

Project Engineering
Management

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)



Ref No. : PE/PG/KG1/E-4767/2015

Date: 09.06.2015

CORRIGENDA / ADDENDA-6

Tender Enquiry no.: PE/PG/KG1/E-4767/2015

Date: 15.04.2015

PROJECT : 1x800 MW TSGENCO KOTHAGUDAM TPP

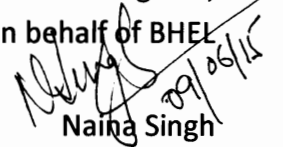
PACKAGE: AIRCONDITIONING SYSTEM

DUE DATE
25-JUN-2015
02:00 PM

This corrigendum is being issued due to change in Technical specification. Revised price schedule and amendment Details are enclosed herewith.

All Bidders to note that Prices shall be quoted in Revised Price schedule, which is uploaded on bhelpem.com and bhel.in

With Regards,
For & on behalf of BHEL


Naina Singh

Dy. Manager/PG-II-2

Please reply to:

Naina Singh/ PG-II-2

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Tel No. 0120-4368762



**KOTHAGUDEM TPS
1 X 800 MW TPS
AIR-CONDITIONING SYSTEM**

BHEL Doc No: PE-TS-410-553-A001

Amendment 03

DATE 08.06.2015

SHEET Page 1 of 1

A. AMENDMENT TO EXISTING CLAUSES IN PRICE SCHEDULE OF TECHNICAL SPECIFICATION

S.No.	Description / Page No.	Clause No.	Existing Description/ Qty.	To Be Read As / Remarks
1	Volume - III Section – 6, PRICE SCHEDULE	2.1.22*	1251	8250
2	-DO-	2.2.6	-	1 Lot
3	-DO-	2.3.7	-	1 Lot

ANNEXURE - A
Revision 3 of Price Schedule enclosed.

SUGGESTIVE PRICE FORMAT														
B-SCH NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	UNIT	SUPPLY						ERECTION & COMMISSIONING				
				Unit Price (Rs)	Total ex-works price (Rs)	ED including CESS (Rs)	CST / VAT (Rs)	FREIGHT including Service Tax, If applicable (Rs)	TOTAL F.O.R. Site Price Supply (Rs)	Unit Price (Rs)	Total Price (Rs)	Service Tax (Rs)	Total Price (Erection & Commissioning) including Service Tax)	Total Price Supply FOR Site and E & C including service tax (Rs)
1.0	LUMP SUM PRICES													
1.1	Total lumpsum firm prices for equipment & Services as specified, Comprising design, manufacture, supply, inspection & Testing at manufacturers works, Painting at manufacturers works, duty packed for transportation, delivery to site, unloading storage & handling at site, erection & commissioning, carrying out acceptance tests at site & final painting of complete Air Conditioning on turnkey basis as per specification PE-TS-410-553-A001 including special tool & tacksels for maintenance, commissioning spares, all taxes, duties etc.													
2.0	Break up prices for items covered in clause 1.0 above. In case, price indicated above does not match with item wise break-up given at 2.0, the highest price so calculated shall be considered for evaluation in case of order.													
2.1	AC PLANT -1 (Main control room areas in power house building & Service Building)													
2.1.1	SCREW CHILLERS package, each of minimum 350 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel, multi drive set, controls and interlocks other accessories as specified, water cooled condenser of matching capacity, shell & tube type water chiller & other accessories, as specified.	2	NO											
2.1.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of control room areas at +17.00 M of power house building.	2	NO											
2.1.3	FINE FILTERS in Common discharge plenum for AHUs at 24.0 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT											
2.1.4	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of control room areas at +8.5.00 M of power house building.	2	NO											
2.1.5	FINE FILTERS in Common discharge plenum for AHUs at 8.5 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT											
2.1.6	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load requirement of Service Building .	10	NO											
2.1.7	FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT											
2.1.8	Fibreglass reinforced plastic (FRP) construction COOLING TOWER complete with fan, motor, FRP basin, nozzles, make up, quick fill, equalising and drain water connection, level switch, ladder & all accessories as specified.	2	NO											
2.1.9	CENTRIFUGAL PUMPS sets for condenser water recirculation complete with TEFC motor & all accessories as specified.	2	NO											
2.1.10	CENTRIFUGAL PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified..	2	NO											
2.1.11*	FAN COIL UNIT consisting of chilled water cooling coil, blower, motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories													
2.1.11.1*	3.0TR	2	NO*											
2.1.11.2*	2.0TR	2	NO*											
2.1.11.3*	1.5TR	2	NO*											
2.1.12	WATER STORAGE TANK of capacity 8 Cubm. Tanks shall be in MS/ FRP construction. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided.	2	NO											
2.1.13	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided.	1	NO											
2.1.14	Non Chemical Treatment Equipment	1	LOT											
2.1.15	CONDENSER WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire condenser water piping (pipe, valves, strainers and all supporting accessories).	1	LOT											

