



# भारत हेवी इलेक्ट्रिकल्स लिमिटेड

( भारत सरकार का उपक्रम )

## BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN – 01

Ref: PSER:SCT:NKP-M1652:TCN-01

Date: 20-02-2015

Sub	Tender change notice (TCN) 01	
Job	Design, Engineering, Manufacturing, Supply/Delivery, Erection, Commissioning, Trial Run, PG tests, Handing Over, etc for the water treatment plant packages (excluding civil construction work) for 3x660 MW at North Karanpura STPP, Jharkhand.	
Ref	1.0	Tender no PSER:SCT:NKP-M1652:15
	2.0	BHEL's NIT, vide reference no PSER:SCT:NKP-M1652:4215, dated 16-02-2015
	3.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Amendment-1 to Technical Specification attached as per Annexure-A.
- 2.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 3.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

SR.ENGR (SCT)

Encl

- 1.0 As above.

पावर सेक्टर पूर्वी क्षेत्र ( मुख्यालय )

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

**FORMAT FOR NO DEVIATION CERTIFICATE**  
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,  
Power Sector - Eastern Region,  
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Design, Engineering, Manufacturing, Supply/Delivery, Erection, Commissioning, Trial Run, PG tests, Handing Over, etc for the water treatment plant packages (excluding civil construction work) for 3x660 MW at North Karanpura STPP, Jharkhand.	
Ref	1.0	Tender no PSER:SCT:NKP-M1652:15
	2.0	BHEL's NIT, vide reference no PSER:SCT:NKP-M1652:4215, dated 16-02-2015
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:NKP-M1652:TCN-01, dated 20-02-2015.
	4.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

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**AMENDMENT ON TECHNICAL SPECIFICATION FOR WATER TREATMENT SYSTEM**  
(PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS CHLORINATION PLANT & SEWAGE TREATMENT PLANT)

SPECIFICATION NO.: PE-TS-405-158-A001

AMENDMENT NO # 1

REV. NO. 00

DATE: 17.02.2015

Page 1 of 1

The following modifications with respect to Technical Specification for WATER TREATMENT SYSTEM (PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS CHLORINATION PLANT & SEWAGE TREATMENT PLANT) BHEL's Technical specification no PE-TS-405-158-A001 shall apply.

Bidder to note that existing clauses/page numbers as appearing in the specification stands deleted and clauses/page numbers as mentioned in "Modified to" column shall be applicable and complied by the bidder.

**MODIFIED CLAUSES/PAGE NUMBERS.**

Sl no	Volume No	Section/Description	Clause no	Page no	Existing	Modified to
1.	IIB	SECTION – C2	--	200 TO 202 OF 1051	Page no. 200 TO 202 OF 1051	Refer attached Annexure – A.
2.	IIB	SECTION – C2	--	204 TO 205 OF 1051	Page no. 204 TO 205 OF 1051	Refer attached Annexure – B.
3.	IIB	SECTION – C2	--	207 OF 1051	Page no. 207 OF 1051	Refer attached Annexure – C.
4.	IIB	SECTION – C2	--	209 OF 1051	Page no. 209 OF 1051	Refer attached Annexure – D.
5.	IIB	SECTION – D2	--	903 TO 948 OF 1051	Page no. 903 TO 948 OF 1051	Stands Deleted.



TITLE :  
**ELECTRICAL EQUIPMENT SPECIFICATION FOR  
DM PLANT/ CW TREATMENT/ PRE TREATMENT  
PLANT/EFFLUENT TREATMENT PLANT/ GAS  
CHLORINATION PLANT/SEWAGE TREATMENT  
PLANT.  
3X660MW NORTH KARANPURA STPP**

SPECIFICATION NO. PE-TS-405-  
158-A001

VOLUME NO. : **II-B**

SECTION : **C2**

REV NO. : **00** DATE : **17.02.15**

SHEET : 1 OF 3

**ANNEXURE - A**

**ANNEXURE-A TO TCN-01**  
Tender no PSER:SCT:NKP-M1652:15

**TECHNICAL SPECIFICATION**

**FOR**

**WATER TREATMENT SYSTEM**

**(PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT  
PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS  
CHLORINATION PLANT & SEWAGE TREATMENT PLANT)**



