



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:NBN-M1572:TCN-02

Date: 30-07-2014

Sub	Tender change notice (TCN) 02	
Job	Design, engineering, manufacturing, supply/ delivery, erection, commissioning, trail run, handing over to customer, etc of Compressed Air System for 3x660 MW Nabinagar Super Thermal Power Project, Aurangabad, Bihar.	
Ref	1.0	Tender No. PSER:SCT:NBN-M1572:14
	2.0	BHEL's NIT, vide reference no PSER:SCT:NBN-M1572:3822, dated 08/07/2014.
	3.0	BHEL's TCN-01, vide reference PSER:SCT:NBN-M1572:TCN-01, dated 16-07-2014.
	4.0	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 The clarifications to bidders queries are attached at Annexure-A.
- 2.0 Extension of due date of submission of offer from 30-07-2014 to 11-08-2014 (15:00 hrs).
- 3.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 4.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

ENGR (SCT)

Encl : 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

SI No.	Ref. clause of tender	Existing Provision	Bidder's Query	BHEL's Clarification
A	Vol-II, TECHNICAL CONDITIONS OF CONTRACT & SCOPE ETC			
1	1.1 of Section C-1	Four (4) Nos. Instrument Air Compressors (Oil Free Screw type) each of minimum 55 NM ³ /Min capacity at 8 Kg/sqcm (min) discharge pressure with electric motor drive, suction filter with silencer, inter cooler and after cooler with moisture separators, automatic drain traps, instruments, control system and other accessories.	Silencer is not applicable for both IA & SA compressor, since suction filter lies inside the compressor canopy. The aftercooler with moisture separator is also not applicable, as it calls for HOC type Air Dryer.	Bidder to Comply technical specification requirement.
2	1.1.14 of Section C-1	Civil works:-Minor dressings of foundation blocks, if necessary; equipment grouting; supply and fixing of supports etc. on walls, foundations; floor and trenches will be done by successful bidder.	Foundations, floor and trenches to be excluded from scope of Bidder.	Bidder to Comply technical specification requirement.
3	3.1.3 of Section C-1 & 2.1.7 of BHEL Doc No: PE-DC-393-555-A001 & 1.02.00 of System Description of COMPRESSED AIR SYSTEM; 3.08.00 & ANNEXURE - 1 (1.00.00 - EOT CRANE & 3.00.00 : MONORAIL HOISTS)of TECHNICAL REQUIREMENTS	3.1.3 : Exclusions : Monorail hoists/Cranes as necessary for handling of equipment after erection. 2.1.7 : Electrically operated overhead travelling type crane of adequate cap. In the air compressor bldg. for handling of various equipments.	The two sentences are contradictory; pls clarify. Hope it is excluded from bidder's scope of Supply & Erection - Pls clarify.	Bidder to refer cl. no.3.1.3, Section C1, Sheet 3 of 3, Page 16 and quote accordingly.
4	4.1.0 of Section C-1 & 3.1.13 / 3.1.15 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL)	Compressor and air dryer shall be designed for cooling water (Station Aux. Cooling Water) with inlet temp of thermal 36 deg C with terminal pressure 6 kg/sqcm(g) and rise in temp shall be limited to 10 deg C and pressure drop across Compressed Air System within terminal point shall be limited to 10 mwc. Qty of cooling water shall be 450 cum/hr (minimum) considering working equipments only.	The cooling water temperature needs to be restricted to 34C(max) with terminal pressure of 3 Kg/cm ² (g). Pressure Drop across each compressor shall be 1 Kg/cm ² (g). The qty of cooling water required can be worked out during detailed engineering, after award of contract.	Not acceptable. Bidder to comply specification requirement.
