



TECHNICAL SPECIFICATION
THERMAL INSULATION FOR COLD SURFACES

SPECIFICATION NO.PES-554-06

VOLUME II B

SECTION D

REV. 01

DATE: NOV 2012

SHEET 4 OF 4

6. INSULATION OF PUMPS & VALVES

For all inspection covers & hatches on equipment, pump casing & valve bodies, flanges etc. the insulation shall be applied such as to facilitate removal with minimum damage to the insulation. This shall be achieved by encasing the insulation in 22 gauge aluminum sheet metal boxes, which shall be bolted together around the equipment to permit easy removal & replacement. Proper care shall be taken to maintain continuity of vapor seal between the static & removable partitions of the insulation.

The tenderer may offer thickness of insulation & finishes other than that specified in DATA SHEET A. However, calculations/reasons in support of alternative proposal shall be furnished for purchaser's approval.

7. INSPECTION & TESTING (REFER SPEC. NO - PES-553.00)

All necessary tests, as required to ensure that the material supplied conform to the requirements of applicable codes & standards, shall be carried out at manufacturer's works & test certificates including these for material/accessories shall be furnished for purchasers approval.

8. PAINTING

8.1.1 Pipe work having insulation & cladding shall be provided with color identification for the fluids handled and for indicating direction of flow.

8.1.2 Equipment surfaces having insulation and cladding shall also have identification numbers and any other relevant data provided on the insulated surface.

8.1.3 All painting for insulated surfaces shall conform to the requirement specified elsewhere.

9. DATA TO BE FURNISHED AFTER AWARD OF CONTRACT

9.1.1 Final version of data sheet 'B' incorporating changes if any along with design data.

9.1.2 Test certificates/reports giving result of insulation to ensure conformance to applicable codes & standards & in particular the following :-

- i) Thermal conductivity test
- ii) Sound absorption coefficient test
- iii) Corrosion test
- iv) Sulphur content, moisture content, shot content, moisture absorption etc.
- v) Compressive strength & cross breaking strength test.

9.1.3 Sketches/technical literature/sectional drgs. indicating insulation materials finish and method of application etc.

9.1.4 Manual dealing with safety aspects & instructions for combating fire arising out of insulation work

9.1.5 Instructions on maintenance of insulation work.



TITLE

INSULATION
DATA SHEET - A

SPECIFICATION NO. PE-TS-410-554-A001.

VOLUME II-B

SECTION D

REV 00

DATE APRIL 2015

SHEET 1 OF 1

INSULATION MATERIAL:

Insulation	Code	Thermal Conductivity MW/cm ⁰ C	Density Kg/m ³
Resin bonded mineral wool / glass wool	IS:8183	0.49 at 50 ⁰ C	At least 24 (For Thermal Insulation) 48 for Acoustic insulation
Mineral Wool Pipe Section (min. Gr.2)	IS:9842	0.43 at 50 ⁰ C	At least 81
Expanded Polystyrene	IS:4671	0.37 at 50 ⁰ C	At least 15

TYPE OF INSULATION:

S.No.	Surface	Insulation Material	Insulation Form	Thickness (mm)	Finish
i)	Supply ventilation Duct exposed to Sun	Resin bonded Mineral wool (IS:8183) Or Nitrile Rubber	Roll / Slab	25	F-4
		Self-extinguishing grade of Expanded Polystyrene (IS – 4671)	Roll / Slab	25	F-4
					With UV Protection coating



TECHNICAL SPECIFICATION
**1X800 MW KOTHAGUDEM
VENTILATION SYSTEM**

SPECIFICATION No: PE-TS-410-554-A001

VOLUME III

REV. 00

DATE: MARCH 2015

VOLUMN-III


WIVEK KUMAR SA Khan Praveen Kishore



TITLE:

1X800 MW KOTHAGUDEM**VENTILATION SYSTEM****List of Documents to be submitted with
Bid**

SPEC. NO.: PE-TS-410-554-A001

VOLUME: III


SECTION:

REV. NO. 00

SHEET 1 OF 2

DOCUMENTS TO BE SUBMITTED BY BIDDER ALONG WITH THE BID.**BIDDER SHOULD SUBMIT THE SIGNED AND STAMPED COPY OF THE FOLLOWING DOCUMENTS:**

- 1. Compliance cum confirmation certificate**
- 2. Guaranteed power consumption**
- 3. Un priced format for main package**
- 4. Un priced format for mandatory spare**
- 5. Complete set of technical specification**
- 6. No deviation deviation certificate**

	TITLE:	SPEC. NO.: PE-TS-410-554-A001
	1X800 MW KOTHAGUDEM VENTILATION SYSTEM COMPLIANCE CUM CONFIRMATION CERTIFICATE	VOLUME: III
		SECTION:
		REV. NO. 00
		SHEET 1 OF 2

COMPLIANCE CUM CONFIRMATION CERTIFICATE

The bidder shall confirm compliance with following by signing / stamping this compliance certificate (every sheet) and furnish same with the offer.

