

निविदा / Enquiry



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

Project : TANGEDCO ENNORE SEZ

Enquiry No	Enquiry Dt	Rev No	Rev Dt	PI No	Enquiry Type	Inspection by	Due Dt	Commercial Comments	Technical Comments	Signing Authority
09Q2000323	30-Nov-19	0		09I2000413	Package		12-Dec-19	BHEL NIT TERMS AND CONDITION ARE APPLICABLE	TECHNICAL SPECIFICATION IS APPLICABLE	RAJEEV KUMAR ROY

Document Enclosed

SN	Equipment	HSN Code	Phy Unit	Qty	Plan Dt	Comments
1	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A FLEXIBLE SPACER SUITABLE FOR TWIN MOOSE	0	NO	27.0000		
2	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A RIGID SPACER SUITABLE FOR TWIN MOOSE	0	NO	27.0000		
3	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, RIGID SPACER SUITABLE FOR QUAD MOOSE	0	NO	90.0000		
4	SUPPLY- CLAMPS & CONNECTORS : STRAIN CLAMP FOR SHIELD WIRE 10.98MM DIA	0	NO	10.0000		
5	CLAMPS & CONNECTORS PG CLAMP FOR SHIELD WIRES OF DIA 10.98MM	0	NO	4.0000		
6	CLAMPS & CONNECTORS PAD CONNECTOR TO SUIT 10.98MM DIA GS WIRE AND 75X12 MM GS FLAT	0	NO	36.0000		
7	CLAMPS & CONNECTORS CLAMP FOR 10.98MM DIA SHIELD WIRE ON LATTICE / PIPE STRUCTURE	0	NO	50.0000		
8	CLAMPS & CONNECTORS CLAMPS FOR 75X12MM EARTHING STRIP ON LATTICE/PIPE STRUCTURE	0	NO	1560.0000		
9	SUPPLY- CLAMPS & CONNECTORS : 400KV CORONA BELL SUITABLE FOR 4 INCH IPS AL TUBE	0	NO	58.0000		
10	SUPPLY- CLAMPS & CONNECTORS : WELDING SLEEVE SUITABLE FOR 4 INCH IPS AL TUBE	0	NO	42.0000		
11	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS TO QUAD CONDUCTOR AS PER TS	0	NO	24.0000		

SN	Equipment	HSN Code	Phy Unit	Qty	Plan Dt	Comments
12	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR QUAD MOOSE TO QUAD CONDUCTOR AS PER TS	0	NO	24.0000		
13	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR QUAD MOOSE TO TWIN CONDUCTOR AS PER TS	0	NO	23.0000		
14	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, SLIDING THROUGH TYPE	0	NO	20.0000		
15	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, RIGID - EXPANSION TYPE	0	NO	22.0000		
16	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A BPI CONNECTOR SUITABLE FOR TWIN MOOSE	0	NO	43.0000		
17	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A REACTOR BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	0	NO	1.0000		
18	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A GT BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	0	NO	1.0000		
19	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	0	NO	21.0000		
20	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, EXPANSION TYPE	0	NO	21.0000		

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

In your own interest, you are advised to carefully read "the instructions to bidders". Incomplete bids and/or bids not complying with tender conditions shall be treated as non-responsive and are likely to be ignored.

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

You are requested to submit your most competitive offer as stated in Terms & conditions.

BHEL reserves the right to opt for reverse auction for obtaining best prices.

Offers Through E-MAIL / FAX / E-Procurement Portal:

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

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

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

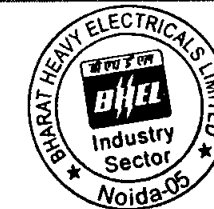
(2/3)

It is suggested that the bidders are advised to send the files with 'password protection'.

The venders who has sent offers with password, the passwords are to be forwarded to another email id: tenderbox@bhel.in

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

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



We acknowledge the receipt of tender.

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

SPECIAL TERMS & CONDITIONS

FOR CLAMPS & CONNECTORS FOR TANGEDCO ENNOR PROJECT

Enquiry No:, Dated.....

1. In case any discrepancy between the requirements mentioned under special terms & conditions and general terms & conditions, special terms and conditions shall prevail.
2. For any technical clarification, kindly contact **Mr. JAI KUMAR SONI, MGR (TBEM) / Mr. S K SHUKLA, SR. DGM-TBEM**
 BHEL, Transmission Business Group
 Tower-A, 5th Floor, Advant Navis IT Business Park
 Plot-7, Sector-142, Expressway Noida, Noida-201305, UP, India
 Phone: +91 (0) 0120- 6748534
 Fax: +91 (0) 0120 – 6748580.
 E-mail: jaik@bhel.in
3. For any commercial clarification, kindly contact **Rajeev Kumar Roy, Manager (TBMM);**
 BHEL, Transmission Business Group
 Tower-A, 5th Floor, Advant Navis IT Business Park
 Plot-7, Sector-142, Expressway Noida, Noida-201305, UP, India
 Phone: +91 (0) 0120- 6748484
 Fax: +91 (0) 0120 – 6748580.
 Contact No. 0120 6748484; e-mail: rajeevroy@bhel.in.
4. **Bidder to submit offer directly through E-PROCUREMENT MODE ONLY.** Bidder may visit <https://bhel.abcprocure.com>. No other mode for submission of tender is acceptable. Note: Both bids (Techno-commercial Bid & Price Bid) will be opened immediate after receipt of offer.
5. **Proposed delivery plan: IMMEDIATE.** However, vendor has to examine their best possible delivery plan & mentioned in **ACTIVITY SCHEDULE** to meet the tender delivery requirement. In case, BHEL's delivery requirement is not met by vendor(s), then a chance may be given to all such vendors to review their quoted delivery schedule in line with BHEL's delivery requirement. However, if vendor fails to meet the requisite delivery plan, then BHEL reserves the right not to consider the offer of such vendor(s).
6. **Technical specification No:** BHEL technical specification no: TB-378-316-012A, REV-00 is applicable. No permissible Technical Deviation has been envisaged.
7. **Quantity Variation:** The quantity for individual items may vary up to any extent, however total quantity may vary +/- 30 % during contract execution stage. It is also to be noted that any items can be completely/partially deleted during detailed engineering stage.
8. **PQR (Pre-qualification requirement):** Bidder must comply with technical specification of tender enquiry otherwise offer is liable for rejection.

SPECIAL TERMS & CONDITIONS

FOR CLAMPS & CONNECTORS FOR TANGEDCO ENNOR PROJECT

Enquiry No:, Dated.....

9. **Clause No. 2.1 of General Terms & Conditions (GTC) for tender Enquiry / Contract should be as follows:**

PRICES: A. all prices shall be FIRM & Ex-works price including packing & forwarding charges. No enhancement of rate for whatsoever reasons unless and until asked by BHEL shall be allowed.

PROJECT STATUS: Domestic in nature. GST is applicable as per prevalent law.

10. **PERFORMANCE BG (Refer Clause no-7 of General Terms and condition): Option-B is applicable in case not opt any option as per NIT condition.**

11. **LIQUIDATED DAMAGES FOR DELAYED DELIVERY (Clause No:13 of GTC for tender Enquiry / Contract should be as follows:**

In case of delay in execution of Purchase Order beyond the contractual delivery time, an amount of 0.5% of the total PO ex-works value for supply (excluding taxes and duties, freight & insurance as applicable) per week of delay or part thereof subject to a maximum of 10% of the total Purchase Order ex-works value for supply (excluding taxes and duties, freight & insurance as applicable) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD

12. **Clause No. 33 for Reverse Auction of NIT shall be as follows:**

"BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer.

The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.

SPECIAL TERMS & CONDITIONS

FOR CLAMPS & CONNECTORS FOR TANGEDCO ENNOR PROJECT

Enquiry No:, Dated.....

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com)."

As a reminder to the bidders, system will flash following message (in RED Color) during the course of 'online sealed bid': *"Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL."*

In addition to above RA guidelines, bidder note that

(A) In case where RA is conducted successfully Reverse auction shall be conducted as per existing procedure of BHEL. Ranking of bids shall be based on final price fed by respective bidder (including H1 bidder) in reverse auction process. If L1 bid is from a 'Local Supplier', L-1 bidder may be considered for further award of work. No other Bidder shall be invited to match price of L-1 Bidder

If L1 bid is not from a 'Local Supplier', the lowest evaluated bidder among the 'Local Suppliers' based on the ranking of the price after RA, will be invited to match the L1 price provided 'Local Supplier's price is within the Margin of Purchase Preference i.e. +20% of L1 price. In case such local supplier agrees to match the price of L-1 Bidder, such local supplier may be considered for further award of work. In case such lowest eligible 'Local Supplier' fails to match the L1 price, the eligible 'Local Supplier' with the next higher bid within the Margin of Purchase Preference (i.e. 20% of L-1 Price) as above shall be invited to match the L1 price, and so on, and may be considered for award of work accordingly. In case none of the 'Local Suppliers' within the Margin of Purchase Preference (i.e. 20% of L-1 price) matches the L1 price, then the L1 bidder may be considered for award of work.

(B) In case where RA is failed, Price bid shall be opened as per reverse auction procedure of BHEL and based on the same make in India policy shall be implemented.

13. **PRICE BID FORMAT:** Vendor to quote as per specified price format of NIT, otherwise their offer shall be liable to be rejected.

14. **IMPORTANT INSTRUCTION:**

- Final acceptance of technical qualified vendor for placement of order is subject to approval of CUSTOMER (TANGEDCO).
- Bidder who are not approved by customer, needs to submit complete credential for approval from CUSTOMER & placement of order is subject to approval of CUSTOMER.
- All boxes / Containers are to be distinctly marked with boldly written "TBG" mark on it.
- PO/LOI shall be placed to L1 bidder project wise. However evaluation shall be done based on overall quantity as per NIT.

SPECIAL TERMS & CONDITIONS
FOR CLAMPS & CONNECTORS FOR TANGEDCO ENNOR PROJECT

Enquiry No:, Dated.....

15. **Promotion of MAKE IN INDIA:** For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders issued by the respective nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable. Preference to Make in India will be as per the Public Procurement (Preference to Make in India), Order 2017 available in the following link:

http://dipp.nic.in/sites/default/files/publicProcurement_MakeinIndia_15June2017.pdf

http://dipp.nic.in/sites/default/files/Revised-PPP-MII-Order-2017_28052018.pdf

For this procurement, Public Procurement (Preference to Make in India) Order, 2017" dated 15/06/2017 & 28/05/2018 and subsequent orders issued by respective nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract /PO/WO against this NIT.

In the event of any nodal ministry prescribing higher and lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.

Note: Bidder to submit FORMAT duly filled & signed and stamped by their authorized persons. It is mandatory against this NIT. Minimum Local content is 50% (being transmission/sub-station package).