5	3.1.9 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL)	Satisfactory operation in parallel will be ensured without any uneven load sharing, undue vibration, noise etc.	Load Rotation between compressors for sequencing is not possible.	Not acceptable. Bidder to comply specification requirement.
6	3.1.11 ; 3.03.18,3.04.00; 3.06.19 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL)	The materials of various components shall conform to the applicable BIS / BS / ASTM / DIN standard or any other reputed standards.	The material of Construction within the individual equipment skid shall be as per manufacturer's standard.	Bidder to refer cl. no. 3.1.12 (page 19) of specification. Bidder to further note that technical particulars of compressed air system package shall be subjected to customer (NTPC) approval during detailed engineering.
7	3.1.16 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL)	Noise level shall not exceed 90dBA to a ref. level of 0.0002 microbar at a distance of 1.5m above floor. Required acoustic enclosures may be provided to meet the above condition. The discharge blow-off silencer & intake silencer shall also be designed to meet the above noise limitation level.	Ok, under free field condition.	Bidder to comply specification requirements.
8	5.1.6 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL)	Junction box for terminating field instruments pertaining to Compressed Air System (CAS) & it's further interconnection from this junction box to DDCMIS shall be in scope of the bidder.	All the instruments are direct mounted type only, hence JB is not considered. All the field instruments are local indicative type only.	All the field instrument should be grouped and LIE/LIR/JB shall be provide as per clause no 16.00.00 of C&I specification of page 168.
9	5.1.8 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL) & CI 6.0 & 7.0 of (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	Temperature Transmitters (T.T) for Resistance Temperature Detectors (R.T.D) and Bearing Temperature Detector (B.T.D.) of Compressor motor signal transmission & Temperature Transmitter Junction Box (TTJB) & its connectivity to DDCMIS shall be in scope of bidder.	This will be thru compressor PLC only by means of softlink. The RTD & BTD of the motor will be transmitted thru compr PLC thru softlink.	Bidder to comply specification requirements.
10	14.00.00 ; 5.00.00 of TECHNICAL REQUIREMENTS	Painting Specification to be followed by bidders for Compressed Air System	For the individual equipment, painting shall be as per manufacturer's standard.	Painting within compressor and air dryer skid as per OEM is acceptable. However painting for air receiver , interconnecting piping , valves fitting etc. shall be as per specification requirements. Bidder to comply.

