



Ref No. : PE/PG/EN1/E-4881/2015

Date: 08.07.2015

CORRIGENDA / ADDENDA-2

Tender Enquiry no.: PE/PG/EN1/E-4881/2015

Date: 05.06.2015

DUE DATE
27-JUL-2015
02:00 PM

Subject: Amendment in Technical Specification and Commercial Clarification for "AIRCONDITIONING SYSTEM" of "2x660 MW ENNORE SEZ STPP".

Our Ref: i) Tender Enquiry no.: PE/PG/EN1/E-4881/2015 Date: 05.06.2015

ii) Corrigenda/Addenda-1 Dtd. 04.07.2015

1. There is Amendment in Technical Specification. Amendment details are enclosed herewith. Annexure-IV of Price Format shall be submitted in line with attached Addendum-2.
2. W.r.t. clause no. 14 of SCC Rev00 of project, kindly note the following:-

2.1 Construction Power:

HT power supply (33KV/433 V or 11KV/433 V) shall be made available for erection work at the rates prevailing at the time of usage on chargeable basis as per HT tariff V (Temporary construction supply) rates applicable as per TNERC tariff order.

Fuel and start-up power required during testing, commissioning, PG testing, re-testing etc. Shall be provided at free of cost.

2.2 Construction Water:

Construction water shall be available at one point within the plant boundary on chargeable basis subject to availability.

All other terms & conditions shall remain unchanged.

With Regards,
For & on behalf of BHEL

Akash Verma

Engineer/PG-II-2

Please reply to:

Akash Verma/ PG-II-2

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AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)

SPECIFICATION NO. PE-TS-412-553-A001

ADDENDUM No. 2

DATE: 11.06.2015

SHEET 1 OF 5

ENNORE SEZ
(2x660 MW)

ADDENDUM No. 2

(TECH SPEC No. PE-TS-412-553-A001)

AIR CONDITIONING SYSTEM



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO.PE-TS-412-553-A001

ADDENDUM No. 2

DATE: 11.06.2015

SHEET 2 OF 5

**ADDENDUM No. 1 TO THE TECHNICAL SPECIFICATION PE-TS-412-553-A001 AIR
CONDITIONING SYSTEM OF ENNORE SEZ (2X660MW)**

1. AMENDMENT TO EXISTING CLAUSES OF THE TECHNICAL SPECIFICATION

S.No	Clause	To Be Read As (Amendment)
1.	Volume III, section 5, GAURANTEE POWER CONSUMPTION	Revised Volume III section 5, shall be read as attached Appendix "AA".



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-553-A001

ADDENDUM No. 2

DATE: 11.06.2015

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“APPENDIX AA”

S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL (IN KW)	DUTY FACTOR	TOTAL KW
		WORKING	STANDBY			
		3A	3B	4	5	6=3Ax4x5
1	AC-Plant-1: (CENTRAL CHILLED WATER SYSTEM FOR MAIN CR AREAS COMMON FOR UNIT-1&2.)					
1.1	Water chilling machine -Screw chiller	1	1		1	
1.2	AHUs for Common control room areas, CER, computer room etc	2	2		1	
1.3	AHUs for 8.5 m battery charger & UPS room	1	1		1	
1.4	Cooling tower fans for AC plant	1	1		1	
1.5	Condenser water pumps for AC plant	1	1		1	
1.6	Chilled water pumps for AC plant	1	1		1	
1.7	Fresh air fans for above AHU rooms	4	0		1	
2	AC PLANT-2 (ESP Building- UNIT- 1)					
2.1	Water cooled DX condensing machine -Screw	1	1		1	
2.2	AHUs for ESP control room	1	1		1	
2.3	Cooling tower fans for AC plant	1	1		1	
2.4	Condenser water pumps for AC plant	1	1		1	
2.5	Fresh air fans for above AHU rooms	2	0		1	
3	AC PLANT-3 (ESP Building- UNIT- 2)					
3.1	Water cooled DX condensing machine -Screw	1	1		1	
3.2	AHUs for ESP control room	1	1		1	



