer sheath only	
	19.	Smoke density test	For outer sheath only	
	20.	Acid gas generation test	For outer sheath only	
	For completed cables			
	21.	Insulation resistance test(Volume resistivity method)		
	22.	High voltage test		
	23.	Flammability test as per IEC-332 Part-3 (Category-B)		
	Indicative list of tests/checks, Routine and Acceptance tests shall be as per Quality Assurance & Inspection table of Control Cables enclosed.			
	EPC PACKAGE FOR PATRATU SUPER THERMAL POWER STATION EXPANSION PHASE –I (3X 800MW)		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS- 9585-001-2	SUB-SECTION-B-21 LT CONTROL CABLES

ANNEXURE B TO SECTION II

(Sheet 1 of 2)



ANNEXURE B TO SECTION II



DIMENSION in mm

CLAUSE NO.

QUALITY ASSURANCE




Control Cables

Attributes / Characteristics	Item / Components / Sub System Assembly	Make, Type & T.C as per relevant standard	Dimension/surface finish	Mechanical properties	Chemical Composition	Spark Test(as applicable)	Electrical properties	Lay length & Sequence	Armour coverage, cross over, looseness, gap between two	Sequential marking/ Batch marking/ surface finish/ cable length	T.S & elongation before & after ageing on outer sheath & insulation	Thermal stability	Anti termite coating on wooden	Constructional requirements feature as per NTPC specification	Routine & Acceptance Tests as per relevant standard & NTPC	FRLS Tests
	Copper (IS-8130)	Y	Y	Y	Y		Y									
	PVC insulation Compound (IS: 5831)	Y		Y			Y				Y	Y				
	FRLS PVC Compound (IS-5831, ASTM-D2843, IS10810(Part 58), IEC-60754 Part-1)	Y		Y							Y	Y				Y
	Extrusion & curing /Manufacturing of Core		Y			Y						Y				
	Core Laying							Y								
	Armour wire/strip	Y	Y	Y												
	Inner sheath	Y	Y													
	Armouring		Y						Y							
	Outer Sheathing		Y							Y						
	Finished Cable (IS-5831, ASTM-D2843, IS10810(Part 58), IEC-60754 Part-1, IEC 60332 part III cat B)							Y	Y	Y	Y	Y		Y	Y	Y
	Wooden drum(IS-10418) /Steel Drum		Y										Y	Y		

Notes:

1. This is an indicative list of tests / checks. The manufacturer is to furnish a detailed Quality Plan indicating the practice and procedure along with relevant supporting documents.
2. Make of all major Bought out items will be subject to NTPC approval.

ROUTINE TESTS	Following routine tests shall be carried out on each drum of finished cables for all sizes.	
1)	Conductor Resistance test	
2)	High voltage test	
ACCEPTANCE TESTS	Following Acceptance tests shall be carried out on each size of cables, in the offered lot.	
A) For Conductor (as per sampling plan mentioned in IS: 1554)		
	1)	Annealing test (Copper)
	2)	Resistance test
B) For Armour Wires / Formed Wires (If applicable) (as per sampling plan mentioned in IS: 1554)		
	1.	Measurement of Dimensions
	2.	Tensile Tests
	3.	Elongation Test
	4.	Torsion Test For Round wires only
	5.	Wrapping Test
	6.	Resistance Test
	7.	Mass of Zinc coating test For G S wires / Formed wires only
	8.	Uniformity of Zinc coating For G S wires / Formed wires only
	9.	Adhesion test For G S wires / Formed wires only
	10.	Freedom from surface defects
C) For PVC insulation & PVC Sheath (as per sampling plan mentioned in IS: 1554)		
	1)	Test for thickness
	2)	Tensile strength & Elongation before ageing (for tests after ageing see “D”)

CLAUSE NO.		QUALITY ASSURANCE			
D) Ageing test:					
	Criteria	Condition	Test Requirements	Remarks	
PVC insulation & outer sheath:	Samples as per relevant IS, from each size of cables in the offered lot, shall be tested for tensile strength & elongation (before ageing). Tensile & elongation testing shall preferably be done with a computerized machine. The values will be compared with corresponding values mentioned in the Type Test report accepted by NTPC. These values of Tensile Strength & Elongation (before ageing) should be within +/- 15% of the corresponding values of Type Test report. (Please note that test values should be more than the minimum values indicated in relevant standard).	All sizes which meet the criteria	The size which has maximum negative deviation from type test report values will be put on accelerated ageing test. The samples shall be aged in air oven at temperature of 130°C+/- 2°C for 5 hours and tested for TS & elongation. Acceptance norms shall be as per IS.	In case the size does not meet the requirement in accelerated ageing test then all sizes (which had met the criteria) will be put on ageing test as per IS.	
		Sizes which do not meet the criteria	Every size will be put on ageing test as per IS.	----	
E) Following tests will be carried out on completed cables as per IS on each size:					
	1)	Insulation resistance test (Volume resistivity method)			
	2)	High voltage test			
F) Following tests shall be carried out on only one size of offered lot (comprising of all sizes):					
	1)	Thermal stability test on PVC insulation and outer sheath			
	2)	Oxygen index test on outer sheath			
	3)	Smoke density rating test on outer sheath			
	4)	Acid gas generation test on outer sheath			
G) Flammability test as per IEC 60332 - Part- 3 (Category- B) on completed cable will be carried out as per following sampling plan:					
		This test will be carried out using composite sampling i.e. irrespective of size; cables of one particular type (i.e. armoured, unarmoured) will be bunched together, as per calculations in line with the IEC. All sizes of armoured & unarmoured cables shall be covered.			
EPC PACKAGE FOR PATRATU SUPER THERMAL POWER STATION EXPANSION PHASE-I (3X 800MW)		TECHNICAL SPECIFICATION SECTION-VI, PART-B BID DOC NO.:CS-9585-001-2		SUB-SECTION-E-49 CONTROL CABLE	
				Page 3 of 4	


CLAUSE NO.

QUALITY ASSURANCE



H) Following tests shall be carried on one length of each size (armoured & unarmoured) of offered lot:

	1)	Constructional / dimensional check, surface finish, length measurement, sequence of cores, armour coverage, Gap between two consecutive armour wires / formed wires, Sequential marking, drum / outer sheath extrusion's batch number marking
	2)	Measurement of Eccentricity & Ovality

	3 X 800 MW PATRATU STPS TECHNICAL SPECIFICATION FOR LT PVC CONTROL CABLES	PE-TS- 434-507-E015
		Issue No: 01
		Rev. No. 00
		Date :22.11.2024
DOCUMENTATION REQUIREMENT		

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY ALL THE BIDDERS ALONG WITH THE BID

Sl. No.	DOCUMENT TITLE
1	PQR CREDENTIALS
2	COMPLIANCE SHEET

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT ALONG WITH SUBMISSION SCHEDULE

Sl. No.	DOCUMENT TITLE	SUBMISSION SCHEDULE			
		Vendor submission (Days)*	BHEL Comment (Days)	Vendor submission (Days)#	BHEL & Customer comment/ approval (Days)
I	Primary documents				
1	Datasheet and Cross Section Drawings for Control Cable	7	3	2	18
2	QAP for Control cables	7	3	2	18
II	Secondary documents				
1	Type Test Report for Control cable	7\$	3	2	18
NOTES:					

a) * 1st submission within indicated days from date of purchase order.

b) # Submission (within indicated days) after incorporating all BHEL comments.

c) Primary documents shall be considered for Delay analysis

d) \$: 1st submission within indicated days from the date of purchase order (in case Type Test reports are available)/ from the date of conduction of test.