B-SCH NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	UNIT	SUPPLY						ERECTION & COMMISSIONING				
				Unit Price (Rs)	Total ex-works price (Rs)	ED including CESS (Rs)	CST / VAT (Rs)	FREIGHT including Service Tax, if applicable (Rs)	TOTAL F.O.R. Site Price Supply (Rs)	Unit Price (Rs)	Total Price (Rs)	Service Tax (Rs)	Total Price (Erection & Commissioning) including Service Tax)	Total Price Supply FOR Site and E & C including service tax (Rs)
2.1.16	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of all the buildings (pipe, valves, strainers, insulation material with all ancillaries for insulation finishing as per specifications.).	1	LOT											
2.1.17	MS medium class DRAIN WATER PIPING from various equipment like cooling tower (including equalising line), condenser water pumps etc upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.	1	LOT											
2.1.18	MS medium class INSULATED DRAIN WATER PIPING from various equipment like AHUs (including equalising line), FCUs, chilled water pumps etc upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.	1	LOT											
2.1.19	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT											
2.1.20	Electrode HUMIDIFIER for each AHU room complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	1	LOT											
2.1.21*	GSS zinc coating 180 gms/ m² ducting complete with hangers/ supports, dampers, grilles, diffusers (with & without VCD) etc.													
2.1.21.1*	18G.	1250	SQM*											
2.1.21.2*	20G.	2250	SQM*											
2.1.21.3*	22G.	2750	SQM*											
2.1.21.4*	24G.	4250	SQM*											
2.1.22*	Thermal insulation of supply air duct & return air duct with finish as specified.	8250	SQM*											
2.1.23*	Fire damper.													
2.1.23.1*	Fire damper with auto resetting, limit switches, indication lamps etc.	25	SQM*											
2.1.23.2*	Motorized actuator with single phase power supply for the above fire damper.	37	NO*											
2.1.24	Grills / Diffusers / Acoustic lining of duct/ Volume control dampers etc for all the AC Plants													
2.1.24.1*	SUPPLY AIR DIFFUSERS / GRILLS with VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	60	SQM*											
2.1.24.2*	RETURN AIR DIFFUSERS / GRILLS without VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	90	SQM*											
2.1.24.3*	VOLUME CONTROL DAMPERS in GI construction as per specifications for supply / return ducts complete with fixing arrangement.	40	SQM*											
2.1.25	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT											
2.1.26	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT											
2.1.27	SMOKE FANS (axial flow type), complete with motor, inlet cone, air filters, dampers, etc	1	LOT											
2.1.28	Common PLC BASED CONTROL SYSTEM for AC system - AC Pant-1,2 and Ventilation system (for Air washer & UAF only) with Hot redundant PLC consisting of PLC Panels including local panel / push button stations for AHU room, RIO Panel etc, OWS, Key board, I/O modules, I/O adapter modules, Furniture for PLC (as required), power supply, UPS, Battery and Battery Charger, printer, WAN connectivity etc as specified as per tender specification	1	LOT											
2.1.29	FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, and other instrument required for PLC control etc	1	LOT											
2.1.30*	Fibre optic Cable with its accessories from I/O Panel / Racks to Main PLC Panel of AC & Ventilation System	2000	Mtr*											
2.2	AC plant-2 (ESP Control Room Building)													
2.2.1	Water Cooled Precision AC 20TR(Net) with suitable static pressure and complete with all accessories as specified	3	NO											
2.2.2	Booster PUMPS sets for condenser water recirculation complete with TEFC motor & all accessories as specified.	2	NO											
2.2.3	CONDENSER WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire condenser water piping (pipe, valves, strainers and all supporting accessories).	1	LOT											
2.2.4	MS medium class DRAIN WATER PIPING from various equipment like cooling tower (including equalising line), condenser water pumps etc upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.	1	LOT											
2.2.5	Non Chemical Treatment Equipment	1	LOT											
2.2.6	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT											
2.2.7	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT											