16. Following confirmation to be provided by vendor:

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

NAME & SEAL OF TENDERER

47

SCHEDULE OF PRICE BID

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

PROJECT: TANGEDCO ENNOR PROJECT

ENQUIRY NO:

ITEM: CLAMPS & CONNECTORS

SN	DESCRIPTION OF ITEM (As per Tech Spec. TB-378-316-012A)	UNIT	QTY	HSN CODE	UNIT PRICE EX. WORKS (Rs.)	TOTAL EX. WORKS (Rs.)	UNIT FREIGHT & INSURANCE UP TO SITE (Rs.)	TOTAL FREIGHT & INSURANCE UP TO SITE (Rs.)	GST @..... % OF TOTAL EX WORKS (Rs.)	GST @.....% OF (TOTAL FREIGHT & INSURANCE UP TO SITE)	TOTAL F.O.R. DESTINATION PRICE
1	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CDNNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, SLIDING THROUGH TYPE	NO	20								
2	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CONNECTDR SUITABLE FOR AL TUBE 4 INCH IPS, RIGID - EXPANSION TYPE	NO	22								
3	CLAMPS & CDNNECTDRS 400KV 63KA FOR 1S 2000A BPI CDNNECTDR SUITABLE FOR TWIN MOOSE	NO	43								
4	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A REACTOR BUSHING CONNECTOR SUITABLE FOR TWIN MODSE	NO	1								
5	CLAMPS & CDNNECTORS 400KV 63KA FOR 1S 2000A GT BUSHING CDNNECTDR SUITABLE FOR TWIN MOOSE	NO	1								
6	SUPPLY- CLAMPS & CDNNECTDRS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	NO	21								
7	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, EXPANSION TYPE	NO	21								
8	SUPPLY- CLAMPS & CDNNECTDRS : 400KV, 63KA FOR 1S, 2000A, TEE CDNNECTOR SUITABLE FOR AL TUBE 4 INCH IPS TO QUAD CONDUCTDR AS PER TS	NO	24								
9	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR QUAD MOOSE TO QUAD CONDUCTOR AS PER TS	NO	24								
10	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CDNNECTDR SUITABLE FOR QUAD MOOSE TO TWIN CONDUCTDR AS PER TS	NO	23								
11	CLAMPS & CDNNECTORS 400KV 63KA FOR 1S 2000A FLEXIBLE SPACER SUITABLE FOR TWIN MOOSE	NO	27								
12	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A RIGID SPACER SUITABLE FOR TWIN MOOSE	NO	27								
13	SUPPLY- CLAMPS & CDNNECTDRS : 400KV, 63KA FOR 1S, 2000A, RIGID SPACER SUITABLE FOR QUAD MOOSE	NO	90								
14	SUPPLY- CLAMPS & CDNNECTDRS : STRAIN CLAMP FOR SHIELD WIRE 10.98MM DIA	NO	10								
15	CLAMPS & CONNECTORS PG CLAMP FOR SHIELD WIRES OF DIA 10.98MM	NO	4								
16	CLAMPS & CDNNECTDRS PAD CONNECTOR TO SUIT 10.98MM DIA GS WIRE AND 75X12 MM GS FLAT	NO	36								
17	CLAMPS & CONNECTORS CLAMP FOR 10.98MM DIA SHIELD WIRE ON LATTICE / PIPE STRUCTURE	NO	50								
18	CLAMPS & CDNNECTDRS CLAMPS FOR 75X12MM EARTHING STRIP ON LATTICE/PIPE STRUCTURE	NO	1560								
19	SUPPLY- CLAMPS & CONNECTORS : 400KV CDONRA BELL SUITABLE FOR 4 INCH IPS AL TUBE	NO	58								
20	SUPPLY- CLAMPS & CDNNECTDRS : WELDING SLEEVE SUITABLE FOR 4 INCH IPS AL TUBE	NO	42								
A	TOTAL DELIVERED COST TO BHEL=										

NOTE:

- PLEASE NOTE THAT UNPRICED COPY OF PRICE BID (i.e. WITH ALL PRICES BLANKED) SHALL BE FURNISHED ALONG WITH TECHNICAL-COMMERCIAL BID.
- REQUIRED COPIES OF FORMAT BE MADE & DETAILS MAY BE ANNEXED.
- THE PRICES MUST BE QUOTED IN THE PRESCRIBED UNIT ONLY.
- BHEL STANDARD SPECIFICATION NO:TB-378-316-012A IS APPLICABLE

SIGNATURE & SEAL OF TENDERER

46

SCHEDULE OF COMMERCIAL DEVIATION

This Format is to be submitted in original duly signed by bidder.
The following are the deviations/variations/exceptions from the Terms and Conditions :-

S N	CLAUSE NO. OF TERMS AND CONDITIONS	STATEMENT OF DEVIATION

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

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

Note : Continuation Sheets of like size and format may be used as per the Bidder's Requirement and shall be annexed to this schedule.

Place :
Date :

Signature of the authorised representative of

Bidder's name :.....
Designation:.....
Company Seal:.....

SCHEDULE OF TECHNICAL DEVIATION

This Format is to be submitted in original duly signed by bidder.
The following are the deviations/variations/exceptions from the Terms and Conditions :-

S N	CLAUSE NO. OF TERMS AND CONDITIONS	STATEMENT OF DEVIATION

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

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

Note : Continuation Sheets of like size and format may be used as per the Bidder's Requirement and shall be annexed to this schedule.

Place :
Date :

Signature of the authorised representative of

Bidder's name :.....
Designation:.....
Company Seal:.....

ACTIVITY SCHEDULE FOR CLAMPS & CONNECTORS

ENQUIRY NO:....., Dated.....

SN	ACTIVITY	TIME ALLOTTED [in weeks]	CUMULATIVE TIME FROM RECEIPT OF INPUTS FROM BHEL [in weeks]	SCOPE
1.	Submission of Documents necessary for getting manufacturing clearance like drawings, Data sheet.	2	2	BY SUPPLIER
2.	Review and Approval of documents from BHEL/Customer and issue of manufacturing clearance.	2	4	BHEL SCOPE
3.	Manufacturing Time	8	12	BY SUPPLIER
4.	Inspection call	1	13	BY SUPPLIER
5.	Inspection by BHEL/Customer	1	14	BHEL SCOPE
6.	Issue of Dispatch clearance	2	16	BHEL SCOPE
7.	Dispatch	2	18	BY SUPPLIER

1. Inspection call to be issued 2 weeks in advance.
2. Supplier must ensure the completeness and correctness of the requisite documents before submission for approval. Delay in approval on account of incomplete / inadequate information shall be the responsibility of supplier.
3. Inspection call should be given in the prescribed format only. Inspection calls not in the prescribed format shall not be entertained.
4. Qty to be offered for inspection should be in accordance within Delivery-schedule – lot. BHEL reserves the right not to entertain multiple inspection calls for a Delivery – lot and delay on this account shall be the responsibility of Supplier.

Signature & Seal of

Supplier

Date:

Item Name :	CLAMPS & CONNECTROS
Enquiry No. :	
Project :	TANGEDCO ENNOR PROJECT
Type of project	Transmission / Thermal (Coal or Gas) / Hydro
Applicable percentage of Local Content	50 % (Minimum)

Format for Affidavit of Self certification regarding Minimum Local Content in line with PPP-MII order, 2017 if applicable, to be provided on a non-judicial stamp paper of Rs. 100/-.

Date: / /2019

I _____ S/o, _____ D/o, _____ W/o, _____ Resident of _____ hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (*hereinafter PPP-MII order*) of Government of India issued vide Notification No:P-45021/2/2017 -BE-II dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any and

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

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

That the goods/services/works supplied by me for (*Enter the name of the Equipment/Item for Project*) meets the 'Minimum Local Content' as defined in the PPP-MII order.

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

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

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

- i Name and details of the Local Supplier
(Registered Office, Manufacturing unit location, nature of legal entity)
- ii. Date on which this certificate is issued
- iii. Goods/services/works for which the certificate is produced
- iv. Procuring entity to whom the certificate is furnished
- v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed
- vi. Name and contact details of the unit of the Local Supplier (s)
- vii. Sale Price of the product
- viii Ex-Factory Price of the product
- ix. Freight, insurance and handling
- x. Total Bill of Material
- xi List and total cost value of input used to manufacture the Goods/to provide services/in construction of works
- xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached
- xiii. List and cost of inputs which are imported, directly or indirectly

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

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



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

GENERAL TERMS AND CONDITIONS FOR TENDER ENQUIRY / CONTRACT

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

Sr. No.	
1.	INSTRUCTION TO BIDDERS : 1.1 Sealed bids are invited for the items mentioned in the tender enquiry conforming to the NIT including Technical Specifications. Bids should be typed and free from overwriting and erasures. Corrections or additions / deletions, if any, must be clearly written and attested, otherwise offer may be rejected. 1.2 Bidder must ensure that their bid is submitted / dropped in the tender box on or before 14-00 Hrs. IST on the due date of opening, unless otherwise specified in the NIT, at the address as follows :- Tender Box, Materials Management, Transmission Business Group, Bharat Heavy Electricals Limited, 5th Floor, Tower-A, Advant Navis IT Business Park, Plot-7, Sector-142, Noida Expressway, Noida, Dist. G. B. Nagar, U. P. – 201305 1.3 In case tender enquiry is floated through the e-procurement system, offer / bid has to be submitted through the e-procurement system ONLY as per instructions given in the e-procurement portal (https://bhel.abcprocure.com). 1.4 The bids shall be opened at 14-30 Hrs. IST on the due date of opening, in the presence of participating bidders who may like to be present, unless otherwise specified in the NIT. Bids received late are liable for rejection. Bidders sending bids by courier or post will have to ensure that it is timely delivered at the above address. 1.5 Bids are to be submitted duly signed with seal in two parts :- a) Techno-commercial Bid (Part-I) – To be submitted in 2 sets (original + copy). A copy of Price Bid (Part-II) clearly mentioning all the necessary information as per format without prices "Un-Priced Bid" is also to be enclosed in Part-I Bid. b) Price Bid (Part-II) – To be submitted only in one set in a separate sealed envelope. This should not contain any Technical and / or Commercial Terms and Conditions. The rates should be quoted both in figures and words. 1.6 The Part-I and Part-II Bids are to be sealed in separate envelopes and

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

Sr. No.	
	c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above. d) If there is such discrepancy in an offer as mentioned in (a), (b) & (c) above, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the BHEL, the bid is liable to be ignored. 1.14 In case the scope of the successful bidder / supplier against this tender enquiry includes Erection, Testing and Commissioning (ETC) of the equipment / material at site in addition to Supply, Purchase Order shall be placed for Supply Portion and Contract shall be separately awarded for ETC at Site Portion. General Terms and Conditions for Tender Enquiry / Contract mentioned herein shall be applicable for both Supply & ETC at Site. Additional Terms and Conditions for Tender Enquiry / Contract for Erection, Testing and Commissioning at Site "BHEL/TBG/GTC-ETC/2016 REV01" shall be applicable for ETC at Site only which is to be read in conjunction with General Terms and Conditions for Tender Enquiry / Contract mentioned herein. However, any breach of either the Purchase Order or the Contract shall be deemed to be breach of the other. 1.15 Taxes and Duties payable extra as per Clause No. 2.3 in NIT, if not specified/quoted clearly as extra shall be considered as included in Ex-works Price and therefore shall not be reimbursed. Taxes and duties not payable extra as per NIT shall be deemed to be included in Ex-works Price. 1.16 If the rates for taxes and duties in respect of the quoted materials and / or services assumed by the Supplier are less than the tariff prevailing at the time of tendering, Supplier will be responsible for such under quotations. However if the rates assumed are higher than the correct rates prevailing at the time tendering, the difference will be to the credit of BHEL. Note : Representative / official deputed by the bidder to witness tender opening must produce authorization letter for the same.
2.	PRICES : 2.1 Unless specifically indicated in the NIT, all prices shall be FIRM. No enhancement of rate for whatsoever reasons unless and until asked by BHEL shall be allowed. 2.2 Unless specifically indicated in the NIT, the prices shall be on INR basis. 2.3 Unless specifically indicated in the NIT, the prices are to be quoted on FOR (Site / Destination) basis excluding GST. The break-up of prices shall be as under :- a) Ex-works Price: Ex-works price including packing & forwarding charges.