DRAWINGS & DOCUMENTS TO BE SUBMITTED AS FINAL/AS-BUILT DOCUMENT

Sl. No.	DOCUMENT TITLE
1	APPROVED DOCUMENTS
2	APPROVED QUALITY PLAN.
3	ALL TEST CERTIFICATES

Annexure-1

Ref: PW/PE/CMM-PVC Cables Packages (Rev-02)

Dated:19/02/2019

Note: Applicable for cable tenders released on or after 14/01/2019.

Price Variation Formulae for cables -Annexure-I

1. Prices shall be variable as per price variation formulae given below (basis IEEMA).
The price variation shall be limited to + 20% of total ex-works price actually supplied (cable size wise) and -ve price variation shall be unlimited. Rates for working out price variation shall be as per rates published by IEEMA for the factors given in Annexure-II

2. Base date for prices:

Initial Price (As per IEEMA) for-Alo, Cuo, CCo, PVCCo & Feo:

Base Date shall be- 1st working day of the previous month to the date of issue of tender enquiry.

Final Price (as per IEEMA) for- Al, Cu, Cc, PVCC & Fe:

1st working day of month, one month prior to the date on which cable is notified as being ready for inspection i.e TPIA inspection call raise date on web portal.

3. Variation factor value for ALF, CuF, CCFAL, CCFCu, XLFAL, XLFCu, FeF & FeW as applicable shall be as per Technical Specification.

4. PVC shall be payable within contractual delivery period (including any extension thereto).

ANNEXURE-A

(PVC FORMULA & FACTORS)

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

(Applicable for all cable sizes except for 4C - 10 sq mm Cable)

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

Tables References:

CUC	Copper conductor
P5	PVC compound
P6	Steel armour

Price Variation formula for Copper conductor PVC insulated 1.1 kV power cables

(Applicable only for 4C - 10 sq mm Cable)

$$P = P_o + CuF (Cu - Cu_o) + CCFCu (PVCc - PVCco) + Fef (Fe - Fe_o) + AIF (Al- Alo)$$

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

PVC FACTORS

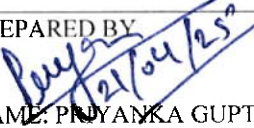
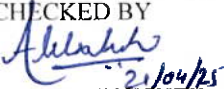

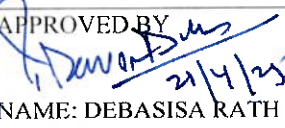
Item.No	Item Code	Item Description	CuF	CCFCu	FeF
1	507-0300019-00-A	5C - 1.5- ARMoured	0.065	0.174	0.303
2	507-0300029-00-A	7C - 1.5- ARMoured	0.091	0.199	0.329
3	507-0300021-00-A	5C - 2.5- ARMoured	0.117	0.206	0.342
4	507-0300941-00-A	10C - 2.5- ARMoured	0.235	0.337	0.325
5	507-0300003-00-A	12C - 2.5- ARMoured	0.282	0.371	0.342
6	507-0300041-00-A	14C - 2.5- ARMoured	0.329	0.409	0.36
7	507-0300030-00-A	7C - 1.5- UNARMoured	0.091	0.199	0
6	507-0300002-00-A	12C - 1.5- UNARMoured	0.157	0.277	0


	PRE-QUALIFICATION REQUIREMENTS OF LT PVC CONTROL CABLE FOR 3X800MW PATRATU TPS	PE-PQ-434-507-E015
		REVISION NO. 0 DATE 21.04.2025
		SHEET NO. 1 OF 1

ITEMS : LT PVC CONTROL CABLE	
SCOPE : Supply : YES; Erection & Commissioning : NO;	
1.0	Vendor should be a manufacturer of LT control cables.
2.0	Availability of test reports of tests on LT PVC/ HRPVC FRLS control cables to establish in- house capability to carry out all routine, type & acceptance tests as per relevant IS/international standards (except UV radiation & hydrolytic stability test which can be conducted at Govt. lab/ Govt. approved independent lab).
3.0	Capacity of manufacturing 40 km of LT control cables per month.
4.0	Manufactured and supplied LT Control cable upto 12 core.
5.0	Manufactured and supplied at least one (1) km of FRLS cables prior to the date of 08.09.18.
6.0	Manufactured and supplied at least 300 km of PVC insulated, PVC sheathed stranded copper conductor 1.1kV grade cables in one single contract prior to the date of 08.09.18
7.0	Minimum two (2) nos. purchase orders for LT PVC / HRPVC control cable shall be submitted which should not be more than five (5) years old from the date of techno- commercial bid opening for establishing continuity in business.


NOTES:

1. Consideration of bidder's offer is subject to NTPC approval.
2. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
3. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
4. After satisfactory fulfillment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.
5. Cable quantities mentioned in clause no. 5 & 6 are as per NTPC provenness requirement.
6. Attached Annexure-1 to be filled by the bidders on quality & general terms. Requisite Documents (like factory registration certificate, R&D set-up details etc.) asked in the Annexure-1, shall also be attached as Annexure-F2.1 to Annexure F2.17 along with the filled response in the Annexure-1. In addition to the same, bidder to furnish details as per attached Annexure-1.

PREPARED BY  NAME: PRIYANKA GUPTA DESIGNATION: MANAGER	CHECKED BY  NAME: ABHISHEK DESIGNATION: DGM	REVIEWED BY  NAME: PRAVEEN DUTTA DESIGNATION: AGM	APPROVED BY  NAME: DEBASISA RATH DESIGNATION: DH-ELECT(GM)
--	---	---	--

	<u>ANNEXURE- 1</u> SUB-VENDOR QUESTIONNAIRE
---	--

i.	Item/Scope of Sub-contracting			
ii.	Address of the registered office	Details of Contact Person (Name, Designation, Mobile, Email)		
iii.	Name and Address of the proposed Sub-vendor's works where item is being manufactured	Details of Contact Person: (Name, Designation, Mobile, Email)		
iv.	Annual Production Capacity for proposed item/scope of sub-contracting			
v.	Annual production for last 3 years for proposed item/scope of sub-contracting			
vi.	Details of proposed works			
1.	Year of establishment of present works			
2.	Year of commencement of manufacturing at above works			
3.	Details of change in Works address in past (if any)			
4.	Total Area			
	Covered Area			
5.	Factory Registration Certificate	Details attached at Annexure – F2.1		
6.	Design/ Research & development set-up (No. of manpower, their qualification, machines & tools employed etc.)	Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design Details attached at Annexure – F2.2 (if applicable)		
7.	Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)	Details attached at Annexure – F2.3		
8.	After sales service set up in India, in case of foreign sub-vendor (Location, Contact Person, Contact details etc.)	Applicable / Not applicable Details attached at Annexure – F2.4		
9.	Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any	Details attached at Annexure – F2.5		
10.	Sources of Raw Material/Major Bought Out Item	Details attached at Annexure – F2.6		
11.	Quality Control exercised during receipt of raw material/BOI, in-process, Final Testing, packing	Details attached at Annexure – F2.7		