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-553-A001

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S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL (IN KW)	DUTY FACT OR	TOTAL KW
		WORKING	STANDBY			
		3A	3B	4	5	6=3Ax4x5
3.3	Cooling tower fans for AC plant	1	1		1	
3.4	Condenser water pumps for AC plant	1	1		1	
3.5	Fresh air fans for above AHU rooms	2	0		1	
4	AC PLANT-4 (Service Building)					
4.1	Water cooled package AC (20TR)	9	9		1	
4.2	Water cooled package AC (15TR)	4	4		1	
4.3	Fresh air fans for above PAC room.	16	0		1	
4.4	Cooling tower fans for AC plant	1	1		1	
4.5	Condenser water pumps for AC plant	1	1		1	
5	AC PLANT-5 (Admin Building)					
5.1	Water cooled package AC (20TR)	3	3		1	
5.2	Water cooled package AC (15TR)	3	3		1	
5.3	Fresh air fans for above PAC room.	8	0		1	
5.4	Cooling tower fans for AC plant	1	1		1	
5.5	Condenser water pumps for AC plant	1	1		1	
				TOTAL (KW)		1120
NOTES:						
1	Estimated power consumption (EPC) figure for the system (for working drives only) has been considered as 1120 KW . So long bidder's quoted guaranteed power consumption (GPC) above remains within this EPC, there will be no technical loading of bid on power consumption for evaluation. However, if bidder's quoted GPC exceeds EPC, there shall be technical loading of bid for evaluation @Rs 3,56,607/- per KW of additional power over EPC.					



**AIR CONDITIONING SYSTEM
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S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL (IN KW)	DUTY FACT OR	TOTAL KW
		WORKI NG	STAN DBY			
		3A	3B	4	5	6=3Ax4x5
2	Bidder's guaranteed power consumption at motor input terminals (not shaft power) as furnished in relevant schedule shall be demonstrated by the successful bidder during performance testing at works/ site. In case power consumption is noted higher than EPC / bidder's quoted GPC whichever is higher, during inspection/ PG test, penalty @Rs 3,56,607/- per KW shall be levied on vendor.					



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-553-A001

ADDENDUM No. 3

DATE: 06.07.2015

SHEET 1 OF 6

ENNORE SEZ
(2x660 MW)

ADDENDUM No. 3

(TECH SPEC No. PE-TS-412-553-A001)

AIR CONDITIONING SYSTEM



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-553-A001

ADDENDUM No. 3

DATE: 06.07.2015

SHEET 2 OF 6

**ADDENDUM No. 3 TO THE TECHNICAL SPECIFICATION PE-TS-412-553-A001 AIR
CONDITIONING SYSTEM OF ENNORE SEZ (2X660MW)**

1. AMENDMENT TO EXISTING CLAUSES OF THE TECHNICAL SPECIFICATION

S.No	Clause	To Be Read As (Amendment)
1.	Volume IIB, section E, Annexure I – LIST OF MAKES OF SUB VENDOR ITEMS	Revised Volume IIB, section E, Annexure I, shall be read as attached Appendix “B”.



**AIR CONDITIONING SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-553-A001

ADDENDUM No. 3

DATE: 06.07.2015

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“APPENDIX B”

