



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT

PROJECT : 2×660 MW SEZ ENNORE STPP
PACKAGE : VENTILATION SYSTEM
TENDER ENQUIRY NO.: PE/PG/EN1/E-5490/2016 dtd. 06.03.2017

DATE: - 07.04.2017

Corrigendum-02

In reference to the above mentioned tender enquiry for Ventilation System package, there are following changes in tender enquiry:

1. Due date of tender submission is extended from 07.04.2017 (10:00 AM) to 22.04.2017 (02:00 PM).
2. Technical Specification have been revised and addendum no. 1 is attached herewith.
3. Due to change in Technical Specifications, the price format is revised and Price format Rev02 is attached herewith. Vendors to furnish the prices as per latest price format only.
4. Vendor who have submitted their offers are requested to take cognizance of above changes and submit the revised offers (if desire so).

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

Bidders are requested to ensure submission of offer on or before due date i.e. 22.04.2017 (02:00 PM).

Regards


Upendra Chaudhary
Dy. Mgr./ PG-II



**VENTILATION SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-554-A001_R01

ADDENDUM No. 1

DATE: 05.04.2017

SHEET : 1 OF 20

ENNORE SEZ
(2x660 MW)

ADDENDUM No. 1

(TECH SPEC No. PE-TS-412-554-A001_R01)

VENTILATION SYSTEM



**VENTILATION SYSTEM
ENNORE TPS
(2X660 MW)**

SPECIFICATION NO. PE-TS-412-554-A001_R01

ADDENDUM No. 1

DATE: 05.04.2017

SHEET : 2 OF 20

**ADDENDUM No. 1 TO THE TECHNICAL SPECIFICATION PE-TS-412-554-A001 VENTILATION
SYSTEM OF ENNORE SE (2X660MW)**

1. AMENDMENT TO EXISTING CLAUSES OF THE TECHNICAL SPECIFICATION

S.No	Clause	To Be Read As (Amendment)
1.	Section III: Documents to Be Submitted by Bidder, sub section-5, suggested price format page no 606 to 617 of technical specification	Revised Section III: Documents to Be Submitted by Bidder, sub section-5, suggested price format, shall be read as attached Appendix "A". Changes: 1. Item no 3.8, volume control damper is added in price format Annexure-I. 2. In item no 4 b, unit of motorized damper is corrected from SQM to Nos. 3. In description of item no 6 static pressure is corrected to 32 mm in line with specification.
2.	Section I: Specific Technical Requirements, sub section-C1, clause no 4.1.1, A total of 8 Nos. Air washers each of 250000 CMH capacity shall be provided for both the Units 1 & 2. Each air washer with 2x50% duty Centrifugal Fans each of 125000 CMH.	Revised clause no 4.1.1, shall be read as "A total of 8 Nos. Air washers each of 250000 CMH capacity shall be provided for both the Units 1 & 2. Each air washer with 3x33% duty Centrifugal Fans each of 83500 CMH.
3.	Section I: Specific Technical Requirements, sub section-C1, clause no 4.1.4, 1 No UAF = (1 x 100%) of capacity 100000 CMH shall be provided for each ESP Building.	Revised clause no 4.1.4, shall be read as "1 No UAF = (1 x 100%) of capacity 75000 CMH shall be provided for each ESP Building.
4.	Section I: Specific Technical Requirements, sub section-C1, clause no 8 General points	There is an addition of one more general point: "Structure for running the ventilation ducting outside the building shall be provided by BHEL, however all secondary supports for securing the duct with this structure shall be in vendor's scope. Input required for this structure shall be provided by vendor. Further all structure / support etc. required for ducting within the building shall be in vendor's scope."
5.	Section I: Specific Technical Requirements, sub section-C1, clause no 9 Exclusion	There is an addition of one more Exclusion point: "Structure for running the ventilation ducting outside the building".
6.	Section I: Specific Technical Requirements, sub section-C6, Annexure I LIST OF MAKES OF SUB VENDOR items page no 489 to 496 of technical specification.	Revised Section III: Section I: Specific Technical Requirements, sub section-C6, Annexure I LIST OF MAKES OF SUB VENDOR ITEMS, shall be read as attached Appendix "B".



**VENTILATION SYSTEM
SUGGESTED PRICE FORMAT**

ADDENDUM No. 1

APPENDIX A

SUGGESTED PRICE FORMAT

SUGGESTED PRICE FORMAT		Doc No:	PE-PF-412-554-A001		
		Rev No:	2		
		Date of issue	07-Apr-17		
NAME OF PROJECT		2x660 MW ENNORE SE POWER PROJECT			
NAME OF PACKAGE		VENTILATION SYSTEM			
TECHNICAL SPECIFICATION No		PE-TS-412-554-A001			
S. No.	DESCRIPTION	UNIT	QTY	AMOUNT (Ex-Works)	
1	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part, Services part and Mandatory spares comprising of design (i.e.preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles fill of lubricants & consumables, mandatory spares alongwith spares for erection, startup and commissioning as required, forwarding, proper packing, shipment and delivery at site, unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site, preperation of layout drawings 3D (as applicable) and carrying out Performance guarantee / Functional / Demonstration tests at site, training of customer/client O&M staff and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order.	Lot	1		
2	MAJOR BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE.				
2.1	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part comprising of design (i.e.preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, fill of lubricants & consumables alongwith spares for erection as required, startup and commissioning spares as required, forwarding, proper packing, shipment and delivery at site, preperation of layout drawings 3D (as applicable) for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-I)	Lot	1		
2.2	Total lumpsum firm prices inclusive of all prevailing taxes, duties and other levies for Services part comprising of service part for unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site and carrying out Performance guarantee / Functional / Demonstration tests at site, training of customer/client O&M staff and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-I)	Lot	1		
2.3	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for Mandatory spares comprising of manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, forwarding, proper packing, shipment, delivery at site & guarantee as per tender technical specification above, amendment & agreements till placement of order. (Price break up of mandatory spares is to be furnished as per Annexure- II)	Lot	1		
Note:					
1.) Bidder to quote Guaranteed Power Consumption for Ventillation System as per Annexure-III.					
2.) PG to consider and suitably incorporate taxes, duties and other commercial aspects.					
Particulars of bidder / authorised representative					
	Name	Designation	Signature	Date	Company Seal

