



# भारत हेवी इलेक्ट्रिकल्स लिमिटेड

( भारत सरकार का उपक्रम )

## BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

**TCN - 07**

Ref: PSER:SCT:BRM-M1330:TCN-07

Date: 24/05/2012

Sub	Tender change notice (TCN) 07	
Job	Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer, Operation & maintenance (O&M) etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.	
Ref	1.0	Tender no PSER:SCT:BRM-M1330:12
	2.0	BHEL's NIT, vide ref no PSER:SCT:BRM-M1330:12 Dated 06/04/2012
	3.0	BHEL's TCN-01, vide ref no PSER:SCT:BRM-M1330:TCN-01 Dated 26/04/2012
	4.0	BHEL's TCN-02, vide ref no PSER:SCT:BRM-M1330:TCN-02 Dated 02/05/2012
	5.0	BHEL's TCN-03, vide ref no PSER:SCT:BRM-M1330:TCN-03 Dated 05/05/2012
	6.0	BHEL's TCN-04, vide ref no PSER:SCT:BRM-M1330:TCN-04 Dated 08/05/2012
	7.0	BHEL's TCN-05, vide ref no PSER:SCT:BRM-M1330:TCN-05 Dated 11/05/2012
	8.0	BHEL's TCN-06, vide ref no PSER:SCT:BRM-M1330:TCN-06 Dated 18/05/2012
	9.0	Other references (if any).

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Clarifications to bidder's queries (ANNEXURE-I) is attached herewith.
- 2.0 Revised Volume-III A, Price Schedule, Rev-1, superseding earlier version is attached herewith. Bidder shall submit offer as per attached revised price schedule.
- 3.0 Revised Volume-IC&ID, common special condition of contract, Rev-1, superseding earlier version is attached herewith. Bidder shall submit offer as per attached revised common special condition of contract.
- 4.0 Revised Volume-ID, special condition of contract (service), Rev-1, superseding earlier version is attached herewith. Bidder shall submit offer as per attached revised special condition of contract (service).
- 5.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached Format only.
- 6.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

**ENGR (SCT)**

Encl- As above

पावर सेक्टर पूर्वी क्षेत्र ( मुख्यालय )

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211798/ 1691

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

BHARAT HEAVY ELECTRICALS LIMITED,  
Power Sector - Eastern Region,  
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer, Operation & maintenance (O&M) etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI , BIHAR.	
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	4.0	BHEL's TCN-02 , vide ref no PSER:SCT:BRM-M1330:TCN-02 Dated 02/05/2012.
	5.0	BHEL's TCN-03 , vide ref no PSER:SCT:BRM-M1330:TCN-03 Dated 05/05/2012.
	6.0	BHEL's TCN-04 , vide ref no PSER:SCT:BRM-M1330:TCN-04 Dated 08/05/2012.
	7.0	BHEL's TCN-05 , vide ref no PSER:SCT:BRM-M1330:TCN-05 Dated 11/05/2012.
	8.0	BHEL's TCN-06 , vide ref no PSER:SCT:BRM-M1330:TCN-06 Dated 18/05/2012.
	9.0	BHEL's TCN-07 , vide ref no PSER:SCT:BRM-M1330:TCN-07 Dated 24/05/2012.
	10.0	Other references (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 website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, Integrity Pact (If applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

( Signature, date & seal of authorized  
representative of the bidder )

पावर सेक्टर पूर्वी क्षेत्र ( मुख्यालय )

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211798/ 1691

**ANNEXURE-I CLARIFICATIONS TO BIDDERS**

**TENDER NO PSER:SCT:BRM-M1330:12**

Sl no	Bidder's query	BHEL's clarification
1	<p><b>Clause no. 16.1.4 &amp; Cl . No. 16.1.5 of SCC (Supply)</b></p> <p>5% of basic price shall be released against completion of supply, commissioning, and trial run of the complete package. But if the Installation and commissioning can not be done for the reason for which Bidder will not be responsible then this 5% amount shall be paid by M/s BHEL against submission of Performance Bank Guarantee, valid upto the guarantee period. In this case clause no.</p>	<p>Payment terms shall be as follows</p> <p><b>clause no 16.1.4-</b> 5 % of the basic price shall be released against supply completion, commissioning of the system.</p> <p><b>Clause no-16.1.5-</b> 5 % of the basic price shall be released against (i) Trial run of the system / package; (ii) Successful completion of the PG test / demonstration test of the system/ package, as applicable; (iii) Submission of final documents, eg as-built drawings etc and (iv) Handing over of the system / package to the owner. In case of delay in completion of above activities for the reasons not attributable to vendor, this amount can be paid on submission of BG of equivalent amount, valid initially for 6 months &amp; to be revalidated till completion of trial run or PG test / demonstration test or handing over of the system / package, whichever is later. However, bidder have to fulfill all formalities for final billing / contract closing prior to drawing this payment.</p>
2	<p>21.1.1.4(SCC for Erection), which is mentioned in the Service part, shall be applicable for Supply part also.</p>	<p>Payment terms shall be followed as per Tender provision.</p>
4	<p>Clause no.19.1 of SCC (Supply) : Guarantee against our supplied materials shall be valid upto 12 months from the date of installation and 18 months from the date of supply whichever is earlier.</p>	<p>No change in "Guarantee clause ' of SCC supply is accepted</p>
5	<p>Clause no.29.1 of SCC(Erection) : Guarantee against the erection of the materials shall be valid upto six months from the date of installation of this particular equipment.</p>	<p>No change in "Guarantee clause ' of SCC service is accepted</p>
6	<p><b>NIT, Clause No. 16.0 (Page : 4 of 12)</b> Validity of the tender shall be three(3) months from the date of last quoted Price offer.</p>	<p>Validity of the tender shall be followed as per tender provision which is 6 months</p>

