

3X800 MW PVUNL PATRATU TPP PHASE-1

TECHNICAL SPECIFICATION

FOR

ABOVE GROUND EARTHING

&

LIGHTNING PROTECTION MATERIALS

SPECIFICATION NO.: *PE - TS - 434 - 509 - E003*

REVISION: 00



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UP (INDIA) – 201301**



**TECHNICAL SPECIFICATION FOR
ABOVE GROUND EARTHING &
LIGHTNING PROTECTION MATERIALS**

SPECIFICATION NO. PE-TS-434-509-E003

VOLUME NO.: II-B

SECTION: I

REV NO.: 00 DATE: 12.05.2022

SHEET : 1 OF 1

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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 deviations with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ-Cum-Price schedule' of the specification shall not be considered (i.e., technical description & quantities as per the specification shall prevail).
6. Price variation formulae provided on Sheet 20 of 20 of this specification.

BIDDER'S STAMP & SIGNATURE

1362686/2023/PS-PEM-EL



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**SECTION – I
SPECIFIC TECHNICAL REQUIREMENTS**

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SCOPE OF ENQUIRY

1. SCOPE OF ENQUIRY

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

2. BILL OF QUANTITIES:

The bidder to quote for items as per price schedule attached with NIT.

3. DRAWINGS & DOCUMENTS TO BE SUBMITTED

- 3.1 Documents shall be submitted after placement of order for BHEL & customer's approval as specified in NIT.
- 3.2 Documents shall be furnished through BHEL's document management system(wrench) portal.

Notes:

- Vendor shall submit the drawing/document submission/resubmission schedule after approval of documents.



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STANDARD TECHNICAL REQUIREMENTS

1.0 INTENT OF SPECIFICATION

- 1.1 This specification covers the design, manufacture, inspection & testing, packing at manufacturer's works and delivery to site of Above **Ground Earthing & Lightning Protection materials**.
- 1.2 The intent of specification is not to specify all details of design & construction of material. The material shall, however, conform in all aspects to high standard of design, engineering and workmanship and be capable of performing in continuous operation up to & after bidder's guarantee period in manner acceptable to purchaser who will interpret the drawings & specification and shall have power to reject any work or material which in his judgement is not in full accordance with this specification.

2.0 CODES AND STANDARDS

- 2.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well as of the locality where the material is to be installed.
- 2.2 The design, material, construction, manufacture, inspection, testing and performance of **Above Ground Earthing & Lightning Protection materials** shall conform to the latest revision of relevant standards and codes of practices as per Annexure-A.
- 2.3 **In case of conflict between the applicable reference standard and this specification, this specification shall govern.**

3.0 SCOPE OF ENQUIRY

- 3.1 Bidder shall quote for **Above Ground Earthing & Lightning Protection materials** in accordance with various sections of this specification. The system shall be complete in all aspects, for satisfactory operation, in accordance with this specification & technical particular.

4.0 TECHNICAL REQUIREMENTS

- 4.1 Technical particulars of Above Ground Earthing & Lightning Protection materials are specified in Technical Datasheet.
- 4.2 Straight lengths of hot dip galvanised MS materials as per project specific requirement shall be supplied in standard lengths as below:
- | | | | |
|----|------------------------------|---|----------------------|
| a) | MS Flats of all sizes | : | 4-7 metres |
| b) | SWG wires of different sizes | : | 100 metres (minimum) |

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- 4.3 All finished galvanized MS material shall be free from sharp edges, corners, burs & unevenness.
- 4.4 Test link with box shall be as per enclosed drawing no. PE-DG-434-509-E003.
- 4.5 Flexible braided Copper Conductor of 600 mm length (cross section equivalent to 300 sq.mm) with tinned copper clamp connected by U-bolt for fence gate earthing shall be as per enclosed drawing no. PE-DG-434-509-E003.
- 4.6 Necessary fixing hardware shall be provided along with each accessory as specified in drawings enclosed.

5.0 QUALITY ASSURANCE, TESTING & INSPECTION

- 5.1 BHEL's Standard QP (PE-QP-999-509-E001) enclosed forms the minimum requirement but not limited to be adhered by the bidder. After issuance of purchase order for specific project, the successful bidder shall submit the QP for BHEL/ end customer's approval. In case bidder has reference QP agreed with end customer, same can be submitted for specific project after issuance of purchase order for BHEL/ end customer's approval. There shall be no commercial implication to BHEL on account of QP approval. Inspection shall be carried out in line with QP approved for specific project.
- 5.2 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per quality plan approved for specific project.
- 5.3 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.

6.0 PACKING

- 6.1 The material shall be packed to ensure protection against damage during transit, storage for prolonged periods and handling.

7.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

- 7.1 Bidders shall furnish following documents as the part of their technical offer for 'Rate Contract': -
- Complete signed & stamped copy of this specification.
 - "No Technical Deviation" certificate w.r.t. this specification.
 - Unpriced 'Price Schedule' after mentioning "Quoted" against the items quoted.
- 7.2 After rate contract, after issuance of purchase order against specific project requirement following information shall be furnished by BHEL: -
- Title Sheet
 - Updated list of BHEL-PEM approved Galvanizers (Refer Annexure-2 to Quality Plan)



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7.3 Following documents/drawings shall be submitted after placement of order for BHEL & customer's approval: -

Sl. No.	Drawings/Document Description	Drawings / Document Number
1.	QUALITY PLAN FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIAL.	PE-V1-434-509-E903
2	TECHNICAL DATA SHEET FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	PE-V1-434-509-E002
3	GA DRAWINGS FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	PE-V1-434-509-E003

7.4 Document indicated at clause no. 7.3 above, shall be submitted through document management system (DMS).



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ANNEXURE - A

APPLICABLE STANDARDS & CODES

For Hot rolled carbon sheets & strips.	IS: 2062
For Mild Steel Wire	IS: 280
For Surface pre treatment	IS: 2629
For Hot dip galvanising of steel	IS: 2629
For Hot dipped galvanised coating on round steel wires	IS: 4826
For Testing of zinc coating	IS: 2633
For Determining of mass of zinc coating	IS: 6745
For Rolling & cutting tolerances of hot rolled steel products	IS: 1852
For Hot dip zinc coating on structural steel & other allied products	IS: 4759
For Tubes, Tubulars and other Wrought Steel Fittings	IS: 1239