SI No.	Ref. clause of tender	Existing Provision	Bidder's Query	BHEL's Clarification
11	3.04.02 of TECHNICAL REQUIREMENTS	Outlet temperature of air from intercooler shall be suitable to suit the equipment and outlet temperature of air from the compressor house outlet header shall be limited to 45 deg.C. However, the instruments or the pneumatic devices requires air temperature less than 45 deg.C., the same shall be achieved at the outlet header.	Outlet Air Temperature shall be individual SA compressor shall be 10-12 deg C above cooling water inlet temperature.	Bidder to comply specification requirements.
12	3.04.05 of TECHNICAL REQUIREMENTS	Oil Coolers shall be equipped with vent & drain connections on oil and water sides. Oil temperature control valve with manual override feature or bypass construction shall be provided to maintain constant temperature. Vent & drain connections for intercoolers and aftercoolers shall be provided	Manual override with bypass construction is not provided in the oil circuit as per manufacturer's proven design.	Bidder to comply specification requirements. In case of skid specific constraint, the compressed air system particulars shall be subject to customer approval during detailed engineering. Bidder to note.
13	4.01.05 of CONTROL PHILOSOPHY	An electrically operated automatic valve shall be provided on cooling water supply line of each compressor & dryer (if applicable) which will automatically shut off the cooling water supply, in case any of the compressor/dryer is not running for more than set time duration. Suitable interlock shall also be provided for opening the valve before starting of any of the compressor.	Makes of Valves shall be of ASCO / ROTEX make only.	Bidder to follow NTPC/BHEL approved sub-vendor list enclosed with technical specification. Any additional make shall be subject to NTPC approval during detailed engineering. Bidder to note and quote accordingly.
14	4.01.06 of CONTROL PHILOSOPHY	The following indications shall be made available in the control panels for repeating the same in main plant Control System / Panels :- (a) Status of each compressor (b) Instrument air pressure low/high (c) Service air pressure low/high (d) Dew point of instrument air (e) Status of each ADP	(a), (d) & (e) Ok thru soft link. Compressor Working Pressure itself is the indication of Header Pressure. Hence, (b) & (c) is not required. We want BHEL to mark the location of compressor room, DCS room & HT Switchgear room (related to CAS) with respective distance in GENERAL LAYOUT PLAN (Drp No. 0370-999-POC-F-001, R7) .	Bidder to comply specification requirement.
15	CI No. 9.0 of (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	The make /model of various instruments / items/ systems shall be subject to approval of owner / purchaser DDE stage. No commercial implication in this regard is acceptable.	Shall be as per manufacturer's proven standard make. However, the transmitters / transducers provided at the inside & outside of the individual equipment skid shall be non-SMART type only.	Bidder to comply specification requirement.
16	CI No. 8.0 of (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	On line Vibration Monitoring System shall be provided by Bidder for all compressors & Motors. The vibration monitoring system shall have 4-20 mA analogue output for each channel to be hooked up with DCS for indication of bearing vibration of each compressor and its motor	bidder does not require Vibration Monitoring System, as the motor & airend is fitted on the vibration pad to dampen the vibration. Since the compressor is coupled to the motor, any vibration (if any) in the compressor gets transmitted to motor. 4 Nos. Vibration probes can be provided in each compressor, ie. 2 nos. (in X & Y direction) in each of the DE & NDE of the motor & the value of the probes can be connected to Compressor PLC. Hence no separate Vibration Monitoring System is considered.	Not acceptable, Bidder to comply specification requirement. Specific constraint, if any will be deliberated with NTPC during detailed engineering, while taking approval of compressor documents. Bidder to confirm.
17	Annexure-1 to Section-C: Std Electrical Scope between BHEL			
18.1	S No. 1 & 3 & CI No. 5.0 of (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	3.3 KV/415 V Switch Gear, 240V AC	For 3.3 KV: i) All interconnecting cables (Power, Control/Signal) between main HT switch gear room to HT transformer to VCB HT starter panel to individual Compressors & Dryers and other equipments supplied by Bidder is in BHEL's scope. ii) HT switch gear, HT transformer & VCB HT starter is in BHEL's scope.	Bidder to comply specification requirement.
			For 415 V: i) All interconnecting LT power cables from LT switch gear to ACDB to individual Compressors panel and Systems panel is in BHEL's scope. ii) LT switch gear & ACDB is in BHEL's scope. For 240 V AC: HOC Dryer power supply will be 240 V AC, Single Phase, 50 Hz for which the cable laying & termination upto HOC dryer is in BHEL's scope. For any other field instruments (If applicable) BHEL has to provide power upto individual points. For DC: We have not considered any UPS, DCDB and it's cabling in our scope, since it's Not Required in our compressor. However in case of LT power failure, the signal from compressor will not go to the DCS. If BHEL want's to get the said signal in their DCS during LT power failure then BHEL have to arrange suitable UPS.	Bidder to comply specification requirement.