**ANNEXURE-I CLARIFICATIONS TO BIDDERS**

**TENDER NO PSER:SCT:BRM-M1330:12**

<b>Sl no</b>	<b>Bidder's query</b>	<b>BHEL's clarification</b>
<b>7</b>	<p><b>Clause No. : 13.2.3.1 &amp; 13.2.3.2 of GCC (1A)</b>                      Full amount of security deposit shall be submitted to BHEL in the form of Bank Guarantee only. We shall not pay security deposit of any amount in the form cash or other form of security or recover by deduction of running bill. Performance bond of 5% of the contract price, submitted to BHEL, after the release of LOI shall be converted into Performance Bank Guarantee required to be submitted by us for last 5% of the payment /contract value. We shall not submit any separate Performance Bank Guarantee for your release of last 5% of the Payment/Contract value.</p>	<p>No change in GCC clause is accepted</p>
<b>8</b>	<p><b>Clause No. : 17.0 &amp; 18.0 of SCC, Vol - 1C(Rev - 0)</b>                      Our quoted price shall be remain valid till the contractual completion period, beyond which suitable escalation shall be provided on the mutually agreed terms and conditions.</p>	<p>No change of SCC clause is accepted</p>
<b>9</b>	<p><b>Clause No. 7 of the GCC</b>                      Statutory variations for the bought out items (for ED &amp; CST) as referred in the clause no. 7.0 of GCC shall be applicable. Please confirm.</p>	<p>No change in GCC clause is accepted</p>
<b>10</b>	<p>We shall construct labour hutment but BHEL shall provide plain land within 1km. from the work front at free of cost till the completion of the project.</p>	<p>Depending upon the availability</p>
<b>11</b>	<p>Please note that BHEL shall issue 'C' form for various dispatch locations and way bill for all dispatches.</p>	<p>c ' form shall be issued by BHEL and way bill shall be arranged by BHEL from customer.</p>
<b>12</b>	<p>If the project shall be delayed beyond the official completion period, the prices for both supply and erection shall be revised accordingly by BHEL as per the Reserve Bank of India (RBI)'s guideline.</p>	<p>This will be as per tender condition</p>

**ANNEXURE-I CLARIFICATIONS TO BIDDERS**

**TENDER NO PSER:SCT:BRM-M1330:12**

<b>Sl no</b>	<b>Bidder's query</b>	<b>BHEL's clarification</b>
<b>13</b>	<p>Please refer serial no. 1.1.11 of the VOLUME-IIIA PRICE SCHEDULE, REV-0 of your Price format, where you have mentioned "Any other item not indicated above, but required to complete air-conditioning package as per system requirements". We hope this will be "Ventilation package" in place of "air-conditioning package"</p>	<p>Accepted</p>
<b>14</b>	<p>Please refer serial no.1.2.12.1 of the VOLUME-IIIA PRICE SCHEDULE, REV-0 of your Price format, where you have mentioned "Providing O&amp;M service including manpower, supervision, consumables etc for operation &amp; maintenance of cranes after commissioning." We hope this is a typographical mistake and it should be "Ventilation package" in place of "cranes"</p>	<p>Accepted</p>
<b>15</b>	<p>O&amp;M service including manpower, supervision, consumables etc for operation &amp; maintenance of Ventilation system after commissioning means :- We have considered the Man power as required by Blue Star to Maintain total 8 nos Air Washer plant, 2 nos UAF Plant and other Axial fans. We have not considered the man power against individual Air Washer, UAF and other Systems. Please confirm how many hours per day the Operation &amp; Maintenance will be required by BHEL.</p>	<p>O&amp;M service has been excluded form the scope,</p>
<b>16</b>	<p>We have not considered any spares of the equipments like Fans, Pumps, Filters,Motors, Control panels etc. Spares as required after the Guaranteed period(ie. 12 months from the date of Commissioning and 18months from the date of Supply whichever is earlier) shall be of BHEL's scope. BHEL shall supply the spares as free issue items.</p>	<p>Guarantee period is as per SCC.after guarantee period spare will be provided by BHEL and upto guarantee period all spares are to be provided by bidder.</p>

TENDER NO. PSER:SCT:BRM-M1330:12		
VOLUME-IC&ID, REV-1	COMMON SPECIAL CONDITIONS OF CONTRACT (SUPPLY & SERVICE)	PAGE 1 OF 3

**CONTENT**

CLAUSE NO	DESCRIPTION
1.0	PROJECT SYNOPSIS AND GENERAL INFORMATION.
2.0	NAME OF WORK
3.0	SCHEDULE OF SUPPLY & SUPERVISION
4.0	DIVISIBLE CONTRACT
5.0	EVALUATION OF BID

TENDER NO. PSER:SCT:BRM-M1330:12		
VOLUME-IC&ID, REV-1	COMMON SPECIAL CONDITIONS OF CONTRACT (SUPPLY & SERVICE)	PAGE 2 OF 3

This volume shall be construed as part of tender document and shall be read along-with others volumes of tender. Unless otherwise specified, in case of any confusion of any clause/ provision of this volume or any conflict/ inconsistency of any clause/ provision of this volume with that of other volume, the same shall be brought out by the bidder in writing to BHEL for clarification or during pre-bid discussions, if applicable, failing which most stringent interpretation in favour of BHEL shall be adopted and the same shall be binding to the bidder.