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TECHNICAL DATASHEET

1.0 GALVANIZED MS MATERIALS FOR ABOVE GROUND EARTHING AND LIGHTNING PROTECTION SYSTEMS

- a) Material: Hot Rolled Mild Steel
- b) Type: Hot-dip galvanized

3.0 SURFACE TREATMENT

Galvanising:

- a) Pre-treatment As per IS 2629 prior to galvanization
- b) Type Hot dip galvanization.
- c) Applicable Standard IS 2629
- d) Minimum thickness:

- | | |
|--|----------------------------|
| i) MS flats 5mm thick & over | 75 microns (minimum) |
| ii) MS flats under 5mm thickness | 60 microns (minimum) |
| iii) Pipes/ conduits with thickness 5 mm & over. | 75 microns (minimum) |
| iv) Pipes/ conduits with thickness under 5mm | 60 microns (minimum) |
| v) GI Wire | 20 Microns (Medium coated) |

e) Min. weight:

- | | |
|--|---------------------|
| i) MS flats 5mm thick & over | 610 gms. / sq. mtr. |
| ii) MS flats under 5mm thickness | 460 gms. / sq. mtr. |
| iii) Pipes/ conduits with thickness 5 mm & over. | 610 gms. / sq. mtr |
| iv) Pipes/ conduits with thickness under 5mm. | 460 gms. / sq. mtr |
| v) GI Wire | 150 gms. / sq. mtr. |



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f) Thickness of Pipes:


Sl. No.	Material	Size	Thickness (in mm.)
1	Cast Iron (CI)	100 ID	13.0
2	Mild Steel (MS)	25 NB, Heavy duty	4.0
3	Mild Steel (MS)	40 NB, Heavy duty	4.0
4	Mild Steel (MS)	50 NB, Heavy duty	4.5
5	Mild Steel (MS)	65 NB, Heavy duty	4.5
6	Mild Steel (MS)	100 NB, Heavy duty	5.4

	MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS				STANDARD QUALITY PLAN				SPEC. NO. : QP NO.: PE-QP-999-509-E001, R2.		DATE: 02.11.2020	
	PROJECT: ITEM: ABOVE GROUND EARTHING MATERIALS				SYSTEM: EARTHING				PO NO.:		SHEET 1 OF 5	
Sl. No.	COMPONENT S & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS		
1	2	3	4	5	M	C/N	8	9	D			



1.0	RAW MATERIAL:									
1.1	MILD STEEL (FLATS & RODS) AS PER SPECIFICATION	1. CHEMICAL & PHYSICAL PROPERTIES 2. DIMENSIONS 3. SURFACE FINISH	MA	VERIFICATION OF TC'S MEASUREMENT VISUAL	100% 100% 100%	IS 2062 IS 1730 IS 1079	IS 2062 IS 1730 IS 1079	MILL TC QC RECORDED QC RECORDED	P V - P - P -	REFER REMARKS AT SL. NO. 3
1.2	ZINC	1. CHEMICAL COMP.	MA	CHEM. TEST	SAMPLE	IS 209	IS 209	QC RECORDED	P V -	


2.0	IN PROCESS:									
2.1	CUTTING, DRILLING	1. DIMENSIONS 2. SURFACE FINISH	MA MA	MEASUREMENT VISUAL	100% 100%	APPROVED DATA SHEET / DRAWING -	APPROVED DATA SHEET / DRAWING FREE FROM DEFECTS/ SLAG	QC RECORDED TEST/ INSPECTION/ REPAIR	P V - P V -	

BHEL				BIDDER/ SUPPLIER				FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING		QUALITY		Sign & Date		Sign & Date		Reviewed by:		Name	
Prepared by: VIKAS KUMAR SINGH	Name: VIKAS KUMAR SINGH	Checked by: RITESH KUMAR	Name: KUNAL GANDHI	Seal							
Reviewed by: MANISH SHUKLA	Name: MANISH SHUKLA	Reviewed by: RITESH KUMAR	Name: RITESH KUMAR								

	MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS				STANDARD QUALITY PLAN				SPEC. NO. : DATE: 02.11.2020					
	PROJECT: ITEM: ABOVE GROUND EARTHING MATERIALS				CUSTOMER :				QP NO.: PE-QP-999-509-E001, R2.					
					PO NO.:									
					SECTION: II				SHEET 2 OF 5					
Sl. No.	COMPONENT S & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS				
1	2	3	4	5	M	C/N	6	7	8	9	D	M	C	N


2.2	SURFACE PREPARATION	1. CLEANING, PICKLING, RINSING & FLUXING	MA	VISUAL	100%	-	IS 2629	IS 2629	QC RECO RD	✓	P	-	-	
		2. SURFACE FINISH	MA	VISUAL	100%	-	IS 2629	IS 2629	QC RECO RD	✓	P	-	-	
2.3	GALVANIZING	1. TEMPERATURE OF BATH	MA	MEASUREMENT	CONTINUOUS	-	IS 2629	IS 2629	QC RECO RD	✓	P	-	-	Galvanization is to be done at galvanization plant listed in annexure-I to quality plan.
		2. DROSS	MA	VISUAL	PERIODIC	-	IS 2629	IS 2629	QC RECO RD	✓	P	-	-	
		3. RATE OF IMMERSION	MA	VISUAL / MEASUREMENT	100%	-	IS 2629	IS 2629	QC RECO RD	✓	P	-	-	
		4. SURFACE FINISH	MA	VISUAL	100%	-	IS 2629	FREE FROM BURRS, ROUGHNESS, SLAG, FLUX, STAIN	QC RECO RD	✓	P	-	-	
3.0	FINISHED ITEMS:													Note: sample for chemical test shall be