	<u>ANNEXURE- 1</u> SUB-VENDOR QUESTIONNAIRE
---	--

12.	Manufacturing facilities (List of machines, special process facilities, material handling etc.)			Details attached at Annexure – F2.8		
13.	Testing facilities (List of testing equipment)			Details attached at Annexure – F2.9		
14.	If manufacturing process involves fabrication then-			Applicable / Not applicable		
	List of qualified Welders			Details attached at Annexure – F2.10		
	List of qualified NDT personnel with area of specialization			(if applicable)		
15.	List of out-sourced manufacturing processes with Sub-Vendors' names & addresses			Applicable / Not applicable		
				Details attached at Annexure. –F2.11 (if applicable)		
16.	Supply reference list including recent supplies			Details attached at Annexure – F2.12 (as per format given below)		
	Project/ package	Customer Name	Supplied Item (Type/Rating/Model /Capacity/Size etc)	PO ref no/date	Supplied Quantity	Date of Supply
17.	Product satisfactory performance feedback letter/certificates/End User Feedback			Attached at annexure - F2.13		
18.	Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating) Note:- Reports need not to be submitted			Applicable / Not applicable		
				Details attached at Annexure – F2.14 (if applicable)		
19.	Statutory / mandatory certification for the proposed product			Applicable / Not applicable		
				Details attached at Annexure – F2.15 (if applicable)		
20.	Copy of ISO 9001 certificate (if available)			Attached at Annexure – F2.16		
21.	Product technical catalogues for proposed item (if available)			Details attached at Annexure – F2.17		
Name:		Desig:		Sign:		Date:

Company's Seal/Stamp:-

Annexure-1

Ref: PW/PE/CMM-PVC Cables Packages (Rev-02)

Dated:19/02/2019

Note: Applicable for cable tenders released on or after 14/01/2019.

Price Variation Formulae for cables -Annexure-I

1. Prices shall be variable as per price variation formulae given below (basis IEEMA).
The price variation shall be limited to + 20% of total ex-works price actually supplied (cable size wise) and -ve price variation shall be unlimited. Rates for working out price variation shall be as per rates published by IEEMA for the factors given in Annexure-II

2. Base date for prices:

Initial Price (As per IEEMA) for-Alo, Cuo, CCo, PVCCo & Feo:

Base Date shall be- 1st working day of the previous month to the date of issue of tender enquiry.

Final Price (as per IEEMA) for- Al, Cu, Cc, PVCC & Fe:

1st working day of month, one month prior to the date on which cable is notified as being ready for inspection i.e TPIA inspection call raise date on web portal.

3. Variation factor value for ALF, CuF, CCFAL, CCFCu, XLFAL, XLFCu, FeF & FeW as applicable shall be as per Technical Specification.

4. PVC shall be payable within contractual delivery period (including any extension thereto).

ANNEXURE-A

(PVC FORMULA & FACTORS)

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

(Applicable for all cable sizes except for 4C - 10 sq mm Cable)

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

Tables References:

CUC	Copper conductor
P5	PVC compound
P6	Steel armour

Price Variation formula for Copper conductor PVC insulated 1.1 kV power cables

(Applicable only for 4C - 10 sq mm Cable)

$$P = P_o + CuF (Cu - Cu_o) + CCFCu (PVCc - PVCco) + Fef (Fe - Fe_o) + AIF (Al- Alo)$$

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

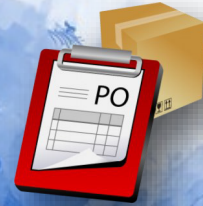
PVC FACTORS

Item.No	Item Code	Item Description	CuF	CCFCu	FeF
1	507-0300019-00-A	5C - 1.5- ARMoured	0.065	0.174	0.303
2	507-0300029-00-A	7C - 1.5- ARMoured	0.091	0.199	0.329
3	507-0300021-00-A	5C - 2.5- ARMoured	0.117	0.206	0.342
4	507-0300941-00-A	10C - 2.5- ARMoured	0.235	0.337	0.325
5	507-0300003-00-A	12C - 2.5- ARMoured	0.282	0.371	0.342
6	507-0300041-00-A	14C - 2.5- ARMoured	0.329	0.409	0.36
7	507-0300030-00-A	7C - 1.5- UNARMoured	0.091	0.199	0
6	507-0300002-00-A	12C - 1.5- UNARMoured	0.157	0.277	0

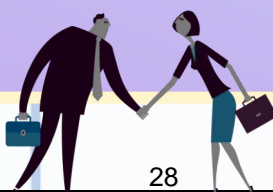
Annexure B															
BOQ cum PRICE FORMAT															
3X800 MW PVUNL PATRATU TPP PHASE-I															
LT PVC CONTROL CABLE															
TENDER REF NO - 77/25/6162/NIT dated 16.10.2025															
VENDOR'S NAME - M/s.....															
S. No.	ITEM CODE	ITEM DESCRIPTION	UOM	Order Qty	Drum Length	Make/ Model	HSN codes	UNIT EX-WORKS PRICE (INCLUDING PACKING) (INR)	TOTAL EX-WORKS PRICE (INCLUDING PACKING) (INR)	FREIGHT RATE @.....% OF TOTAL EX-WORKS PRICE (%)	FREIGHT CHARGES (INR)	TOTAL EX-WORKS PRICE + FREIGHT CHARGES (INR)	APPLICABLE GST % RATE, refer note 04 below (%)	TOTAL GST AMOUNT (INR)	TOTAL PRICE F.O.R. SITE (INR)
1.0	1.1 kV /Copper conductor / PVC insulated / Innersheath PVC type ST1 / Outersheath PVC Type ST1 with FRLS property Unarmoured Control cable														
1.1	507-0300030-00-A	7C-1.5-UNARMoured	MTR	21000	1000				0		0	0		0	0
1.2	507-0300002-00-A	12C-1.5-UNARMoured	MTR	22000	1000				0		0	0		0	0
2.0	1.1 kV /Copper conductor / PVC insulated / Innersheath PVC type ST1 / Outersheath PVC Type ST1 with FRLS property / GS (formed wire / Round wire) armoured control cable														
2.1	507-0300019-00-A	5C-1.5-ARMoured	MTR	2000	1000				0		0	0		0	0
2.2	507-0300021-00-A	5C-2.5-ARMoured	MTR	10000	1000				0		0	0		0	0
2.3	507-0300029-00-A	7C-1.5-ARMoured	MTR	2000	1000				0		0	0		0	0
2.4	507-0300049-00-A	10C-2.5-ARMoured	MTR	4000	1000				0		0	0		0	0
2.5	507-0300003-00-A	12C-2.5-ARMoured	MTR	20000	1000				0		0	0		0	0
2.6	507-0300041-00-A	14C-2.5-ARMoured	MTR	2000	1000				0		0	0		0	0
		TOTAL							0		0	0		0	0
		TOTAL F.O.R. PRICE IN WORDS													
Note:Vendor to fill only in Blue color highlighted columns.															