CLAUSE NO	DESCRIPTION
<b>1.0</b>	<b>PROJECT SYNOPSIS AND GENERAL INFORMATION.</b>
1.1	Bihar State Electricity Board, hereafter referred to as BSEB, has awarded BHEL the job for establishing two numbers of coal fired of rating 250 MW each on Engineering, Procurement and Construction (EPC) package basis The units are proposed to be set up adjoining existing plant at Barauni Thermal Power Station, Extension unit 8 &9 at district Begusarai in the state of Bihar, India. Project site is disposed at N25°23'13.5" to N 25°23'54"latitude and E 86°01'05" to 86°01'46.3" longitude, Owner of the project: Bihar State Electricity Board (BSEB).
1.2	<b>APPROACH TO SITE</b> LOCATION :Barauni Thermal Power Station, Begusarai, Bihar  NEAREST RAILWAY STATION : Hathidah Railway Station (Broad Gauge) on Howrah-Patna route is about 3.5 KM away from the site.  :Barauni Railway Station (Broad Gauge) on Howrah-Muzzafarpur route is about 15 KM away from the site.  ROAD DISTANCES :NH-31 is adjacent to site.  NEAREST AIR PORT :Patna, 110 KM away from Barauni.  MODE OF TRANSPORTATION :Rail/Road  DESIGN AMBIENT TEMPERATURE: 35.2 Deg.C maximum, 12.1 Deg.C minimum, DESIGN RELATIVE HUMIDITY : 98% (Maximum)  AVERAGE ANNUAL RAINFALLI : 1003.4 MM  SEISMIC ZONE : Zone-IV as per IS-1893 Part-I (2002)  WIND SPEED : 47 m/s
<b>2.0</b>	<b>NAME OF WORK</b>
2.1	The scope covers design, engineering, manufacturing, inspection, testing at manufacturer's/ vendor's/ sub-vendor's works proper packing, transportation to site including freight, delivery, receipt, unloading, storage, handling at site, erection, testing, commissioning, trial run, handing over including supply of special tools & tackles for maintenance, start-up & commissioning spares, consumables, etc, as required, for total scope defined in technical specification along with other document of Ventilation System package for 2x250 MW units at BARAUNI Extension Project, U #8 & 9 at Begusarai, BIHAR..
2.2	The drawings/ documents issued are for tender purpose only.
<b>3.0</b>	<b>SCHEDULE OF SUPPLY &amp; EXECUTION</b>
	The vendor shall furnish the L-1, L-2/ L-3 schedule indicating break-up of start &

TENDER NO. PSER:SCT:BRM-M1330:12		
VOLUME-IC&ID, REV-1	COMMON SPECIAL CONDITIONS OF CONTRACT (SUPPLY & SERVICE)	PAGE 3 OF 3

	finish dates of design & engineering, manufacturing/ supply (including main scope, spares, as applicable), erection, commissioning, handing over etc within stipulated completion periods (Supply part & Service part) matching with project schedule for approval of BHEL. The schedule may have to be revised from time to time to meet revised project schedule/ requirement for approval of BHEL.
<b>4.0</b>	<b>DIVISIBLE CONTRACT</b>
4.1	It may clearly be understood by the bidders separate orders shall be placed for (a) supply part and (b) services part (supervision for erection & commissioning including civil job, if any), SD, PBG etc shall be calculated for respective orders separately.
4.2	Notwithstanding anything stated elsewhere in this tender, the contract to be awarded shall be on the basis of supply & service contract (divisible contract) on single source responsibility. In the mode of contracting on the basis of supply & service, the supply portion of the contract will relate to the price schedule of supply part, and service portion of contract (works contract) will relate to price schedule of service part.
4.3	But the two contract shall not in any way dilute the responsibility of the bidder for the successful completion of the job as per tender specification and both the contracts shall contain a cross-fall breach clause, namely that a breach in one contract shall automatically be classified as a breach on the other contract which will confer a right on BHEL to terminate the other contract at the risk and cost of the bidder.
4.4	The title of the ownership of goods to be supplied shall pass on to the owner on dispatch ex-works/ FOR destination. However till the scope is completed in all respect and the plant/ equipment is taken over by the owner, the goods shall remain with the custody of the contractor.
<b>5.0</b>	<b>EVALUATION OF BID</b>
	Bidders should quote prices as per format supplied in the tender. Bids shall be evaluated based on total price quoted (supply & service) including any loading of price, as mentioned in technical specification/ SCC/ Price Schedule, as applicable.

**.CONTENTS**

<b>CLAUSE NO</b>	<b>DESCRIPTION</b>
1.0	NAME OF WORK
2.0	BROAD SCOPE OF WORK
3.0	SITE VISIT
4.0	FACILITIES TO BE PROVIDED BY BHEL / BSEB
5.0	FACILITIES TO BE PROVIDED BY THE CONTRACTOR
6.0	PROJECT MANAGEMENT
7.0	CONSUMABLE
8.0	IMTE
9.0	GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)
10.0	TEST CERTIFICATE FOR T&P
11.0	ISSUE OF T&Ps
12.0	SERVICES TO BE RENDERED BY THE BIDDER
13.0	PROTECTION
14.0	ERECTION SERVICES
15.0	DEWATERING
16.0	AREA REQUIREMENT
17.0	CONSTRUCTION OF TEMPORARY OFFICE , STORES ETC.
18.0	RECONCILIATION OF MATERIALS
19.0	COMPLETION PERIOD
20.0	LIQUIDATED DAMAGES (LD)
21.0	TERMS OF PAYMENT
22.0	PRICE VARIATION CLAIM (PVC) / RATE REVISION
23.0	SECURITY DEPOSIT (SD) AND PERFORMANCE BOND (PB)
24.0	TRAINING OF OWNER'S / PURCHASER'S PERSONNEL
25.0	TAXES AND DUTIES
26.0	PAYING AUTHORITY
27.0	INSURANCE
29.0	WARRANTY & MAINTENANCE
29.0	WORK & SAFETY REGULATIONS
30.0	CONTRACT PRICE
31.0	PROJECT INFORMATION
32.0	MOBILISATION ADVANCE/ IBRA(INTEREST BEARING RECOVERABLE ADVANCE)
33.0	OTHER TERMS

This section of special conditions of contract (SCC) is applicable for services part of contract, ie erection, testing, commissioning including any civil/ structural work. The conditions mentioned inscribed hereunder shall be read and construed along with general conditions of contract (GCC, Volume-IB) and in case of any conflict or inconsistency, the provision of the SCC, Volume-ID shall prevail.