Sr. No.	
	b) Freight: Freight for door delivery up to destination / site / store are to be quoted separately. c) Insurance: Insurance for door delivery up to destination / site / store are to be quoted separately. d) Type Test Charges: If asked in the technical specification, it is to be quoted separately for each test. e) Charges for Supervision of Erection, Testing & Commissioning (ETC) at Site: To be quoted separately if specified in NIT/Price Schedule. f) Charges for Testing & Commissioning at Site: To be quoted separately if specified in NIT/Price Schedule. g) Charges for Erection, Testing & Commissioning at Site: To be quoted separately if specified in NIT/Price Schedule. h) Training Charges: To be quoted separately if specified in NIT/Price Schedule. 2.4 GST rates along with HSN/SAC code as applicable on Sr No (a) to (h) above is to be mentioned separately in percentage in both un-priced bid and price bid. Note : i) Unless otherwise specified in the NIT, the purchase order shall be placed on Ex-works basis for Indian bidders. ii) Prices quoted by Indian bidders shall be in Indian Rupees only. iii) In case Supervision of Erection, Testing & Commissioning (ETC) at Site or Testing & Commissioning at Site or Erection, Testing & Commissioning at Site is also in scope of the bidder along with supply, bidder has to ensure that prices quoted for such services also are in line with special terms & conditions of the NIT, if any. iv) Unless otherwise specified in the NIT, Unloading at Site / Destination shall not be in the scope of the supplier. v) Prices in respect of Sr No (a) to Sr No (h) of Clause 2.3 above are to be quoted inclusive of all taxes & Duties, charges. Levies , royalty etc if any, excluding GST.
3.	TERMS OF PAYMENT : 3.1 For Supply only in scope of the supplier 100% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · LR / GR duly endorsed by BHEL Site Official. · Material Receipt Certificate issued by BHEL Site Official. · GST Compliant Tax Invoice · Packing List (Case-wise) · Copy of Transit Insurance Certificate from underwriters. · Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management · Guarantee Certificate · Copy of Performance Bank Guarantee (PBG) · Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order.

Sr. No.	
	3.2 For Supply where Supervision of Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier or Supply where Testing & Commissioning at Site is in scope of the supplier a) 95% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · LR / GR duly endorsed by BHEL Site Official. · Material Receipt Certificate issued by BHEL Site Official. · GST Compliant Tax Invoice · Packing List (Case-wise) · Copy of Transit Insurance Certificate from underwriters. · Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management · Guarantee Certificate · Copy of Performance Bank Guarantee (PBG) · Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order. b) 5% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · Certificate of successful completion of Supervision of Erection, Testing & Commissioning at Site if it is in the scope of the supplier or Certificate of successful completion of Testing & Commissioning at Site if it is in the scope of the supplier. · Certificate of completion of final documentation as per Purchase Order / Technical Specification issued by BHEL Engineering Management 3.3 For Supply where Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier a) 90% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · LR / GR duly endorsed by BHEL Site Official. · Material Receipt Certificate issued by BHEL Site Official. · GST Compliant Tax Invoice · Packing List (Case-wise) · Copy of Transit Insurance Certificate from underwriters. · Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management · Guarantee Certificate · Copy of Performance Bank Guarantee (PBG) · Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order b) 10% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows : · Certificate of successful completion of Erection, Testing & Commissioning at Site issued by BHEL Site Official / Construction Management · Certificate of completion of final documentation as per Purchase Order / Technical Specification issued by BHEL Engineering Management 3.4 For Type Test Charges 100% payment along with applicable GST within 60 days from the date of receipt

Sr. No.	
	of complete GST compliant Tax invoice along with copy of Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management in 3 sets (original + 2 copies) on completion of delivery (at site, if F&I is in scope of supplier) of main supplies (excluding spares) for which Type Tests are applicable. List of main supplies (excluding spares) for which Type Tests are applicable shall be certified by BHEL Engineering Management. 3.5 For Charges for Supervision of Erection, Testing & Commissioning at Site 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax invoice along with certificate of successful completion of Supervision of Erection, Testing & Commissioning at Site issued by BHEL Site Official / Construction Management in 3 sets (Original + 2 copies). 3.6 For Charges for Testing & Commissioning at Site 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax invoice along with certificate of successful completion of Testing & Commissioning at Site issued by BHEL Site Official / Construction Management in 3 sets (Original + 2 copies). 3.7 For Training Charges 100% payment along with applicable GST within 60 days from the date of receipt of complete GST compliant Tax invoice along with certificate of completion of training issued by BHEL Engineering Management in 3 sets (original + 2 copies). Note : i) Supplier has to submit invoice(s) as per PO or approved billing break-up of prices (if applicable as per NIT). ii) In case of supplies for overseas project, Material Receipt Certificate issued by BHEL Authorized Representative shall also be acceptable. iii) In case of Transit Insurance under Open Insurance Policy, Intimation / Declaration of Transit Insurance as per terms of the relevant Open Insurance Policy along with copy of Open Insurance Policy from underwriters shall also be acceptable. iv) Supplier has to ensure commencement of transit insurance from the date not later than LR / GR date. v) Supplier has to submit Tax Invoice(s). Supplier should ensure that Tax Invoice should comply all statutory requirements under GST Law to enable BHEL to avail input credit vi) MSMED Act, 2006 and the rules made thereunder as amended from time to time shall be applicable for release of payment to suppliers qualified & registered as Micro & Small Enterprises based on documents mentioned in the NIT for MSME. vii) Supplier has to submit PBG (as per BHEL format) & Guarantee Certificate as per

Sr. No.	
	PO terms. viii) In case any shortages and / or damages in supplies, an amount calculated based on comments against Material Receipt Certificate issued by the BHEL Site Official shall be withheld from the supply payment against 3.1(a) or 3.2(a) above to be deemed fit by BHEL subject to a minimum of 10% of the total ex-works value of the invoice corresponding to the LR / GR against which any shortages and / or damages are reported. The withheld amount shall be released after the shortages and / or damages in supplies are supplied / replenished against Certification by BHEL Site Official. ix) Payment of GST component shall be made only if vendor has deposited the Tax and credit for the same is reflected in GSTN (GST Network). In case credit of the same is not reflected in GSTN , vendor may alternatively furnish BG of GST Amount for a period valid for not less than 1 month .In case of disallowance of credit /non reflection of credit in GSTN , amount will be recovered from supplier along with applicable Interest , penalty etc from any of his dues. x) If GST is payable by BHEL on reverse Charge Mechanism basis, vendor should ensure the submission of GST compliant Tax invoice immediately on dispatch/ performance of service. In case of non-compliance any additional charges towards interest , penalty etc , will be to vendors account. xi) TDS under GST Act, if applicable, shall be deducted unless Exemption Certificate If applicable, from the appropriate authority is furnished to BHEL along with Invoice.
4.	INTEREST LIABILITY : In case of any delay in payment due to any reason, BHEL shall not pay any interest on delayed payment. Also, no interest shall be payable by BHEL on the bank guarantee / deposit amount or balance payment or any other money which may become due owing to difference or misunderstanding or any dispute before any quasi judicial authority between BHEL and the Supplier / Contractor.
5.	GUARANTEE : The equipment / material supplied and services rendered (if applicable) shall be guaranteed to be free from all defects and faults in design & engineering, material, workmanship & manufacture and in full conformity with the Purchase Order / Contract, Technical Specifications & approved drawings / data sheets, if any, for 18 months from the date of last delivery or 12 months from the date of commissioning, whichever is earlier. Wherever Erection, Testing & Commissioning at Site are also in the scope of the Supplier, the guarantee period shall be 18 months from the date of last delivery or 12 months from the date of commissioning, whichever is later. The defective equipment / material / component shall be replaced free of cost at site. Freight & Insurance during transit shall also be in the scope of the supplier / contractor. Any expenditure for dismantling and re-erection of the replaced equipment / material / component shall be to supplier's / contractor's account. All replacements during the guarantee period shall be delivered at site promptly and satisfactorily within a period not more than 45 days from the date of reporting the defect / rejection etc. In the event of the supplier / contractor failing to replace the defective equipment / material / component within the time period mentioned above, BHEL may proceed to

Sr. No.	
	undertake the replacement of such defective equipment / material / component at the risk and cost of the supplier / contractor without prejudice to any other rights under the contract and recover the same from PBG / other dues of this Purchase Order / Contract or any other Purchase Order / Contract executed by the supplier / contractor. Note : i) In case of Illumination System, items viz. Lamps, Tubes, Ballast, Starters, Capacitors & Fuses will not be under Guarantee after commissioning. ii) In addition to the above guarantee period, Extended Guarantee / Warranty, if any, shall be as per NIT / Technical Specifications. iii) In case offer of agent of Foreign OEM / Foreign Principal is considered, as per Clause No. 1.12 above, Guarantee as mentioned above has to be provided by the Foreign OEM / Foreign Principal also.
6.	LATENT DEFECT : Liability for latent defects shall be for defects inherently lying within material or arising out of design deficiency which does not manifest itself during guarantee period but later and shall be limited to five years from the expiry of the guarantee period.
7.	PERFORMANCE BANK GUARANTEE (PBG) : Supplier shall arrange to submit Performance BG / deposit on a non-judicial stamp paper of appropriate value along with first invoice or within 60 days from placement of Purchase Order (PO) whichever is earlier, in line with one of the applicable options as follows :- <u>Option "A"</u> A single rolling PBG for Rs. 50 Lakhs initially valid for 18 months with claim period of 3 months extra over and above 18 months for all the Purchase Orders being executed for Transmission Business Group, BHEL. However, validity of the PBG shall be extended till 18 months from the date of last delivery with 3 months claim period extra over and above 18 months. Single Rolling PBG option shall not be applicable in case Ex-works value of the PO at the time of placement of PO exceeds Rs. One Crore. <u>Option "B"</u> PBG for 10% of the total Ex-works PO value, valid for 18 months from the date of last delivery with claim period of 3 months extra over and above 18 months. Ex-works PO value at the time of placement of PO shall be considered for calculation of the PBG amount. <u>Option "C"</u> In case the total Ex-works PO value at the time of placement of PO does not exceed Rs. Ten Lakhs, interest free Deposit of 10% of the total Ex-works PO value at the time of placement of PO in form of Demand Draft favouring "Bharat Heavy Electricals Limited" and payable at New Delhi / Delhi / Noida shall also be acceptable to BHEL in lieu of PBG, which shall be released after expiry of 21 months from the date of last delivery after deduction, if any, within 60 days from receipt of invoice in 3 sets (original + 2 copies) to be submitted by the supplier. Note : i) The Bank Guarantee shall be from any bank as per Annexure for List of Banks (32 Nos.). The original PBG should be sent by issuing Bank directly to AGM (Finance), TBG, BHEL, Noida. ii) Extension of validity of the PBG in original, as per above clause, should be sent by issuing Bank directly to AGM (Finance), TBG, BHEL, Noida at least 45 days