NOTES :

- Quantities indicated above shall be known as Order Quantities. The variation in quantities shall be as per NIT.
- The bidder shall indicate the unit price of each type and size of cables listed as per the BOQ-Cum-Price Schedule. The unit prices shall apply for adjustment of variation in quantity as stipulated in NIT.
- Manufacturing of the cables shall be taken up by the successful bidder only after approval of technical and quality documentation. Subsequent qty. shall be cleared for manufacture based on progress of engineering & site requirements.
- Delivery schedule shall be as per NIT.
- The standard drum length shall be 1000 meters as indicated above. Tolerance on individual drum length shall be ±5%.
- Overall tolerance on total dispatched quantity of each size shall be (-) 2% and (+) 0% except where the total ordered quantity is one single drum length of 1000m, in which case it shall be -5%/0%. Cables consumed for testing and inspection shall be to bidder's account.
- For each individual cable size, one short length of not less than 200m may be accepted only in the final drum length to complete the supply (except where the total ordered quantity is one single drum length of 1000m). The overall tolerance limits stipulated above shall continue to apply (in case short lengths are accepted).
- "Supplier to essentially quote prices against each line item of the BOQ in the respective columns. 'NIL', 'Free of Cost', 'Zero' etc. shall not be mentioned for any line item of the BOQ. In such case, Liquidated Damages shall be levied on the Total order/ contract value instead of undelivered portion of the Order/ contract. Also, if price of any line item (X) is mentioned 'Included' in any other line item (Y), then in case of delay in delivery of item (X), LD shall be applicable on value of item (Y)."
- Bidder to indicate 'Make' & 'Model' of each item offered in their unpriced schedule.



GUIDELINES FOR REVERSE AUCTION - 2024



Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

1. Scope

- 1.1. This document describes the guidelines to be followed by each Unit/ Division/ Region for conducting Reverse Auction (RA) for procurement of material/ works/ services. These guidelines will be applicable for purchases/ contracts to be awarded under Purchase/ Works policy and the RA shall follow the philosophy of English Reverse (No ties).
- 1.2. Based on these guidelines, Units/ Divisions/ Regions (hereinafter referred as 'units') may issue their own Departmental Procedures without changing the intent and spirit of the guidelines contained in this document. These guidelines will supersede earlier guidelines issued vide AA:SSP:RA:05 dated 08.03.2021.
- 1.3. English Reverse (No ties) is a type of auction where the starting price and bid decrement are announced before start of online reverse auction. The interested bidders can thereupon start bidding in an iterative process wherein the lowest bidder at any given moment can be displaced by an even lower bid of a competing bidder, within a given time frame. The bidding is with reference to the current lowest bid in the reverse auction. All bidders will see the current lowest quoted price and their rank. The term 'No ties' is used since more than one bidder cannot give an identical price, at a given instant, during the reverse auction. In other words, there shall never be a tie in the bids.

2. Intent of Reverse Auction

To derive maximum benefit in cost savings through competitive bidding.

3. Upfront declaration in NIT

- 3.1. Wherever it is felt that procurement may be done through Reverse Auction, the bids shall be invited in two parts/ three parts or single part bid (Price Bid) where Techno-Commercial MoU already exists. Wherever, the evaluation is done for individual line item, separate sealed price bid for each line item shall be taken.
- 3.2. Decision to go for RA would be taken before floating of the tender. In case it is decided to go for RA, same shall be declared upfront in NIT by inserting the following clause:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted

Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

among the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed price bid along with applicable loading, if any, shall be considered for ranking.”

4. Aspects to be considered for RA

4.1. While RA can drive cost savings, they should be used judiciously, considering the broader implications beyond price alone. Therefore, RA should not be used indiscriminately or as a default mode of procurement. One may choose procurement of goods/ works/ services that are amenable to this mode of procurement.

4.2. The cases where RA would not be appropriate are as under:

- a) In Engineered products having complexity in design
- b) Items of strategic/ critical/ vital/ high technical complex nature, items that are in short supply in the market
- c) The requirement is not of high enough value to generate competitive pressures on bidders.
- d) Where the QCBS system of selection is used
- e) Where opting for RA in the tender would bring down competition
- f) EPC contracts and complex Works contracts
- g) Where it is proposed to issue parallel orders by splitting the total order quantity among more than one supplier

4.3. RA shall not be done for selection of business partners through pre-bid/ strategic tie-ups

4.4. If it is decided to go for RA, the following may be considered:

- a) Number of techno-commercially qualified bidders in previous tender for same/ similar class of item
- b) Price volatility of the item(s) under consideration
- c) Past purchase experience of similar item(s)
- d) Tender Value of the item(s) under procurement
- e) Any other aspect which may be specific to tender

Above aspects may be considered by the tender issuing authority to decide before floating of the tender, if RA is to be conducted or not for

Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

that particular tender.

Note: Decision to go for RA or not will be on case to case basis with recorded reasons.

5. RA Committee

5.1. Purchase/ Tender committee, if already in place, shall also act as RA committee. Purchase representative will be the convener. In case Purchase/ Tender committee has not been formed, the Product Manager/ MM Head/ Department Head, shall constitute RA committee consisting of representatives (*rank as per DoP of tender/ negotiation committee*) from departments of Engineering/ Indenter/ User, Purchase and Finance. This committee will work for a specific tender. The role of RA committee shall be as below:

- a) To vet the comparative statement comprising sealed price bids received, MSE status, qualification against Public Procurement (Preference to Make in India), Order 2017 (PPP-MII, Order 2017) of all techno-commercially qualified bidders, loading etc. before sending it to the service provider for RA.
- b) To decide and record the 'Start-Price' and 'Bid Decrement'.
- c) To observe the RA process and declare RA as successful.

6. Business rules for RA

6.1. Model Business rules (annexure I) and other annexures II to VI are attached. MM shall prepare and fill in the required details in the annexures at appropriate places like:

- a) Enquiry/ Request for Quotation (RFQ) number
- b) Name and Addresses of the bidders
- c) Items description, quantities/ weight, Specification
- d) Date and time of opening and closing of RA
- e) Extension conditions
- f) Loading Criteria/ Formulae
- g) Foreign Exchange (FE) rates for evaluation
- h) Taxes & Duties
- i) Freight & Insurance
- j) Bidders' training, if required, etc.

Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

- 6.2. The calculation sheet e.g. excel sheet (which will help to arrive at 'Total Cost to BHEL') which is communicated to respective bidders of RA, will be prepared by MM and vetted by Finance. This calculation sheet will be finalized based on the evaluation criteria specified in the NIT and will be same based on which sealed price bids have been evaluated.
- 6.3. MM shall issue a mandate (annexure II) to the service provider covering business rules etc. and inform about event, calculation sheet etc. to all techno-commercially accepted bidders.

7. Role of Service Provider

- (1) Acknowledge the receipt of mandate from BHEL.
- (2) Contact the bidders, provide business rules and train them, as required.
- (3) Get the process compliance form (annexure III) signed by all the participating bidders before RA event.
- (4) Conduct the event as per the contract and business rules.
- (5) Submit the Login Reports, Results, History sheet and authorized final bid from the bidders.
- (6) To obtain price breakup from successful bidder and submit the same to BHEL.

8. Start Price

Start price for RA shall be lowest of sealed price bid.

Note: Wherever more than one lowest sealed price bids are identical, RA committee shall declare the start price by reducing the lowest sealed price bid by maximum of one decrement.

9. Witnessing Auction

Access to witness the RA shall be available to the concerned officials of BHEL (Indenter/ Finance Officials/ Purchase Officials), nominated by Head MM/ Purchase/ Contracts.

10. Reverse Auction Process

- 10.1. Reverse Auction will be conducted if two or more bidders are techno-commercially qualified.

Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

-
- 10.2. Wherever RA is opted in a tender, the techno-commercially qualified H1 will not be allowed to participate in RA. In case more than one H1 bidder quote the same rate, the Price Offer received last, as per the time log of the Portal, shall be removed first, on the principle of last in, first out by the system.
- 10.3. However, H1 will be allowed to participate in RA in the following cases:
- a) If number of techno-commercially qualified bidders are only 2 or 3.
 - b) In case Primary product of only one OEM is left in contention for participation in RA on elimination of H1.
 - c) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MSE and H-1 is eligible MSE and H-1 price is coming within price band of 15% of Non-MSE lowest bidder.
 - d) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MII and H-1 is eligible MII and H-1 price is coming within price band of 20% of Non-MII lowest bidder.
- 10.4. Only those bidders who submit the online sealed bid within the scheduled time shall be eligible to participate further in the RA process.
- 10.5. The lowest bidder in sealed price bid shall be shown as current L1 automatically by the system. System shall have the provision to indicate this bid as current L1 for further bidding. This price can be displaced by an even lower bid of a competing bidder.
- 10.6. If the start price is lower than the lowest sealed price bid (in line with clause 8.0), on acceptance of such start price by any bidder this bid would be indicated as current L1 for further bidding. However, if no bidder accepts the start price, RA shall be treated as cancelled for the respective line item(s) and the tender shall be processed accordingly.
- 10.7. In case of no further bidding, RA will be deemed to have been successful with current L1 bidder. During RA, all bidders will see their rank and current L1 price on the screen. Once the RA is done, the ranking status would be based on the last quoted price of the bidder(s) irrespective of the quote received in RA or sealed price bid.

Guidelines for Reverse Auction – 2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

10.8. No bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.

11. Processing of case after RA

11.1. Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

11.2. Reasonability of rates received through RA to be ascertained as per extant Policy provisions.

12. Payment to the Service Provider

Payment shall be made as per the agreed terms of the Framework Agreement with the service provider based on the mandate issued and service provider's invoice certified by the respective MM. If the RA event is conducted as per the mandate given by BHEL and agreed procedure, payment shall be made to the service provider irrespective of the auction outcome.

13. Others

13.1. If RA is being conducted for multiple line items and L1 is to be decided for individual items, number of items in single screen be restricted to 10 (ten) to avoid scrolling by the bidders.

13.2. In case of enquiry through e-Procurement, the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.

13.3. BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding.

13.4. Bidders will be advised to read the 'Business Rules' indicating details of RA event carefully, before reverse auction event.

13.5. Model annexures are enclosed. However, to suit specific requirement of the Units changes in the annexures may be done with the approval of respective MM Head of Unit. Such changes shall specifically be communicated to the service provider before the RA event.

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

This has reference to tender no **{tender number....date...}**. BHEL shall finalise the Rates for the supply of **{item name}** through Reverse Auction mode. BHEL has made arrangement with M/s. **{Service provider}**, who shall be BHEL's authorized service provider for the same. Bidders should go through the instructions given below and submit acceptance of the same.

The technical & commercial terms are as per (a) BHEL Tender Enq. No. {...} dated {...}, (b) Bidders' technical & commercial bid (in case of two part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

1. Procedure of Reverse Auctioning

- i. Price bids of all techno-commercially qualified bidders shall be opened.
- ii. **Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iii. The lowest bidder in sealed price bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.
- iv. Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v. After the completion of the reverse auction, the Closing Price shall be available for further processing.
- vi. Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

2. Schedule for reverse auction: The Reverse Auction is tentatively scheduled on {date}: ;{start time}: ;{Close Time: }.

3. Auction extension time: If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes,

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Reverse Auction.

4. **Bid price:** The Bidder has to quote the {...} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document, including loading (if indicated by BHEL due to deviations in technical/ commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).
5. **Bidding currency and unit of measurement:** Bidding will be conducted in *Indian Rupees per Unit* of the material as per the specifications {...}

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

6. **Validity of bids:** Price shall be valid for {... days} from the date of reverse auction. These shall not be subjected to any change whatsoever.

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

-
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
 8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.
 9. **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
 10. Any commercial/ technical loading shall be separately intimated to respective bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during Reverse Auction. Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.
 11. Reverse auction shall be conducted by BHEL (through M/s {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

In order to ward-off contingent situation of connectivity failure bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

- 12.** Proxy bids: Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

- 13.** Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc from M/s {Service provider}.
- 14.** M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.

15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure – VI) for price breakup, quoted during the Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL within two working days of Auction without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. {...} dt. {...}. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
 - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
 - b. Bid Placed by the bidder
 - c. Start Price
 - d. Decrement value
 - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Business Rules for Reverse Auction

Annexure – I

intimation to bidders.

21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines for suspension of business dealings (as available on www.bhel.com), shall be initiated by BHEL.

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

Mandate to Service Provider

Annexure – II

Ref :

Date :

To,

M/s. {Service provider}

Sub: Providing of Services for Reverse Auction.

Ref: No {...} date {...}

Dear Sir,

Please conduct Reverse Auction as per the following details:

- **Scope:** Auction event management with training of BHEL and its bidders.
- Seek process compliance form from all the bidders provided by BHEL before start of RA event. In case of postponement of event to some other date, ensure acknowledgement from each bidder.
- Price: Rs. {.....}/- . No other duties, Taxes, levies etc. except service tax @ {.....}% shall be payable for conducting reverse auction. This price is firm.
- Payment Terms: 100% payment after successful completion of Auction.
- Completion of Auction Process: The auction process shall be deemed to have been successfully completed on receipt and acceptance of final report including hard copy/ email of the final bid with price break up, duly signed by the successful bidder who has participated in the reverse auction. The bill shall be submitted along with the completion report to the undersigned.
- Business Rules of the Reverse Auction are as per Annexure – I.
- The list of bidders with their contact details is given in Annexure – IV. and the details of the item (s) to be Reverse Auctioned are as per Annexure – V.
- Please acknowledge receipt of this letter order and also confirm that final report (duly signed and stamped by M/s. {Service provider}) including hard copy/ email of the final bid with breakup of prices duly signed by the successful bidder (duly endorsed by M/s. {Service provider}) shall be submitted within **four** working days of conclusion of auction.