SUGGESTED PRICE FORMAT ANNEXURE - I PRICE BREAKUP (FOR MAIN PLANT, ESP AND OTHER AUX BUILDINGS)						Doc No	PE-PF-412-554-A001
						Rev No	2
						Date of issue	07-Apr-17
NAME OF PROJECT			2x660 MW ENNORE SEZ POWER PROJECT				
NAME OF PACKAGE			VENTILATION SYSTEM				
TECHNICAL SPECIFICATION No			PE-TS-412-554-A001				
SL NO	DESCRIPTION	Qty	Unit	SUPPLY		ERECTION AND COMMISSIONING	
				AMOUNT (Ex-Works)		AMOUNT (Ex-Works)	
1	Sheet metal type air washer unit with centrifugal fan (DIDW) with motor, pumps with motors, air washer internals, inlet air louvers, filters, piping as per IS:1239, Part-I (heavy class galvanised), valves, nozzles, level switch, temp indicators, back wash arrangement, galvanised drain piping, etc as per specification of capacity 2,50,000 CMH . Each air washer has 3 no centrifugal fan (3 x 33% duty) of capacity 83,500 CMH each at min. 75 mm SP .	8	NO				
2	Unitary air filtration unit with centrifugal fan (SISW) with motor, pumps with motors, filters, UAF internals, piping as per IS: 1239 pt I (heavy class galvanised), valves for auto start of standby equipment, nozzles, level switch, pressure switches, Temp. indicators, back wash arrangement, galvanised drain piping etc. as per spec. of capacity 75,000 CMH . Each UAF has 1 no centrifugal fan (1 x 100% duty) of capacity 75,000 CMH at min. 75 mm SP .	2	NO				
3*	Supply air ducting (finished) for above area complete with dampers, grills (with VCD & without VCD), supports (painted) and all accessories as specified.						
3.1*	Finished GSS (zinc coating 275 gms/sq.m) Ducting with support structure etc.						
a)*	18 G	4000	SQM*				
b)*	20 G	4000	SQM*				
c)*	22 G	3000	SQM*				
d)*	24 G	4000	SQM*				
3.2*	MS Duct With Epoxy paint for battery room.	200	SQM*				
3.3*	MS Grilles with VCD	200	SQM*				
3.4*	MS Grilles without VCD	10	SQM*				
3.5*	Exposed duct insulation with fibre glass insulation as per specifications.	2000	SQM*				
3.6*	Wall mounted dampers (gravity operated) for different areas.	30	SQM*				
3.7*	Inlet Louvres	20	SQM*				
3.8*	VOLUME CONTROL DAMPERS in GI construction as per specifications	20	SQM*				
4*	FIRE DAMPER						
a)*	Fire damper	30	SQM*				
b)*	Motorized Actuator with single phase power supply for the above Fire damper with auto resetting, limit switches, indication lamps etc	45	Nos.*				
c)*	Fusible Link type Fire Damper	20	SQM*				
5*	Roof extractor units (axial flow type) with hood, disconnect switch and all accessories as specified. Following fan shall have 15 mmwc static pressure.						
a)*	Capacity 50,000 CMH with Motor rating 5.5 KW	28	Nos.*				
b)*	Capacity 40,000 CMH with Motor rating 5.5 KW	2	Nos.*				
c)*	Capacity 20,000 CMH with Motor rating 2.2 KW	1	Nos.*				
6*	Axial flow supply fans with pre and fine filter (wall mounted) complete with casing, TEFC sq cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply). Following fan shall have 32 mmwc static pressure.						
a)*	Capacity 10,000 CMH with Motor rating 2.2 KW	8	Nos.*				
b)*	Capacity 7,500 CMH with Motor rating 1.5 KW	8	Nos.*				
c)*	Capacity 6,000 CMH with Motor rating 1.1 KW	15	Nos.*				
d)*	Capacity 4,000 CMH with Motor rating 0.75 KW	10	Nos.*				
7*	Axial flow supply fans with pre filter (wall mounted) complete with casing, TEFC sq cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply) as specified. Following fan shall have 20 mmwc static pressure.						
a)*	Capacity 10,000 CMH with Motor rating 1.5 KW	20	Nos.*				
b)*	Capacity 7,500 CMH with Motor rating 1.1 KW	10	Nos.*				
c)*	Capacity 6,000 CMH with Motor rating 1.1 KW	2	Nos.*				
d)*	Capacity 4,000 CMH with Motor rating 0.75 KW	2	Nos.*				
8*	Axial flow exhaust fans (Bifurcated type, spark proof construction, wall mounted) complete with casing, flame proof motor & mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted (suitable for 415V/3-phase supply) as specified. Following fan shall have 15 mmwc static pressure.						
a)*	Capacity 15,000 CMH with Motor rating 2.2 KW	5	Nos.*				
b)*	Capacity 10,000 CMH with Motor rating 1.5 KW	8	Nos.*				
c)*	Capacity 7,500 CMH with Motor rating 1.1 KW	6	Nos.*				
d)*	Capacity 4,000 CMH with Motor rating 0.55 KW	4	Nos.*				
e)*	Capacity 2,000 CMH with Motor rating 0.55 KW	4	Nos.*				
9*	Axial flow exhaust fans (Wall mounted) complete with casing, TEFC sq cage induction motor & mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted (suitable for 415V/3-phase supply) as specified. Following fan shall have 10 mmwc static pressure.						
a)*	Capacity 15,000 CMH with Motor rating 1.1 KW	12	Nos.*				

SUGGESTED PRICE FORMAT ANNEXURE - I PRICE BREAKUP (FOR MAIN PLANT, ESP AND OTHER AUX BUILDINGS)							Doc No	PE-PF-412-554-A001	
							Rev No	2	
							Date of issue	07-Apr-17	
NAME OF PROJECT				2x660 MW ENNORE SEZ POWER PROJECT					
NAME OF PACKAGE				VENTILATION SYSTEM					
TECHNICAL SPECIFICATION No				PE-TS-412-554-A001					
SL NO	DESCRIPTION	Qty	Unit	SUPPLY		ERECTION AND COMMISSIONING			
				AMOUNT (Ex-Works)		AMOUNT (Ex-Works)			
b)*	Capacity 10,000 CMH with Motor rating 0.75 KW	5	Nos.*						
c)*	Capacity 7,500 CMH with Motor rating 0.55 KW	4	Nos.*						
d)*	Capacity 6,000 CMH with Motor rating 0.55 KW	20	Nos.*						
e)*	Capacity 4,000 CMH with Motor rating 0.55 KW	5	Nos.*						
f)*	Capacity 2,000 CMH with Motor rating 0.37 KW	5	Nos.*						
10*	Exhaust fan (propeller type) completes with induction motor & mounting frame MS rain protection cowl, bird screen and all other accessories as specified (suitable for 240V/ 1 phase). Following fan shall have 5 mmwc static pressure.								
a)*	Capacity 1200 CMH with Motor rating 100 watts	130	Nos.*						
11*	Handling arrangement for Ventilation equipments								
(a)*	Manually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m	2	NO*						
(b)*	1T Chain pulley block with travelling trolley	4	NO*						
12	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-As per Appendix A).	1	LOT			NA	NA		
13	Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up-As per Appendix B).	1	LOT			NA	NA		
14	FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, differential pressure switch, velocity sensor/static pressure sensor, flow switch and other instrument required for Ventilation System etc.	1	LOT						
15	Any other item not indicated above, but required to make the system complete in all respects.	1	LOT						

NOTES

1 The bidder shall furnish unit rates for variable item (marked *) 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.