CLAUSE NO	DESCRIPTION
<b>1.0</b>	<b>NAME OF WORK</b>
	Total scope broadly covers receipt, unloading, storage & handling at site, erection, commissioning, load testing, trial run, handing over to customer etc in line with drawings/ documents/ test procedures approved by BHEL/ customer, including supply of consumables, for the total scope defined in the technical specification and terms & conditions of tender, taking into account all clarifications, confirmations and agreements till date of for Ventilation system package for 2x250 MW Barauni Extension Project,U# 8 & U# 9 at Begusarai,BIHAR
<b>2.0</b>	<b>BROAD SCOPE OF WORK</b>
2.1	The intent of this erection specification is to provide services for execution of the project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / price shall deem to be inclusive of all such contingencies.
2.2	The work to be carried out under scope of this specification covers complete work of handling including receipt from stores/ yard located within project premises, arranging their issue, transportation to site, temporary storage prior to erection, if required, cleaning, preservative painting, erection, alignment, welding, leveling, adjustment etc all pre-commissioning tests, start-up and trial run of individual equipment, final commissioning including supply of erection & commissioning spares as required till handing over, and trial run and handing over of units to BHEL/ their customer including performance & guarantee (PG) test of units, reconciliation of materials issued to contractor & returning unused materials to BHEL stores/ yard/ places designated by BHEL. The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during erection. If any portion of works is found to be defective in workmanship & not conforming to drawings/documents or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from contractor's bills.
2.3	It is not the intent of this specification to specify herein all the details of erection and commissioning. However, the system shall conform in all respects to high standards of quality and workmanship for performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgments is not in full accordance herewith.
2.4	The omission of specific reference to any fabrication / erection method, equipment or material necessary for proper and efficient working of the plant shall not relieve the tenderer of the responsibility of providing such facilities to complete the work at quoted rates. Any mismatch / defect found due to mistake in fabrication / erection shall have to be rectified by the vendor free of cost. Inspection by BHEL / Customer does not relieve vendor of his responsibility of executing quality erection.
2.5	Supply of cement and steel for any civil work involved (as detailed in technical specification) shall be arranged by the contractor without any extra cost to BHEL.
2.6	Following shall be the responsibility of contractor and have to be provided within finally accepted rates/ prices.
2.6.1	Provision as required of all types of labour, supervisors, engineers, watch and ward, tools & tackles, calibrated IMTEs (Inspection, measuring and testing equipment) as

	specified and otherwise required for the work, consumables for erection, testing and commissioning including material handling.
2.6.2	Proper out-turn as per BHEL plan and commitment.
2.6.3	Completion of work as per BHEL schedule.
2.6.4	Good quality and accurate workmanship for proper performance of the equipment.
2.6.5	Repair and rectification.
2.6.6	Preservation/ re-conservation of all components during storage/ erection/ commissioning till handing over.
<b>3.0</b>	<b>SITE VISIT</b>
	Contractor should visit site and acquire full knowledge & information about site conditions prevailing at site and in and around the plant premises together with all the statutory, obligatory, mandatory requirements of various authorities before submission of the bid.
<b>4.0</b>	<b>FACILITIES TO BE PROVIDED BY BHEL / BSEB</b>
<b>4.1</b>	<b>LAND</b>
4.1.1	Area shall be handed over to the vendor. Micro finishing ( $\pm 700$ mm) has to be done by the vendor before start of any work.
4.1.2	The successful bidder shall furnish the estimated area showing layout plan/ sketch required for the construction of his office, stores (covered, semi-covered and open), fabrication yard etc. The same will be reviewed by BHEL and allotted to the extent available/ considered necessary, depending upon the area availability. The sketch/ layout plan for labour colony shall include overhead drinking water line, electric power, sewage/ sanitary system. Bidder should construct temp CGI shed with brick wall with IPS floor etc.
4.1.3	Minimum land will be provided free of cost for construction of temporary office, stores, fabrication area etc.
4.1.4	No land will be provided for labour colony inside/ outside the project premises, the contractor to construct labour colony/ hutment after obtaining all necessary statutory clearances.
4.1.5	The contractor will be responsible for handing back all lands, as handed over to him for his temporary use to BHEL, as per the instruction of BHEL Engineer.
<b>4.2</b>	<b>WATER</b>
4.2.1	BHEL will provide construction water free of cost at one point within project premise.
4.2.2	BHEL will provide free of cost drinking water at one point within project premise.
4.2.3	Further distribution beyond above mentioned points to be arranged by the contractor at his own cost.
4.2.4	Contractor should arrange on their own drinking water in their labour colony.
4.2.5	Contractor will have to arrange for storage of water to meet the day to day requirement. BHEL, will however, arrange for adequate supply of construction water to meet the requirement of water during major concreting.
4.2.6	The availability of water (construction as well as drinking) is limited. Contractor shall ensure that no water is wasted. In this regard the contractor shall take all necessary measure towards preservation of water.
4.2.7	BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of water supply and the contractor shall claim no compensation for delay in work for such interruption. Contractor may make standby arrangement for water for which no separate payment shall be made by BHEL.
<b>4.3</b>	<b>ELECTRICITY</b>
4.3.1	BHEL will provide construction power on free of charge basis at LT voltage level at one point within project premise. Further distribution (including laying of cables/ installation of DBs and maintenance of the same) beyond this point to be arranged by the contractor at his own cost. Any other voltage as required shall be arranged by the contractor from power supply as above. Contractor will have to provide necessary calibrated meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized/ accredited agency for working out power consumption at his own cost. In case of recalibration required for any reason necessary charges including replacement by calibrated meters is to be borne by the contractor. Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and