Sr. No.	
	before expiry of validity of the PBG. iii) Unless otherwise specified in the NIT, deviation taken for non-submission of PBG / Deposit, as applicable, shall not be accepted. iv) Supplier has to confirm one of the applicable options for submission of PBG / Deposit before placement of PO. v) In case of non-submission PBG / Deposit, as applicable, BHEL reserve the right for Risk Purchase as per terms of the NIT and impose Suspension of Business Dealings with the Supplier / Contractor. vi) BHEL reserve the right to encash the Bank Guarantee and forfeit the amount in the event of any default, failure or neglect on part of the Supplier in fulfilment of performance of the Purchase Order. vii) Value of the Bank Guarantee (at the time of submission) shall remain unchanged for any subsequent variations in Purchase Order value up to $\pm 20\%$. Beyond this variation of $\pm 20\%$, the Supplier shall arrange to enhance or may reduce the value of the Bank Guarantee accordingly for the total variation promptly. viii) Vendor to ensure submission of Certificate of Final Documentation / Confirmation regarding Non applicability of Final Documentation, as the case may be, as referred in clause No 9 regarding Final Documentation. BG shall be released only after submission of the same to BHEL TBMM.
8.	SUBMISSION OF DRAWINGS / DOCUMENTS FOR APPROVAL : Supplier shall submit the master document list within 7 days from date of Purchase Order / Contract, unless otherwise specified in the NIT, with planned dates for submission which shall be in line with activity schedule as per Purchase Order / Contract and shall be finalized with BHEL Engineering Management. Date of first submission of drawings / documents shall be certified by BHEL Engineering Management after the receipt of applicable drawings / documents (e.g. project specific cover sheet, GTP, OGA drawings, schemes, type test reports etc.) by BHEL. During detailed engineering stage, necessary hard copies of the engineering drawings / documents shall also be submitted by the supplier as per the Purchase Order / Contract requirement. The supplier shall also submit the packing drawings as per technical specifications. In case item(s) offered require any interface details of other item (not in the scope of supplier & required for operating the equipment), the supplier has to submit interfaces schedule along with submission of engineering drawings / documents. It shall be responsibility of the supplier to get the details of the interfaced item from BHEL before manufacturing to avoid any mismatch at site.
9.	FINAL DOCUMENTATION : Final documentation as called in the Technical /contract specification is to be submitted within 3 months from the date of first delivery of respective equipment, item/material. After submission of Final Documentation, BHEL Engineering Management (TBEM) will issue a Certificate of Completion of Final Documentation. Wherever Final Documentation is not applicable, BHEL Engineering Management (TBEM) will issue confirmation regarding the same, Vendor to submit the Certificate of Final Documentation / Confirmation regarding Non applicability of Final Documentation, as the case may be, to BHEL TBMM. In case of Non Submission of Certificate of Final Documentation / Confirmation regarding Non applicability of Final Documentation, BG will be liable for encashment.
10.	INSPECTION : BHEL / customer / third party shall inspect equipment / material before despatch. Stage inspection during manufacturing may also be carried out. Material to be despatched only after getting Material Despatch Clearance Certificate (MDCC) / MICC issued by BHEL. Supplier shall send inspection call on prescribed format / web site only, with an

Sr. No.	
	advance notice of 15 days. Supplier to ensure submission of all routine / acceptance test reports, inspection reports and all other documents related to inspection, immediately to BHEL. BHEL representative is authorised to carry out audits along with Third Party Inspection Agency at vendor's / supplier's works before clearing the items for despatch.
11.	DESPATCH DOCUMENTS : Despatch documents to be immediately sent to BHEL on despatch are as follows :- • Copy of Invoice • Copy of LR / GR in case of Indian suppliers or BL / AWB in case of foreign suppliers • Copy of Packing List (Case-wise) • Copy of Transit Insurance Certificate from underwriters • Copy of Guarantee Certificate
12.	DELIVERY PERIOD : Delivery / Completion requirement shall be mentioned in the NIT. Bidder to specify best delivery / completion period possible in weeks from the date of LOI / PO as per activity schedule for consideration by BHEL. Time required for type test, if applicable, is to be separately indicated. Note : LR / GR date or invoice date (whichever is later) for indigenous supplies and BL / AWB date for FOB / CIF (if applicable) contracts shall be considered as delivery date.
13.	LIQUIDATED DAMAGES FOR DELAYED DELIVERY: In case of delay in execution of Purchase Order beyond the contractual delivery time, an amount of 0.5% of the total Purchase Order value for supply (incl. taxes and duties, freight & insurance as applicable) per week of delay or part thereof subject to a maximum of 10% of the total Purchase Order value for supply (incl. taxes and duties, freight & insurance as applicable) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD. However, in case of staggered (lot-wise) contractual delivery schedule, an amount of 0.5% of the total delayed lot value for supply (incl. taxes, duties, freight & insurance as applicable) per week of delay or part thereof subject to maximum of 10% of the total delayed lot value (Incl taxes, duties, Freight & Insurance as applicable) shall be deducted as Liquidated Damages (LD) along with applicable GST (if any) on LD. Note : i) In case of any amendment / revision in P.O./WO, the LD shall be linked to the amended / revised Purchase Order / Contract value and delivery / completion time / schedule, if applicable. ii) LR / GR date or invoice date (whichever is later) for indigenous supplies and BL / AWB date for FOB / CIF (if applicable) for imported supplies shall be treated as the date of dispatch for levying LD as above. iv) However, for indigenous supply, if time period between date of receipt of material at site / destination by Site Official & the date of LR / GR or invoice (whichever is later) is more than 30 days, where distance from place of despatch as per LR / GR is upto 1000 Kms or if time period between date of receipt of material at site / destination by Site Official & the date of LR / GR or invoice (whichever is later) is more than 45 days, where distance from place of despatch as per LR / GR is more than 1000 Kms, such excess period shall also be considered for LD

Sr. No.	
	purpose. iv) If, as per supplier, delay is not attributable to the supplier, delay analysis with documentary evidence may be submitted by the supplier at the earliest but not later than six months from the end of the financial year in which the payment is withheld. Based on the above details / documents submitted by the supplier, BHEL shall take final decision and if considered appropriate by BHEL, withheld amount (full or part as the case may be) shall be released, otherwise, full or balance withheld amount shall be treated as deduction of Liquidated Damages (LD) towards delayed delivery.
14.	VALIDITY OF OFFER : The offer shall be valid for 120 days from the due date of opening of tender (i.e. techno-commercial bid unless otherwise specified in the NIT). Prices of Spares, wherever they optional items, shall be valid till two years from the date of placement of PO.
15.	ACCEPTANCE / REJECTION OF TENDER : BHEL reserve the right to reject in full or part, any or all tender without assigning any reason thereof. BHEL also reserve right to vary the quantities as mentioned in the NIT. Acceptance of offer is subject to vendor approval by customer before opening of price bid. BHEL shall not be bound by any power of attorney granted by tenderer or by changes in composition of the firm made subsequent to award of order / contract. BHEL may however recognize such power of attorney and changes after obtaining proper legal advice, cost of which will be chargeable to the seller / contractor concerned. If the tenderer deliberately gives wrong information, BHEL reserves the right to reject such an offer at any stage or cancel the order / contract, if awarded, and forfeit the security deposit and bank guarantee.
16.	DEVIATION : The bids having deviation(s) w.r.t. tender are liable for rejection. However, BHEL, at its discretion, may load the prices for evaluation of offer with prior intimation to bidder.
17.	TENDER EVALUATION : Comparative statement shall be prepared and evaluated on total cost basis at destination/site (as per terms of NIT) considering overall quantity indicated in NIT unless contrary to same is specifically mentioned in the tender enquiry / NIT. Total cost for this purpose shall include cost of scope of work as mentioned in NIT along with applicable taxes & duties, and other services etc. (if applicable). GST input credit available to BHEL shall be reduced from prices while determining L1 status. In case all bidders are foreign & Port of Import (destination port) is same for all the bidders, evaluation of offers shall be done on CIF (Port of Import) basis. Otherwise, evaluation of offers shall be done on the basis of delivered cost at site /destination to BHEL. Further, in case of foreign bidders, marine freight & insurance are to be quoted separately & the purchase order may be placed on FOB basis with an option for delivery on CIF / CFR basis, if required, later. In case of foreign bidders, Exchange Rate (TT selling rate of State Bank of India) as on date of tender opening (Part-I Bid in case of two part bid) shall be considered. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken for tender evaluation.
18.	LOADING CRITERIA : List of permissible deviations & loading criteria thereof are as follows :- a) Payment Terms Base rate of SBI (as applicable on the date of bid opening / techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the

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

Sr. No.	
	representative of Supplier / Contractor and / or to surviving partners of Supplier's / Contractor's firm on account of cancellation of the Purchase Order / Contract. Decision of BHEL that legal representatives of deceased Supplier / Contractor or surviving partners of the Supplier's / Contractor's firm cannot carry out and complete the Purchase Order / Contract shall be final and binding on the parties hereto. Terms and Conditions shall not get affected in case of de-merger / amalgamation / taking-over / re-constitution etc.
22.	RISK PURCHASE : In case the Supplier / Contractor fails to supply or fails to comply with terms & conditions of the Purchase Order / Contract or delivers equipment / material not of the contracted quality or fails to adhere to the contract specifications or fails to perform as per the activity schedule and there are sufficient reasons even before expiry of the delivery / completion period to justify that supplies shall be inordinately delayed beyond contractual delivery / completion period, BHEL reserve the right to cancel the Purchase Order / Contract either in whole or in part thereof without compensation to Supplier / Contractor and if BHEL so desires, may procure such equipment / material / items not delivered or others of similar description where equipment / material / items exactly complying with particulars are not readily procurable in the opinion of BHEL which is final and in such manner as deemed appropriate, at the risk and cost of the Supplier / Contractor and the Supplier / Contractor shall be liable to BHEL for any excess cost to BHEL. However, the Supplier / Contractor shall continue execution of the Purchase Order / Contract to the extent not cancelled under the provisions of this clause. Recovery amount on account of purchases made by BHEL at the risk and cost of Supplier / Contractor shall be the difference of total value of new Purchase Order (PO) value and total value of old Purchase Order for applicable items, where the total value of new PO is more than total value of old PO for applicable items, plus additional 15% of the total ex-works value of new PO as overheads. The Supplier / Contractor shall on no account be entitled to any gain on such risk & cost purchase. In case the purchase order (PO) value of the new PO is less than the PO value of the old PO, 15% of the total ex-works value of the new PO shall be recovered as overheads and the difference between the PO value of the old PO and the new PO shall not be considered for calculation of the recovery amount.
23.	ADJUSTMENT OF RECOVERY : Any amount payable by the Supplier / Contractor under any of the condition of this contract shall be liable to be adjusted against any amount payable to the Supplier / Contractor under any other Purchase Order / Contract awarded to him by any BHEL unit. This is without prejudice to any other action, as may be deemed fit, by BHEL.
24.	FORCE MAJEURE CONDITION : If by reason of war, civil commotion, act of god, Government restrictions, strike, lockout which are not in control of Supplier / Contractor the deliveries / services are delayed, Supplier / Contractor shall not be held responsible. If at any time during the continuance of the Purchase Order / Contract, the performance in whole or in part by either party of any obligations under the Purchase Order / Contract is prevented or delayed by reason of any war hostilities, acts of the public enemy, restrictions by Govt. of India, civil commotion, sabotage, fires, floods, explosion, epidemics, quarantine restrictions, strike, lock-outs or acts of God (hereinafter referred to as "event"), which are not in control of Supplier / Contractor or BHEL, then provided notice of the happening of such event is given by either party to the other within fifteen (15) days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate the Purchase Order /