Particulars of bidder / authorised representative					
		Name	Designation	Signature	Date
					Company Seal

SUGGESTED PRICE FORMAT APPENDIX-A Special tools tackles for maintenance				Doc No		PE-PF-412-554-A001
				Rev No		2
				Date of issue		07-Apr-17
NAME OF PROJECT			2x660 MW ENNORE SEZ POWER PROJECT			
NAME OF PACKAGE			VENTILATION SYSTEM			
TECHNICAL SPECIFICATION No			PE-TS-412-554-A001			
SL NO	DESCRIPTION	UNIT	Qty	AMOUNT (Ex-Works)		
1	Measuring tape	NO	1			
2	Tachometer	NO	1			
3	Double ended spanner	SET	1			
4	Ring spanners	SET	1			
5	Gasket punch	NO.	1			
6	Center punch	NO.	1			
7	Hammer with wooden handles	NO.	1			
8	Scissors for sheet metal cutting	NO.	1			
9	Torch light (suitable for 2 cells)	NO.	1			
10	Multimeter	NO.	1			
11	Anemometer	NO.	1			
12	Compound pressure gauge	NO.	1			
13	Slide wrench 8"	NO.	1			
14	Slide wrench 10"	NO.	1			
15	Slide wrench 6"	NO.	1			
16	Box spanner set	SET	1			
17	Screw driver set	SET	1			
18	Align key set	SET	1			
19	MS tool box	NO	1			
NOTES						
1	ABOVE IS THE MINIMUM LIST. ANY OTHER TOOL / TACKEL REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION.					
Particulars of bidder / authorised representative						
	Name	Designation	Signature	Date	Company Seal	

SUGGESTED PRICE FORMAT
APPENDIX-B
Commissioning spares

Doc No	PE-PF-412-554-A001
Rev No	2
Date of issue	07-Apr-17

NAME OF PROJECT	2x660 MW ENNORE SEZ POWER PROJECT
NAME OF PACKAGE	VENTILATION SYSTEM
TECHNICAL SPECIFICATION No	PE-TS-412-554-A001

SL NO	DESCRIPTION	UNIT	Qty	AMOUNT (Ex-Works)	
1	FAN BELTS	SET	1		
2	PRESSURE GAUGE	NO	1		
3	TEMPERATURE GAUGE	NO	1		
4	FILTER	SET	1		

NOTES	
1	ABOVE IS THE MINIMUM LIST. ANY OTHER COMMISSIONING SPARE REQUIRED FOR THE SYSTEM SHALL ALSO BE

Particulars of bidder / authorised representative

	Name	Designation	Signature	Date	Company Seal

SUGGESTED PRICE FORMAT ANNEXURE - II LIST OF MANDATORY SPARES		Doc No:		PE-PF-412-554-A001		
		Rev No:		2		
		Date of issue		07-Apr-17		
NAME OF PROJECT						
NAME OF PACKAGE		VENTILATION SYSTEM				
TECHNICAL SPECIFICATION No		PE-TS-412-554-A001				
S. No.	Description	UNIT	Qty	AMOUNT (Ex-Works)		
A	MECHANICAL AND GENERAL					
1	CENTRIFUGAL FANS					
1.1	V-BELTS	2 SETS OF EACH TYPE				
1.2	BLOWER BEARING SETS	2 SETS OF EACH TYPE				
1.3	BLOWER MOTOR BEARINGS	2 SETS OF EACH TYPE				
1.4	SEAL GASKET AND OTHER WEAR OUT PARTS IN SETS	2 SETS OF EACH TYPE				
1.5	VIBRATION ISOLATORS	2 SETS OF EACH TYPE				
2.	AXIAL FANS					
2.1	FAN BEARINGS	2 SETS OF EACH TYPE				
2.2	FAN MOTOR BEARING	2 SETS OF EACH TYPE				
2.3	DRY FILTERS	2 SETS OF EACH TYPE AND SIZE				
3	AIR WASHER SYSTEM					
3.1	WATER STRAINERS	2 SETS OF EACH SIZE				
3.2	SPRAY NOZZLES	2 SETS OF EACH SIZE				
3.3	WATER REPELLANT TYPE FILTERS	2 SETS OF EACH SIZE				
4	HORIZONTAL CENTRIFUGAL PUMP					
4.1	IMPELLER FOR EACH OF PUMP SET	2 SETS OF EACH TYPE				
4.2	BEARINGS	2 SETS OF EACH TYPE				
4.3	SHAFT SLEEVES	2 SETS OF EACH TYPE				
4.4	BEARINGS MOTOR	2 SETS OF EACH TYPE				
B	ELECTRICAL					
1	Terminal plates					
a	For motors upto 30 KW	10 NOS. EACH FOR SMALL MOTORS UPTO 30 KW				
b	For motors above 30 KW	4 NOS. EACH FOR MORE THAN 30 KW				
2	Heaters	2 SETS				
3	Greasing arrangements	4 SETS OF EACH TYPE OF MOTOR.				
4	Motor of each type and rating	10% OF THE INSTALLED QUANTITY OR MINIMUM 1 NUMBER WHICHEVER BE HIGHER				
5	Bearings (DE and NDE) for each type and rating of motor	4 SETS				
C	CONTROL AND INSTRUMENTATION					
	Each type of lamps, PBs, ILPBs, fuse, MCB, MCCB used in the equipment/system.	20% OF QTY INSTALLED.				
a)	Measuring Instruments					
1	Indicators, Recorders, Electrical Metering and Skid Mounted Instruments	20% OF INSTALLED OF EACH TYPE.				
1.1	Indicators, recorders and meters offered from each model for the project. These instruments shall be supplied with three sets of blank scales.	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE				
1.2	For skid mounted instruments	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE				
2	Temperature Elements and Thermowells					
2.1	Thermocouple/RTD elements	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE				
2.2	Thermowells	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE				
3	Temperature Transmitters and Electronic Transmitters (For Pressure, DP, Temp, Flow, Level), Temperature, Pressure, Flow & Level Switch, safety switches, Gauges, meters, Transducer or any other instrument etc.	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE				
b)	Relay based Control Panels					

SUGGESTED PRICE FORMAT ANNEXURE - II LIST OF MANDATORY SPARES		Doc No:	PE-PF-412-554-A001			
		Rev No:	2			
		Date of issue	07-Apr-17			
NAME OF PROJECT						
NAME OF PACKAGE		VENTILATION SYSTEM				
TECHNICAL SPECIFICATION No		PE-TS-412-554-A001				
1	LEDs for indicating lights	10% OF QTY INSTALLED.				
2	Control circuit fuses/MCB/MCCB/ Semiconductor Fuses	300% OF INSTALLED OF EACH TYPE, CURRENT RATING.				
3	Relays modules & contactors.	20% SPARE OF QTY INSTALLED OF EACH TYPE & RATING				
c)	Alarm Annunciation System					
1	logic modules, group card modules, power supply modules, Hooters and any other electronic module.	20% SPARES OF EACH TYPE INSTALLED				
2	un-engraved window boxes complete with LED etc.	5% SPARES OF EACH TYPE INSTALLED				
3	LEDs for annunciation facia windows and LEDs box assemblies offered for the project	20% OF QTY INSTALLED				
4	Annunciator hooter	ONE (1) NO. OF EACH TYPE				
d)	Erection hardware					
1	Instrument valves	10% OF EACH TYPE & SIZE INSTALLED				
2	Condensate pots of each type & Size installed	10% OF TOTAL NUMBER OF INSTALLED OR FOUR NUMBERS WHICHEVER IS HIGHER .				
3	Manifold	10% OF EACH TYPE & SIZE INSTALLED				
4	Fittings	10% OF EACH TYPE & SIZE INSTALLED				
e)	Mandatory Spares for Control valves, Power Cylinder, Control Dampers, Actuators and Accessories					
1	Following spares shall be furnished for control valves, Power Cylinder, Control Dampers as applicable.					
2	One set of spare control valve stem packing for each control valve.					
3	Two moulded rubber diaphragms for each control valve.					
4	One sets of each of O-rings and rubber gaskets for each control valve.					
5	100 percent qty. of lubricants for gaskets for each control valve on one year consumption basis.					
6	2 sets of limit switches and 1 set of valve positioner for each control valve.					
7	20 percent of position transmitter (4-20mA) for total qty. of control valve.					
8	One (1) set of valve trims (such as plug, stem, seat ring /cage, guide bushing, stem lock pin, packing retaining ring, etc) for each control valve.					
9	One completes actuator of each type or min 10% for each type and size whichever is more.					
10	20 percent of Solenoid valves or min 2 no. of each type for total qty. of control valves.					
11	20% of I to P converters, Pressure regulators.					
f)	Mandatory spares not covered above					
	Bidder to supply 10% or 1 no. (whichever is more) of each type of sensor/instrument, instrumentation/mechanical fittings etc for any other electronic system, feeder control cabinets, hydrastep (EWLI), Vibration Monitoring System, CCTV, C&I Lab Instruments, On line Carbon in Ash analyser system, On line Coal mass flow/speed measurement system, On line secondary air flow measurement system Mass Flow meter, Solid flow meter, 3 D Acoustic type level transmitters, Nucleonic & non nucleonic density transmitter etc.					