SI. NO.	ITEM / EQUIPMENT	SUB SUPPLIER
1	SCREW CHILLER	YORK / TRANE / CARRIER / KIRLOSKAR / DUNHAM BUSH / MCQUAY (DAIKIN) / BLUE STAR / VOLTAS
2	VAPOUR ABSORPTION MACHINE	VOLTAS / THERMAX
3	PRECISION PACKAGE UNITS	STULZ / UNIFLAIR / EMERSON / BLUEBOX / CLIMADENTA
4	PACKAGE UNIT	VOLTAS / BLUE STAR / CARRIER
5	SPLIT AIR CONDITIONER	VOLTAS / BLUE STAR / CARRIER / HITACHI / LG
6	AIR HANDLING UNITS	VOLTAS / BLUE STAR / ZECO / CARRIAIRE (FLAKT) / EDGETECH / ETHOS / SYSTEM AIR / WAVES AIRCON
7	AHU FAN (CENTRIFUGAL FAN)	CB.DCTOR / FLAKT / KRUGER / NICOTRA / COMEFRI / MARATHON / PATEL AIR
8	CHILLED & CONDENSER WATER PUMP	BEST & CROMPTON / JYOTI / SAM TURBO / KBL / KSB / M&P / VOLTAS / BEACON-WEIR / WORTHINGTON / FLOWMORE / SULZER / BHARAT PUMPS & COMPRESSORS LTD / FLOWSERVE INDIA CONTROL PVT LTD / V-FLOW PUMPS & SYSTEMS CO/ KISHORE PUMP
9	COOLING TOWER (FRP)	PAHARPUR / MIHIR / PCT / FLOWTECH / BELL
10	INDUCTION MOTORS (LT)	SIEMENS / ABB / CGL / MARATHON / KEC / BHARAT BIJLEE / NGEF / JYOTI / LHP / BHARAT ELECTRIC
11	AIR FILTER	PUROLATOR / FMI / ANFILCO / TENACITY / JOHN FOWLER / SPECTRUM / AIR TECH / PUROMATIC
12	AXIAL FANS / F.A. FANS	FLAKT / KHAITAN / PATEL / NICOTRA / SARLA / KRUGER / MARATHON / C DOCTOR
13	INSULATION MATERIAL (Fibreglass / EPS/ PUF / Nitrile /EPDM)	BEARDSHELL / K-FLEX / PARAMONT / ARMAFLEX / SUPREME / LLOYDS / UP TWIGA
14	BALANCING VALVE	ADVANCE
15	BUTTERFLY VALVE	ADVANCE / AUDCO / FOURESS / INTER VALVE / BDK / WEIR BDK / TYCO / CRANE PROCESS / KEYSTONE / FLUIDLINE / INSTRUMENTATION LTD / R and D MULTIPLES (METAL CAST) PVT LTD / SURYA VALVES AND INSTRUMENTS MFG CO / PENTAIR VALVES AND CONTROLS INDIA PRIVATE LIMITED / UPADHAYA VALVES MANUFACTURERS PRIVATE LIMITED / VENUS PUMPS AND ENGG. WORKS
16	NON RETURN VALVE (CI)	LEADER / H.SARKAR / FLUID LINE / HI -TECH / CRESENT / A V VALVES / BANKIM & COMPANY / SHIVADURGA / SURYA VALVES AND INSTRUMENT MANUFACTURING / ATAM VALVES / GM DAULI & SONS / KBL / VENUS PUMPS AND ENGINEERING WORKS