Sr. No.	
	Contract nor shall have any claim for damages against each other in respect of such non-performance and delay in performance. Performance under the Purchase Order / Contract shall be resumed immediately after such event has come to an end or ceased to exist and decision of BHEL as to whether the deliveries have to be resumed or not shall be final, conclusive and binding on the parties hereto. In the event of the parties hereto not able to agree that a force majeure event has occurred, the parties shall submit the disputes for resolution pursuant to the provisions hereunder, provided that the burden of proof as to whether a force majeure event has occurred shall be upon the party claiming such an event. Notwithstanding above provisions, BHEL shall reserve the right to cancel the Purchase Order / Contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of delivery and other schedules.
25.	MANUFACTURING QUALITY PLAN (MQP) : Supplier to submit approved MQP in line with requirement of BHEL/customer.
26.	SUPPLIER PERFORMANCE MONITORING AND RATING SYSTEM : BHEL reserve the right for evaluation of Supplier Performance Rating as per Supplier Performance Monitoring and Rating System of BHEL for necessary action. Details are available at BHEL Website www.bhel.com for reference.
27.	DEALING WITH BANNED SUPPLIERS / CONTRACTORS IN BHEL : Offers of the bidders, who are on the banned list, as also the offers of the bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com for reference.
28.	ORDER OF PRECEDENCE : The order of precedence shall be as follows :- a) Special Terms & Conditions (STC) for Tender Enquiry / Contract, if any b) General Terms & Conditions (GTC) for Tender Enquiry / Contract & Additional General Terms & Conditions (GTC) for Tender Enquiry / Contract for Erection Testing & Commissioning (ETC) at Site, if applicable Provisions in (a) above shall prevail over (b). In case of conflict, between Technical Specifications and STC / GTC, bidder to seek necessary clarifications from BHEL concerned official as specified in NIT.
29.	PACKING : Packing shall be in conformity with specifications and shall be such as to ensure prevention of damages, corrosion, deterioration, shortages, pilferage and loss in transit or storage. In case of shipment by sea or air, the packing shall be sea-worthy or air-worthy respectively and of international standards. Different types of spares i.e. start-up / commissioning spares and initial spares (mandatory spares and recommended O&M spares) are to be packed separately. Packing List shall be submitted as per standard format along with advance set of documents for claiming payment which shall also indicate :- a) Case / Packing size (as applicable). b) Gross weight and net weight of each package. c) Detailed contents of the package with quantity of each item separately. Project, Item / Package Description, BHEL's PO No. with date & Case / Packing Mark should also be clearly mentioned on the Case / Packing and Packing List for identification. Also, Packing List must be duly signed & should include respective Invoice No. & LR No. Note : Foreign suppliers to furnish details to arrange inland transportation by BHEL, if applicable, as follows :-

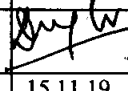
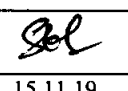
Sr. No.	
	i) No. of Packages ii) Size with Weight (Gross & Net) of each Package iii) No. of Containers with type & size required for inland transportation iv) Type of Cargo (Break Bulk / LCL / FCL) v) Customs Tariff No.
30.	COLOUR CODING : Aluminium stickers are required to be attached to large components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

Sr. No.	
	considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue. General Terms and Conditions of RA are available at Annexure. Business Rules for RA shall be sent to the bidders before conducting RA. Abridged Version of "Common Guidelines for Conducting Reverse Auction" may also be seen at BHEL website (www.bhel.com) on "Supplier Registration" Page & "Tender Notifications" Page.
34.	INTEGRITY PACT : NOT APPLICABLE Bidders shall have to enter into Integrity Pact with BHEL, duly signed with seal in original, if specified in NIT / RFQ failing which bidder's offer shall be liable for rejection.
35.	TERMINATION OF CONTRACT : BHEL shall have the right to cancel the Purchase Order / Contract without any financial implication to BHEL if vendor approval by end user / customer is withdrawn or in case of Suspension of Business Dealings with the Suppliers / Contractors by BHEL. BHEL shall have the right to cancel Purchase Order / Contract, wholly or in part, in case they are obliged to do so on account of any decline, diminution, curtailment or stoppage of their business and in that event, the Supplier's / Contractor' compensation claim shall be settled mutually. In case of cancellation of Purchase Order / Contract for main supply, all other associated Purchase Orders / Contracts like those for Mandatory Spares / Recommended Spares / Erection, Testing & Commissioning (ETC) / Supervision of ETC, if any, would also get cancelled.
36.	SHELF LIFE : NOT APPLICABLE Supplier has to inform the list of the items / sub-items which have limited shelf life like consumables or those required for the first fill and shall indicate the corresponding shelf life period in the offer. Such items / sub-items shall be manufactured / despatched only after getting formal clearance from BHEL.
37.	LIMITATION OF LIABILITY : Notwithstanding any other provisions, except in cases of wilful misconduct and / or criminal negligence / acts, a) Neither the Supplier / Contractor nor BHEL shall be liable to the other, whether in Purchase Order / Contract, tort, or otherwise, for any consequential loss or damage, loss of use, loss of production or loss of profits or interest costs, provided however that this exclusion shall not apply to any obligation of the Supplier / Contractor to pay Liquidated Damages to the BHEL and b) Notwithstanding any other provisions incorporated elsewhere in the contract, the aggregate liability of the Contractor in respect of this contract, whether under the Contract, in tort or otherwise, shall not exceed total Contract Price, provided however that this limitation shall not apply to any obligation of the Vendor to indemnify BHEL with respect to Patent Infringement or Intellectual Property Rights.
38.	SHORTAGES / DAMAGES : a) Against Supply only or Supply where Supervision of Erection, Testing & Commissioning (ETC) at Site or Supply where Testing & Commissioning at Site is in scope of the supplier : Any shortages and / or damages in supplies shall be supplied / replenished free of cost by the supplier as early as possible but not later than 30 days from the date of intimation by BHEL to the supplier.

Sr. No.	
	b) Against Supply where Erection, Testing & Commissioning (ETC) at Site is in scope of the supplier : Any shortages and / or damages in supplies and during handling / storage, erection, testing and commissioning at site shall be supplied / replenished free of cost by the Supplier / Contractor, as early as possible, to meet the contractual completion time / schedule. Note: There shall not be any extension in the contractual delivery time / schedule due to any shortages and / or damages in supplies.
39.	VARIATION OF CONTRACT VALUE / QUANTITY VARIATION : BHEL shall have the right to variation in quantities of items within $\pm 30\%$ of the total Purchase Order / Contract value at the time of placement of PO or award of Contract on overall basis for all amendments together within two years from the date of original Purchase Order / Contract or completion of execution of the Purchase Order / Contract whichever is earlier but quantities of individual items may vary to any extent or may get deleted unless otherwise specified in the technical specifications. No compensation is payable due to variation in the quantities and the Supplier / Contractor shall be bound to accept the same the contracted prices / rates without any escalation. However, if the Purchase Order / Contract is on "Lumpsum" basis, no variation of Purchase Order / Contract value shall be admissible to the Supplier / Contractor within the scope of Purchase Order / Contract, as long as the inputs remain unchanged.
40.	STATUTORY VARIATION : GST rates prevailing at the time of dispatch of goods/ completion of services shall be payable by BHEL. All other taxes, duties, charges, royalty, cess, other levies shall be deemed to be included in the Ex Works Prices /Charges quoted by bidders and no variations shall be payable in respect thereof . No other variations such as on customs duty, exchange rate, minimum wages, prices of controlled commodities, any other input etc. shall be payable by the BHEL. Notwithstanding anything above, where the actual completion of the supply / services occurs beyond the period stipulated in the Purchase Order / Contract or any extension thereof, variations referred to above, will be limited to the rates prevailing on the dates of such agreed completion periods only. For variations after the agreed completion periods, the Supplier / Contractor alone shall bear the impact for the upward revisions and for downward revisions BHEL shall be given the benefit of reduction in applicable taxes /GST. This will be without prejudice to the levy of liquidated damages for delay in delivery / completion. If new tax is introduced by Central/ State Govt/ Municipality becomes directly applicable on items specified in Bill of Quantities/Purchase Order/Contract, full reimbursements shall be made provided it becomes applicable on items specified in Bill of Quantities. However, any additional tax implication due to delay in delivery, beyond the Contractual Delivery, attributable to supplier shall be borne by supplier.
41.	MODE OF PAYMENT : Payment shall be made directly to the Supplier / Contractor by BHEL through NEFT / RTGS.
42.	CONFIDENTIALITY : Supplier / Contractor shall, at all times, undertake to maintain complete confidentiality of all data, information, software, drawings & documents etc. belonging to BHEL and also of systems, procedures, reports, input documents, manuals, results and any other BHEL documents discussed and / or finalized during the course of execution of Purchase Order / Contract.

Sr. No.	
43.	INDEMNIFICATION : The Supplier / Contractor shall indemnify and keep indemnified and hold harmless BHEL and its employees and officers from and against any and all claims, suits, actions or administrative proceedings, demands, losses, damages, costs and expenses and any other claim of whatsoever nature in respect of the death or injury of any person or loss of or damage to any property arising during the course and out of the execution of the Purchase Order / Contract.
44.	TITLE OF GOODS : a) Ownership of the equipment / material procured in India, shall be transferred to BHEL upon loading on to the mode of transport to be used for transportation of the said equipment / material from the works to the site / destination and upon endorsement of the dispatch documents in favour of BHEL. b) Ownership of the equipment / material to be imported into the country where the site is located, if not procured in India, shall be transferred to BHEL upon loading on the mode of transport to be used for transportation of the equipment / material from the country of origin to that country / destination and upon endorsement of despatch document in favour of BHEL. c) Notwithstanding the transfer of ownership of the equipment / material, the responsibility for care and safe custody thereof together with the risk of loss or damage thereto for whatsoever reason shall remain with the Supplier.
45.	COMPLIANCE OF STATUTORY REQUIREMENTS : The vendor shall comply with all State and Central Laws / Acts, Statutory Rules, Regulations etc., as may be enacted by the Government during the tenure of the Purchase Order / Contract and having in force and applicable to the Purchase Order / Contract and nothing shall be done by the Supplier / Contractor in contravention of any Law / Act and / or Rules / Regulations, thereunder or any amendment thereof. The Supplier / Contractor shall pay all taxes, fees, licence charges / deposits, duties, tolls, royalty, commissions or other charges which may be levied on account of any of his operations connected with the Purchase Order / Contract. In case BHEL is constrained to make any of such payments, BHEL shall recover the same from the Supplier / Contractor either from moneys due to him or otherwise as deemed fit.
46.	ACCEPTANCE OF ORDER : Supplier should acknowledge and accept the Letter of Award / Purchase Order issued by BHEL within 7 days of the issue of Letter of Award / Purchase Order. In case of any discrepancy / typographical error in issue of Purchase Order / Contract, the agreed terms & conditions, scope of work, rates / prices for placement of PO / award of contract shall be applicable and BHEL reserves the right to issue amendment(s) to PO / Contract for correction of discrepancies / typographical errors in the PO / Contract at a later date.
47.	FRAUD PREVENTION POLICY : The Bidder along with its associate / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

Signature of Bidder (Authorized Signatory) with Date & Seal

BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT NOIDA												
DOCUMENT NO.		TB-378-316-012A			Rev 00		Prepared		Checked		Approved	
TYPE OF DOC.		TECHNICAL SPECIFICATION			NAME		DS		JK		SKS	
TITLE Clamps & Connectors with Accessories					SIGN							
					DATE		15.11.19		15.11.19		15.11.19	
					GROUP		TBEM					
					WO No.		84007					
CUSTOMER		Tamilnadu Generation and Distribution Corporation (TANGEDCO)										
CONSULTANT		Desein Private Limited, New Delhi										
PROJECT		400kV GIS at 2x660MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS										
NOA Ref.												
<u>Contents</u>												
Section No.		Description								No of Pages		
0		Cover Sheet								1		
1		Scope, Bill of Quantities & Project specific technical requirements								5		
2		Specific technical requirements for the equipment under scope of supplies								5		
3		Project details and general technical requirements for all equipment under the Project.								12		
4		Annexures										
Annexure-A.1		Schedule of Technical Deviations								1		
Annexure-A.2		Compliance Certificate								1		
Annexure-B.1		Guaranteed Technical Particulars for Clamps & Connectors with Accessories								1		
Annexure-C.1		Technical Checklist for Clamps & Connectors with Accessories								2		
Remarks: Bidder to note that data and details of Guaranteed Technical Particulars shall not be reviewed during Technical Review, hence compliance of Technical Specification shall be bidder's responsibility.												
Rev Date Altered Checked Approved To Copies												

COPYRIGHT & CONFIDENTIAL
 The information in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED
 This must not be used directly or indirectly in anyway detrimental to the interest of the company.