Note: Mandatory spares listed above is bare minimum requirement. In case any additional mandatory spares requirement is covered elsewhere in the tender specification apart from specified above, same shall be deemed to have been covered in bidders scope of supply.

Particulars of bidder / authorised representative					
	Name	Designation	Signature	Date	Company Seal

SUGGESTED PRICE FORMAT ANNEXURE - III Guaranteed Power Consumption For Ventilation System					Doc No:	PE-PF-412-554-A001
					Rev No:	2
					Date of issue	07-Apr-17
NAME OF PROJECT		2x660 MW ENnore SEZ POWER PROJECT				
NAME OF PACKAGE		VENTILATION SYSTEM				
TECHNICAL SPECIFICATION No		PE-TS-412-554-A001				
S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL (IN	DUTY FACTOR	TOTAL KW
		WORKIN	STANDBY			
		3A	3B	4	5	6=3Ax4x5
1	VENTILATION SYSTEM FOR TG BUILDING					
1.1	Centrifugal Fan of cap. 83, 500 CMH at 75 mmwc static pr for air Washers.	24	0		1	
1.2	Pumps for circulation of water in spray chamber of above air washer	8	8		1	
1.3	RE Units 50,000 cmh at 15mmwc	28	0		1	
2	VENTILATION SYSTEM FOR ESP BUILDING					
2.1	Centrifugal Fan of cap. 75,000 CMH at 75	2	0		1	
2.2	Pump for above UAF.	2	2		1	
				TOTAL (KW)		1050
Note:	Estimated power consumption (EPC) figure for the system (for working drives only) has been considered as 1050 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. 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.					
Particulars of bidder / authorised representative						
Name	Designation	Signature	DATE	Company Seal		



**VENTILATION SYSTEM
LIST OF MAKES OF SUB-VENDOR ITEMS**

ADDENDUM No. 1

APPENDIX B

LIST OF MAKES OF SUB-VENDOR ITEMS



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

SL No	ITEM	VENDOR
1	AIR WASHER & UAF*	HYDERABAD POLUTION CONTROL
		SK SYSTEM
		ADVANCE VENTILATION
		DRAFT AIR
		BLUE STAR
		VOLTAS
		STERLING WILSON
		ROOTS COOLING SYSTEM
		C DOCTOR
		TAP
		Pack Plast
		Industrial projects and products
2	CENTRIFUGAL FAN	FLAKT
		KRUGER
		DRAFT AIR
		HYDERABAD POLUTION CONTROL
		ADVANCE VENTILATION
		PATEL AIR
		NICOTRA
		SK SYSTEM
		MARATHON
		CB DOCTOR
		SARLA
		Comefri
3	FRESH AIR/ SUPPLY/ EXHAUST/ RE UNIT FANS / PROPELLAR	HYDERABAD POLUTION CONTROL
		SK SYSTEM
		ADVANCE VENTILATION
		KRUGER
		NICOTRA
		MARATHON
		FLAKT
		CB DOCTOR
		SARLA (SITAL)
		PATEL AIR
		KHAITAN
4	PUMPS	BEST & CROMPTON
		JYOTI
		SAM TURBO
		KBL
		KSB



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		M&P
		VOLTAS
		BEACON-WEIR
		WORTHINGTON
		Flowmore
		SULZER PUMPS INDIA LTD.
		BHARAT PUMPS & COMPRESSORS LTD
		FLOWSERVE INDIA CONTROL PVT LTD
		V-FLOW PUMPS & SYSTEMS CO
		Kishore pumps
5	LV MOTORS (FLAME PROOF)	SIEMENS
		ABB
		CGL
		MARATHON
		KEC
		BHARAT BIJLEE
		BHARAT ELECTRIC
		NGEF
		JYOTI
		LHP
6	LV MOTORS (NON FLAME PROOF)	SIEMENS
		ABB
		CGL
		MARATHON
		KEC
		BHARAT BIJLEE
		BHARAT ELECTRIC
		NGEF
		JYOTI
		LHP
7	AIR FILTER	PUROLATOR
		FMI
		ANFILCO
		TENACITY
		JOHN FOWLER
		SPECTRUM
		AIR TECH
		PUROMATIC
8	INSULTATION MATERIAL	BEARDSHEL
		K-FLEX
		PARAMONT
		ARMAFLEX
		SUPREME



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		LLOYDS
		UP TWIGA
		AEROCELL
9	FIRE DAMPER	TSC
		CARRYAIRE
		RAVISTAR (SYSTEM AIR)
11	BUTTERFLY VALVES	Audco
		Fouress Engg
		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
12	NON RETURN VALVE	Leader Valves
		H SARKAR
		Fluidline
		HI-TECH
		CRESCENT VALVES
		A V VALVES
		Bankim
		SHIVADURGA
		SURYA VALVES AND INSTRUMENT MANUFACTURING
		ATAM VALVES
		GM DAULI & SONS
		KBL
		VENUS PUMPS AND ENGINEERING WORKS
13	STEEL GATE/GLOBE/NR VALVES(WATER SYSTEM)	CRESCENT VALVES
		BDK
		Audco
		Fouress Engg
		KIRLOSKAR BROTHERS LTD.
		SANT VALVES



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		BOMBAY METAL & ALLOYS
		Bankim
		Leader Valves
		H SARKAR
		AV Valves
		VENUS PUMPS
14	STEEL GATE/GLOBE/NR VALVES(WATER SYSTEM)	Fluidline
		HI –TECH
		SHIVADURGA
		SURYA VALVES AND INSTRUMENT MANUFACTURING
		ATAM VALVES
		GM DAULI & SONS
		KBL
15	Pipes (MS/GI) - ERW	SURYA ROSHNI
		TISCO
		DADU PIPES
		INDUS TUBES
		WELSPUN
		TATA
		BST
		JINDAL
		SAIL
		PSL
		LALIT PROFILE
		SAMSHI PIPE INDUSTRIES
		S 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
16	GI SHEETS FOR DUCTING	TISCO
		INDIAN IRON & STEEL CO
		RASHTRIYA ISPAT NIGAM LIMITED
		ESSAR
		ISPAT INDUSTRIES



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		JSW
		LLOYDS
		Bhushan steels
		TATA
		SAIL
		JINDAL
17	GRILL/DIFFUSER/VOLUME CONTROL DAMPER	AIR FLOW
		TSC
		AIR MASTER
		CARRYAIRE
		RAVISTAR (SYSTEM AIR)
18	HUMID STAT	JHONSON CONTROL
		HONEYWELL AUTOMATION
		PENN
19	PRESSURE/ DIFF. PRESSURE GAUGE	General Instrument Consortium
		Bells Controls Ltd
		H. GURU IND
		WAAREE INSTRUMENTS
		H. GURU INST
		Forbes Marshall
		Manometer India
		A. N Instrument
		Gauges Bourdon
		GLUCK INDIA
		WIKI.
		ASHCROFT INDIA PVT LTD.
		Baumer Technologies India Pvt. Ltd.
		PRECISION MASS PRODUCTS
		BOSE PANDA INSTRUMENTS PVT.LTD.
20	TEMPERATURE GAUGE	H. GURU IND
		H. GURU INST
		Forbes Marshall
		DETRIVE INST & ELECTRONICS
		PYRO ELECTRIC
		TOSHNIWAL
		BROSS
		WAREE INSTRUMENTS
		A. N Instrument
		GOA INSTRUMENTS
		WIKI
		ASHCROFT INDIA PVT LTD.
		H. GURU IND
		Baumer Technologies India Pvt. Ltd.