Yours sincerely,

(for and on behalf of BHEL)

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

Mandate to Service Provider

Annexure – II

Note:

If the event has been conducted as per mandate, you shall be paid irrespective of RA outcome.

Buyer Name	<ul style="list-style-type: none"> - Name of BHEL Unit - Full postal address - Fax: - Phone: - Email: - Contact person name: - Phone: -
Auction to be conducted by	<ul style="list-style-type: none"> - Name of Service provider - Full postal address - Fax: - Phone: - Email: - Contact person name: - Phone: -
Date of Auction	<ul style="list-style-type: none"> - Date of Auction - Reverse auction time: - Auction website:
Documents Attached: (To be sent to the bidders)	<ul style="list-style-type: none"> 1) Business rules for Reverse Auction (<u>Annexure-I</u>) 2) Process Compliance Form (<u>Annexure-III</u>) 3) Details of item (s) to be Reverse Auctioned (<u>Annexure-V</u>) 4) Post RA Price confirmation by bidder (<u>Annexure-VI</u>)

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

Process Compliance Form

Annexure – III

(The bidders are required to print this on their company's letterhead and sign, stamp before RA)

To

- M/s. {Service provider}
- Postal address}

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{.....} dt. {.....}
This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - VI within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name –

Company / Organization

Designation within Company / Organization

Address of Company / Organization

- **Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.**

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

List of bidders and their address/ contact person details

Annexure – IV

Sl. No.	Address	Contact Person
1	<ul style="list-style-type: none"> - Name of bidder - Full postal address - Fax: - Phone: - Email: 	<ul style="list-style-type: none"> - Contact person name: - Phone: - Email:
2		
3		
..		
..		

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00
Dated: 05.12.2024

Details of item (s) for Reverse Auction

Annexure – V

1. {Details of items including quantity, specification, Enquiry no. & date

- 1.
- 2.
- ..
- ..
- ..
- }

Guidelines for Reverse Auction –2024

Doc. No. AA:SSP:RA:00

Dated: 05.12.2024

RA price confirmation and breakup (To be submitted by L1 bidder after completion of RA)

Annexure – VI

To

- M/s. Service provider
- Postal address

CC: M/s BHEL

{Unit-
Address-}

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

**Rs.{____in value & in words____} for item(s) covered under tender enquiry
No. {...} dt.{...}**

Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, E.D., C.S.T., freight and insurance charges up to {.....} District,{.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT}

as our final landed prices as quoted during the Reverse Auction conducted today {date} which will be valid for a period of {__ in nos. & in words __} days.

The price break-up is as given below.

Total

=====

- Rs. **in value & in words**

=====

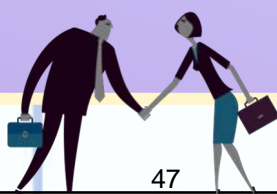
Yours sincerely,

For _____

Name:**Company:****Date:****Seal:**



GUIDELINES FOR REVERSE AUCTION - 2024



These Conditions shall be read and construed along with General Conditions of Contract (GCC) rev.06 & GST related Corrigendum to GCC rev.06, to be enclosed along with the tender enquiry. In case of any conflict or inconsistency, the conditions given in SCC shall prevail over the GCC and its corrigendum.

Sl No.	Title	Description
1.	Project Name	3 x 800 MW PVUNL PATRATU TPP PHASE-I (EPC)
2.	Nature of project & Type of Bidding	Non-Mega & ICB (International Competitive Bidding)
3.	Customer Order Ref No	01/PVUNL-CS-9585-001-2/NOA-FC dated 08.03.2018 01/PVUNL-CS-9585-001-2/NOA-SC dated 08.03.2018 01/PVUNL-CS-9585-001-2/NOA-TC dated 08.03.2018
4.	BHEL's Customer	PATRATU VIDYUT UTPADAN NIGAM LIMITED (subsidiary of NTPC Limited in joint venture with JBVNL)
5.	PVUNL GST No.	20AAICP3718K1ZH
6.	Customer Consultants	No consultant
7.	Consignee Address (Bill To)	For supply package: BHEL, Power Sector-Project Engineering Management, Power Project Engineering Institute, Plot No. 25, Sector-16A, Noida, Uttar Pradesh-201301. GSTIN: 09AAACB4146P2ZC For turnkey packages (where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL-PSWR): Construction Manager, BHEL site office, Patratu Vidyut Utpadan Njigam Ltd , PO: PTPS , Patratu , Ramgarh, Jharkhand - 829119 BHEL PSWR GSTIN No.- 27AAACB4146P1ZF
8.	Delivery Address (Ship To)	Construction Manager, Bharat Heavy Electricals Limited, Patratu Vidyut Utpadan Njigam Ltd, PO: PTPS , Patratu , Ramgarh ,Jharkhand - 829119
9.	BHEL Site Office Address	Construction Manager, Bharat Heavy Electricals Limited, Patratu Vidyut Utpadan Njigam Ltd , PO: PTPS , Patratu , Ramgarh, Jharkhand - 829119
10.	Location of Plant	Site is Located just outside the coal belt of South Karanpura in Ramgarh District of Jharkhand State. The nearest Railway Station is Patratu which is at a distance of about 4 km on Barkakhana-Barwadih Railway line. District: Ramgarh (state- Jharkhand) Next big cities to site: Ranchi Nearest Railway Station: - Patratu Nearest Airport: Ranchi (45 km by road from site)
11.	Mode of Dispatch	Air, Road, Rail & Sea Transportation For indigenous supplies: By Rail/Road on door delivery and freight pre-paid basis. For imported supplies: On C&F basis. Transit Insurance will be in BHEL scope
12.	Road Permit /E-waybill	Road Permit / E-way bill, to be arranged by Supplier/ transporter/ BHEL (as per GOI mandate).
13.	BHEL GSTIN Details	For supply packages: BHEL-PEM is registered in the State of Uttar Pradesh with GSTIN 09AAACB4146P2ZC