	AIR CONDITIONING SYSTEM ENNORE TPS (2X660 MW)	SPECIFICATION NO. PE-TS-412-553-A001
		ADDENDUM No. 3
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SI. NO.	ITEM / EQUIPMENT	SUB SUPPLIER
17	GATE / GLOBE VALVES (CI)	CRESENT / BDK / AUDCO / FOURESS / KIRLOSKAR / SANT / BOMBAY METAL & ALLOYS / LEADER / H.SARKAR / FLUID LINE / HI -TECH / A V VALVES / BANKIM & COMPANY / SHIVADURGA / SURYA VALVES AND INSTRUMENT MANUFACTURING / ATAM VALVES / GM DAULI & SONS / KBL / VENUS PUMPS AND ENGINEERING WORKS
18	GUN METAL VALVES	LEADER / A V VALVES / ATAM VALVES / VALTECH INDUSTRY / SANT VALVES
19	FLOAT VALVE	H.SARKAR / LEADER / GM DAULI & SONS
20	3 WAY MIXING VALVE WITH ACTUATING MOTOR	SIEMENS BUILDING TECHNOLOGY / JOHNSON / BELIMO / HONEYWELL / RAPID CONTROL / ALC
21	MOTORIZED BUTTERFLY VALVE	ANERGY / ADVANCE / BELIMO / JOHNSON / HONEYWELL / SIEMENS/ LEADER / H.SARKAR / FLUID LINE / A V VALVES / BANKIM & COMPANY / SURYA VALVES AND INSTRUMENT MANUFACTURING / ATAM VALVES / GM DAULI & SONS / KBL / VENUS PUMPS AND ENGINEERING WORKS
22	ACTUATOR FOR MOTORIZED BUTTERFLY VALVE	SIEMENS BUILDING TECHNOLOGY / JOHNSON / BELIMO / HONEYWELL / RAPID CONTROL / ALC / AUMA / LIMITORQUE
23	Y / POT STRAINER	MULTITEX / GREAVES COTTON / JAYPEE / SANT / OTOKLIN / GRAND PRIX / GUJARAT OTOLIFT / DS ENGG / SAROJINI ENTERPRISE / BHATIA ENGINEERING / FILTRATION ENGINEERS INDIA PVT LTD / SUNGOV ENGINEERING/ OTOKLIN GLOBAL BUSINESS LTD
24	PIPING - ERW	SURYA ROSHNI / TISCO / DADU PIPES / INDUS TUBE / WELSPUN / TATA TUBES / BST / JINDAL / SAIL / PSL / LALIT PROFILE / SAMSHI PIPE INDUSTRIES / MUKUT PIPES / MANN INDUSTRIES/ SURENDRA ENGINEERING / PRATIBHA PIPES AND STRUCTURES PVT LTD / JCO GAS PIPES / NUKAT TANK AND VESSELS / GOODLUCK TUBES / ADVANCE STEEL TUBES / BIHAR TUBES / HITECH PIPES / RATNAMANI / MAHARASHTRA SEAMLESS
25	PIPING - CS SEAMLESS (ASTM A 106)	ISMT / MAHARASHTRA SEAMLESS
26	SS PIPES (FOR SMALL QUANTITY 500M)	REMI / RATNAMANI / APEX TUBES / CHOKSI
27	GI SHEETS FOR DUCTING	TISCO / INDIAN IRON & STEEL CO LTD. / RASHITRYA ISPAT NIGAM LTD. / ESSAR/ ISPAT INDUSTRIES / JSW STEEL / LLOYDS STEEL / BHUSHAN / TATA / SAIL / JINDAL
28	FIRE DAMPER	TSC / CARRYAIRE / RAVISTAR (SYSTEM AIR)
29	GRILL/DIFFUSER/VOLUME CONTROL DAMPER	AIR FLOW/ TSC /AIR MASTER/ CARYAIRE/RAVI STAR (SYSTEM AIR)
30	STRIP HEATER	ESCORTS / RACOLD / DASPASS/ ALCO/ HEATCO / HOTSET
31	PAN HUMIDIFIER	RAPID COOL/ HOTSET /ALCO
32	RELIEF / PURGE VALVE	BRASSOMATIC
33	THERMOSTATS	HONEYWELL / RANCO / PENN / DANFOSS / INDFOSS / JHONSON CONTROL /RANUTROL
34	HUMID STAT	JHONSON CONTROL / HONEYWELL / PENN