	other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.
4.3.2	The bidder shall have to provide earth leakage breaker at each point wherever human operated electrical drives / T&Ps are deployed.
4.3.3	The power supply will be from the available grid. BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of power supply and no compensation for delay in work can be claimed by the contractor due to such non-supply on the grounds of idle labour, machinery or any other grounds.
4.3.4	The contractor should ensure that the work in critical areas is not held up in the event of power breakdown (especially during slip-from concreting), and shall make all necessary arrangements for uninterrupted supply, at his cost. As a part of the bid, a specific proposal in this regard has to be submitted by the contractor. In the event of breakdown in the electric supply, if the progress of work is hampered, it will be the responsibility of the contractor to step up the progress of work after restoration of electric supply so that overall progress of work is not affected.
4.3.5	The contractor shall have to make arrangement at their own cost for illumination that will be required in the working area for execution of the work & safety of workmen.
4.3.6	Bidders have to make their make arrangement for electricity at their own cost for labour colony.
<b>5.0</b>	<b>FACILITIES TO BE PROVIDED BY THE CONTRACTOR</b>
5.1	<b>TOOLS, TACKLES AND SCAFFOLDINGS</b> The contractor shall provide all the construction equipments, tools, tackles & scaffoldings required for civil works, pre-assembly, erection, testing and commissioning of the equipments covered under the contract. He shall submit a list of all such materials to BHEL/ BSEB before the commencement of pre-assembly at site. These tools & tackles shall not be removed from the site without the written permission of BHEL/BSEB. The T&Ps to be arranged by the contractor shall be in proper working condition. The contractor shall arrange adequate no. of excavator, PLC based automatic batching plant, transit mixer, slip form/ jam form equipment for shell construction, concrete pump, dozer, hydra, cranes, tower crane, trailor, welding machines etc for the purpose of civil works, fabrication, erection and commissioning. Concreting of civil work shall be done with batching plant, transit mixer and concrete pump only and manual method shall not be allowed.
5.2	<b>COMMUNICATION</b> The contractor shall be responsible for arranging all communication facilities for himself at site. The contractor has to establish independent internet/e-mail facilities with mobile connection for all key site personnel and same shall have to be integrated with BHEL's voice/data network and database systems at site.
5.3	<b>FIRST-AID</b> The contractor shall provide necessary medical facilities for all his employees, representatives and workmen working at the Site. Enough number of Contractor's personnel shall be trained in administering first-aid.
5.4	<b>CLEANLINESS</b>
5.4.1	The contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of special personnel to thoroughly clean his work-area at least once in a day. All such rubbish and scrap material shall be stacked or disposed in a place to be identified by BHEL/BSEB. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.
5.4.2	Similarly the labor colony, the offices and the residential areas of the contractor's employees and workmen shall be kept clean and neat to the entire satisfaction of BHEL/ customer. Proper sanitary arrangements shall be provided by the contractor, in the work-areas, office and residential areas of the contractor.

5.4.3	Bidders to note that following.	
5.4.3.1	One no experienced paramedical personnel with first aid facility at site is must. No medical facility within / near the site shall be provided by BHEL.	
5.4.3.2	No staff quarter shall be provided by BHEL.	
5.4.3.3	All site execution approaches required for movement of cranes, trailers, trucks, dumpers, etc shall be arranged by the contractor at his own cost.	
5.4.3.4	The contractor shall solely be responsible for the safety, quality, & quantity of material after it is handed over and issued to contractor by the BHEL.	
<b>6.0</b>	<b>PROJECT MANAGEMENT</b>	
6.1	The bidder shall prepare detail schedule L1/ (L-2) and submit within 30-days of LOI for BHEL approval, as per MILESTONE completion schedule given in this document. This schedule must include all milestone and key activities for each package/subsystems/components in his scope of work in the areas of mobilization, engineering, procurement, manufacture, inspection, despatch, civil works / erection /commissioning / handing over.	
6.2	<b>CONSTRUCTION SCHEDULE</b>	
6.2.1	The contractor shall furnish an offer stage Master network / Bar Chart (L1 schedule) in accordance with the Project milestone schedule. The Contract Master Bar Chart will be negotiated with the successful Bidder.	
6.2.2	The successful contractor shall prepare and maintain the detailed Master Schedule (L2 network) during the course of the work.	
6.2.3	Theses network must conform to the overall requirement of the project schedule as detailed below. The bidder should also ensure monitoring of these activities at least on weekly basis to start with and on daily basis whenever required by BHEL.	
6.2.3.1	<b>PROJECT MILESTONES</b>	
	Sl no	Schedule
	1.0	Boiler light up.
	2.0	Turbine barring gear.
	3.0	Synchronization.
	4.0	Commercial operation declaration
		OCT '13
		DEC '13
		JAN '14
		MAR '14
6.2.4	<b>GENERAL</b>	
6.2.4.1	The Contractor shall be responsible for planning and scheduling the work and reporting its progress in a manner, format and level of detail acceptable to BHEL. These plans shall be in accordance with the intermediate milestones and the completion dates as specified by and agreed in the Contract.	
6.2.4.2	The contractor shall be responsible for reporting progress to purchaser on a weekly and monthly basis. Progress reports shall be presented in a clear and logical fashion preferably through a software disc and in PDS format mutually agreed between BHEL and Contractor.	
6.2.5	<b>DETAILED MASTER SCHEDULE (L2 NETWORK)</b>	
6.2.5.1	Within thirty (30) days of the letter of intent date, contractor shall submit to purchaser the detailed Master Schedule (L2 schedule) along with summary network/ bar chart (L1 schedule) for approval. L2 schedule shall be the working level document demonstrating contractor's ability and methods of completing the work within the key milestones identified in the tender specification.	
6.2.5.2	The CMS shall be based on a computerized logic network. The level of detail shall be sufficient to break down the work scope into manageable and measurable activities acceptable to Purchaser. All activities shall have durations in days.	
6.2.5.3	The contractor shall provide a detailed activity bar chart based on the resource scheduled logic network. The bar chart shall contain activity descriptions, planned start and finish dates with the critical path activities clearly identified. The network / bar chart shall be updated weekly to indicate actual progress.	
6.2.5.4	The CMS shall include the required dates of all external input required to execute the plan. In addition the CMS shall clearly show all Sub-contract award dates and Sub-contractor activities right from preparation of specification & floating of tender.	
6.2.5.5	In addition contractor shall furnish percentage - based progress 'S' curve indicating, the required rate of progress necessary to complete the work according to the CMS. The 'S' curve shall be updated weekly to plot actual progress against planned.	