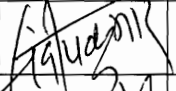
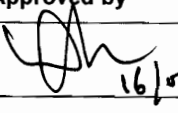
		For Turnkey packages: BHEL PSWR GSTIN No.- 27AAACB4146P1ZF
14.	Transit Insurance	<p>In BHEL Scope.</p> <p>For each dispatch, vendor shall inform the following to the Underwriter under intimation to BHEL-PEM and BHEL Site office:</p> <ul style="list-style-type: none"> (i) Policy No. (ii) Consignee Name. (iii) Consignment Details (items with their weights and value (in INR). (iv) Project Name and P.O. No. (v) LR No. and date, Dispatch origin and destination details, Invoice No. <p>Vendors to intimate the underwriters quoting the insurance Policy No. as mentioned in Purchase Order.</p>
15.	Dispatch intimation	<p>Yes in writing, Not less than 30 (Thirty) days prior to date of shipment and dispatch details to be sent to:</p> <p style="padding-left: 40px;">BHEL Site office (As mentioned in Sl. No. 9) BHEL PEM Noida (As mentioned in NIT)</p> <p>At the point of dispatch, vendor must furnish docs required as given below through Email / Fax</p> <ul style="list-style-type: none"> i. Vendor's invoice ii. LR / RR / GR / Courier Receipt iii. Packing List/ Challan indicating the items dispatched (with their weights) iv. Insurance intimation letter informing the underwriters about the dispatches v. MDCC (of BHEL / NTPC) as applicable vi. Photograph of packing / boxes showing dispatch marking as per Sl. No. 26
16.	Document required for Vendor's payment.	<p>For materials originating from Indian territory</p> <p>For claiming the payment against dispatch, MRC & Freight, documents as mentioned in GCC rev 06 & its corrigendum shall be submitted by vendor to BHEL. Original money receipt must be submitted for Freight payment.</p> <p>Packing List must comply to Clause No. 19.3 of General Commercial Terms & Conditions of GCC rev.06. Description of items in packing list shall be as per PO such that proper correlation between PO & packing list must be furnished.</p> <p>Soft copy of documents for claiming payment shall be submitted by vendor as advance copy.</p> <p>For materials originating from non-Indian Territory</p> <p>Three (3) original and Three (3) copies of clean bill of lading or One (1) clean original Airway Bill & Three (3) copies, in case of air freight.</p> <p>One (1) original and Three (3) copies of signed Invoices</p> <p>One (1) original and Three (3) copies of Packing List (clearly showing number of packages, gross weight and net weight).</p> <p>Three (3) copies of certificate of country of origin.</p> <p>Copy of MDCC from BHEL / NTPC (as applicable)</p> <p>Three (3) copies of inspection certificate, if any, issued by the customer/his authorized representative.</p> <p>Three (3) of certificate from the vendor to the effect that drawings and catalogues for customs clearance purpose have been kept with the packages for shipment.</p> <p>Three (3) copies of certificate from the vendor to the effect that the contents in each case are not less than that entered in the invoices and guaranteed as new and as per the relevant technical specifications.</p> <p>Shipping Specification – One (1) copy.</p> <p>Quality Certificate – One (1) copy.</p> <p>Approved Test Certificates, if any. - Three (3) copies.</p> <p>Guarantee Certificate – One (1) Original + One (1) copy.</p>

Gaurav
08/5/18

		Inspection Reports – One (1) Original + One (1) copy. PVC Calculation and copy of all applicable indices, if PVC applicable. – Two (2) copies.
17.	Material Receipt Certificate (MRC)	A) For supply packages- BHEL-PEM will arrange MRC from BHEL site B) For Turnkey (Supply + Erection & Commissioning) – Original MRC duly signed by customer (PVUNL) & BHEL site is to be arranged by Vendor.
18.	Buyer and Paying Authority	For packages where PEM will issue the Purchase Order: BHEL PEM will be the paying authority. For packages where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL-PSWR: BHEL Patratu Site will be the paying Authority.
19.	Demurrage charges	Demurrage charges shall be paid by supplier/ vendor only to the transporter. No claim shall be acceptable to BHEL in this regard.
20.	Unloading, Storage & Movement of material at site	a) By BHEL site office for supply packages. b) By vendors for Turnkey i.e. Supply and E&C packages
21.	Concessional custom duty against Essentiality certificate (EC)	<p>The project has been qualified through Project Import route. Accordingly, the benefits applicable to PI project would be granted for this project in this regard applicable documents such as Essentiality certificate will be issued by NTPC (ultimate customer). Under this, Concessional rate of Customs Duty shall be applicable on the Import Contents of the supplier respectively. Based on the above EC, Customs Duty Benefits will be passed on to the vendor. The Bidder to indicate the Import contents i.e. list of the item, Currency of Import and Country of Import including CIF value in their offers. BHEL shall inform, the availability of CIF value for a particular package, if any, at the time of NIT. The benefits availed in Concessional Customs Duty must be passed on to BHEL in their offer.</p> <p>Vendor shall inform BHEL and provide the necessary documents to obtain required certificates from BHEL to avail exemption. Obtaining custom duty benefit in line with the Essentiality Certificate issued shall be in vendor's scope.</p>
22.	Taxes & Duties (For Domestic Vendor)	As per General Conditions of Contract (GCC rev 06) & GST related Corrigendum to GCC rev.06
23. a	Taxes & Duties (For Order Directly to Foreign Bidders)- supply packages	In case of foreign vendors, quoted prices & Dispatches shall be on C & F (Port-Chennai) basis and the Taxes & duties in the country of dispatch shall be borne by Foreign vendor.
23. b	Taxes & Duties (For Order Directly to Foreign Bidders)- Turnkey packages	Complete responsibility of import including (but not limited to) import clearance, all taxes and duties in the country of export (origin), all taxes and duties in India shall be to vendor's account .
24.	Inspection Agency	BHEL/ BHEL approved 3rd party inspection agencies and/or NTPC/ Customer Agency as applicable.
25.	Inspection procedure for Domestic supplies	<p><u>For Domestic supplies</u> Vendor shall raise inspection call at least 15 business days in advance on BHEL CQS website to applicable inspection agency (as mentioned in PO/LOI or to be informed later) and submit copy of inspection call to BHEL-PEM for arranging NTPC inspection/Joint inspection on the proposed date, as applicable. MDCC shall be issued on the basis of clear inspection report (CQIR).</p> <p><u>For Foreign supplies</u> In case of Foreign supplies, if NTPC approved 3rd party inspection agency does not participate in the inspection, test certificates & inspection reports duly accepted by the agreed Inspection agency shall be submitted in soft copy to BHEL-PEM. The same shall be reviewed by PEM and then, sent to NTPC for clearance. The dispatch clearance (MDCC) by NTPC/ BHEL as applicable shall be given to the foreign supplier or representative in India after acceptance of above test certificates.</p>