- a) The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusions, other than those mentioned under "exclusion and those resolved as per 'Schedule of Deviations', with regard to same.
- b) There are no other deviations w.r.t. specifications other than those furnished in the 'Schedule of Deviations'. Any other deviation, stated or implied, taken elsewhere in the offer stands withdrawn unless specifically brought out in the 'Schedule of Deviations'
- c) Bidder shall submit QP in the event of order based on the guidelines given in the specification & QP enclosed therein. QP will be subject to BHEL / CUSTOMER approval & customer hold points for inspection / testing shall be marked in the QP at the contract stage. Inspection / testing shall be witnessed as per same apart from review of various test certificates/ Inspection records etc. This is within the contracted price without any extra implications to BHEL after award of the contract.
- d) All drawings/ data-sheets / calculations etc. submitted along with the offer shall not be taken cognizance off.
- e) The offered materials shall be either equivalent or superior to those specified in the specification & shall meet the specified / intended duty requirements. In case the material specified in the specifications is not compatible for intended duty requirements then same shall be resolved by the bidder with BHEL during the pre-bid discussions, otherwise BHEL / Customer's decision shall be binding on the bidder whenever the deficiency is pointed out.

For components where materials are not specified, same shall be suitable for intended duty, all materials shall be subject to approval in the event of order.

- f) The commissioning spares shall be supplied on 'As Required Basis' & prices for same included in the base price itself.
- g) All sub vendors shall be subject to BHEL / CUSTOMER approval in the event of order.
- h) Guarantee for plant/equipment shall be as per relevant clause of GCC / SCC / Other Commercial Terms & Conditions
- i) In the event of order, all the material required for completing the job at site shall be supplied by the bidder within the ordered price even if the same are additional to approved billing break up, approved drawing or approved Bill of quantities within the scope of work as tender specification. This clause will apply in case during site commissioning, additional requirements emerges due to customer and / or consultant's comments. No extra claims shall be put on this account



TITLE:

**1X800 MW KOTHAGUDEM
VENTILATION SYSTEM
COMPLIANCE CUM CONFIRMATION
CERTIFICATE**

SPEC. NO.: PE-TS-410-554-A001

VOLUME: III

SECTION:


REV. NO. 00

SHEET 2 OF 2

- j) Schedule of drawings submissions, comment incorporations & approval shall be as stipulated in the specifications. The successful bidder shall depute his design personnel to BHEL's / Customer's / Consultant's office for across the table resolution of issues and to get documents approved in the stipulated time.
- k) As built drawings shall be submitted as and when required during the project execution.
- l) The bidder has not tempered with this compliance cum confirmation certificate and if at any stage any tempering in the signed copy of this document is noticed then same shall be treated as breach of contract and suitable actions shall be taken against the bidder.
- m) Successful bidder shall furnish detailed erection manual for each of the equipment supplied under this contract at least 3 months before the scheduled erection of the concerned equipment / component or along with supply of concerned equipment / component whichever is earlier.
- n) Document approval by customer under Approval category or information category shall not absolve the vendor of their contractual obligations of completing the work as per specification requirement. Any deviation from specified requirement shall be reported by the vendor in writing and require written approval. Unless any change in specified requirement has been brought out by the vendor during detail engineering in writing while submitting the document to customer for approval, approved document (with implicit deviation) will not be cited as a reason for not following the specification requirement.
- o) In case vendor submits revised drawing after approval of the corresponding drawing, any delay in approval of revised drawing shall be to vendor's account and shall not be used as a reason for extension in contract completion.


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SECTION-3

	TITLE 1x800 MW KOTHAGUDEM TPP VENTILATION SYSTEM PRE-BID CLARIFICATION SCHEDULE	SPECIFICATION NO. PE-TS-410-554-A001	
		VOLUME: III	
		SECTION-3	
		APRIL 2015	
		Page 1 of 1	

PRE-BID CLARIFICATION SCHEDULE

S. NO.	SECTION/CLAUSE/PAGE NO.	STATEMENT OF THE REFERRED CLAUSE	CLARIFICATION REQUIRED

The bidder hereby clarifies that above mentioned are the only clarifications required on the technical specification for the subject package.