Section 1: Scope, Technical Requirements and Quantities**1.1 SCOPE**

This technical specification covers the requirements of design, manufacture, inspection and testing at manufacture's works, proper packing and delivery to site of **Clamps & Connectors with Accessories** conforming to this specification.

This section covers the specific technical requirements of **Clamps & Connectors with Accessories**. This constitutes minimum technical parameters for the above item as specified by the customer. The offered equipment/ item shall also comply with the Section-3 (Project Details and General technical requirements for all equipment under the Project) of this specification.

The specification comprises of following sections,

Section-1 : Scope, Project specific technical requirements & Bill of Quantities.

Section-2 : Specific technical requirements for the equipment under scope of supplies.

Section-3 : Project Details and General technical requirements for all equipment under the Project.

Section-4 : Annexures (2nos.)

In case of any discrepancies between the requirements mentioned under different Sections, order of precedence shall be in the same order as listed above.

No deviation from the requirements specified in various clauses of this specification shall be allowed. A certificate to this effect shall have to be furnished along with the offer.

The equipment is required for the following project:

Name of the Customer : Tamilnadu Generation and Distribution Corporation (TANGEDCO)

Name of consultant : Desein Private Limited, New Delhi

Name of the Project : 400kV GIS at 2x660MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

The scope of supplies shall be as per commercial terms and conditions enclosed separately with the enquiry.

1.2 SPECIFIC TECHNICAL REQUIREMENTS

Specific technical requirements like rated voltage, rated current, conductor details and type of clamps & connectors and accessories etc. are given in enclosed Annexure-I (Bill of Quantities for Clamps & Connectors and Accessories). Other technical requirements for the connectors shall be as follows,

(1)	Material for	400kV
	(a) For connecting to equipment terminals and conductors of Aluminum	Aluminium alloy casting conforming to designation A6 of IS:617 and test shall conform to IS:617

	(b) For connecting equipment terminals made of copper with conductors of Aluminum	Bimetallic connectors made from Aluminium alloy casting, conforming to designation A6 of IS:617 with 2mm thick bimetallic liner and all test shall conform to IS:617
	(c) For connecting shield wire	Galvanized mild steel
	(d) Bolts, nuts and plain washers	For sizes below M12, electro galvanized mild steel, For sizes M12 and above, for Hot dip galvanized
	(e) Spring washers for items-(a) to (c)	Electro galvanised mild steel suitable for at least service conditions-3 as per IS:1573
(2)	Minimum thickness of any current carrying part of clamps & connector and accessories	10mm
(3)	Corona extinction voltage	320kV
(4)	Fault current level for 1second	63kA
(5)	Rated peak short circuit current	100kAp
(6)	Rated voltage	400kV
(7)	Highest system voltage	420kV
(8)	Rated lightning (Full wave) impulse withstand voltage (1.2/50 micro sec.) dry & wet	1425kVp
(9)	Rated Switching impulse withstand voltage ((250/2500 micro sec.) dry & wet	1050kVp
(10)	Rated one minute power frequency withstand voltage	650kVrms
(11)	Rated Frequency	50Hz
(12)	Total creepage distance	31mm
(13)	Minimum cantilever strength	800kg

Note: The connector suitable for Aluminum tube shall be such design that projected part of Aluminum tube shall be fully covered to avoid entry of birds inside Aluminum tube.

1.3 BILL OF QUANTITIES

The bill of quantities shall be as per Annexure-I (Bill of Quantities for Clamps & Connectors with Accessories).

Note: The quantity for individual item may vary up to any extent, however total quantity may vary +/- 30% during contract execution stage. It is also to be noted that any item can be completely/ partially deleted during detailed engineering stage.

1.4 TYPE TESTING

The bidder shall submit the type tests reports for the tests conducted on the equipment identical or similar to those to be supplied under this contract and the test(s) should have been conducted at an independent laboratory not earlier than five (5) years prior to supply under this contract. If any type test report is found to be technically unacceptable, such type test(s) shall be conducted by the bidder without any cost and delivery implication to BHEL/TANGEDCO.

Clamps & Connectors with Accessories shall be proven type and type tested design confirming the requirements of section-2, however Clamp Slip Test shall be conducted as mentioned in section-2 and shall be subjected to BHEL/TANGEDCO approval.

1.5 QUALITY PLAN

The successful bidder shall submit the QP for BHEL/ TANGEDCO approval. In case bidder has reference QP agreed with TANGEDCO, same can be submitted for specific project after award of contract for BHEL/ TANGEDCO's approval. There shall be no commercial implication to BHEL on account of QP approval.

All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved quality plan.

The supplier shall perform all tests necessary to ensure that the material and workmanship conform to the relevant standards and comply with the requirements of the specification. Charges for all these tests for all the equipment & components shall be deemed to be included in the bid price.

1.6 INSPECTION & TESTING

Before being fitted on the equipment, all components shall be subjected to routine tests at the Contractors factory, provided by the relevant IEC/IS standards. A detailed test report proving the successful passing of such tests shall be provided.

Prior to dispatch, the routine & acceptance tests shall be carried out on each item in accordance with the applicable IEC/IS and the material shall be offered for final inspection by BHEL and TSGENCO in accordance with agreed quality plan with 3 weeks' advance information. The charges for these shall be deemed to be included in the equipment price.

1.7 PACKING

The material shall be packed in such a way to ensure protection against damage during transit, storage for prolonged periods and handling.

- - x x x - -

15

Annexure-1 Bill of Quantities					
Clamps & Connectors with Accessories (REV 00)					
400kV GIS at 2x660MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS					
Sl. No.	EKD ID No.	Description	Current rating (A)	Qty to Indent	Remarks
	8	420kV, 1-Phase Bus post Insulator			
1 ✓	8A	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, SLIDING THROUGH TYPE	2000	20	
2 ✓	8B	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, BPI CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, RIGID - EXPANSION TYPE	2000	22	
3 ✓	8C	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A BPI CONNECTOR SUITABLE FOR TWIN MOOSE	2000	43	
	9	420kV, 125MVAR Reactor HV Bushing		-	
4 ✓	9A	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A REACTOR BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	2000	1	
	12	420kV, Generator Transformer HV Bushing		-	
5 ✓	12A	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A GT BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	2000	1	
	13	420kV, Air to SF6 gas Bushing		-	
6 ✓	13A	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR TWIN MOOSE	2000	21	
7 ✓	13B	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, GIS BUSHING CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS, EXPANSION TYPE	2000	21	
		Two way PG Clamps /Tee/Welding sleeves and Spacers		-	
8 ✓	15	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR AL TUBE 4 INCH IPS TO QUAD CONDUCTOR AS PER TS	2000	24	
9 ✓	16	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR QUAD MOOSE TO QUAD CONDUCTOR AS PER TS	2000	24	
10 ✓	18	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, TEE CONNECTOR SUITABLE FOR QUAD MOOSE TO TWIN CONDUCTOR AS PER TS	2000	23	
11 ✓	23	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A FLEXIBLE SPACER SUITABLE FOR TWIN MOOSE	-	27	
12 ✓	24	CLAMPS & CONNECTORS 400KV 63KA FOR 1S 2000A RIGID SPACER SUITABLE FOR TWIN MOOSE	-	27	

(14)

Annexure-1 Bill of Quantities					
Clamps & Connectors with Accessories (REV 00)					
400kV GIS at 2x660MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS					
Sl. No.	EKD ID No.	Description	Current rating (A)	Qty to Indent	Remarks
13	25	SUPPLY- CLAMPS & CONNECTORS : 400KV, 63KA FOR 1S, 2000A, RIGID SPACER SUITABLE FOR QUAD MOOSE	-	90	
14	28	SUPPLY- CLAMPS & CONNECTORS : STRAIN CLAMP FOR SHIELD WIRE 10.98MM DIA	-	10	
15	29	CLAMPS & CONNECTORS PG CLAMP FOR SHIELD WIRES OF DIA 10.98MM	-	4	
16	30	CLAMPS & CONNECTORS PAD CONNECTOR TO SUIT 10.98MM DIA G5 WIRE AND 75X12 MM GS FLAT	-	36	
17	31	CLAMPS & CONNECTORS CLAMP FOR 10.98MM DIA SHIELD WIRE ON LATTICE / PIPE STRUCTURE	-	50	
18	33	CLAMPS & CONNECTORS CLAMPS FOR 75X12MM EARTHING STRIP ON LATTICE/PIPE STRUCTURE		1,560	
19	C1	SUPPLY- CLAMPS & CONNECTORS : 400KV CORONA BELL SUITABLE FOR 4 INCH IPS AL TUBE	-	58	
20	S1	SUPPLY- CLAMPS & CONNECTORS : WELDING SLEEVE SUITABLE FOR 4 INCH IPS AL TUBE	-	42	
	Conductor Size				
	1	ACSR Moose conductor (Overall diameter=31.77mm)			
	2	7/9 SWG GI Shield Wire (Overall diameter=10.98mm)			
	Notes:				
	1	The sub-conductor spacing for 400kV Twin & Quad conductor is 450 mm.			
	2	Conductor mentioned in s. no. 5.1,5.2 and 5.3 is ACSR Moose			

**Section-2: Specific technical requirements for the equipment under scope
of supplies****6.03.00 Technical Particulars**

1.0	RATING	400 kV
1.1	Application	Switchyard / Outdoor
1.2	Quantity	As per requirement
1.3	Voltage class	420 kV
1.4	Frequency	50 Hz
1.5	No. of phases	3 Phase
1.6	Rated current for site conditions	As required
1.7	Short time Current Rating and duration	63 kA for 1.0 sec.
1.8	Rated peak short circuit current	100 kA (Peak)
2.0	Design Requirements	
2.1	Ambient temperature	50°C
2.2	Insulation level	1425 kV peak
2.3	Phase spacing	As per IS
2.4	Type of break	Horizontal double break/ tandem type vertical-break
2.5	Type of mounting	Horizontal upright
2.6	Operating device	
	(a) For disconnector	Motor driven (Both local & remote) (Emergency Manual)
	(b) For earth switch	Motor Driven with electrical/ Mechanical interlocks
3.0	Insulation Data	
3.1	1.2 / 50 micro sec. lightning impulse withstand	
	To earth	1425 kV peak
3.2	Total creepage distance	31 mm/ kV
3.3	Minimum cantilever strength	800 kg



**2x660 MW Ennore SEZ Supercritical Thermal Power
Project at Ash Dyke of NCTPS
Spec. No. CE/C/P&E/EE/E/OT. No. 03/2013-14
Vol. IV: Electrical Works:221**



- v. ~~Fibre optic Distribution Panels (FODP) for optical fibre terminations be supplied and installed by the contractor. FODP shall be designed to provide Protection for fibre splicing of pre connectorized pigtails and to accommodate connectorized termination and coupling of the fibre cables.~~

10.00.00 MISCELLANEOUS EQUIPMENT

10.01.00 Codes and Standards

ALUMINIUM tubular Conductor	IS:5082 / IEC
ACSR conductor	IS : 398 / IEC
Clamps & connectors	IS : 617, IS : 5561 / IEC
Insulator string	IS : 731 / IEC
Hardware	IS : 2486, IEC : 433
Spacers	IS : 10162 / IEC
Earthing conductor	IS : 2141 / IEC
Cabinets, boxes, kiosks, panel etc.	IS:5039, IS:8623 and IEC:439

10.02.00 Design and Constructional Features

10.02.01 Cabinets, boxes, kiosks, panels etc

~~(Control cabinets, junctions boxes, marshalling boxes, lighting panels, terminal boxes operating mechanism boxes, etc)~~

- i. ~~The size of enclosure and the layout of equipment inside shall provide generous clearances.~~
- ii. ~~Each cabinet/box/kiosk/panel shall be provided with a 15A, 240V AC, 2 pole, 3 pin industrial grade receptacle with switch.~~