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		GOA THERMOSTATIC
		Gauges Bourdon
		BUDENBERG GAUGE
		PRECISION MASS PRODUCTS
21	LEVEL INDICATOR	General Instrument Consortium
		CHEMTROL
		SBEM
		AUTOMAT MUMBAI
		SIGMA
		TOSHNIWAL
		TECHNOMATIC
		TELACO
		LEVCON
		D K INSTRUMENTS
		PUNE TECHTROL
		FLOW STAR
		BLISS ANAND
22	PRESSURE/ DP/ VACUUM/ TEMPERATURE SWITCH	Bells Controls Ltd
		DANFOSS
		DK INSTRUMENTS
		DRESSER
		SOR INC
		VASU
		Switzer Instrument Ltd.
		INDFOSS
		TRAFAG
		GIC
		ASHCROFT INDIA PVT LTD.
		KASTURBA UDYOG
		Barksdale GmbH
		PRECISION MASS PRODUCTS
		MITTAL REFRIGERATION
23	LEVEL SWITCH-FLOAT TYPE	SBEM
		BLISS ANAND
		HI-TECH
		RAMAN INST
		SIGMA
		SOR INC
		WAREE INST
		LEVCON
		DK INSTRUMENTS
		V AUTOMAT
		CHEMTROL



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		SIEMENS
		FLOW STAR
		TRAC
		FLOW TECH
		NIVO CONTROLS
		PUNE TECHTROL
		SAPCON INSTRUMENT
		Baumer Technologies India Pvt. Ltd.
		GIC
24	LEVEL SWITCH- CAPACITANCE TYPE	SBEM
		BLISS ANAND
		HI-TECH
		RAMAN INST
		SIGMA
		SOR INC
		WAREE INST
		LEVCON
		DK INSTRUMENTS
		V AUTOMAT
		CHEMTROL
		SIEMENS
		FLOW STAR
		TRAC
		FLOW TECH
		NIVO CONTROLS
		PUNE TECHTROL
		SAPCON INSTRUMENT
		Baumer Technologies India Pvt. Ltd.
		GIC
25	Y / POT STRAINER	MULTITEX
		GREAVES COTTON
		JAYPEE
		SANT VALVES
		OTOKLIN
		GRAND PRIX
		GUJARAT OTOLIFT
		DS ENGG
		SAROJINI ENTERPRISE
		BHATIA ENGINEERING
		FILTRATION ENGINEERS INDIA PVT LTD
		SUNGOV ENGINEERING
26	LOCAL CONTROL PANEL	INDUSTRIAL CONTROL & APPLIANCE
		Pyrotech Electronics Pvt. Ltd.



VENTILATION SYSTEM LIST OF MAKES OF SUB-VENDOR ITEMS

		Positronics Pvt. Ltd.
		CONTROL & SWITCHGEAR
		SIEMENS
		L&T
		GE POWER
		RITTAL
		HOFFMAN

NOTES:

1. *Designed by Hyderabad Pollution Control / SK SYSTEM/ ADVANCE VENTILATION / DRAFT AIR/BLUE STAR/ VOLTAS/ STERLING WILSON/ROOTS COOLING SYSTEM/ C DOCTOR/ TAP/ Pack Plast/ Industrial projects and products & fabricated by their approved fabricator.
2. THE SUB VENDOR LIST ABOVE IS INDICATIVE ONLY AND IS SUBJECT TO BHEL AND CUSTOMER APPROVAL DURING DETAILED ENGINEERING STAGE WITHOUT ANY COMMERCIAL & DELIVERY IMPLICATION TO BHEL. BIDDER TO PROPOSE SUB VENDOR WITHIN 4 WEEKS OF PLACEMENT OF LOI. THEREAFTER NO REQUEST FOR ADDITIONAL SUB-VENDOR SHALL BE ENTERTAINED.
3. THE INSPECTION CATEGORY WILL BE INTIMATED AFTER AWARD OF CONTRACT BY BHEL/CUSTOMER. HOWEVER THE SAME WILL BE ADHERED BY THE BIDDER WITHOUT ANY COMMERCIAL AND DELIVERY IMPLICATION TO BHEL/ CUSTOMER.

PRICE FORMAT Rev02 (For Indian Bidders)

Enquiry Number		PE/PG/EN1/E-5490/2016											
NAME OF PROJECT:		2x660 MW ENNORE SEZ POWER PROJECT											
NAME OF PACKAGE:		VENTILATION SYSTEM											
TECHNICAL SPECIFICATION No:		PE-TS-412-554-A001 Rev (1) and addendum 01											
S. No.	Description	UNIT	Qty	Price for Supply portion				Price for SERVICES portion			Grand TOTAL		
				Total ex-works price (INR)	ED including cess @...% (for self manufactured items only) (INR)	CST @% Against C-form & E1/E2 or VAT @....% Whichever is applicable (INR)	FREIGHT CHARGES INCLUDING SERVICE TAX) @.....% OF TOTAL EX-WORKS (INR)	TOTAL FOR site price SUPPLY (INR)	Total price for Services (INR)	Service Tax@ ... % (INR)		TOTAL PRICE (For Services including Service tax) (INR)	Total Price Supply FOR site and Services including service tax (INR)
				1	2	3	4	5=1+2+3+4	6	7		8=6+7	9=5+8
1	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part, Services part and Mandatory spares comprising of design (i.e.preparation and submission of drawing /documents including rAs Built drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles fill of lubricants & consumables, mandatory spares alongwith spares for erection, startup and commissioning as required, forwarding, proper packing, shipment and delivery at site, unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site, preperation of layout drawings 3D (as applicable) and carrying out Performance guarantee / Functional / Demonstration tests at site, training of customer/client O&M staff and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order.	Lot	1										
2	MAJOR BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE.												
2.1	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part comprising of design (i.e.preparation and submission of drawing /documents including rAs Built drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, fill of lubricants & consumables alongwith spares for erection as required, startup and commissioning spares as required, forwarding, proper packing, shipment and delivery at site, preperation of layout drawings 3D (as applicable) for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-I)	Lot	1								NA		
2.2	Total lumpsum firm prices inclusive of all prevailing taxes, duties and other levies for Services part comprising of service part for unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site and carrying out Performance guarantee / Functional / Demonstration tests at site, training of customer/client O&M staff and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-I)	Lot	1			NA							
2.3	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for Mandatory spares comprising of manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, forwarding, proper packing, shipment, delivery at site & guarantee as per tender technical specification above, amendment & agreements till placement of order. (Price break up of mandatory spares is to be furnished as per Annexure- II)	Lot	1								NA		
Note: 1. Bidder to quote Guaranteed Power Consumption for Ventilation System as per Annexure-III. 2. Evaluation shall be done one the basis of total lump sump prices for complete supply and services. Total price indicated above at Column (9) minus service tax quoted at Column (7) of 1.0 shall be considered for evaluation & hence must be completed in all respect for the full scope defined & considering all terms and conditions agreed. Further Swachh Bharat Cess i.e.0.5% of Service tax rate is not cenvatable. Hence, this 0.5% component of cess shall be considered for Evaluation.													
Particulars of bidder / authorised representative													
Name		Designation		Signature		Date		Company Seal					