	AIR CONDITIONING SYSTEM ENNORE TPS (2X660 MW)	SPECIFICATION NO. PE-TS-412-553-A001
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SI. NO.	ITEM / EQUIPMENT	SUB SUPPLIER
35	ANTI FREEZE THERMOSTAT	RANCO / HONEYWELL / PENN / DANFOSS / INDFOSS
36	PRESSURE GAUGE / DP GAUGE	GENERAL INST CONSORTIUM / BELL / H.GURU INST/ H GURU / WAAREE INSTRUMENTS / FORBES MARSHALL / MANOMETER / A.N. INST / GAUGES BOURDON / GLUCK / WIKA / ASHCROFT / BAUMER TECHNOLOGIES
37	TEMPERATURE GAUGE	H.GURU IND/ H.GURU INST/ FORBES MARSHALL/DETRIVE INST & ELECTRONICS / PYRO ELECTRIC /TOSHNIWAL BROSS / WAREE INSTRUMENTS / A.N.INST / GOA INSTRUMENTS / WIKA / ASHCROFT / H GURU (SI) / BUDENBERG GUAGE CO.LTD./ GOA THERMOSTATIC INSTRUMENTS PVT.LTD./ GAUGE BOURDON INDIA PVT. LTD/ Baumer Technologies India Pvt. Ltd.
38	LEVEL GAUGE	GENERAL INSTRUMENTS / CHEMTROLS / SBEM, PUNE/ AUTOMAT MUMBAI /SIGMA / TOSHNIWAL / TECHNOMATIC / TELACO /LEVCON / D K INSTRUMENTS / PUNE TECHTROL / FLOW STAR
39	PRESSURE SWITCH / DP SWITCHES	BELLS / DANFOSS / DK INSTRUMENTS/ DRESSER / SOR INC / VASU / SWITZER / INDFOSS / TRAFAG / GIC / ASHCROFT / DELTA CONTROL
40	TEMPERATURE SWITCH	INDFOSS/ SEIMENS / DANFOSS/ DK INSTRUMENTS/ SOR INC / VASU / DRESSER / TOSHNIWAL / SWITZER
41	FLOW SWITCH	SWITZER / LEVCON / DK INSTRUMENT / SBEM / V. AUTOMATE/ SIEMENS
42	LEVEL SWITCH	SBEM / BLISS ANAND / HI TECH / RAMAN INST / SIGMA / SOR INC / WAREE INST / LEVCON / DK INSTURMENT / V ATUOMATE /CHEMTROLS / SIMENS / FLOW STAR / TRAC
43	LEVEL INDICATOR	SBEM / SIGMA / LEVCON / DK INSTURMENT / V ATUOMATE / FLOW STAR / SCIENTIFIC DEVICES / GAUGES BOURDON / PNE TECHTROL
44	TRANSMITTERS	EMERSON / LAXONS AUTOMATION / YIL / TAYLOR / ABB / BRISTOL BABCOCK / BIRLA KENT TAYLOR / BLISS ANAND / SBEM / SMART INST / V AUTOMATION & INST / FISHER-ROSEMOUNT / SIEMENS/ HONEYWELL / YOKOGAWA / FUJI / Endress + Hauser (India) Pvt. Ltd. / Moore Industries International Inc. / NIVO CONTROLS PVT. LTD. / Pune Techtrol Pvt. Ltd./ SIEMENS LIMITED / TOSHNIWAL /
45	SIGHT FLOW INDICATORS	SIGMA / LEVCON /V AUTOMAT / TELLACE /EUREKA / TATA HONEYWELL/BLISS
46	FLOW ELEMENT	BRISTOL BABCOCK / BALIGA /LIGHTING EQUIP /ENGINEERING SPECIALITIES /IL / MINCO/ MICRO PRECISION / STAR MECH
47	TEMPERATURE ELEMENT	GENERAL INST CONSORTIUM/ PYRO ELECTRIC /WAAREE INSTRUMENTS/ DETRIVE INST & ELECTRONICS / TOSHNIWAL
48	FLOW METER	EUREKA / INSTRUMENTATION ENGINEERS PVT LTD / PLACKA /TRAC / FLOW STAR/ SCIENTIFIC DEVICE
49	RH SENSOR/TEMP SENSOR	HONEY WELL /JOHNSON /SIEMENS / GENERAL INSTRUMENTS
50	PLC BASED PANEL	SIEMENS / SCHENIEDER / ROCKWELL / GE INTELLIGENT / HONEYWELL AUTOMATION / ABB
51	OWS / PC	HP / COMPAQ / DELL / HCL / IBM / LENOVO