BHEL				BIDDER/ SUPPLIER				FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING				QUALITY				Doc No:			
Prepared by:	Sign & Date	Name	Checked by:	Sign & Date	Name	Reviewed by:	Sign & Date	Name	Seal	Seal	
VIKAS KUMAR SINGH		VIKAS KUMAR SINGH	KUNAL GANDHI		KUNAL GANDHI						
Reviewed by:	MANISH SHUKLA	MANISH SHUKLA	Reviewed by:	RITESH KUMAR JAISWAL	RITESH KUMAR JAISWAL						

<div><div><div>ਗੋਪਾਲ ਸੰਤੋਸ਼</div><div></div></div></div>		MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS		STANDARD QUALITY PLAN										SPEC. NO :		DATE: 02.11.2020	
				CUSTOMER :										QP NO.:		PE-QP-999-509-E001, R2.	
				PROJECT:										PO NO.:			
				ITEM: ABOVE GROUND EARTHING MATERIALS										SECTION: II		SHEET 3 OF 5	
SI. No.	COMPONENT S & OPERATIONS	CHARACTE RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS				
1	2	3	4	5	6		7	8	9	*	**						
					M	C/N				D	M	C	N				

																selected by BHEL& testing shall be done at NABL/ govt. approved Lab.																								
3.1	MS FLATS	1. CHEMICAL COMP.	MA	CHEM. TEST	1 No./LOT /SIZE	-	IS 2026	IS 2026	LAB TC	✓	P	V	-			Sampling plan for galvanization test: Inspection shall be as per table 2 of IS 4759 and same is mentioned below:-																								
		2. DIMENSION S	MA	MEASU REMEN T	IS 2500 (PART 1) LEVEL S-4	IS 2500 (PAR T 1) LEV EL S- 4	APPROVED DATA SHEET / DRAWING	APPROVED DATA SHEET / DRAWING	INSPE CTION REPO RT	✓	P	W	-			<table><tr><td>No. of units in a Lot</td><td>No. of units to be se lecte d in a sample</td><td>No. of Accept ance No.</td></tr><tr><td>(1)</td><td>(2)</td><td>(3)</td></tr><tr><td>Upto 25</td><td>3</td><td>0</td></tr><tr><td>26-100</td><td>5</td><td>0</td></tr><tr><td>101- 150</td><td>8</td><td>1</td></tr><tr><td>151- 500</td><td>13</td><td>1</td></tr><tr><td>501- 1000</td><td>20</td><td>2</td></tr><tr><td>1001- 10000</td><td>32</td><td>3</td></tr></table>	No. of units in a Lot	No. of units to be se lecte d in a sample	No. of Accept ance No.	(1)	(2)	(3)	Upto 25	3	0	26-100	5	0	101- 150	8	1	151- 500	13	1	501- 1000	20	2	1001- 10000	32	3
No. of units in a Lot	No. of units to be se lecte d in a sample	No. of Accept ance No.																																						
(1)	(2)	(3)																																						
Upto 25	3	0																																						
26-100	5	0																																						
101- 150	8	1																																						
151- 500	13	1																																						
501- 1000	20	2																																						
1001- 10000	32	3																																						
		3. SURFACE FINISH	MA	VISUAL	IS 2500 (PART 1) LEVEL S-4	IS 2500 (PAR T 1) LEV EL S- 4	-	FREE FROM BURRS, ROUGHNESS, SLAG, FLUX, STAIN ETC.	QC RECO RD	✓	P	W	-																											

BHEL				
ENGINEERING		QUALITY		
Prepared by:	Sign & Date VIKAS KUMAR SINGH <small>Digitally signed by Vikas Kumar Singh, DN: cn=Vikas Kumar Singh, o=BHEL, ou=Engineering, email=vikas.singh@bhel.co.in, c=IN, Date: 2024.11.11 10:22:56 +05'30'</small>	Checked by:	Sign & Date KUNAL GANDHI <small>Digitally signed by Kunal Gandhi, DN: cn=Kunal Gandhi, o=BHEL, ou=Quality, email=kunal.gandhi@bhel.co.in, c=IN, Date: 2024.11.11 10:22:56 +05'30'</small>	Name
Reviewed by:	Sign & Date MANISH SHUKLA <small>Digitally signed by Manish Shukla, DN: cn=Manish Shukla, o=BHEL, ou=Engineering, email=manish.shukla@bhel.co.in, c=IN, Date: 2024.11.11 10:22:56 +05'30'</small>	Reviewed by:	RITESH KUMAR <small>Digitally signed by Ritesh Kumar, DN: cn=Ritesh Kumar, o=BHEL, ou=Quality, email=ritesh.kumar@bhel.co.in, c=IN, Date: 2024.11.11 10:22:56 +05'30'</small>	RITESH KUMAR JAISWAL <small>Digitally signed by Ritesh Kumar Jaiswal, DN: cn=Ritesh Kumar Jaiswal, o=BHEL, ou=Quality, email=ritesh.jaiswal@bhel.co.in, c=IN, Date: 2024.11.11 10:22:56 +05'30'</small>

		MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS				STANDARD QUALITY PLAN				SPEC. NO. : QP NO.: PE-QP-999-509-E001, R2.		DATE: 02.11.2020	
		PROJECT:								PO NO.:			
		ITEM: ABOVE GROUND EARTHING MATERIALS				SYSTEM: EARTHING				SECTION: II		SHEET 5 OF 5	
Sl. No.	COMPONENT S & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS		
1	2	3	4	5	6	7	8	9	*	D	M	C	N

3. Photographs of items duly placed inside the box just before the final packing and Photographs of the box just before dispatch to be sent to BHEL purchase group for review before issuing MDCC.

4. In case of any changes in QP commented by customer at contract stage, same shall be carried out by bidder without any implication to BHEL/ Customer.

5. Project specific QP to be developed based on customer requirement.

6. For export job, BHEL technical specification for seaworthy packing for export job to be followed.

7. Material shall be packed suitably in order to avoid damage during transit and also during storage at site in tropical climate conditions. Packing shall be suitable for storage at site in tropical climate conditions.