ANNEXURE - I

ENQUIRY NUMBER	PE/PG/EN1/E-5490/2016
NAME OF PROJECT:	2x660 MW ENNORE SEZ POWER PROJECT
NAME OF PACKAGE:	VENTILATION SYSTEM
TECHNICAL SPECIFICATION No:	PE-TS-412-554-A001 and addendum No. 1

[illegible]

[illegible]

PRICE BREAKUP (FOR MAIN PLANT, ESP AND OTHER AUX BUILDINGS)

ENQUIRY NUMBER		PE/PG/EN1/E-5490/2016													
NAME OF PROJECT:		2x660 MW ENNORE SEZ POWER PROJECT													
NAME OF PACKAGE:		VENTILATION SYSTEM													
TECHNICAL SPECIFICATION No:		PE-TS-412-554-A001 and addendum No. 1													
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Qty	UNIT	PRICE FOR SUPPLY PORTION						PRICE FOR SERVICES PORTION				GRAND TOTAL	
				Unit Ex-works Price (Rs)	Total ex-works price (Rs)	ED including cess @...% (for self manufactured items only) (INR)	CST @% Against C-form & E1/E2 or VAT @% Whichever is applicable (INR)	FREIGHT CHARGES INCLUDING SERVICE TAX) @% OF TOTAL EX-WORKS (INR)	TOTAL FOR site price SUPPLY (Rs)	Unit Price (Rs)	Total price (Rs)	Service Tax@ ... % (Rs)	TOTAL PRICE (Erection and commissioning including Service tax)		Total Price Supply FOR site and E&C including service tax (Rs)
(b)*	1T Chain pulley block with travelling trolley	2	NO*												
12	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-As per Appendix A).	4	NO*												
13	Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up-As per Appendix B).	1	LOT								NA				
14	FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, differential pressure switch, velocity sensor/static pressure sensor, flow switch and other instrument required for Ventilation System etc.	1	LOT								NA				
15	Any other item not indicated above, but required to make the system complete in all respects.	1	LOT												
NOTES															
1 The bidder shall furnish unit rates for variable item (marked *) 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.															
Particulars of bidder / authorised representative															
Name	Designation	Signature				Date				Company Seal					

PRICE FORMAT REV02 (Indian Vendors)
APPENDIX-A
Special tools & tackles for maintenance

NAME OF PROJECT:	2x660 MW ENNORE SEZ POWER PROJECT
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NAME OF PACKAGE:	VENTILATION SYSTEM
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TECHNICAL SPECIFICATION No:	PE-TS-412-554-A001 and addendum No. 1
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SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Unit	Qty	SUPPLY	
				Unit Price (Rs)	Total price (Rs)
1	Measuring tape	NO	1		
2	Tachometer	NO	1		
3	Double ended spanner	SET	1		
4	Ring spanners	SET	1		
5	Gasket punch	NO.	1		
6	Center punch	NO.	1		
7	Hammer with wooden handles	NO.	1		
8	Scissors for sheet metal cutting	NO.	1		
9	Torch light (suitable for 2 cells)	NO.	1		
10	Multimeter	NO.	1		
11	Anemometer	NO.	1		
12	Compound pressure gauge	NO.	1		
13	Slide wrench 8ø	NO.	1		
14	Slide wrench 10ø	NO.	1		
15	Slide wrench 6ø	NO.	1		
16	Box spanner set	SET	1		
17	Screw driver set	SET	1		
18	Align key set	SET	1		
19	MS tool box	NO	1		

NOTES	
1	ABOVE IS THE MINIMUM LIST. ANY OTHER TOOL / TACKEL REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION.

Particulars of bidder / authorised representative				
Name	Designation	Signature	DATE	Company Seal

PRICE FORMAT REV02 (Indian Vendors)

APPENDIX-B

Commissioning spares

NAME OF PROJECT:			2x660 MW ENNORE SEZ POWER PROJECT		
NAME OF PACKAGE:			VENTILATION SYSTEM		
TECHNICAL SPECIFICATION No:			PE-TS-412-554-A001 and addendum no. 1		
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Unit	Qty	SUPPLY	
				Unit Price (Rs)	Total price (Rs)
1	FAN BELTS	SET	1		
2	PRESSURE GAUGE	NO	1		
3	TEMPERATURE GAUGE	NO	1		
4	FILTER	SET	1		
NOTES					
1	ABOVE IS THE MINIMUM LIST. ANY OTHER COMMISSIONING SPARE REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION.				
Particulars of bidder / authorised representative					
Name	Designation	Signature	DATE	Company Seal	