Signature: _____

Name: _____

Designation: _____

Company: _____

Date: _____

Company Seal

SECTION-4



SCHEDULE OF TECHNICAL DEVIATION
PROJECT:-1X800 MW KOTHAGUDEM TPP
PACKAGE:-VENTILATION SYSTEM

NAME OF VENDOR:-

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICAT ION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	COST OF DEVIATION	PORTION OF PRICE SCHEDULE ON WHICH COST OF DEVIATION IS APPLICABLE	NATURE OF COST OF DEVIATION (POSITIVE/ NEGATIVE)	WHETHER COST OF DEVIATION INCLUDED/ EXCLUDED IN PRICE BID	REMARKS
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TECHNICAL DEVIATIONS

PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE

NAME	DESIGNATIONS	SIGN & DATE	COMPANY SEAL
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NOTES:

1. Cost of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.
2. All the bidders have to list out all of their Technical Deviations in detail in the above format on cost basis (if any).
3. Any deviation not mentioned above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.

VIVEK KUMAR SA KHAN PRAVEEN KISHORE

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Bidder shall indicate "quoted" in cost of deviation column of the schedule above along with their Technical offer. |
| 5. Bidder shall furnish priced schedule of technical deviation along with price bid in sealed envelop. |
| 6. The final decision of acceptance/ rejection of the deviations quoted by the bidder along with its cost shall be at discretion of the Purchaser. |
| 7. Bidders to note that any deviation not listed above and asked after Part I Bid opening shall not be considered. |
| 8. Bidders to note that no Price Impact will be acceptable after Part I Bid opening subject to if there is any change in Technical Specification/NIT terms from BHEL side. |
| 9. Deviation listed above without any cost of deviation, if found acceptable to BHEL, will be considered without any price implication. |

SECTION-5

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

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector – Project Engineering Management,
PPEI Building, Plot No. 25, sector-16A
Noida -201301(U.P)

Sub	No Deviation Certificate	
	Design, engineering, manufacturing, supply, erection, commissioning etc of Ventilation System for Kothagudem 1 x 800 MW TPS	
Ref	01	Tendor No.
	02	BHEL 's NIT, vide reference no.
	03	BHEL's clarification / confirmation vide reference email dated
	04	Other reference (if any)/

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 web site / 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 offer references as enumerated in the above referred NIT (besides the confirmations given at Sl. No. 03 under Ref.). We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification 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)


VIVEK KUMAR SA KHAN Praveen Mishra

SECTION-6

VENTILATION SYSTEM FOR KOTHAGUDEM TPS (1X800 MW) - SUGGESTIVE PRICE FORMAT Rev.01

Clause No.	DESCRIPTION	Qty.	Unit	SUPPLY						ERECTION AND COMMISSIONING				TOTAL	
				Unit Price (Rs)	Total ex-works price (Rs)	ED (Inc CESS) (Rs)	CST / VAT (Rs)	Freight (Including service tax, if applicable) (Rs)	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 FIOR site and E&C including service tax (Rs)	
1.0	Total lumpsum firm prices for equipment & Services as specified, Comprising Engineering, design, manufacture, inspection & Testing at manufacturer's/subvendor's works, Painting at manufactures works, duly packed for transportation, delivery to site, unloading, storage & handling at site, fabrication, erection and commissioning, performance and guarantee testing, submission of as built drawing, carrying out acceptance tests at site, and final painting of complete Ventilation system on turnkey basis as per specification PE-TS-410-554-A001 including mandatory spares, special tool & tackels 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 but in case of order, the same shall be placed at the lowest price.														
	VENTILATION SYSTEM														
2.1	Sheet metal containerized 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 2,80,000 CMH. Each air washer has 2 no centrifugal fan (2 x 50% duty) of capacity 1,40,000 CMH at min. 85 mm SP.	4	Nos												
2.2	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. (Fan capacity 90,000 CMH at 60 mmwc static pressure)	1	Nos												
2.3*	Supply air ducting (finished) for above area complete with dampers, grilles (with VCD & without VCD), supports (painted) and all accessories as specified.														
2.3.1*	Finished GSS (zinc coating 180 gms/sq.m) Ducting with support structure etc.														
a)*	18 G	4500	SQM												
b)*	20 G	5000	SQM												
2.3.2*	MS Duct With Epoxy paint for battery room.	100	SQM												
2.3.3*	MS Grilles with VCD	100	SQM												
2.3.4*	MS Grilles without VCD	5	SQM												
2.3.5*	Thermal insulation 25 mm expanded polystyrene finished with sand cement plaster as specified for supply air duct	1000	SQM												
2.3.6*	Wall mounted dampers (gravity operated) for different areas.	25	SQM												
2.3.7*	Inlet Louvres	3	SQM												
2.3.8*	Volume control dampers	20	SQM												
2.4*	FIRE DAMPER														
a)*	Fire damper	20	SQM												