2x660 MW Ennore SEZ Supercritical Thermal Power
Project at Ash Dyke of NCTPS
Spec. No. CE/C/P&E/EE/E/OT. No. 03/2013-14
Vol. IV: Electrical Works:228



- iii. For incoming supply, MCB of suitable rating shall be provided.
- iv. Illumination of each compartment shall be with door operated incandescent lamp.
- v. All control switches shall be of rotary type.
- vi. Shall be of painted sheet steel or ALUMINIUM. However, the junction and switch boxes shall be of hot dip galvanized sheet steel of 1.6mm thickness.
- vii. Thickness of sheet steel shall be 2mm cold rolled or 2.5 mm hot rolled. The thickness of ALUMINIUM shall be 3mm and shall provide rigidity.
- viii. Top of the boxes shall be sloped towards rear.
- ix. The cabinets/ boxes/kiosks/ panels shall be free standing or wall mounting or pedestal mounting type. They shall have hinged doors with padlocking arrangement. All doors, removable covers and plates shall be gasketed all around with neoprene gaskets.
- x. The cable entry shall be from bottom for which removable gasketed cable gland plates shall be provided. Suitable 240V, single phase 50Hz AC heaters with thermostats controlled by switch and fuse shall be provided to maintain inside temperature 10 deg. above the ambient.
- xi. Each cabinet / box / kiosk / panel shall be provided with two earthing pads to receive 75mmx 12mm GS flat. The connection shall be bolted type with two bolts per pad. The hinged door shall be connected to body using flexible wire.
- xii. The cabinets/boxes/kiosks/panels shall also be provided with danger plate, and internal wiring diagram pasted on inside of the door. The front label shall be on a 3 mm thick plastic plate with white letter engraved on black background.

10.02.02 Clamps and Connectors

- i. Shall be Aluminium alloy casting conforming to designation A6 of IS: 617 for connecting to equipment terminals and conductors of ALUMINIUM. In case the terminals are of copper, the same clamps/ connectors shall be used with 2 mm thick bimetallic liner.
- ii. Shall be Galvanized mild steel for connecting to shield wire.
- iii. Bolts, nuts and plain washers shall be hot dip galvanized mild steel for sizes M12 and above. For sizes below M12, they shall be electro-galvanized mild steel.
- iv. The spring washers shall be electro-galvanized mild steel.
- v. All castings shall be free from blow holes, surface blisters, cracks and cavities.
- vi. All sharp edges and corners shall be rounded off to meet specified corona and radio interference requirements



- vii. Shall have same current rating as that of the connected equipment with temperature rise limited to 35 deg.C over 50 deg.C.
- viii. All current carrying parts shall be at least 10 mm thick.
- ix. Shall be manufactured to have minimum contact resistance.
- x. Flexible connectors, braids or laminated strips shall be made up of copper/ALUMINIUM.
- xi. Current rating and size of terminal/conductor for which connector is suitable shall be embossed/punched on each component.

10.02.03 Insulator String Hardware

- i. ~~Shall be of bolted type and forged steel except for insulator cap, which can be of malleable cast iron.~~
- ii. ~~Shall also generally meet the requirements of clamps and connectors as specified above.~~
- iii. ~~In one span, Tension string assembly at one end shall be supplied with suitable turn buckle.~~
- iv. ~~Suitable sag compensating spring shall be supplied in case the design calculations show excessive variation of the sag over the temperature range of 0 to 80 deg.C.~~

10.02.04 Aluminium tubular Conductor (If Applicable)

- (i) Size 4" IPS (EH type).

10.02.05 ACSR Conductor

- (i) Code & standard IS 308
- (ii) Name MOOSE ACSR

10.02.06 Spacers

- (i) Shall be non-magnetic material except nuts and bolts, which shall be of hot dip galvanized mild steel.
- (ii) Shall generally meet the requirement of clamps and connectors specified above.



- (iii) Design shall take care of fixing and removing during installation and maintenance.
- (iv) Clamp slip test shall be conducted as follows:
In this test the sample shall be installed on test span of twin/quad bundle string at a tension of 44.2 kN (4500 kg.). One of the clamps when subjected to a longitudinal pull of 2.5 kN (250 kg) parallel to the axis of conductor shall not slip, i.e. permanent displacement between conductor and clamp after the test shall not exceed 1.0 mm.
This test shall be performed on all other clamps of the sample.

10.02.07 Earthing Conductor

- (i) ~~All conductors buried in earth shall be of mild steel.~~
- (ii) ~~All conductors above the ground level shall be galvanized steel.~~
- (iii) ~~Shield wire for lightning protection~~

10.02.08 Bay Marshalling Box (BMB)

- i. ~~Each bay of the switchyard shall be provided with a Bay marshalling Box (BMB) located at a convenient location to receive and distribute cables within the bay.~~
- ii. ~~It shall receive two incoming three phase AC supplies controlled by MCBs with auto changeover provision and distribute adequate three/single phase ac supplies controlled by MCBS. Of the outgoing feeders, 20% shall be kept spare.~~
- iii. ~~BMB shall also be provided with 63A, 3 phase 4 pin industrial grade receptacle with rotary switch.~~
- iv. ~~Adequate terminal blocks (having 20% spare terminal) shall be provided in separate compartment in BMB for implementing interlocking schemes for operation of switchyard equipment (circuit breaker, disconnecting and earth switches etc.).~~



SECTION – 3

PROJECT INFORMATION AND GENERAL TECHNICAL REQUIREMENTS

INDEX

S.No	Chapter	Sheet No.
1.0	Project Synopsis	1
2.0	General Technical Requirements	4
3.0	Drawing Document Submission	10

CHAPTER 1

PROJECT SYNOPSIS

1.0 GENERAL BACKGROUND AND SALIENT FEATURES

1.1 Introduction

Tamilnadu Generation and Distribution Corporation owns the proposed green-field 1320 MW (2 units of 660 MW each) Coal Based Thermal Power Station at Katupalli. This is an expansion of North Chennai Thermal Power Station (NCTPS) and located on some portion of the ashdyke of NCTPS.

1.2 Location

The proposed site for main power plant is located near Ennore port (approx 5 kms).

The nearest Railway station is at Athipattu Pudunagar (approx 5 kms)

All weather road from Pattamandri on the Thiruvottiur-Ponneri district highway is the nearest road access.

The nearest airport is at Chennai at a distance of 60 km.

1.3 NA

1.4 PROJECT INFORMATION

Project Title : **2 x 660 MW Ennore SEZ Coal Based Supercritical Thermal Power Project at Ash Dyke of NCTPS**

Owner : **TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION (TANGEDCO)**

LOCATION

The site is located near Vayalur Village, Ennore

Latitude : 13°17' N to 13°18' N

Longitude : 80°18' E to 80°19' E

Distance from Chennai City : 35 km

Nearest Airport is at Chennai at a

Distance of : 60 km

Nearest Seaport is : Ennore

Nearest Railway Station is : Athipattu Pudunagar (approx 5 kms)

Meteorological Condition

Climate : Tropical ,very dry and hot summer, dry and cold winter and good rain-fall in monsoon accompanied with strong wind.

Climatological data	:		
Ambient temp. (°C)	:	Annual Maximum Mean Temp	41.5(°C)
	:	Annual Minimum Mean Temp	24(°C)
	:	Design Ambient temperature	50(°C)
Relative Humidity	:	Maximum 100% Minimum 36% Design 75%	
Annual Rainfall	:	Maximum 2540 mm Average 1600 mm Minimum 1175 mm	
Prevailing Wind Direction	:	Nov to Jan – From NW & NE Feb to Mar – From East & SE Apr to May – From South & SE June – From SW July to Aug – From NW Sept to Oct – From SE & SW Wind Speed 11.8 kmph (avg) 50 kmph (max)	
Seismic Zone	:	Seismic Zone III as per IS:1893-2002	

		minimum 0.16 g horizontal	
--	--	---------------------------	--

1.5

1.7

Access to Site

Site is well connected to all weather road from Pattamandri on the Thiruvottiyur – Ponneri district highway. Site is located adjacent to the Chennai – Howrah broad gauge line and thus well connected by rail also.

CHAPTER – 2

GENERAL TECHNICAL REQUIREMENTS

1.00.00 ELECTRICAL SYSTEM PARTICULARS

1) Standard voltage levels

The standardized voltage levels as shall be adopted as specified elsewhere in this specification.

2) Permissible variations:

The system unit/plant equipment shall be designed suitable for continuous operation with variation in voltage and frequency as indicated below:

3) Variation in voltage and frequency

	Voltage	Frequency
Permissible variation for power supply with rated Performance /rated current and control effectiveness maintained	+/- 10%	-5% to +3%
Permissible variation for control and regulation equipment with rated Performance and control quality maintained		

4) Basic insulation levels

Equipment shall be designed suitable for basic insulation levels as given below:

Nominal Voltage (kV)	BIL kV (peak)
400 kV	1425
33 kV	170
11 kV	75
3.3 kV	40

5) Symmetrical short circuit ratings

The three phase symmetrical short circuit ratings of the switchgear at different voltage levels shall be as indicated in the Table below:



S. No.	Voltage level	Symmetrical Breaking Capacity	Making Capacity
1.	400 kV	63 kA for 1 sec	163 kA
2.	33 kV	25 kA for 3 sec	62.5 kA
3.	11 kV	50 kA for 3 sec	125 kA
4.	3.3 kV	40 kA for 3 sec	100 kA
5.	415 V	50 kA for 1 sec	125 kA
6.	220 V DC	25 kA for 1 sec	-
7.	48 V DC	10 kA for 1 sec	

6) **Criteria for selection of voltage levels for motors**

Sr. No	Rating	Voltage Level
1	LV Motors- Up to 160 kW	415 V, 3 phase, 50 Hz
2	MV Motors- More than 160 kW and up to 1500 kW	3.3 kV, 3 phase, 50 Hz
3	HV Motors- Above 1500 kW	11 kV, 3 phase, 50 Hz

7) **System Earthing**

- i. 33kV/11 kV and 3.3 kV : Resistance grounded.
- ii. 415 V : Solidly grounded.

8) **Degree of Protection:**

Degree of protection for various electrical equipment shall be as follows:

S.No.	Equipment	Degree of Protection
1.	Marshalling Boxes, Panels, Motors located outdoor	IP55
2.	Electrical Equipment of CH System	IP55 with dust proof enclosure
3.	HV Switchgear	IP-4X for bus bar chamber, IP-6X for other compartments
4.	LV Switchgear	IP52 up to 1600 A and IP42 above 1600 A

2.00.00

GENERAL TECHNICAL PARTICULARS FOR EHV SYSTEM

(a)	Rated voltage	400 kV
(b)	Rated frequency	50 Hz
(c)	Rated short time current withstand capacity	63 kA rms for one (1) second
(d)	Rated one minute power frequency withstand voltage	650 kV rms between live terminals and earth b) 815 kV rms across isolating distance
(e)	Rated lightning impulse withstand voltage	a) 1425 kVp between live terminals b) 1425 (+240) kVp across isolating distance & earth.
(f)	Rated Switching Impulse withstand voltage	a) 1575 kVp (between phases) b) 900 (+345) (across isolating distance)
(g)	Phase to phase spacing	4000 mm
(h)	Rated terminal load	Adequate to withstand 100 kg static load as well as wind, seismic and short circuit forces without impairing reliability or current carrying capacity.
(i)	System neutral earthing	Effectively earthed
(j)	Support structure height	Adequate so that lowest part of support insulator of equipment is 2550 mm (minimum) from ground and/or plinth level.
(k)	Creepage distance	Minimum 31 mm / kV
(l)	Electrical Clearances	

Clearances shall be as given below and as per relevant statutory rules/codes.		
1.	Phase to earth	3500 mm
2.	Phase to phase	4000 mm
3.	Sectional clearance	6500 mm
4.	Ground clearance	8000 mm

3.00.00 NA

4.00.00 COMPLETENESS

4.01.00 Bidders may note that this is a contract inclusive of the scope as indicated elsewhere in the specification. Each of the plant shall be engineered and designed in accordance with the specification requirement. All engineering and associated services are required to ensure that a completely engineered plant is provided.