PRICE FORMAT REV02 (Indian Vendors) ANNEXURE - II								
LIST OF MANDATORY SPARES								
ENQUIRY NUMBER			PE/PG/EN1/E-5490/2016					
NAME OF PROJECT:			2x660 MW ENNORE SEZ POWER PROJECT					
NAME OF PACKAGE:			VENTILATION SYSTEM					
TECHNICAL SPECIFICATION No:			PE-TS-412-554-A001 and addendum no. 1					
S. No.	Description	QTY	PRICE FOR SUPPLY					
			Unit Ex-works Price (Rs)	Total ex-works price (Rs)	ED including cess @...% (for self manufactured items only) (INR)	CST @% Against C-form & E1/E2 or VAT @.....% Whichever is applicable (INR)	FREIGHT CHARGES INCLUDIN G SERVICE TAX) @% OF TOTAL EX-WORKS (INR)	TOTAL FOR site price SUPPLY (Rs)
A	MECHANICAL AND GENERAL		1	2	3	4	5	6=2+3+4+5
1	CENTRIFUGAL FANS							
1.1	V-BELTS	2 SETS OF EACH TYPE						
1.2	BLOWER BEARING SETS	2 SETS OF EACH TYPE						
1.3	BLOWER MOTOR BEARINGS	2 SETS OF EACH TYPE						
1.4	SEAL GASKET AND OTHER WEAR OUT PARTS IN SETS	2 SETS OF EACH TYPE						
1.5	VIBRATION ISOLATORS	2 SETS OF EACH TYPE						
2.	AXIAL FANS							
2.1	FAN BEARINGS	2 SETS OF EACH TYPE						
2.2	FAN MOTOR BEARING	2 SETS OF EACH TYPE						
2.3	DRY FILTERS	2 SETS OF EACH TYPE AND SIZE						
3	AIR WASHER SYSTEM							
3.1	WATER STRAINERS	2 SETS OF EACH SIZE						
3.2	SPRAY NOZZLES	2 SETS OF EACH SIZE						
3.3	WATER REPELLANT TYPE FILTERS	2 SETS OF EACH SIZE						
4	HORIZONTAL CENTRIFUGAL PUMP							
4.1	IMPELLER FOR EACH OF PUMP SET	2 SETS OF EACH TYPE						
4.2	BEARINGS	2 SETS OF EACH TYPE						
4.3	SHAFT SLEEVES	2 SETS OF EACH TYPE						
4.4	BEARINGS MOTOR	2 SETS OF EACH TYPE						
B	ELECTRICAL							
1	Terminal plates							
a	For motors upto 30 KW	10 NOS. EACH FOR SMALL MOTORS UPTO 30 KW						
b	For motors above 30 KW	4 NOS. EACH FOR MORE THAN 30 KW						
2	Heaters	2 SETS						
3	Greasing arrangements	4 SETS OF EACH TYPE OF MOTOR.						
4	Motor of each type and rating	10% OF THE INSTALLED QUANTITY OR MINIMUM 1 NUMBER WHICHEVER BE HIGHER						
5	Bearings (DE and NDE) for each type and rating of motor	4 SETS						
C	CONTROL AND INSTRUMENTATION							
	Each type of lamps, PBs, ILPBs, fuse, MCB, MCCB used in the equipment/system.	20% OF QTY INSTALLED.						
a)	Measuring Instruments							
1	Indicators, Recorders, Electrical Metering and Skid Mounted Instruments	20% OF INSTALLED OF EACH TYPE.						
1.1	Indicators, recorders and meters offered from each model for the project. These instruments shall be supplied with three sets of blank scales.	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE						
1.2	For skid mounted instruments	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE						
2	Temperature Elements and Thermowells							
2.1	Thermocouple/RTD elements	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE						
2.2	Thermowells	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE						
3	Temperature Transmitters and Electronic Transmitters (For Pressure, DP, Temp, Flow, Level), Temperature, Pressure, Flow & Level Switch, safety switches, Gauges, meters, Transducer or any other instrument etc.	10% OF INSTALLED OF EACH TYPE/MODEL OR A MINIMUM OF ONE NUMBER FOR EACH MODEL AND TYPE, WHICHEVER IS MORE						
b)	Relay based Control Panels							
1	LEDs for indicating lights	10% OF QTY INSTALLED.						
2	Control circuit fuses/MCB/MCCB/ Semiconductor Fuses	300% OF INSTALLED OF EACH TYPE, CURRENT RATING.						
3	Relays modules & contactors.	20% SPARE OF QTY INSTALLED OF EACH TYPE & RATING						
c)	Alarm Annunciation System							

PRICE FORMAT REV02 (Indian Vendors)									
ANNEXURE - II									
1	logic modules, group card modules, power supply modules, Hooters and any other electronic module.	20% SPARES OF EACH TYPE INSTALLED							
2	un-engraved window boxes complete with LED etc.	5% SPARES OF EACH TYPE INSTALLED							
3	LEDs for annunciation facia windows and LEDs box assemblies offered for the project	20% OF QTY INSTALLED							
4	Annunciator hooter	ONE (1) NO. OF EACH TYPE							
d)	Erection hardware								
1	Instrument valves	10% OF EACH TYPE & SIZE INSTALLED							
2	Condensate pots of each type & Size installed	10% OF TOTAL NUMBER OF INSTALLED OR FOUR NUMBERS WHICHEVER IS HIGHER.							
3	Manifold	10% OF EACH TYPE & SIZE INSTALLED							
4	Fittings	10% OF EACH TYPE & SIZE INSTALLED							
e)	Mandatory Spares for Control valves, Power Cylinder, Control Dampers, Actuators and Accessories								
1	Following spares shall be furnished for control valves, Power Cylinder, Control Dampers as applicable.								
2	One set of spare control valve stem packing for each control valve.								
3	Two moulded rubber diaphragms for each control valve.								
4	One sets of each of O-rings and rubber gaskets for each control valve.								
5	100 percent qty. of lubricants for gaskets for each control valve on one year consumption basis.								
6	2 sets of limit switches and 1 set of valve positioner for each control valve.								
7	20 percent of position transmitter (4-20mA) for total qty. of control valve.								
8	One (1) set of valve trims (such as plug, stem, seat ring /cage, guide bushing, stem lock pin, packing retaining ring, etc) for each control valve.								
9	One completes actuator of each type or min 10% for each type and size whichever is more.								
10	20 percent of Solenoid valves or min 2 no. of each type for total qty. of control valves.								
11	20% of I to P converters, Pressure regulators.								
f)	Mandatory spares not covered above								
	bidder to supply 10% or 1 no. (whichever is more) of each type of sensor/instrument, instrumentation/mechanical fittings etc for any other electronic system, feeder control cabinets, hydrastep (EWLI), Vibration Monitoring System, CCTV, C&I Lab Instruments, On line Carbon in Ash analyser system, On line Coal mass flow/speed measurement system, On line secondary air flow measurement system Mass Flow meter, Solid flow meter, 3 D Acoustic type level transmitters, Nucleonic & non nucleonic density transmitter etc.								
Note: Mandatory spares listed above is bare minimum requirement. In case any additional mandatory spares requirement is covered elsewhere in the tender specification as specified above, same shall be deemed to have been covered in bidders scope of supply.									
Particulars of bidder / authorised representative									
Name	Designation	Signature	Date						

PRICE FORMAT REV 02 (FOR INDIAN BIDDERS)
ANNEXURE - III

Guaranteed Power Consumption For Ventilation System						
NAME OF PROJECT:			2x660 MW ENNORE SEZ POWER PROJECT			
NAME OF PACKAGE:			VENTILATION SYSTEM			
TECHNICAL SPECIFICATION No:			PE-TS-412-554-A001 and addendum no. 1			
S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT	DUTY FACTOR	TOTAL KW
		WORKING	STANDBY			
		3A	3B	4	5	6=3Ax4x5
1	VENTILATION SYSTEM FOR TG BUILDING					
1.1	Centrifugal Fan of cap. 83, 500 CMH at 75 mmwc	24	0		1	
1.2	Pumps for circulation of water in spray chamber of above air washer	8	8		1	
1.3	RE Units 50,000 cmh at 15mmwc	28	0		1	
2	VENTILATION SYSTEM FOR ESP BUILDING					
2.1	Centrifugal Fan of cap. 75,000 CMH at 75 mmwc	2	0		1	
2.2	Pump for above UAF.	2	2		1	
				TOTAL (KW)		1050

Note: Estimated power consumption (EPC) figure for the system (for working drives only) has been considered as **1050 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.

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.