8. Latest revision/ year of issue of all the standards (IS/ASME/IEC etc.) indicated in QP shall be referred.

LEGENDS:

*RECORDS, IDENTIFIED WITH "TICK"(✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION,

** M: SUPPLIER/ MANUFACTURER/ SUB-SUPPLIER, C: MAIN SUPPLIER/ BHEL/ THIRD PARTY INSPECTION AGENCY, N: CUSTOMER,

P: PERFORM, W: WITNESS, V: VERIFICATION, AS APPROPRIATE

MA: MAJOR, MI: MINOR, CR: CRITICAL

D: DOCUMENTATION

BHEL				BIDDER/ SUPPLIER				FOR CUSTOMER REVIEW & APPROVAL					
ENGINEERING		QUALITY		Sign & Date		Sign & Date		Reviewed by:		Name		Seal	
Prepared by:	VIKAS KUMAR SINGH	Name	VIKAS KUMAR SINGH	Checked by:	RITESH KUMAR	Sign & Date		Reviewed by:		Name		Seal	
Reviewed by:	MANISH SHUKLA	Reviewed by:	MANISH SHUKLA	Reviewed by:	RITESH KUMAR	Reviewed by:	RITESH KUMAR	Approved by:		Approved by:			

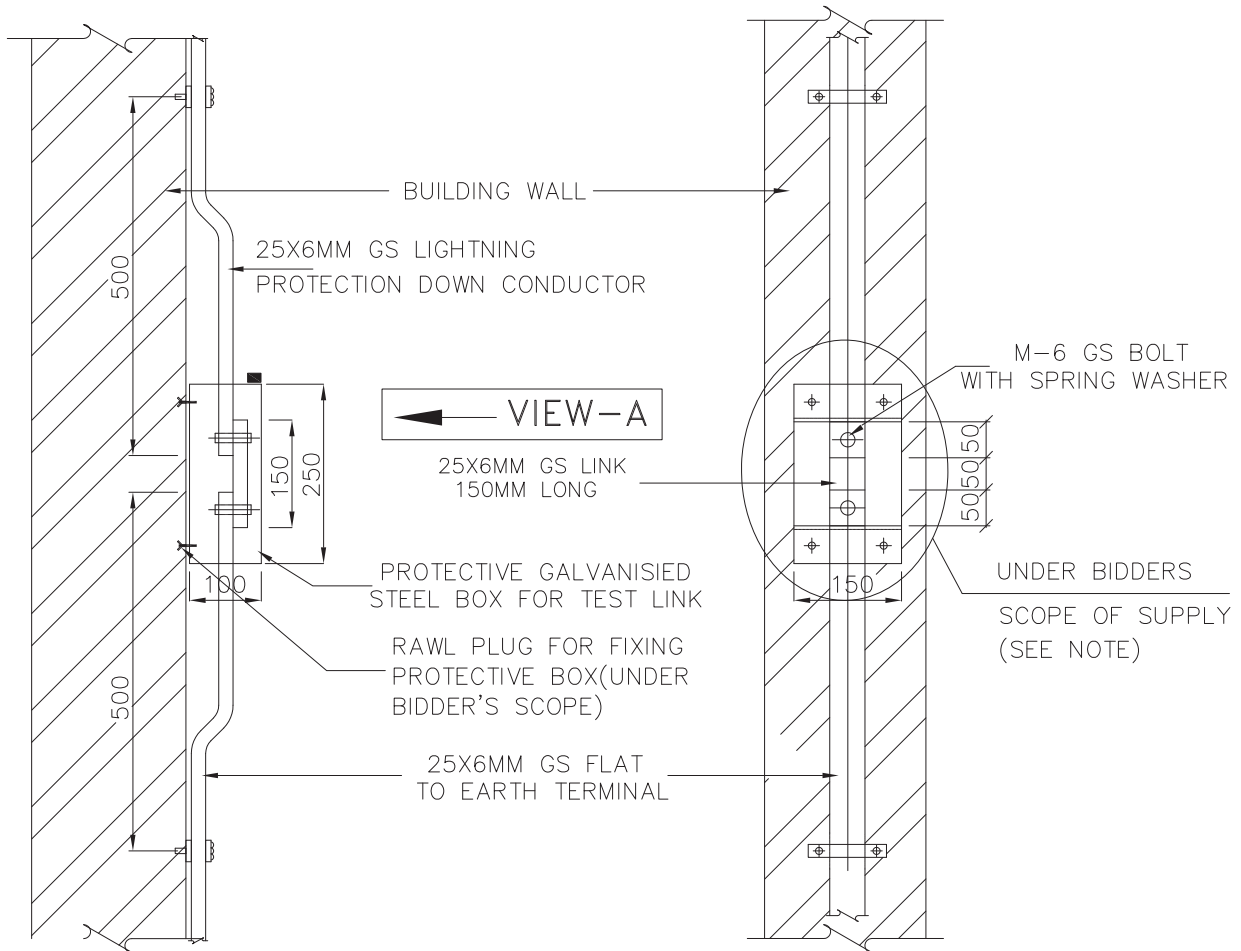
ANNEXURE-1 to Quality Plan

(LIST OF BHEL- PEM APPROVED GALVANIZERS)