VENTILATION SYSTEM FOR KOTHAGUDEM TPS (1X800 MW) - SUGGESTIVE PRICE FORMAT Rev.01

Clause No.	DESCRIPTION	Qty.	Unit	SUPPLY						ERECTION AND COMMISSIONING				TOTAL	
				Unit Price (Rs)	Total ex-works price (Rs)	ED (Inc CESS) (Rs)	CST / VAT (Rs)	Freight (Including service tax, if applicable) (Rs)	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 FIOR site and E&C including service tax (Rs)
b)*	Motorized Actuator with single phase power supply for the above Fire damper with auto resetting, limit switches, indication lamps etc	40	Nos												
c)*	Fusible Link type Fire Damper	15	SQM												
2.5*	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	10	Nos.												
b)*	Capacity 40,000 CMH with Motor rating 5.5 KW	4	Nos.												
c)*	Capacity 20,000 CMH with Motor rating 2.2 KW	2	Nos.												
2.6*	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 30 mmwc static pressure.														
a)*	Capacity 10,000 CMH with Motor rating 2.2 KW	2	Nos.												
b)*	Capacity 7,500 CMH with Motor rating 1.5 KW	2	Nos.												
c)*	Capacity 6,000 CMH with Motor rating 1.1 KW	10	Nos.												
d)*	Capacity 4,000 CMH with Motor rating 0.75 KW	6	Nos.												
2.7*	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). Following fan shall have 20 mmwc static pressure.														
a)*	Capacity 10,000 CMH with Motor rating 1.5 KW	22	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.												
2.8*	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). Following fan shall have 15 mmwc static pressure.														
a)*	Capacity 15,000 CMH with Motor rating 2.2 KW	4	Nos.												
b)*	Capacity 10,000 CMH with Motor rating 1.5 KW	2	Nos.												
c)*	Capacity 7,500 CMH with Motor rating 1.1 KW	4	Nos.												
d)*	Capacity 2,000 CMH with Motor rating 0.55 KW	2	Nos.												
2.9*	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	2	Nos.												
b)*	Capacity 10,000 CMH with Motor rating 0.75 KW	5	Nos.												
c)*	Capacity 7,500 CMH with Motor rating 0.55 KW	2	Nos.												

VENTILATION SYSTEM FOR KOTHAGUDEM TPS (1X800 MW) - SUGGESTIVE PRICE FORMAT Rev.01

Clause No.	DESCRIPTION	Qty.	Unit	SUPPLY						ERECTION AND COMMISSIONING				TOTAL	
				Unit Price (Rs)	Total ex-works price (Rs)	ED (Inc CESS) (Rs)	CST / VAT (Rs)	Freight (Including service tax, if applicable) (Rs)	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 FIOR site and E&C including service tax (Rs)
d)*	Capacity 6,000 CMH with Motor rating 0.55 KW	30	Nos.												
e)*	Capacity 2,000 CMH with Motor rating 0.37 KW	6	Nos.												
2.10*	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	40	Nos.												
2.11	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												
2.12	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												
2.13	FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch and other instrument required for Ventilation System etc.	1	LOT												
2.14	Total lumpsum price for Mandatory Spare inclusive of packing forwarding, transportation up to site, etc. (Bidder to submit item-wise price break-up seperately).	1	LOT												
2.14.1	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-410-554-A001 for MECHANICAL ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT												
2.14.2	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-410-554-A001 for C&I ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT												
2.14.3	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-410-554-A001 for ELECTRICAL ITEMS (Bidder to submit item-wise price break-up seperately).	1	LOT												

Note:

- 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, gravity damper, MS Air-intake Louvers for Aux. Bldgs. only., RE Units, Axial Flow fans (Supply/Exhaust), Propellor Fans 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.
- 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
- Any other item not indicated above, but required to complete Ventilation package as per system requirements.
- For limitation on payment, percentages of individual items/equipments, as specified in the appendix-A shall be applicable
- Final qty. shall be paid as per actual measurement at site for Supply as well as E&C for ducting and insulation.