Particulars of bidder / authorised representative				
Name	Designation	Signature	DATE	Company Seal

PRICE FORMAT REV01 (For Foreign Bidders)
ANNEXURE - I
PRICE BREAKUP (FOR MAIN PLANT, ESP AND OTHER AUX BUILDINGS)

[illegible]

PRICE BREAKUP (FOR MAIN PLANT, ESP AND OTHER AUX BUILDINGS)

ENQUIRY NUMBER				PE/PG/EN1/E-5490/2016																	
NAME OF PROJECT:				2x660 MW ENNORE SEZ POWER PROJECT																	
NAME OF PACKAGE:				VENTILATION SYSTEM																	
TECHNICAL SPECIFICATION No:				PE-TS-412-554-A001																	
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Qty	UNIT	PRICES FOR IMPORTED ITEMS (Supply not from Indian Territory)						PRICES FOR INDIGENEOUS ITEMS (Supply from indian Territory)						Total	PRICE FOR SERVICES				GRAND TOTAL
				UNIT C&F Seaport Price	Total C&F Seaport Price	Ocean / Marine Insurance	Custom Duty after availing CENVAT benefit if applicable	Inland FREIGHT CHARGES (INCLUDING SERVICE TAX)	F.O.R. site Imported items supply price	Unit EX- WORKS PRICE	TOTAL EX- WORKS PRICE	ED including cess @ ...% (for self manufactured items only)	CST @% Against C form & E1/E2 or VAT @.....% Whichever is applicable	FREIGHT CHARGES INCLUDING SERVICE TAX) @.....% OF TOTAL EX-WORKS	TOTAL F.O.R SITE PRICE	Total FOR Site IMPORTED + INDIGENOUS SUPPLY [(Currency x INR)+INR]	SERVICES Unit Price	Total PRICE FOR SERVICES	SERVICE TAX @%	Total INCLUDING SERVICE TAX	Total Lumpsum price for supply [IMPORTED + INDIGINEOUS SUPPLY] and SERVICES with Service tax.
d)*	Capacity 4,000 CMH with Motor rating 0.55 KW	6	Nos.*			By BHEL															
e)*	Capacity 2,000 CMH with Motor rating 0.55 KW	4	Nos.*																		
9*	Axial flow exhaust fans (Wall mounted) complete with casing,TEFC sq cage induction motor & mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted (suitable for 415V/3-phase supply) as specified.Following fan shall have 10 mmwc static pressure.	4	Nos.*																		
a)*	Capacity 15,000 CMH with Motor rating 1.1 KW	12	Nos.*																		
b)*	Capacity 10,000 CMH with Motor rating 0.75 KW																				
c)*	Capacity 7,500 CMH with Motor rating 0.55 KW	5	Nos.*																		
d)*	Capacity 6,000 CMH with Motor rating 0.55 KW	4	Nos.*																		
e)*	Capacity 4,000 CMH with Motor rating 0.55 KW	20	Nos.*																		
f)*	Capacity 2,000 CMH with Motor rating 0.37 KW	5	Nos.*																		
10*	Exhaust fan (propeller type) completes with induction motor & mounting frame MS rain protection cowl, bird screen and all other accessories as specified (suitable for 240V/ 1 phase). Following fan shall have 5 mmwc static pressure.	5	Nos.*																		
a)*	Capacity 1200 CMH with Motor rating 100 watts																				
11*	Handling arrangement for Ventilation equipments	130	Nos.*																		
(a)*	Manually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m																				
(b)*	1T Chain pulley block with travelling trolley	2	NO*																		
12	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-As per Appendix A).	4	NO*														NA				
13	Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up-As per Appendix B).	1	LOT														NA				
14	FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, differential pressure switch, velocity sensor/static pressure sensor,flow switch and other instrument required for Ventilation System etc.	1	LOT																		
15	Any other item not indicated above, but required to make the system complete in all respects.	1	LOT																		
NOTES																					
1)The bidder shall furnish unit rates for variable item (marked *) for necessary adjustment (plus or minus) variation during detailed engg. stage. The unit rates quoted above shall be considered and no separate unit rates																					
Particulars of bidder / authorised representative																					
Name	Designation	Signature				Date				Company Seal											

PRICE FORMAT REV02 (For Foreign Bidders)**APPENDIX-A****Special tools & tackles for maintenance**

ENQUIRY NUMBER		PE/PG/EN1/E-5490/2016			
NAME OF PROJECT:		2x660 MW ENNORE SEZ POWER PROJECT			
NAME OF PACKAGE:		VENTILATION SYSTEM			
TECHNICAL SPECIFICATION No:		PE-TS-412-554-A001 and addendum No. 1			
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Unit	Qty	SUPPLY	
				Unit Price (Rs)	Total price (Rs)
1	Measuring tape	NO	1		
2	Tachometer	NO	1		
3	Double ended spanner	SET	1		
4	Ring spanners	SET	1		
5	Gasket punch	NO.	1		
6	Center punch	NO.	1		
7	Hammer with wooden handles	NO.	1		
8	Scissors for sheet metal cutting	NO.	1		
9	Torch light (suitable for 2 cells)	NO.	1		
10	Multimeter	NO.	1		
11	Anemometer	NO.	1		
12	Compound pressure gauge	NO.	1		
13	Slide wrench 8ø	NO.	1		
14	Slide wrench 10ø	NO.	1		
15	Slide wrench 6ø	NO.	1		
16	Box spanner set	SET	1		
17	Screw driver set	SET	1		
18	Align key set	SET	1		
19	MS tool box	NO	1		
NOTES					
1	ABOVE IS THE MINIMUM LIST. ANY OTHER TOOL / TACKEL REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION.				
Particulars of bidder / authorised representative					
Name	Designation	Signature	DATE	Company Seal	

PRICE FORMAT REV 02 (For Foreign Bidders)

APPENDIX-B

Commissioning spares

ENQUIRY NUMBER		PE/PG/EN1/E-5490/2016			
NAME OF PROJECT:		2x660 MW ENNORE SEZ POWER PROJECT			
NAME OF PACKAGE:		VENTILATION SYSTEM			
TECHNICAL SPECIFICATION No:		PE-TS-412-554-A001			
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Unit	Qty	SUPPLY	
				Unit Price (Rs)	Total price (Rs)
1	FAN BELTS	SET	1		
2	PRESSURE GAUGE	NO	1		
3	TEMPERATURE GAUGE	NO	1		
4	FILTER	SET	1		
NOTES					
1	ABOVE IS THE MINIMUM LIST. ANY OTHER COMMISSIONING SPARE REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION.				
Particulars of bidder / authorised representative					
Name	Designation	Signature	DATE	Company Seal	

[illegible]

[illegible]

[illegible]

PRICE FORMAT REV02 (For Foreign Bidders)
ANNEXURE - III

Guaranteed Power Consumption For Ventilation System						
ENQUIRY NUMBER		PE/PG/EN1/E-5490/2016				
NAME OF PROJECT:		2x660 MW ENNORE SEZ POWER PROJECT				
NAME OF PACKAGE:		VENTILATION SYSTEM				
TECHNICAL SPECIFICATION No:		PE-TS-412-554-A001 and addendum no. 1				
S.NO.	DESCRIPTION OF EQUIPMENT	NO OF EQUIPMENT		TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT	DUTY FACTOR	TOTAL KW
		WORKING	STANDBY			
		3A	3B	4	5	6=3Ax4x5
1	VENTILATION SYSTEM FOR TG BUILDING					
1.1	Centrifugal Fan of cap. 83, 500 CMH at 75 mmwc static pr for air Washers.	24	0		1	
1.2	Pumps for circulation of water in spray chamber of above air washer	8	8		1	
1.3	RE Units 50,000 cmh at 15mmwc	28	0		1	
2	VENTILATION SYSTEM FOR ESP BUILDING					
2.1	Centrifugal Fan of cap. 75,000 CMH at 75 mmwc static pr for UAF.	2	0		1	
2.2	Pump for above UAF.	2	2		1	
				TOTAL (KW)		1050
Note:	Estimated power consumption (EPC) figure for the system (for working drives only) has been considered as 1050 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. 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.					
Particulars of bidder / authorised representative						
Name	Designation	Signature	DATE	Company Seal		