SL. NO.	ITEM	VENDOR NAME	ADDRESS
1	Galvanising	Jenco Industrial Corporation	Chincholi Bunder Khkar Road Near Link Road Devruwadi Malad (W) Mumbai 400064
2	Galvanising	National Galvanizing Company	66, Barrackpore Kamarhatt Trunck Road Calcutta-700058
3	Galvanising	Sigma Galvanising Pvt. Ltd.	Plot No.C-169, TTC, MIDC Ind Area Navin Mumbai-400705
4	Galvanising	B.P. Projects PVT LTD	167A, Vivekananda Road Kolkata-700006
5	Galvanising	Standard Galvanisers	Makardah Road, Kabar Para, Bankra, Howarah -711403
6	Galvanising	Steel Products	National Highway No. 6, Chamrail, Kona, Howrah-711114
7	Galvanising	Unitech Fabricators & Engineers Pvt. Ltd.	Village- Ajab Nagar, P.O. -Molla Simlla, P.S. - Singur, Dist - Hoogly, Pin-712223
8	Galvanising	Shivam Engineers & Fabricators	A0-282-284, Industrial Area, South Side of G.T. Road, Ghaziabad, U.P.
9	Galvanising	B.G. Shirke Construction Technology Pvt. Ltd	72-76, Mundhawa, Pune - 401 036
10	Galvanising	Galbro Ispat Galvanizers Pvt. Ltd.	GUT 11 AND 12, OPP. Kudus Steel,Rolling Mill, Wada, Thane , Mumbai
11	Galvanising	Eros Metals	G-97, MIDC, Bhutibori , Nagpur
12	Galvanising	Industrial Perforation (India) Pvt. Ltd.	Ganganagr, Katakhal, Kolkata-700132
13	Galvanising	Indmark Formtech Pvt. Ltd.	Phase - 3, E - 11 / 1, M. I. D. C., Chakan, Pune - 410 501, Maharashtra, India.
14	Galvanising	Namdhari Industrial Traders Pvt. Ltd.	Village Lattton Dana, Chandigarh Road, Ludhiana
15	Galvanising	Neha Galvaniser	Jalan Industrial Estate, Gate No-1, 1st Right Choise Lane, Near N.G-6, Jangalpur, PO Domjur Howrah - 700071, West Bengal, India
16	Galvanising	Patny Systems (P) Ltd.	Unit-IV, Sy No. -228/9, Plot No. 6, IP Kuchavaram, Toopran(M) Dist.- Medak, Telegana - 502336
17	Galvanising	Parmar Metal Company	Survey No.207,Veraval (Shapur) Dist. Rajkot, India.
18	Galvanising	Passive Infra Projects Pvt. Ltd	8th KM Stone, Sampla Kharkhoda Road, Hassangarh, Rohtak, Haryana
19	Galvanising	Rukmani Electrical & Fabricators Pvt, Ltd.	Urla Industrial Area, Urla Sarora Road, Raipur- 493 221 (Chhattisgarh) Shankharidaha Baniyarah, Jalan Industrial Complex, Gate no.3, Lane no. 4, Domjur, Howrah , W.B .- 71141
20	Galvanising	DMP Projects Pvt.Ltd.	Dulagarh Industrial Park , PS-Sankrail , Howrah -711302
21	Galvanising	Vinfab Engineers India Private Limited	Gut no. 224/1 &2 Bhiwandi Wada State Highway, Village khupri, Dist. Thane, Maharashtra -421303
22	Galvanising	Saral Projects & Processors	B-1, Industrial Area, Site-II, Amawan Road Rae Bareli
23	Galvanising	Jamna Metal Company	D - 1513, DSIDC, Narela Industrial Area Delhi - 110040, India
24	Galvanising	Brahampuri Steels Limited	172 (F) Industrial Area, Jhotwara, Jaipur-302013
25	Galvanising	Indiana Gratings PVT. LTD	F-5, MIDC Jejuri, Pune-412 303

NOTES:

1. ANY CHANGE IN THE ABOVE LIST SHALL BE INFORMED AT THE TIME OF SPECIFIC PROJECT REQUIREMENT AND NO COMMERCIAL IMPLICATION SHALL BE ALLOWED ON THIS ACCOUNT.
2. IT SHALL BE THE RESPONSIBILITY OF THE VENDOR TO GET THE MATERIAL GALVANIZED FROM THE ABOVE LIST WITHOUT ANY COMMERCIAL IMPLICATION TO BHEL.



TEST LINK WITH BOX DETAILS VIEW-A

NOTE: BIDDER'S SCOPE INCLUDES THE 150 MM LONG 25X6MM GS LINK ALONG WITH HARDWARES (2 NOS. OF M-6 GS NUTS & BOLTS & 4 NOS. SPRING WASHERS) & 250X150X100 MM GALVANISED MS COVERING BOX (1.6 MM THICK) WITH 4 NOS. M12 SCREWS & RAWL PLUGS FOR FIXING OF THE SAME.