<b>TITLE :</b> <b>ELECTRICAL EQUIPMENT SPECIFICATION FOR</b> <b>DM PLANT/ CW TREATMENT/ PRE TREATMENT</b> <b>PLANT/EFFLUENT TREATMENT PLANT/ GAS</b> <b>CHLORINATION PLANT/SEWAGE TREATMENT</b> <b>PLANT.</b> <b>3X660MW NORTH KARANPURA STPP</b>	<b>SPECIFICATION NO. PE-TS-405-</b> <b>158-A001</b>
	<b>VOLUME NO. : II-B</b>
	<b>SECTION : C2</b>
	<b>REV NO. : 00 DATE : 17.02.15</b>
	<b>SHEET : 2 OF 3</b>

**1.0 EQUIPMENT & SERVICES TO BE PROVIDED BY BIDDER:**

- a) Services and equipment as per “Electrical Scope between BHEL and Vendor”.
- b) Any item/work either supply of equipment or erection material which have not been specifically mentioned but are necessary to complete the work for trouble free and efficient operation of the plant shall be deemed to be included within the scope of this specification. The same shall be provided by the bidder without any extra charge.
- c) Supply of mandatory spares as specified in the specifications of mechanical equipments.
- d) Electrical load requirement for PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS CHLORINATION PLANT & SEWAGE TREATMENT PLANT.
- e) All equipment shall be suitable for the power supply fault levels and other climatic conditions mentioned in the enclosed project information.
- f) Bidder to furnish list of makes for each equipment at contract stage, which shall be subject to customer/BHEL approval without any commercial and delivery implications to BHEL
- g) Various drawings, data sheets as per required format, Quality plans, calculations, test reports, test certificates, operation and maintenance manuals etc shall be furnished as specified at contract stage. All documents shall be subject to customer/BHEL approval without any commercial implication to BHEL.
- h) Motor shall meet minimum requirement of motor specification.
- i) Vendor to clearly indicate equipment locations and local routing lengths in their cable listing furnished to BHEL.
- j) Cable BOQ worked out based on routing of cable listing provided by the vendor for “ both end equipment in vendor’s scope”shall be binding to the vendor with +10 % margin to take care of slight variation in routing length & wastages.

**2.0 EQUIPMENT & SERVICES TO BE PROVIDED BY PURCHASER FOR ELECTRICAL & TERMINAL POINTS:**

Refer “Electrical Scope between BHEL and Vendor”.

**3.0 DOCUMENTS TO BE SUBMITTED ALONG WITH BID**

3.1 The electrical specification without any deviation from the technical/quality assurance requirements stipulated shall be deemed to be complied by the bidder in case bidder furnishes the overall compliance of package technical specification in the form of compliance certificate/No deviation certificate.

3.2 No technical submittal such as copies of data sheets, drawings, write-up, quality plans, type test certificates, technical literature, etc, is required during tender stage. Any such submission even if made, shall not be considered as part of offer.



TITLE :  
**ELECTRICAL EQUIPMENT SPECIFICATION FOR  
DM PLANT/ CW TREATMENT/ PRE TREATMENT  
PLANT/EFFLUENT TREATMENT PLANT/ GAS  
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PLANT.  
3X660MW NORTH KARANPURA STPP**

SPECIFICATION NO. PE-TS-405-  
158-A001

VOLUME NO. : **II-B**

SECTION : **C2**

REV NO. : **00** DATE : **17.02.15**

SHEET : 3 OF 3

**4.0 List of enclosures :**

- a) Electrical scope between BHEL & vendor (Annexure –B)
- b) Technical specification for motors.
- c) Datasheets & quality plan for motors.
- d) Electrical Load data format (Annexure –C)
- e) BHEL cable listing format (Annexure –D)

**ANNEXURE-A TO TCN-01**

Tender no PSER:SCT:NKP-M1652:15

## ELECTRICAL SCOPE BETWEEN BHEL AND VENDOR

PACKAGES : WATER TREATMENT SYSTEM (PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS CHLORINATION PLANT & SEWAGE TREATMENT PLANT)