6.3	<b>PROGRESS MEASUREMENT AND MONITORING</b>
6.3.1	The contractor shall measure progress of the work using its own methods and procedures preferably in prima-vera.
6.3.2	Weekly progress review meetings will be held at site during which actual progress during the week vis-à-vis scheduled program shall be discussed and action to be taken for achieving targets will be decided. For discussions, the contractor shall present program of subsequent week. The contractor shall constantly update/revise his work program to meet the overall requirement.
6.3.3	Periodic progress reviews on the entire activities of execution in respect of engineering, quality, procurement, supply and works in scope of bidder will be held once in a month at Kolkata/ site/ vendor's premise/ BHEL/ PEM, Noida or any other convenient premise. These meetings will be attended by reasonably higher officials of the vendor along with its sub-vendors & consultant as applicable and will be used as a forum for discussing all areas where progress needs to be speeded up. The contractor shall be further responsible for ensuring that suitable steps are taken to meet various targets decided in such meetings.
6.3.4	Contractor shall identify separate overall Project Manger, Construction Manger, Engineering Manger, Quality manger and selection of various Key personnel shall be subject to BHEL approval.
6.4	<b>REPORTING</b>
6.4.1	The contractor shall submit weekly progress reports to purchaser in the agreed formats submitted in adequate number of signed originals. The report shall include -
6.4.1.1	Brief narrative of work performed during the week.
6.4.1.2	CMS barchart showing progress at activity level.
6.4.1.3	Updated progress 'S' Curves showing actual progress.
6.4.1.4	Milestones achieved and new activities started.
6.4.1.5	Status of critical activities.
6.4.2	The contractor shall submit monthly progress reports to Purchaser in the agreed formats submitted in adequate number of signed originals. The report shall include the weekly report content and shall be supplemented with the following.
6.4.2.1	Engineering status.
6.4.2.2	Procurement status.
6.4.2.3	Manufacturing status.
6.4.2.4	Inspection & despatch status.
6.4.2.5	Material in transit.
6.4.2.6	Civil works, erection & commissioning status.
6.4.2.7	Safety report.
6.4.2.8	Change order status.
6.4.2.9	Updated CMS(L1/L2 schedule)indicating status.
6.4.2.10	Executive summary, areas of concern etc.
6.4.2.11	Progress photographs.
6.4.3	Adequate numbers of color photographs, in triplicate, (matt paper, post card size for each area per month of the contract execution period), depicting progress of the work or damage to the machine parts, if any, as directed by BHEL site engineer is to be arranged by the successful bidder at his own cost.
6.4.4	The progress report shall be compiled in computer and is required to be furnished over "E Mail, in addition to hard copies and summary report shall be made 'Web enabled' in agreed format.
6.5	<b>COMPUTER INFRASTRUCTURE</b>
6.5.1	The bidder will have to install adequate number of PCs (MULTIMEDIA PC WORK STATION P-IV 2 GHz OR ABOVE, 80 GB & 512 MB RAM OF HP/HCL/COMPAQ OR EQUIVALENT MAKE WITH WINDOW XP O/S AND REQUIRED SOFTWARES LIKE MS OFFICE XP PROFESSIONAL, AUTOCAD-2000, PAGEMAKER 7.0 etc.) with LASERJET printers with Power backup at places, at his site office as per instruction of BHEL. The computerized system of vendor at site must have internet /E mail facilities and shall connect with BHEL data / voice data network. These computers/printers shall remain Contractor's property and they will be allowed to take out the same after completion of the works under this tender specification. The contractor shall provide data / information etc. in prescribed formats for periodical

	updating of the progress reports, material management reports, updating of network, invoicing etc. pertaining to the contractor's scope of work etc.
6.5.2	Successful bidder has to provide for electronic/ computerized storing and re-production/ printing/ plotting of various data, log sheets, protocols, measurements etc. These may be stored in virus free floppies (3.5", 1.44 MB)/CD (as per requirement) and handed over to BHEL as per requirement.
<b>7.0</b>	<b>CONSUMABLE</b>
7.1	All consumables, like gas, electrodes, chemicals, lubricants, erection & commissioning spares etc required for the job shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.
7.2	All consumables to be used for the job shall be approved by BHEL prior to use.
7.3	In the event of failure of contractor to bring necessary and sufficient consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be paid by the contractor or deducted from the contractor's bills.
<b>8.0</b>	<b>IMTE</b>
	The contractor shall ensure deployment of reliable and calibrated instrument, measuring and test equipments (IMTE). The IMTE shall have test/calibration certificate from authorised/Govt approved agencies. The contractor shall also keep provision of alternate arrangement for such IMTE so that the work does not suffer when a particular IMTE is sent for calibration. Re-testing/re-calibration shall also be arranged by the contractor at their own cost at regular interval during the period of use as advised by BHEL.
<b>9.0</b>	<b>GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)</b>
9.1	Except where otherwise specified, the plant/equipment shall comply with the appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in contract specifications, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the Bidder shall give all particulars and details as necessary; to enable BHEL to identify all of the plant/equipment in the same detail as would be possible had there been a Standard Specification.
9.2	Where the Bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each Standard Specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
9.3	In the event of any conflict between the codes & standards referred above, and the requirements of this specification, the requirements which are more stringent shall govern.
9.4	Tools used during erection and commissioning shall not be accepted except with the specific approval of the Engineer.
9.5	Wherever specified or required the plant/ equipment shall conform to various statutory regulation such as Indian Boiler Regulation, Indian Electricity Rules, Indian Explosive Act, Factories Act etc. wherever required, obtaining approval for Plant / Equipment supplied under the specification from statutory authorities shall be the responsibility of the contractor.
<b>10.0</b>	<b>TEST CERTIFICATE FOR T&amp;P</b>
10.1	All T&P, lifting tackles and pulling devices to be deployed by the contractor must bear valid / latest test certificates for their suitability, and the documents shall be preserved at site.
10.2	In case of expiry of validity of any such test certificate during construction, the contractor shall arrange for revalidation of the same well in advance, so that the construction activities do not suffer on account of non-availability of such Test certificates.
10.3	The contractor should also submit to BHEL for approval a list of T&Ps along with their fitness certificates. The tools & tackles shall not be removed from site without written permission of BHEL.
<b>11.0</b>	<b>ISSUE OF T&amp;Ps</b>
11.1	Deployment of all T&Ps for this tender shall be contractor's responsibility. However, if BHEL issues any T&Ps, the same shall be on chargeable basis as per BHEL