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18.2	S No. 4 & (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	Any special type of cable, like compensating, co-axial, prefab, micc, fibre optical etc	Bidder has considered ethernet cable for MODBUS protocol from individual compressor to networking switch with in the compressor house and 1 optical fibre cable from networking switch to DCS (700 mtrs max considered) for start/stop, load/unload from DCS. No redundancy is considered by Bidder and the cables supplied by Bidder shall be as per Bidder's standard make and specification. No Hardware link/cable from compressor and dryer is envisaged.	Bidder to comply specification requirement.
18.3	S No. 5	Cable trays, accessories & cable tray supporting system (Main Route & Branch Route)	Not clear	Scope is clearly mentioned in scope matrix. Bidder to comply specification requirement.
18.4	S No. 9	Equipment Grounding	Pls clarify in details about the scope matrix.	Scope is clarified in scope matrix. Bidder to comply specification requirement.
18.5	S No. 17	Equipment laying drawings	As per our company policy, we can't share any drawing in AutoCAD format. We will provide the drawings in PDF format.	Bidder to comply specification requirement.
18.6	Notes: 1	Make of all electrical equipments/items supplied shall be reputed make and shall be subject to approval of BHEL/Customer after award of contract.	Make of all electrical equipments/items supplied shall be reputed make as per Bidder's vendor list.	Not acceptable. Bidder to comply specification requirement.
18.7	Notes: 3	For skid mounted system, 2 nos (1W+1S) supply of 415V, 3 Phase, 3 wire AC shall be provided by customer. Complete skid including changeover including feeder/starters/LCP/Interlocks/ protection devices/any other supply etc shall be in bidder's scope only	Not clear	The note mentioned is applicable for skid mounted systems. It is not applicable to compressed air system.
18.8	Notes: 4	Painting	Painting shall be as per manufacturer's standard.	Bidder to refer reply at s.no. 10.0 above.
19	Volume IIB, Section-C1 SL No. 1.1.9 & 1.1.10 & 5.1.5 of SPECIFIC TECHNICAL REQUIREMENTS (MECHANICAL) & (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	Control & Instrumentation	Bidder has considered ethernet cable for MODBUS protocol from individual compressor to networking switch with in the compressor house and 1 optical fibre cable from networking switch to DCS (700 mtrs max) for start/stop, load/unload from DCS. No redundancy is considered by Bidder and the cables supplied by Bidder shall be as per Bidder's standard make and specification. No Hardware link/cable from compressor and dryer is envisaged.	Vendor to comply specification requirement and provide dual redundant link. Harwired signal interface requirement as per specification/ system requirement is in vendor scope.
20	P&ID [Drg No. PE-DG-393-555-A501 (Alt I & Alt II)] & CI No. 3.0 of (SECTION C4 - SPECIFIC TECHNICAL REQUIREMENTS (C&I))	Solenoid Valve in Air Circuit between compressor & dryer	It's not required hence not considered.	Bidder to note in case the same is required during detailed engineering, it shall be provided to BHEL without any cost implication.
21	8.00.00 / 01 OF TECHNICAL REQUIRMENTS & 1.01.01(d) of Vol IIB, Sec E - Quality Assurance : Performance Test (Shop Test)	TYPE TEST of HT Motor	Pls clarify the Commerical impicacy for conducting Type Test.	Bidder to comply specification requirement.
	1.28.00 : MANDATORY SPARES FORSTEAM GENERATOR PACKAGE FOR CAS			
22	1 , 2	1. HP Stage & 2. LP Stage	The price for HP Stage & LP Stage will be combined only, as no separate pricing is available.	Not acceptable . Bidder to furnish separate rates in its offer.
23	4,5	4. LP Stage Gear & Pinion; 5. HP Stage Gear & Pinion	The price for HP Stage & LP Stage Gear & pinion, better known as Gear Set, will be combined only, as no separate pricing is available.	Not acceptable . Bidder to comply technical specification and furnish separate rates.
24	8,9	8. Safety Valve Springs & Gaskets for HP Stage. 9. Safety Valve Springs & Gaskets for LP Stage.	Not applicable, as no safety valve is present in HP stage & LP stage. Hence, it will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
25	10	Valves (within the compressor house with actuators)	Actuators is not applicable within compressor house, hence will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
26	11.2 to 11.4	11.2 : Pump impeller/rotor with shaft ; 11.3 : Set of bearings; 11.4 : Set of Seals	As the Oil pump parts cannot be provided in dismantled condition, Bidder will provided 1 No. oil pump in place of 11.2 to 11.4	Noted, however mandatory spares list shall be subject to NTPC approval during detailed engineering.
27	12	DRAIN / MOISTURE TRAP	Bidder provides mist separator, which is an integrated part of the intercooler & aftercooler. Hence Drain / Moisture Trap is not applicable, & hence will not be quoted.	Noted, however mandatory spares list shall be subject to NTPC approval during detailed engineering.
28	16	Compressor House Crane	Not applicable, since Crane Supply package is excluded from Bidder's scope.	Noted.
29	1.16.1	All bearings set of each type/rating	Not applicable, since Crane Supply package is excluded from Bidder's scope.	Noted.
30	1.16.2	Brake assembly and its liners	Not applicable, since Crane Supply package is excluded from Bidder's scope.	Noted.