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SI. NO.	ITEM / EQUIPMENT	SUB SUPPLIER
52	PRINTER	HP / CANON / EPSON / XEROX / IBM / LEXMARK
53	UPS	HITACHI-HIREL / APC / DELTA / EMERSON / DB POWER / APLAB
54	FIBRE OPTIC CABLE	BIRLA ERICSON / FINOLEX / AKSH FIBRE
55	ANNUNCIATOR FOR PANEL	ICC / PECON/ PROCON
56	LT ADAPTER BOX FOR AL TO CU CABLE CONVERTOR	CONTROL DEVICE / SYSTEM POWER CONTROL / JACKSON / UNILEC / ELECTRIC ALLIED PRODUCT
57	METERING PUMP	SHAPO TOOLS / VK PUMPS
58	WATER SOFTENING PLANT	THERMAX / ION EXCHANGE / DOSI ION
59	PRESSURE TRANSMITTER	ABB / ENDRESS + HAUSER (INDIA) / MOORE / SIEMENS / SMART INSTRUMENT BRAZIL / SBEM / TOSHNIWAL / V. AUTOMAT / EMERSON / YOKOGAWA / HONEYWELL / FUJI
60	TEMPERATURE TRANSMITTER	ABB / ENDRESS + HAUSER (INDIA) / MOORE / SIEMENS / SMART INSTRUMENT BRAZIL / SBEM / TOSHNIWAL / V. AUTOMAT / EMERSON / YOKOGAWA / HONEYWELL
61	ROTAMETER	CHEMTROLS SAMIL / EUREKA IND / TRANSDUCERS AND CONTROL / Flow Star Engineering Pvt. Ltd. / FLOWTECH INSTRUMENTS SERVICRS / INSTRUMENTATION ENGINEERS PVT LTD / SCIENTIFIC DEVICES (BOMBAY) PVT LTD,
62	BATTERY CHARGER	AMARARAJA/ CHHABI ELECTRICAL / DUBAS ENGG. / HBL POWER SYSTEM / STATCON / CALDYNE
63	BATTERY (NI -Cd)	HBL POWER / AMCO SAFT / SAFT
64	BATTERY (Maintenance free for PLC)	EXIDE / HBL POWER / AMARAJA /
65	JUNCTION BOX	AJMERA INDUSTRIAL & ENGINEERING WORKS / FLEXPOR ELECTRICALS PVT. LTD. / K.S.INSTRUMENTS PVT.LTD./ SUCHITRA INDUSTRIES / Shrenik & Company,
66	STEAM TRAP	LEADER VALVES LTD./ PENNANT ENGINEERING PVT. LTD. / FORBES MARSHALL STEAM SYSTEM PVT. LTD.
67	INSTRUMENT FITTINGS	AURA INCORPORATED / Astec Valves & Fittings Pvt. Ltd., / Arya Crafts & Engineering Pvt. Ltd./ Comfit & Valve Pvt. Ltd./ FLUIDFIT ENGINEERS PVT. LTD / Fluid Controls Pvt. Ltd./ HP VALVES & FITTINGS INDIA PVT. LTD. / PRECISION ENGINEERING INDUSTRIES / Panam Engineers, / Perfect Instrumentation Control (India) Pvt. Ltd. / VIKAS INDUSTRIAL PRODUCTS

- ABOVE SUB-VENDORS ARE SUBJECTED TO CUSTOMER APPROVAL DURING DETAILED ENGINEERING WITHOUT ANY COST AND TIME IMPLICATION.