	norms.
11.2	In the event of BHEL issued T&Ps, measuring instruments etc, contractor and BHEL shall maintain joint protocol about the condition of all T&P, instruments etc taken from BHEL's custody and return to BHEL after use. The contractor shall not use these equipment for purposes other than the scope of work given in this tender document.
11.3	It is the responsibility of contractor to keep these equipments always in working condition and ensure their safe return in working condition to BHEL's store subject to normal wear & tear.
11.4	After use of T&P items issued by BHEL the same shall be returned to BHEL in good working condition subject to normal wear & tear failing which recoveries at the book value of the item or the market rate prevailing at the time of returning the items, whichever is higher shall be made from the payments due to the contractor from BHEL from this contract or from any other contract.
<b>12.0</b>	<b>SERVICES TO BE RENDERED BY THE BIDDER</b> Services for construction, fabrication, equipment erection, testing as well as trial run & commissioning of various equipment and accessories under the contract shall include but not be limited to the following:
12.1	Unloading of materials at railway station/ transporter's godown/ railway siding/ inside or outside the project area, transportation to contractor's stores, assessment of lost/damaged items in transit/ storage erection & commissioning, arranging the Insurance claims and replacement of lost/ damaged items. The contractor shall be responsible for making good the losses/ damages for cases for which BHEL is unable to lodge Insurance claim. BHEL is unable to recover to recover the full cost from Insurance company against any claims, the balance including deductible franchise wherever applicable, will be recovered from the Contractor.
12.2	Issuing materials from store/open yard as specified earlier from time to time for erection as per the construction programme. The contractor shall be the custodian of all the materials issued till the plant/equipment is officially taken over by the owner/ BHEL after complete erection any successful trial run & commissioning.
12.3	Transport of material to their respective places of erection and erection of the complete plant & equipment as supplied under this specification.
12.4	Trial run and commissioning of individual equipment/ sub-systems to the satisfaction of owner/ BHEL.
12.5	Deployment of all skilled and unskilled manpower required for erection, supervision of erection, watch & ward, commissioning and other services to the rendered under this specification.
12.6	Deployment of all erection tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the erection work to be handled under scope of this specification except otherwise specified.
12.7	Supply of all consumables, eg welding electrodes, cleaning agents, diesel oil, lubricant etc as well as materials required for temporary supports, scaffolding etc as necessary for such erection work, unless specified other wise.
12.8	Providing support services for the contractor's erection staff e.g., Construction of site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under the contractor's custody etc. as required.
12.9	Maintaining proper documentation of all the site activities undertaken by the Contractor as per the proforma mutually agreed with BHEL, Submitting monthly progress reports as also any such document as and when desired by BHEL/owner, taking approval of all statutory authorities, ie Boiler Inspector, Factory Inspector, Inspector of Explosives etc , as applicable for respective portions of work under the jurisdiction of such statutes of laws.
12.10	All the materials issued to the bidder by BHEL shall be reconciled by the bidder and the unused materials have to be returned back to BHEL stores/yard or any other place as specified by BHEL.
12.11	Supply and application of final paint on all the equipment to be erected is under the scope of the contractor.

12.12	After completion of the commissioning activity of equipment /systems, the contractor shall prepare the test Reports which shall include all the relevant information related to various commissioning checks, tests carried out, any deviations / commissioning noticed w.r.t. the intended design requirements, sequence of various commissioning activities as actually adopted vis-à-vis as recommended in the procedures, programme schedule achieved and any other such information as required .These Test Reports shall be submitted in requisite number of copies to BHEL/Owner /Contractor involved during the commissioning activities.
12.13	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.
<b>13.0</b>	<b>PROTECTION</b>
13.1	Equipment having anti-friction or sleeve bearings shall be protected by weather tight enclosures. Coated surfaces shall be protected against impact, abrasion, discoloration and other damages. Surfaces which are damaged shall be repainted.
13.2	Electrical equipment, controls and instrumentations shall be protected against moisture and water damages. All external gasket surfaces and flange faces, couplings, rotating equipment shafts, bearings and like items shall be thoroughly cleaned and coated with rust preventive compound and protected with suitable wood, metal or other substantial type covering to ensure their full protection. All exposed threaded parts shall be greased and protected with metallic or other substantial type protectors.
13.3	All piping, tubing and conduit connections on equipment and equipment openings shall be closed with rough usage covers or plugs. Female threaded openings shall be closed with rough usage covers or plugs or forged steel plugs. The closures shall be taped to seal the interior of the equipment. Open ends of piping, tubing and conduit shall be sealed and taped.
13.4	All erected equipment/ components to be preserved as per the preservation recommendation of BHEL. For this type of preservation, contractor shall engage an exclusive team of persons for meeting the continuous requirement. However, the required preservatives will be supplied to the contractor free of cost. All other consumables including wire brush, emery papers, painting brush etc to be supplied by the contractor within the quoted rate.
<b>14.0</b>	<b>ERECTION SERVICES</b>
14.1	As part of the overall project management activity, the contractor shall be responsible for proper co-ordination of erection activities during various phases of execution of the contract. The contractor shall identify a person designated as construction manager, with whom BHEL shall interact on matters related to execution of the contract. The construction manager shall be the single point contract person on behalf of the contractor. BHEL shall interact with the construction manager only on all matters on co-ordination between BHEL and the contractor.
14.2	The contractor shall confine all his field operations to those works which can be reformed without subjecting the equipment and materials to adverse effects, during inclement weather conditions, like monsoon, storms etc. and during other unfavorable construction conditions. No field activities shall be performed by the contractor under conditions which might adversely effect the quality and efficiency thereof, unless special precautions or measures are taken by the contractor in proper and satisfactory manner in the performance of such works and with the concurrence of the engineer. Such unfavorable construction conditions in no way relieve the contractor of his responsibility to perform the works as per the schedule.
14.3	The contractor shall supply all skilled workmen HP welders, gas cutters, electricians, riggers, sarangs, erectors, carpenters, fitters, masons, ladders, tin-smiths, instrument machines etc, in addition to other skilled, semi-skilled and unskilled workmen required for all the works of handling and transportation from site store to erection site, erection, testing and commissioning contemplated under this specification. Only fully trained and competent men with previous experience on the job shall be employed. They shall hold valid certificates wherever necessary. BHEL reserves the right to decide on the suitability of the workers and the other personnel who will be employed by the contractor. BHEL reserves the right to insist on removal of any employee of the contractor at any time, if they find him