SI No.	Ref. clause of tender	Existing Provision	Bidder's Query	BHEL's Clarification
31	1.16.3	Wire rope	Not applicable, since Crane Supply package is excluded from Bidder's scope.	Noted.
	3.03.00 : MEASURING INSTRUMENTS			
32	1.2	Level Transmitters (Ultrasonic/ radar type)	Not applicable, hence will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
33	2.3	Thermowell for application like mill outlet temperature and SH/RH/Eco/ flue gas temp. in furnace	Not applicable, hence will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
34	4	Process Actuated Switch Devices Includes all types of Pressure, differential pressure, flow, temperature, differential temperature, level switch Devices	Not applicable, hence will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
35	5	PD Type Flow Transmitters	Not applicable, hence will not be quoted.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
36	VOLUME IIB, SECTION C.5 >> 2.0 C : For Category-III Guarantees : COMPRESSED AIR SYSTEM FUNCTIONAL GUARANTEES	Vibration level and noise level of each air compressor, blowers and any other rotating equipments of each air drying plant shall be demonstrated at site and shop	Vibration level will be demonstrated in shop only & noise level of each air compressor and dryer cannot be demonstrated at site and shop because of the surrounding noise.	Bidder to comply specification requirements.
37	1.01.01(c) of Vol IIB, Sec E - Quality Assurance : Performance Test (Shop Test)	Vibration level and noise level measurement will be done during shop performance test.	Vibration level will be demonstrated in shop only & noise level of each air compressor and dryer cannot be demonstrated at site and shop because of the surrounding noise.	Bidder to comply specification requirements.
38	1.02.00(a) of Vol IIB, Sec E - Quality Assurance : Performance Test (Shop Test)	Intake Air Filter & Silencer : Test for Capacity, Pressure Drop & Efficiency shall be done as per manufacturer's standard.	No test for Intake Air Filter is envisaged. However, Bidder will give a Compliance Certificate. Silencer is not required as the air filter lies within the compressor canopy.	Noted. However technical particulars of compressed air system package shall be subject to customer approval during detailed engineering.
39	1.05.00(a) of Vol IIB, Sec E - Quality Assurance : Performance Test (Shop Test)	H.O.T Crane	Not applicable, as it is not in scope of Bidder's supply	Noted.
40	Volume II B Section D	TECHNICAL DATASHEET	To be filled DDE after award of contract.	Noted
41	Annexure-1 : GUIDELINE FOR ALLOCATION OF PRICE IN BBU	Percentage value of Total Price (Supply + E&C)	Cannot be complied, & will be as per Bidder's prerogative.	Not acceptable. Bidder to comply specification requirement.
42	TCN 01_M1572-Vol-III	Mandatory Spares	Some of the items in the Mandatory Spares are not applicable and hence will be treated as NA, while submitting the offer.	Bidder to note in case the same is found applicable during detailed engineering, it shall be provided to BHEL without any cost implication.
43	-----	tender calls for compressor capacity of 55 NM3/Min @ 8 Kg/cm ² discharge pressure.	The mentioned capacity falls in range of Centrifugal compressor which is a much better, more reliable and power efficient technology. Centrifugal compressor have been accepted by NTPC and We are already executing few orders of Centrifugal compressor of lesser / similar capacities from M/s McNally Bharat for NTPC Singreni Project, from M/s Doosan for NTPC Lara Project. We are also participating in a bid from BHEL Noida for NTPC Gadawara project where also centrifugal compressors have been accepted by BHEL / NTPC. We therefore request you to kindly accept the option of centrifugal compressor in this tender.	Specification requirement will prevail i.e. compressors shall be oil free screw type.

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, handing over to customer, etc of Compressed Air System for 3x660 MW Nabinagar Super Thermal Power Project, Aurangabad, Bihar.	
Ref	01	Tender No. PSER:SCT:NBN-M1572:14
	02	BHEL's NIT, vide reference no PSER:SCT:NBN-M1572:3822, dated 08/07/2014.
	03	BHEL's TCN-01, vide reference PSER:SCT:NBN-M1572:TCN-01, dated 16-07-2014.
	04	BHEL's TCN-02, vide reference PSER:SCT:NBN-M1572:TCN-02, dated 30-07-2014.
	05	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, SALTLAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

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