Grantur
08/5/18

26.	Packing, Identification & marking [if not specified in NIT]	<p>Each box shall be marked with Capital Letters in "Red" indicating the PEM SUPPLY (Main Supply/ Commissioning Spares/ Mandatory Spares) for 3 x 800 MW PVUNL PATRATU TPP.</p> <p>NOTE: Main supply item and items for commissioning spares must be packed separately.</p> <p>Each package delivered under the Contract shall be marked by supplier and such marking must be distinct and in English language (all previous irrelevant markings being carefully obliterated). Such marking shall show the description and quantity of contents, the name and address of consignee, the Gross weight and Net weight of the package, the name of the Supplier, PEM P.O. reference number, with a distinctive number of mark sufficient for purposes of identification. Besides above necessary, packing shall bear a special marking 'TOP', 'BOTTOM', 'DO NOT TURN OVER', 'KEEP DRY', 'HANDLE WITH CARE', etc</p> <p>IMPORTANT: -</p> <ul style="list-style-type: none"> Two copies of respective standard manufacturer's erection instruction/operation instruction manual shall be kept in each package / container for immediate reference by BHEL site and same shall be reflected in packing slip also The Packing list details for the consignment must be put inside the Box/Boxes. <p>Items like pumps, Valves, Hoists, Cranes etc shall essentially have O&M Manuals and E&C guidelines duly enclosed in the packing box. Certificate to such effect shall also be reflected in packing slip.</p> <p>Mandatory spares shall be properly packed separately in separate box painted in Red, indicating Mandatory Spares in bold letters and each spare shall be properly tagged giving details i.e. item number of the equipment in line with the CUSTOMER approved BBU for Mandatory spares & Number per item (to match the description given in the packing slip) to facilitate their proper identification by PVUNL/ NTPC. One Copy of Packing list must be put inside the Box along with Manufacturing drawing no. reference, Catalogue reference etc.</p>
27.	Submission of Final Drgs/Docs alongwith O&M Manual, Type Test Certificates (if any)	As per GCC rev.06/ Technical Specification/Kick-off meeting.

	Prepared by	Checked by	Reviewed by	Vetted by	Approved by
Name	Ganesh Garg	/		/	 16/05/18
Designation	Sr. Engr/ PG III	DGM/ PG III	DGM/ PG III	Finance	AGM & DH/ PG III
Signature	Ganesh Garg 08/5/18				DEEPAK GUPTA

दि ओरिएण्टल इन्श्योरेंस कम्पनी लिमिटेड
(भारत सरकार का उपक्रम)
मण्डलीय कार्यालय संख्या-16, (कोड : 212800)
बॉम्बे लाईफ बिल्डिंग
एन-34, कनॉट सर्कस, नई दिल्ली - 110001
फोन : +91-11-23351478-79 फैक्स : +91-11-23357325
वेबसाइट : www.orientalinsurance.org.in
सी.आई.एन नं. : U66010DL1947GOI007158



THE ORIENTAL INSURANCE COMPANY LIMITED
(A Govt. Of India Undertaking)
Divisional Office No. 16, (Code: 212800)
Bombay Life Building,
N-34, Connaught Circus, New Delhi - 110 001
Tele : +91-11-23351478-79 Fax : +91-11-23357325
Website : www.orientalinsurance.org.in
CIN No. : U66010DL1947GOI007158

OIC GST NO. 07AAACT0627R1Z1

Date : 05.05.2025

M/S Bharat Heavy Electricals Limited
Power Sector Western Region (PSWR)
Shree Mohini Complex, 345, Kingsway,
Nagpur-440001

Ref.: BHEL/CPIM/PATRATU/EXTN-02
BHEL GSTIN-27AAACB4146P1ZF

**Premium Bill for 2nd Extension for Marine-cum-Storage-cum-Erection Insurance for
3x800 MW PUVNL Patratu STPP, Phase-I(EPC) Jharkhand Project**

Policy Nos.	EAR Policy No.-212800/44/2019/8 Marine Policy NO-212800/21/2019/14
Extension Period	12 Months i.e. From 05.05.2025 to 04.05.2026
Risk Particulars	Marine-cum-storage-cum-Erection Insurance for Patratu Jharkhand Project 3x800 MW PUVNL Patratu STPP, Phase-I(EPC)
Site Location	Patratu Vidyut Utpadan Nigam Ltd., P.O. PTPS, Patratu Distt. Ramgarh, State Jharkhand-829119
Sum Insured	SCE- Rs. 13023.58 Crores Marine-Rs. 1090 Crores (Balance Supply for Extension)
90% Extension Premium	Rs. 17,58,18,330/- without GST (90% Share)
Conditions	<ul style="list-style-type: none"> As Per CPIM Tender, Acceptance of Deviation letter dated 21.03.2017 Communicable Disease Exclusion Clause No further deterioration of loss experience till the receipt of premium No liability from dt. 05.05.2025 till receipt of premium & NKORL for the GAP period Charging premium for 90% share only, for Balance share the premium will be quoted once we receive the Reinsurer's approval. <p>SCE/EAR Deductibles :-</p> <p>Major Items: (Boiler, Turbine and Generator) Normal : 5% of claim amount subject to minimum of Rs.3,00,00,000 Testing Period : 5% of claim amount subject to minimum of Rs.6,00,00,000 Fire/Explosion : 20% of claim amount subject to minimum of testing period, AOG : 10% of claim amount subject to minimum of Rs.6,00,00,000 Theft/Burglary : 10% of the claim amount subject to minimum of INR 1,00,00,000/-</p> <p>Other Items : Normal : 5% of claim amount subject to minimum of Rs.50,00,000 Testing period - 5% of claim amount subject to minimum of Rs.1,25,00,000 Fire/Explosion - 20% of claim amount subject to minimum of testing period excess, AOG : 10% of claim amount subject to minimum of Rs.1,25,00,000 Theft/Burglary : 10% of the claim amount subject to minimum of INR 1,00,00,000/-</p>
90% Share Premium Details	Premium : 17,58,18,330 IGST @ 18% : 3,16,47,299 GRAND TOTAL : 20,74,65,629 (Rupees Twenty Crore Seventy Four Lakhs Sixty Five Thousand Six Hundred and Twenty Nine Only)



दि ओरिएण्टल इश्योरेंस कम्पनी लिमिटेड
(भारत सरकार का उपक्रम)
मण्डलीय कार्यालय संख्या-16, (कोड : 212800)
बॉम्बे लाईफ बिल्डिंग
एन-34, कनॉट सर्कस, नई दिल्ली - 110001
फोन : +91-11-23351478-79 फैक्स : +91-11-23357325
वेबसाइट : www.orientalinsurance.org.in
सी.आई.एन नं. : U66010DL1947GOI007158



THE ORIENTAL INSURANCE COMPANY LIMITED
(A Govt. Of India Undertaking)
Divisional Office No. 16, (Code: 212800)
Bombay Life Building,
N-34, Connaught Circus, New Delhi - 110 001
Tele : +91-11-23351478-79 Fax : +91-11-23357325
Website : www.orientalinsurance.org.in
CIN No. : U66010DL1947GOI007158

Ref.: BHEL/CPIM/PATRATU/EXTN-02

BANK DETAILS FOR PAYMENT

Beneficiary Name	THE ORIENTAL INSURANCE COMPANY LIMITED
Bank Name & Branch	HSBC LTD BARAKHAMBHA RD
Account Type	CURRENT
MICR Code	000039000
IFSC Code	HSBC0110002
Beneficiary Account No.	OICLNRO1212800
E-mail ID	mukesh.goel@orientalinsurance.co.in

Ash
CHIEF BUSINESS MANAGER