TITLE

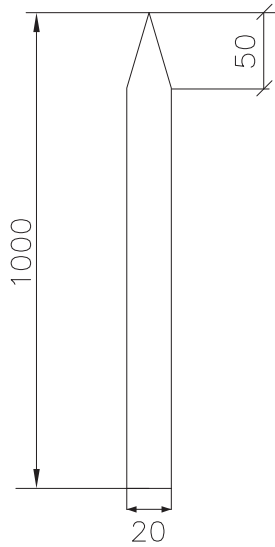
TYPICAL DETAILS OF TEST LINK
WITH PROTECTIVE BOX

PE-DG-999-509-E003

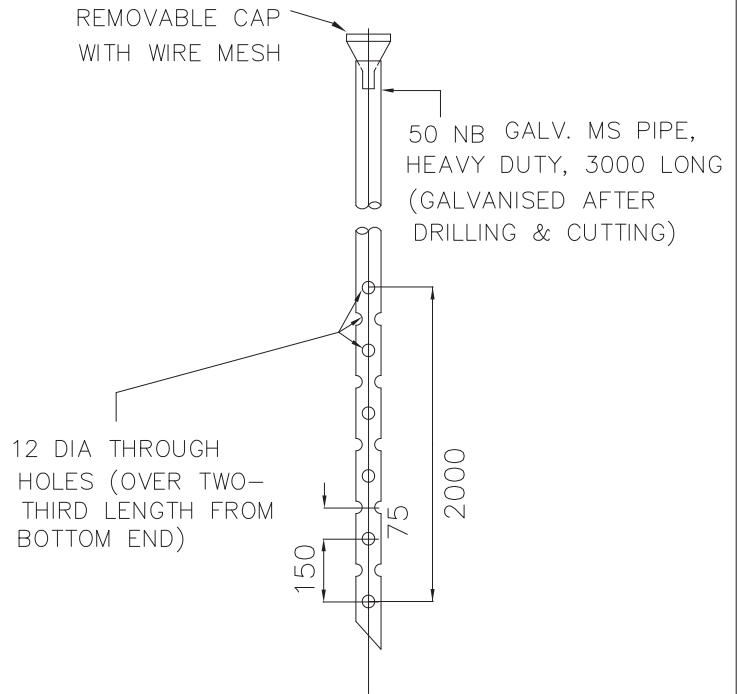
SH 1 OF 2

REV 02

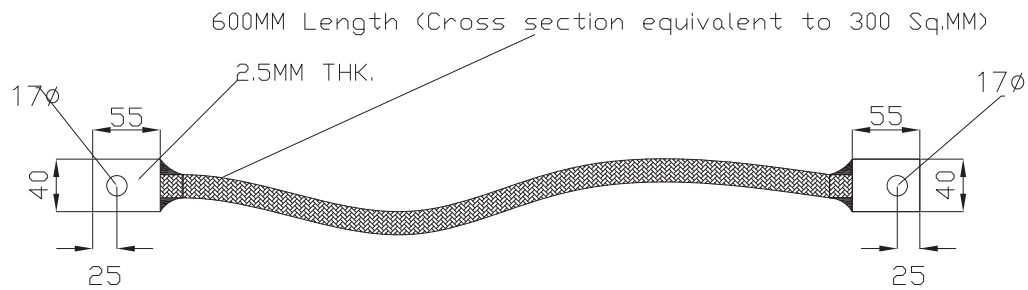
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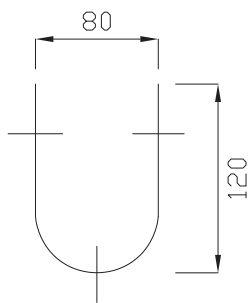
20MM DIA GS ROD
FOR LIGHTNING PROTECTION



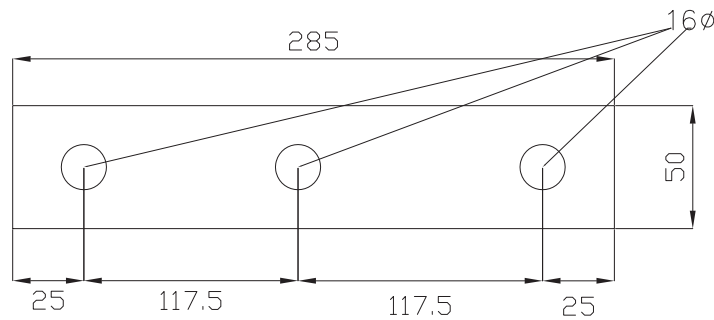
PERFORATED PIPE



FLEXIBLE BRAIDED COPPER CONDUCTOR



PLAN



TINNED COPPER 'U' CLAMP (2.5 MM THICK)

TITLE



TYPICAL DETAILS OF FLEXIBLE
BRAIDED COPPER, 20 MM DIA.
GS ROD & PERFORATED PIPE

PE-DG-999-509-E003

SH 2 OF 2

REV 02

	<u>Price Variation Formulae</u>	ANNEXURE-B
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Prices shall be variable as per following PVC formulae:-

ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	
$P = P_o/100 (20 + 70 (Fe/Fe_o) + 10 (W/ W_o))$	Indices to be taken from IEEMA Circular (PVC/ AL conductor-LME) for the applicable month.

Wherein,

P = Ex-works price payable as adjusted in accordance with the price variation clause.

P_o = Ex-works price quoted/confirmed.

FE_o = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size. This price is applicable prevailing as on 1st working day of the month **one** month prior to date of tender enquiry.

W_o = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100). This index number is as applicable on the first working day of the month, **one** month prior to date of tender enquiry.

FE = Price of High Tensile Galvanized Steel Wire in Rs./MT of appropriate size. This price is applicable prevailing as on first working day of the month **one** month prior to the date of inspection call.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100). This index number is as applicable on the first working day of the month, **one** month prior to the date of inspection call.

NOTE: PVC shall be applicable for 'GS FLATS & GI WIRES' only.

Price of FE & FE_o shall be of 3.00 to 4.09 mm High Tensile Galvanized Steel Wire.

Price variation shall be limited to +20% of total Ex-works price actually supplied and no limit on -ve price variation with base month of one month prior to date of tender enquiry for the items where PVC is applicable.

	3 X 800MW PATRATU TPP	PE-PQ-434-509-E002
	PRE-QUALIFICATION REQUIREMENTS FOR	REVISION NO. 0 DATE 20/05/2022
	ABOVE GROUND EARTHING	SHEET NO. 1 OF 1
	MATERIALS	

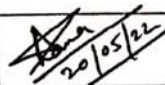
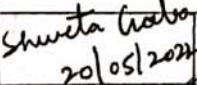
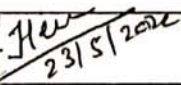
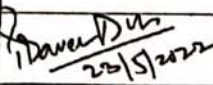
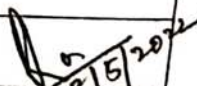
ITEMS: GS flats, GS rods, perforated pipe, GI stranded wires, shielding mast, test links & flexible braided copper conductor

SCOPE: Supply: YES; Erection & Commissioning: NO;

1	Supplied GS flats/GS rods/perforated pipe/GI stranded wire/shielding mast/test links & flexible braided copper conductor.
2	Vendor should have capability of supplying galvanized flats / channels/angles/structure of 40 MT per month.
3	Vendor has his own galvanization plant. Vendor to furnish details of galvanizing process zinc bath details, type of furnace, details of temperature monitoring, details of ETP etc. OR Vendor should get galvanization of earthing material from any of BHEL-PEM approved galvanizers.
4	Supplied at least 170 MT of galvanized flats/channels/angles/structure in one or more orders and at least 50 MT in a single order.
5	Minimum two (2) nos. purchase orders for galvanized flats/channels/angles/structure shall be submitted which should not be more than five (5) years old from the date of techno-commercial bid opening for establishing continuity in business.