SCOPE OF VENDOR: SUPPLY, ERECTION & COMMISSIONING OF VENDOR'S EQUIPMENT

PROJECT: 3X660 MW NORTH KARANPURA STPP

S.NO	DETAILS	SCOPE SUPPLY	SCOPE E&C	REMARKS
1	415V MCC	BHEL	BHEL	240 V AC (supply feeder)/415 V AC(3 PHASE 4 WIRE) supply shall be provided by BHEL based on load data provided by vendor at contract stage for all equipment supplied by vendor as part of contract. Any other voltage level (AC/DC) required will be derived by the vendor.
2	Local Push Button Station (for motors)	BHEL	BHEL	Located near the motor.
3	Power cables, control cables and screened control cables for a) both end equipment in BHEL's scope b) both end equipment in vendor's scope c) one end equipment in vendor's scope	BHEL BHEL BHEL	BHEL Vendor BHEL	1. For 3.b) & c): Sizes of cables required shall be informed by vendor at contract stage (based on inputs provided by BHEL) in the form of cable listing. Finalisation of cable sizes shall be done by BHEL. Vendor shall provide lugs & glands accordingly. 2. Termination at BHEL equipment terminals by BHEL. 3. Termination at Vendor equipment terminals by Vendor.
4	Junction box for control & instrumentation cable	Vendor	Vendor	Number of Junction Boxes shall be sufficient and positioned in the field to minimize local cabling (max 10-12 mtrs) and trunk cable.
5	Any special type of cable like compensating, co-axial, prefab, MICC, optical fibre etc.	Vendor	Vendor	Refer C&I portion of specification for scope of fibre Optical cables if used between PLC/ microprocessor & DCS.
6	Cable trays, accessories & cable trays supporting system  100/ 50 mm cable trays/ Conduits/ Galvanised steel cable troughs for local cabling	BHEL  Vendor	BHEL  Vendor	Local cabling from nearby main route cable tray (BHEL scope) to equipment terminal (vendor's scope) shall be through 100/ 50 mm. cable trays/ conduits/ Galvanised steel cable troughs, which shall be supplied by vendor.
7	Cable glands ,lugs and bimetallic strip for equipment supplied by Vendor	Vendor	Vendor	1. Double compression Ni-Cr plated brass cable glands 2. Solder less crimping type heavy duty tinned copper lugs for power and control cables.
8	Conduit and conduit accessories for cabling between equipment supplied by vendor	Vendor	Vendor	Conduits shall be medium duty, hot dip galvanised cold rolled mild steel rigid conduit as per IS: 9537.
9	Lighting	BHEL	BHEL	
10	Equipment grounding & lightning protection	BHEL	BHEL	
11	Below grade grounding	BHEL	BHEL	
12	LT Motors with base plate and foundation hardware	Vendor	Vendor	Makes shall be subject to customer/ BHEL approval at contract stage.
13	Mandatory spares	Vendor	-	Vendor to quote as per specification.
14	Recommended O & M spares	Vendor	-	As specified elsewhere in specification
15	Any other equipment/ material/ service required for completeness of system based on system offered by the vendor (to ensure trouble free and efficient operation of the system).	Vendor	Vendor	
16	a) Input cable schedules (Control & Screened Control	Vendor	-	Cable listing for Control and Instrumentation Cable (excluding power

ANNEXURE-A TO TCN-01  
Tender no PSER:SCT:NKP-M1652:15

ELECTRICAL SCOPE BETWEEN BHEL AND VENDOR

PACKAGES : WATER TREATMENT SYSTEM (PRE TREATMENT PLANT, DEMINERALISATION (DM) PLANT, EFFLUENT TREATMENT PLANT, AUXILIARY COOLING WATER (ACW) TREATMENT PLANT, GAS CHLORINATION PLANT & SEWAGE TREATMENT PLANT)

SCOPE OF VENDOR: SUPPLY, ERECTION & COMMISSIONING OF VENDOR'S EQUIPMENT

PROJECT: 3X660 MW NORTH KARANPURA STPP

S.NO	DETAILS	SCOPE SUPPLY	SCOPE E&C	REMARKS
	Cables) b) Cable interconnection details for above c) Cable block diagram	Vendor Vendor	- -	cables) in enclosed excel format shall be submitted by vendor during detailed engineering stage.
17	Electrical Equipment & cable tray layout drawings	Vendor	-	For ensuring cabling requirements are met, vendor shall furnish Electrical equipment layout & cable tray layout drawings (both in print form as well as in AUTOCAD) of the complete plant (including electrical area) indicating location and identification of all equipment requiring cabling, and shall incorporate cable trays routing details marked on the drawing as per PEM interface comments. Cabling arrangement of the same (wherever overhead cable trays, trenches, cable ducts, conduits etc.) shall be decided during contract stage. Electrical equipment layout & cable tray layout drawing shall be subjected to BHEL/ customer approval without any commercial implications to BHEL.
18	Electrical Equipment GA drawing	Vendor	-	For necessary interface review.

NOTES:

1. Make of all electrical equipment/ items supplied shall be reputed make & shall be subject to approval of BHEL/customer after award of contract.
2. All QPs shall be subject to approval of BHEL/customer after award of contract without any commercial implication.
3. In case the requirement of Junction Box arises on account of Power Cable size mis-match due to vendor engineering at later stage, vendor shall supply the Junction Box for suitable termination.