4.02.00 All equipment furnished by the Bidder shall be complete in every respect, with all mountings, fittings, fixtures and standard accessories normally provided with such equipment and/or those needed for erection, completion and safe operation & maintenance of the equipment and for the safety of the operating personnel, as required by applicable codes, though they may not have been specifically detailed in the respective specifications, unless included in the list of exclusions.

All similar standard components/ parts of similar standard equipment provided, shall be interchangeable with one another.

5.00.00 CODES & STANDARDS

5.01.00 In addition to the codes and standards specifically mentioned in the relevant technical specifications for the equipment / plant / system, all equipment parts, systems and works covered under this specification shall comply with all currently applicable statutory regulations and safety codes of the Republic of India as well as of the locality where they will be installed, including the following:

- (a.) Bureau of Indian Standards (BIS)
- (b.) Indian electricity act
- (c.) Indian electricity rules
- (d.) Indian Explosives Act

- (e.) Indian Factories Act and State Factories Act
- (f.) Indian Boiler Regulations (IBR)
- (g.) Regulations of the Central Pollution Control Board, India
- (h.) Regulations of the Ministry of Environment & Forest (MoEF), Government of India
- (i.) Pollution Control Regulations of Department of Environment, Government of India
- (j.) State Pollution Control Board.
- (k.) Rules for Electrical installation by Tariff Advisory Committee (TAC).
- (l.) Any other statutory codes / standards / regulations, as may be applicable.

5.02.00 Unless covered otherwise by Indian codes & standards and in case nothing to the contrary is specifically mentioned elsewhere in the specifications, the latest editions (as applicable as on date of bid opening), of the codes and standards given below shall also apply:

- (a.) Japanese Industrial Standards (JIS)
- (b.) American National Standards Institute (ANSI)
- (c.) American Society of Testing and Materials (ASTM)
- (d.) American Society of Mechanical Engineers (ASME)
- (e.) American Petroleum Institute (API)
- (f.) Standards of the Hydraulic Institute, U.S.A.
- (g.) International Organisation for Standardization (ISO)
- (h.) Tubular Exchanger Manufacturer's Association (TEMA)
- (i.) American Welding Society (AWS)
- (j.) National Electrical Manufacturers Association (NEMA)
- (k.) National Fire Protection Association (NFPA)
- (l.) International Electro-Technical Commission (IEC)
- (m.) Expansion Joint Manufacturers Association (EJMA)
- (n.) Heat Exchange Institute (HEI)

5.03.00 Other International/ National standards such as DIN, VDI, BS, etc. shall also be accepted for only material codes and manufacturing standards, subject to the Owner's approval, for which the Bidder shall furnish, alongwith the offer, adequate information to justify that these standards are equivalent or superior to the standards mentioned above. In all such cases the Bidder shall furnish specifically the variations and deviations from the standards mentioned else

where in the specification together with the complete word to word translation of the standard that is normally not published in English.

~~5.04.00~~ NA

5.05.00 NA

5.06.00 NA

5.07.00 In case of any change in codes, standards & regulations between the date of bid opening and the date when vendors proceed with fabrication, the Owner shall have the option to incorporate the changed requirements or to retain the original standard. It shall be the responsibility of the Bidder to bring to the notice of the Owner such changes and advise Owner of the resulting effect.

6.00.00 EQUIPMENT FUNCTIONAL GUARANTEE

6.01.00 The Equipment and Auxiliaries shall be capable of continuous operation in frequency range of 47.5 to 51.5 Hz.

DRAWING DOCUMENT SUBMISSION

4.1 DISCREPANCIES BETWEEN DRAWING AND SPECIFICATION:

Should there be any discrepancy between the specifications and/or schedule of prices and/or drawings or any inconsistency, error or omission in either of them, reference must be made to the BHEL/CUSTOMER for an explanation and the Supplier will be held responsible for any errors that may occur in the work through neglect of this precaution. The explanation of the BHEL/CUSTOMER shall be final and binding on the Supplier.

4.2 APPROVAL PROCEDURE

The scheduled dates for the submission of drawings as well as for, any data/information to be furnished by the Employer would be as per the following schedule. The supplier shall also submit required no. of copies as mentioned in this specification of all drawings/design documents/test reports for approval by the Employer. The following schedule shall be followed generally for approval.

i.	First Submission	Within 7 days from the date of LOI/PO
ii.	Approval/comments/by employer on Initial submission	Reasonable time
iii.	Resubmission	Within 7 days (whenever from date of comments required) Including both ways postal time.
iv.	Approval or comments	Within 2 weeks of receipt of resubmission.
v.	Furnishing of distribution copies	2 weeks from the date of last approval.

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

The title block of drawings shall contain the following information incorporated in all contract drawings. Please refer enclosed sheet for details of Title block.

4.3 TITLE BLOCK

Following Title Blocks to be used in drawings at the time of drawing approvals

Project:	400kV GIS at 2 x 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Chennai-120		
NOA No:	CE/P/SE/M/P/EE-10/E/P/F.2X660MW	ENNORE	SEZ
	STTP/D60/DT 27.027.2014		
Customer :	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION (TANGEDCO)		
Consultant	DESEIN PRIVATE LIMITED, NEW DELHI		
Contractor	BHARAT HEAVY ELECTRICALS LIMITED		

4.4 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

- 1) Drawings
- 2) Guaranteed Technical Particulars
- 3) Type Test Reports
- 4) List of Part Supplies with rating

Drawings & Documents submitted at the time of offer shall be subject to review at contract stage.

4.5 DOCUMENTATION SCHEDULE

Following Documentation schedule to be followed per project.

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

8	Inspection Test Reports	-	7	10	
---	-------------------------	---	---	----	--

Supplier to submit Hard copies of the drawing to following address

To,
<Name of BHEL's concerned engineering official>
Bharat Heavy Electricals Limited
Transmission Business Group- Engineering Management
Advant Navis IT Business Park
Plot No.-7, Greater Noida Expressway,
Sector 142, **NOIDA**, Uttar Pradesh 201305

Note: Drawings will also be submitted in CD/DVD in Latest AUTOCAD version or any other CAD package along with conversion files for all major items.

Final Documentation shall be submitted in bound volumes with details of Customer & Project etc. written on top.

ANNEXURE-A.1: SCHEDULE OF TECHNICAL DEVIATIONS

Bidder shall list out all technical deviation(s) along with clause with respect to technical specifications.

<u>Sl. No.</u>	<u>Page No.</u>	<u>Clause No.</u>	<u>Deviation</u>	<u>Reason / Justification</u>
----------------	-----------------	-------------------	------------------	-------------------------------

Any deviation not specifically brought out in this section shall not be admissible for any commercial implication at later stage. Except to the technical deviations listed in this schedule, bidder's offer shall be considered in full compliance to the tender specifications irrespective of any such deviation indicated / taken elsewhere in the submitted offer.

Date:

Bidder's Stamp & Signature

ANNEXURE-B: COMPLIANCE CERTIFICATE

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

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

Date:

Bidder's Stamp & Signature

Bharat Heavy Electricals Limited
 400kV GIS at 2x660MW Ennore SEZ Supercritical
 Thermal Power Project at Ash Dyke of NCTPS
 Technical Specification for **Clamps & Connectors with Accessories**

Doc No. **TB-378-316-012A** Rev 00

ANNEXURE-B.1: Clamps & Connectors with Accessories

(To be submitted by the supplier at the contract execution stage)

- 1.0 Name of the Project :
- 2.0 Manufacture's name and address :
- 3.0 Applicable standards :
- 4.0 Application :
- 5.0 Type :
- 6.0 For connection to :
 - a) Conductor size and arrangement :
 - b) Equipment terminal and arrangement :
- 7.0 Material (state percentage – composition of constituents and impurities present) :
 - a) Clamp body :
 - b) Bolts and nuts :
 - c) Spring washers :
 - d) Liners, if any :
- 8.0 Rated current (A) :
- 9.0 Maximum temperature rise over reference ambient temperature when carrying rated current (°C) :
- 10.0 Rated terminal load and factor of safety (Kg):
- 11.0 Minimum thickness of any part (mm) :
- 12.0 Weight of clamp complete with hardware (Kg):
- 13.0 Machine accuracy for matching surface :
- 14.0 Service (Indoor/Outdoor) :

Date:

Bidder's Stamp & Signature

Bharat Heavy Electricals Limited
 400kV GIS at 2x660MW Ennore SEZ Supercritical
 Thermal Power Project at Ash Dyke of NCTPS
 Technical Specification for **Clamps & Connectors with Accessories**

Doc No. TB-378-316-012A Rev 00

ANNEXURE-C.1: Technical Checklist for Clamps & Connectors with Accessories

(Checklist for information to be furnished with offer. Return this technical checklist as a part of technical offer duly signed. The offer may not be considered if the following information, if this checklist is not enclosed with this offer)

BHEL Enquiry No.:

Bidder Offer Ref.:

(1) TECHNICAL REQUIREMENTS (CLAMPS & CONNECTORS WITH ACCESSORIES)

(1)	(2)	(3)	(4)	(5)
S.No.	Parameter/ Requirement	400 kV	Yes / No	Remarks in case reply in Col (4) is No
1.	Material of Clamps & Connectors with accessories			
a)	Clamp body	Designation A6 of IS 617	YES/NO	
b)	Bolts, nuts and plain washers	For sizes below M12, electro galvanized mild steel, For sizes M12 and above, for Hot dip galvanized	YES/NO	
c)	Spring washers	Electro galvanized mild steel suitable for at least service conditions-3 as per IS:1573	YES/NO	
d)	Liners for terminals which are of copper alloy	Liner of minimum thickness 2mm shall be cast integral with the aluminium alloy body (For Bimetallic connectors)	YES/NO	
2.	Continuous current rating	As per Annexure I (Bill of Quantity)	YES/NO	
3.	Maximum temperature rise when carrying estimated fault current (63kA for 1s for 400kV)	35°C over ambient temperature 50°C	YES/NO	
4.	Corona extinction voltage	320kV	YES/NO	
5.	Fault current level for 1second	63kA	YES/NO	
6.	Highest system voltage	420kVrms	YES/NO	
7.	Rated lightning (Full wave) impulse withstand voltage (1.2/50 micro sec.) dry & wet	1425kVp	YES/NO	
8.	Rated Switching impulse withstand voltage ((250/2500 micro sec.) dry & wet	1050 kVp	YES/NO	

Bharat Heavy Electricals LimitedDoc No. **TB-378-316-012A Rev 00**

400kV GIS at 2x660MW Ennore SEZ Supercritical

Thermal Power Project at Ash Dyke of NCTPS

Technical Specification for **Clamps & Connectors with Accessories**

9.	Rated one minute power frequency withstand voltage	650kVrms	YES/NO	
10.	Corona extinction voltage	320kV	YES/NO	
11.	Minimum thickness of any current carrying part of clamps & connector and accessories	10mm	YES/NO	

2. TYPE TESTS

Whether Type test reports as per clause no. 1.4 of section-1 has been submitted.

YES/NO

If yes, kindly indicate report number.

If the valid type test reports are not available as per clause no. of section -1 of technical specification with the bidder, then the type tests shall be conducted by the bidder without any price implication

YES/NO

Date:

Bidder's Stamp & Signature