Notes (General points of PQR):

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

PARTICULARS	PREPARED BY	REVIEWED BY		CHECKED BY	APPROVED BY
SIGNATURE & DATE:	 20/05/22	 20/05/2022	 23/5/2022	 23/5/2022	 23/5/2022
NAME:	ANIL RANA	SHWETA GABA	HEMA KUSHWAHA	PRAVEEN DUTTA	DEBASIS RATH
DESIGNATION	ENGR	DY. MGR	SR MGR	ADDL GEN MGR	ADDL GEN MGR (DH-ELECTRICAL)

3X800 MW PATRATU STPP BILL OF QUANTITY & UNPRICED SCHEDULE					
SL. NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT EX-WORKS PRICE	TOTAL EX-WORKS PRICE
1	GS FLAT				
(i)	65X8	MT	194		
(ii)	50 X 6	MT	9		
(iii)	25 X 6	MT	38		
(iv)	25 X 3	MT	4		
2	GI WIRE				
(i)	8 SWG WIRE	MTR	5500		
(ii)	14 SWG WIRE	MTR	237500		
3	Flexible Copper braid for gate earthing	NOS	29		
4	GS ROD 20 MM DIA 1000MM Long	NOS	345		
5	TEST LINK 150 X 25 X 6 MM GS FLAT	NOS	345		
6	50NB Galvanised (Perforated) 3 M long	NOS	133		
7	100NB Galvanised (Perforated) 3 M long	NOS	105		

Project : 3x800MW PATRATU TPP PHASE-1										
Package : ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS										
GEM Bid no.										
Item Number	Item Title	Item Description	HSN	Item Quantity	Unit of Measure	Consignee ID	Delivery Period (In number of days)	Quote/Unquote	Freight in terms of total Ex-works price in %	GST rate in %
1	507-23020-A	GS FLAT (65X8). Also refer Technical specification	7212	194	MT	PATRATU_CON1	730			
2	507-23017-A	GS FLAT (50X6). Also refer Technical specification	7212	9	MT	PATRATU_CON1	730			
3	507-23015-A	GS FLAT (25X6). Also refer Technical specification	7212	38	MT	PATRATU_CON1	730			
4	507-23014-A	GS FLAT (25X3). Also refer Technical specification	7212	4	MT	PATRATU_CON1	730			
5	507-23013-A	GI WIRE (8 SWG WIRE). Also refer Technical specification	7217	5500	MTR	PATRATU_CON1	730			
6	507-23010-A	GI WIRE (14 SWG WIRE). Also refer Technical specification	7217	237500	MTR	PATRATU_CON1	730			
7	507-23008-A	Flexible Copper braid for gate earthing. Also refer Technical specification	8535	29	Nos	PATRATU_CON1	730			
8	507-23023-A	GS ROD 20 MM DIA 1000MM Long. Also refer Technical specification	72149990	345	Nos	PATRATU_CON1	730			
9	507-23047-A	TEST LINK 150 X 25 X 6 MM GS FLAT WITH BOX. Also refer Technical specification	7212	345	Nos	PATRATU_CON1	730			
10	507-23051-A	50NB Galvanised-MS HEAVY DUTY PIPE Perforated 3 M long. Also refer Technical specification	7306	133	Nos	PATRATU_CON1	730			
11	507-23053-A	100NB Galvanised -MS HEAVY DUTY PIPE Perforated 3 M long. Also refer Technical specification	7306	105	Nos	PATRATU_CON1	730			

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

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

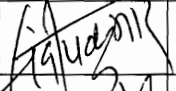
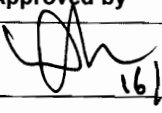
		For Turnkey packages: BHEL PSWR GSTIN No.- 27AAACB4146P1ZF
14.	Transit Insurance	<p>In BHEL Scope.</p> <p>For each dispatch, vendor shall inform the following to the Underwriter under intimation to BHEL-PEM and BHEL Site office:</p> <ul style="list-style-type: none"> (i) Policy No. (ii) Consignee Name.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

Gaurav
08/5/18

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

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08/5/18

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

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

Guidelines for Remote Inspection of PEM BOIs

1) OBJECTIVE:

To lay down the procedure for carrying out Remote Inspection of Bought-out Items (BOIs) for PEM suppliers wherever applicable.

2) SCOPE:

It will cover suppliers for packages of PEM BOIs for various project requirements.

Invitation is sent to the suppliers for remote inspection on applications like MS Teams, Webex, etc. by BHEL.

3) MINIMUM REQUIREMENTS AT SUPPLIER'S WORKS:

- i. Uninterrupted internet services
- ii. Good internet bandwidth (Min 100 Mbps)
- iii. Good resolution camera (2 nos) – one preferably CCTV (static at one place) and one hand hold (moving)
- iv. Smart phone with minimum 8MPi camera front and back both with optical zoom facility suitable for using web applications like Webex, MicroSoft (MS) Teams, etc.
- v. Computer and Scanner with good resolution
- vi. Digital signatures of supplier's Quality Engineer
- vii. Availability of web applications like Webex, MicroSoft (MS) Teams, as required.
- viii. All Test certificates, internal test reports, calibration reports, etc. for the items offered for inspection.
- ix. Availability of the above to be submitted to BHEL two days in advance before inspection.
- x. Dedicated team from supplier side for facilitating inspection requirements.
- xi. For ensuring proper visibility, the suggested Portable lighting sources (torch/ electric LED bulb of minimum 15 W) with no glare is to be ensured at offered job, location for remote inspection/testing. This is to be verified before start of the inspection.
- xii. The GPS location co-ordinates or any method to locate inspection location shall be captured indicating the location of the Vendor-Premises of remote inspection/testing.

4) MINIMUM REQUIREMENTS AT BHEL and CUSTOMER LOCATION :

- i. Uninterrupted internet services
- ii. Suitable internet bandwidth
- iii. Digital signatures wherever required.
- iv. Availability of web applications like Webex, MS Teams, etc. as required.
- v. Clearance from customer for conducting remote inspection

5) PROCEDURE:

- i. Supplier will raise the inspection call in BHEL - CQIR portal.
- ii. Supplier shall ensure availability of minimum requirements at supplier's works as mentioned above at point 3.