APPENDIX - A
Percentage breakup for Ventilation Package
1x800 MW KOTHAGUDEM TPS

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	Percentage of total price
1	Total lumpsum firm prices for equipment & Services as specified, Comprising Engineering, design, manufacture, inspection & Testing at manufacturer's/subvender's works, Painting at manufactures works, duly packed for transportation, delivery to site, unloading, storage & handling at site, fabrication, erection and commissioning, performance and guarantee testing, submission of as built drawing, carrying out acceptance tests at site, and final painting of complete Ventilation system on turnkey basis as per specification PE-TS-410-554-A001 including special tool & tackels for maintenance, commissioning spares, all taxes, duties etc. (Without mandatory spare - Sr. No. 2.14 of suggestive price format)	100%
2.0	BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE (To be used during contract execution for payment)	
2.1	Total lump sum firm price for EQUIPMENT (SUPPLY) for Engineering, design, manufacture, inspection & Testing at manufacturers works/subvender's work, Painting at manufactures works, duly packed for transportation, delivery to site, unloading storage & handling at site, for the complete scope of supply of Ventilation system and as defined in the technical specification (PE-TS-410-554-A001) for 1x800 MW KOTHAGUDEM TPS.	80%
2.2	Erection & commissioning , carrying out acceptance tests at site, final painting and handing over to customer the complete ventilation system on turnkey basis as per specification PE-TS-410-554-A001 including special tool & tackels for maintenance, commissioning spares, all taxes, duties etc.	20%
3.0	Break-up (%) of prices given at SI No-2.1 above (To be used during contract execution for payment)	Percentage of total price of SL No 2.1 above
3.1	Air washer - (Item no 2.1 of Suggestive price format)	28.00%
3.2	UAF - (Item no 2.2 of Suggestive price format)	11.00%
3.3	GSS Duct work - (Item no 2.3.1 of Suggestive price format)	22.00%
3.4	MS duct and grills (Item no 2.3.2, 2.3.3 & 2.3.4 of Suggestive price format)	2.00%
3.5	Thermal Insulation (Item no 2.3.5 of Suggestive price format)	2.00%
3.6	Gravity damper, Inlet louver, Fire damper, VCD, (Item no 2.3.6 to 2.3.8 & 2.4 of Suggestive price format)	3.00%
3.7	RE units (Item no 2.5 of Suggestive price format)	6.00%
3.8	Supply air fans (Item no 2.6 and 2.7 of Suggestive price format)	12.00%
3.9	Exhaust fans (Item no 2.8 to 2.10 of Suggestive price format)	12.00%
3.10	Tools and tackles & Commissioning Spares (Item no 2.11 to 2.12 of Suggestive price format)	0.50%
3.11	Field Instruments and any other accessories/item (Item no 2.13 of Suggestive price format)	1.50%

SECTION-7

KOTHAGUDEM - 1X800 MW
VENTILATION SYSTEM
GUARANTEED POWER CONSUMPTION FIGURES-R1

S.NO. (1)	DESCRIPTION (2)	QUANTITY (WORKING) (3)	Total Guaranteed Power Consumption for Each Equipment at motor input terminal and control panel (4)	TOTAL POWER CONSUMPTION AS GUARANTEED (KW) (5) = (3)*(4)
1	Centrifugal Fan of cap. 1,40,000 CMH at 85 mmwc static pr for air washers.	8		
2	Centrifugal pumps for above	4		
3	Centrifugal Fan of cap. 90,000 CMH at 60 mmwc static pr for air washers.	1		
4	Centrifugal pumps for above	1		
5	RE Units			
a.	50,000 cmh at 15mmwc	10		
			TOTAL (KW)	625

Note:

- 1 Base figure of aux power consumption as per above criterion for Ventilation System (for working drives only) shall be 625 kW.
- 2 Bidder's guaranteed power consumption at motor input terminals (not shaft power) including power for control panel as furnished in guaranteed schedule shall be demonstrated by the successful bidder during performance testing at works/site.
- 3 The prices quoted by the bidders shall be loaded @ Rs. 2,00,000/- for each one KW increase in consumption from the base figure indicated at Note no 1 above.
- 4 In case the successful bidder fails to establish / prove the guaranteed values of power consumption on actual performance testing at the manufacturing works / site, penalty @ Rs. 2,00,000/- per KW increase in power consumption figure shall be levied.


VIVEK KUMAR SA Khan Praveen Kishore