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2.3	AC plant-3 (Administrative Building and Other areas)													
2.3.1*	Air Cooled Package AC 15TR(Net) complete with all accessories as specified	8	NO*											
2.3.2*	Air Cooled Package AC 10TR(Net) complete with all accessories as specified	2	NO*											
2.3.3	MS medium class INSULATED DRAIN WATER PIPING from various equipment like AHUs (including equalising line), FCUs, chilled water pumps etc upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.	1	LOT											
2.3.4	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT											
2.3.5	Electrode HUMIDIFIER for each AHU room complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	1	LOT											
2.3.6	Fresh Air System as specified in the specification	1	LOT											
2.3.7	ACOUSTIC INSULATION of the first 6m of ducting from PAC outlets with material and finish as per specifications.	1	LOT											
2.4	Air conditioning system for aux control rooms as specified.													
2.4.1	Air-cooled split type AC units consisting of condensing unit & evaporating unit including refrigerant pipes & fittings with insulation etc. (Minimum BEE Rating 4 Star for Non-Ductable Split AC)													
2.4.1.1*	5.0 TR capacity (ductable type, 415 V, 3 phase with isolation switch).	2	NO*											
2.4.1.2*	2.0 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	65	NO*											
2.4.1.3*	1.5 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	30	NO*											
2.4.1.4*	1.5 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	1	NO*											
2.4.1.5*	2.0 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	4	NO*											
2.4.1.6*	3.0 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	1	NO*											
2.5*	Handling Arrangement for AC Equipments													
2.5.1*	3T Electric Hoist with monorail arrangement for AC Plant	1	NO*											
2.5.2*	Manually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m	3	NO*											
2.6	Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up).	1	LOT											
2.7	Total lumpsum price for special tools & tackles for maintenance inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up).	1	LOT											
2.8	Total lumpsum price for Mandatory Spare for air conditioning inclusive of packing forwarding, transportation up to site, etc. (Bidder to submit item-wise price break-up seperately).	1	LOT											
2.8.1	Total lumpsum price for Mandatory Spare for air conditioning inclusive of packing forwarding, transportation up to site, etc. as per ANNEXURE-II A OF TECHNICAL SPECIFICATION PE-TS-410-553-A001 for MECHANICAL ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT											
2.8.2	Total lumpsum price for Mandatory Spare for air conditioning inclusive of packing forwarding, transportation up to site, etc. as per ANNEXURE-II B OF TECHNICAL SPECIFICATION PE-TS-410-553-A001 for C&I ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT											
2.8.3	Total lumpsum price for Mandatory Spare for air conditioning inclusive of packing forwarding, transportation up to site, etc. as per ANNEXURE-II C OF TECHNICAL SPECIFICATION PE-TS-410-553-A001 for ELECTRICAL ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT											
2.8.4	Total lumpsum price for Mandatory Spare for air conditioning inclusive of packing forwarding, transportation up to site, etc. as per ANNEXURE-II D OF TECHNICAL SPECIFICATION PE-TS-410-553-A001 for MATERIAL HANDLING ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT											

- NOTES
- The bidder shall furnish unit rates for variable item (marked *) i.e., ducting, supply grilles (with and without VCD), fire damper, thermal insulation for ducting for all the AC Plants, Package AC, Split AC Units, FCUs etc for necessary adjustment (plus or minus) variation during detailed engg. stage. The unit rates quoted above shall be considered and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract. Final qty. shall be paid as per actual measurement at site for supply as well as erection for all the variable items.
 - Bidder must submit prices in the Pro Forma duly filled in signed and stamped on every page without any ambiguity. The price shall be written against each item. Term such as "refer covering letter" etc. are not acceptable. Extra sheet may be attached if the space provided is not sufficient
 - Price format shall not be changed by the bidder as the bidder may get disqualified by doing so.
 - Any other item not indicated above, but required to complete AC system as per system requirements.
 - For limitation on payment, percentages of individual items/equipments, as specified in the appendix-A2 shall be applicable