- iii. Before starting the inspection, the supplier shall submit the documents (TCs, internal test reports and calibration certificates as per approved QAP) two days before the date of inspection for review by BHEL and supplier shall coordinate with BHEL and if found satisfactory, inspection shall be considered for remote.
 - iv. Prior to commencement of remote inspection a pre inspection meeting shall be organised by BHEL inspector with supplier to ascertain the readiness for remote inspection.
- 6) During inspection, supplier shall share the location on Google maps for verifying the address of the manufacturer. Location may be captured by BHEL as screenshot.
- i. Inspection shall be on the basis of approved Quality Plans and associated reference documents mentioned.
 - ii. For witnessing inspection, supplier shall bring the mobile video camera near to the surface of the equipment or as per requirement of the inspector for clarity in viewing the test/ equipment which shall be the responsibility of supplier. Supplier shall ensure that proper lighting is available during live video streaming.
 - iii. Before start of the inspection, inspector shall ensure that all instruments shall have valid calibration report. Supplier shall ensure use of digital instruments preferably for inspection to the extent possible.
 - iv. Details of suppliers's dedicated team handling the remote inspection shall also be incorporated in the CQIR.
 - v. All details of inspection/ testing referred documents shall be mentioned in the CQIR. Recording of remote inspection shall be maintained by the BHEL inspector and this recording (unedited) shall be maintained at BHEL system for a minimum period of 3 years or till the warranty period whichever is later.
 - vi. PEM (Engineering) shall accord final technical clearance, in case of any deviation in inspected item noticed during inspection.
 - vii. Inspection shall be conducted by PEM-Q&BE assigned inspector along with PEM-Engg (if required). CQIR shall be prepared and maintained by PEM-Q&BE.
 - viii. PG will issue MDCC on the basis of acceptance of inspected items along with accepted packing photographs as per contract provisions.
- 7) **UNDERTAKING BY VENDOR:** Material inspected through remote inspections is meeting all technical requirements of BHEL. In case of any discrepancy from the above procedure/ material inspected, if found later, vendor will replace the materials without any cost implication to BHEL.
- 8) Vendor shall provide the signed and stamped of the above guidelines to BHEL as a token of acceptance.

INTEGRITY PACT**Between**

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

and

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

Preamble

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

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

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

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

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

- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

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

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

Section 4 - Compensation for Damages

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

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

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

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

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

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

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.

- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.
- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

For & On behalf of the Principal
(Office Seal)

Place _____
Date _____

Witness: _____
(Name & Address) _____

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

Place _____
Date _____

Witness: _____
(Name & Address) _____

Clause on IP in the tender

Integrity Pact (IP)

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

SI	IEM	Email
1.	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2.	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
3.	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

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

Details of contact person(s):

(1)
Name: _____
Deptt: _____
Address: _____
Phone: (Landline/ Mobile) _____
Email: _____
Fax: _____

(2)
Name: _____
Deptt: _____
Address: _____
Phone: (Landline/ Mobile) _____
Email: _____
Fax: _____

ANNEXURE 1 - 3X800 MW PATRATU TPS - DELIVERY SCHEDULE - ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS

Sl. No.	Package Code	Package name	DEPTT	BHEL Drawing No	Drawing Title	Primary/Secondary	BHEL Inputs	Drg Sch for Vendors	Standard Delivery Terms for Supply Portion
1	507-23000-A	ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	ELECT	PE-V1-434-509-E903	QUALITY PLAN FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIAL.	Primary		R-0 within 14 days from PO & subsequent revisions within 10 days of comments received from BHEL.	Delivery completion for PO Quantity shall be "180" days from PO date. Supplier to complete the package engineering in time and get the applicable engineering Drgs. /docs approved from BHEL/End Customer before start of manufacturing and supply. BHEL shall furnish comments / approval on each submission / re-submission of drawing/documents within 18 days from receipt of same. Subsequent Lots, if any (released within validity of contract under Qty. var. clause): Supply within "120" days from the date of Quantity clearance by BHEL.
				PE-V1-434-509-E002	TECHNICAL DATA SHEET FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	Primary			
				PE-V1-434-509-E003	GA DRAWINGS FOR ABOVE GROUND EARTHING & LIGHTNING PROTECTION MATERIALS	Primary			
	Notes :-								
1. The end period specified is for completion of the deliveries. Deliveries to start progressively so as to meet the completion schedule.									
2. The delivery conditions specified are for contractual LD purposes, however BHEL may ask for early deliveries without any compensation thereof.									
3. Drawings /documents submission/re-submission schedule shall be as indicated in NIT which shall be used for progress monitoring purpose and required course correction, if any. Wherever schedule of drawings/documents submission / re-submission is stipulated in the Technical Specifications, same shall be superseded by delivery specified in NIT.									
4. Delivery Extension:Extension of contractual delivery time Delivery time mentioned in the NIT includes Engineering completion time (time for drawing/document submission/resubmission by the vendor and review/approval of the same by the BHEL\End customer), manufacturing, inspection, Packing and dispatch time. Due diligence is to be exhibited by the vendor to ensure timely completion of engineering and supply. During the execution of the contract, time loss occurred owing to the reason attributable to BHEL besides force majeure shall be considered for delivery time extension to the vendor as given below:- i.Delay in providing comments/ approval on Primary drawing/documents beyond 18 days or as specified in drawing/ documents submission/re-submission schedule enclosed with NIT for each iteration. ii.Time Loss in approval of the drawing/document as a result of increase in the iteration not attributable to the vendor as certified by BHEL. Time extension equivalent to the resubmission time specified in the NIT and consequential increase in the approval time shall be applicable. iii.Delay in providing engineering input/material by BHEL. iv.Delay in deputing inspector for inspection and delay in release of MDCC in line with GCC/ GEM ATC terms. v.Any HOLD put by BHEL for whatever reasons. Note: No delay analysis will be applicable if supply is completed within delivery schedule as specified in Purchase order. 5. Validity of contract: 5.a) Validity of the contract for main supply including subsequent lots: Contract shall be valid for 730 days from the PO date. However, delay at vendor's end (if any) shall be added to the validity period and contract validity shall get extended by the delay period at vendor's end. For example: Delivery period: A (in days) Delay at vendor's end: B (in days) Contract validity: 730+B (in days) Note: B is the Vendor delay days beyond contractual delivery period "A" / extended delivery period owing to time taken by BHEL at point no. 3 above. 5.b)Subsequent lots including quantity variation released within contractual validity period, to be supplied by vendor/supplier at PO rates, terms and condition. 5.c)Execution of the contract beyond contract validity period or PO delivery date whichever is later shall be decided on mutual consent basis.									