	unsuitable and the contractor shall forthwith remove him.
14.4	The supervisory staff employed by the contractor shall be technically qualified and experienced in the area of work. They shall ensure proper out turn of work and discipline on the part of labour put on the job by the contractor and in general see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL and BHEL's client/consultant.
14.5	The contractor shall also furnish daily labour report showing by classification the number of employees engaged in various categories of work a progress report of work as required by BHEL Engineer.
14.6	The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The contractor and his personnel shall co-operate with other personnel, and other contractors, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
14.7	The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerance given in the drawing/ instruction given by BHEL Engineer from time to time.
14.8	It is the responsibility of the contractor to engage his workman in shifts or on overtime basis for achieving the target set by BHEL during erection, commissioning and testing period. Contractor's quoted rate shall include all these contingencies.
14.9	For rendering commissioning assistance during running of the unit till handing over of the set, a dedicated gang along with an exclusive supervisor need to be deployed by the vendor to attend the incidental works of commissioning as per the instruction of BHEL commissioning engineer. The gang need to be provided during night shift also whenever required by BHEL commissioning engineer. They shall be equipped with all necessary hand-tools to attend all the incidental works during commissioning.
<b>15.0</b>	<b>DEWATERING</b> Contractor shall ensure at all times that his work area & approach/access roads are free from accumulation of water, so that the materials are safe and the erection/progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchment water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.
<b>16.0</b>	<b>AREA REQUIREMENT</b> The contractor shall furnish the estimated area required for the construction of his office, stores, etc separately. The same will be reviewed by BHEL and allotted to the extent available/ considered necessary, depending upon the area availability.
<b>17.0</b>	<b>CONSTRUCTION OF TEMPORARY OFFICE , STORES ETC.</b> The contractor shall arrange at his own cost the construction of his temporary office, stores, fabrication yards, labour colony etc and also the watch & ward of all above.
<b>18.0</b>	<b>RECONCILIATION OF MATERIALS</b>
18.1	Contractor shall submit a reconciliation statement of material after completion of job.
18.2	The contractor shall return the unused plant materials under their custody to BHEL's store/ yard at their own cost.
<b>19.0</b>	<b>COMPLETION PERIOD</b> The vendor shall execute the works of main scope in such manner that entire work of erection, testing, commissioning, trial run, PG test, handing over, etc are completed within 22(twenty-two) months from the date of start of work.
<b>20.0</b>	<b>LIQUIDATED DAMAGES (LD)</b>
20.1	Subject to force majeure, if vendor fail to complete the scope of tender within aforesaid completion period, BHEL shall have the right to recover as liquidated damages (LD) a sum equivalent to 0.25 % (One quarter percent) of the contract price, including taxes, duties etc (service part of the price schedule) for delay of each week or part thereof. The liability for delay shall not in any case exceed 5 % (Five percent) of the contract price, including taxes and duties (service part of the price

	schedule).
<b>20.2</b>	BHEL shall deduct the amount of such compensation from any money due or which may become due to the vendor and/or recover such compensation from the bank guarantees/ security deposit of the vendor. To be entitled to impose such compensation, BHEL will not be required to prove that he has incurred such amount as actual damage.
20.3	BHEL reserve the right to cancel the order/ contract or a portion thereof at the risk & cost of the vendor and the vendor shall be liable to BHEL for any excess costs thereof.
20.4	The vendor shall continue the performance of the order/ contract under all circumstances, to the extent not cancelled.
<b>21.0</b>	<b>TERMS OF PAYMENT</b>
21.1	FOR SERVICE PART
21.1.1	The details of terms of payment based on contract price shall be as under.
21.1.1.1	80 % (Eighty percent) of contract price, on pro-rata basis for the work completed as per approved billing schedule, shall be released as progressive payment, by the site authorities, on submission of protocols duly signed by BHEL site official(s)/ owner.
21.1.1.2	10 % (ten percent) of the contract price, on pro-rata basis as per approved billing schedule, shall be released by the site authorities, on successful commissioning.
21.1.1.3	5 % (five percent) of the contract price shall be released against trail run of the system/ package.
21.1.1.4	5 % (five percent) of the contract price shall be released against - (i) Successful completion of the PG test/ demonstration test of the system/ package, as applicable; (ii) Material reconciliation, liquidation of pending points etc and (iii) Handing over of the system/ package to the owner/BHEL.  In case of delay in completion of above activities, for reasons not attributable to the bidder, this amount can be paid on submission of BG of equivalent amount, valid initially for 6 months & to be revalidated till completion of PG test/ demonstration test or handing over of the system/ package, whichever is later.  However, bidder has to fulfill all formalities for final billing/ contract closing prior to drawing this payment.
<b>22.0</b>	<b>PRICE VARIATION CLAIM (PVC) / RATE REVISION</b>
	The quoted/ accepted contract value is lump-sum and fixed and PVC/ rate revision etc. are not admissible . No ORC applicable for this package .
<b>23.0</b>	<b>SECURITY DEPOSIT (SD) AND PERFORMANCE BOND (PB)</b>
23.1	Security deposit shall be as per respective clauses of GCC-IB for services contract.
23.2	Performance Bond, in the form of Bank Guarantee for an amount of 5 % of contract price for scope of services shall be submitted by the contractor within 30-days of issue of LOI. The bond shall be kept valid until six months after the expiry of warranty / guarantee period.
<b>24.0</b>	<b>TRAINING OF OWNER'S / PURCHASER'S PERSONNEL</b>
	The contractor shall undertake to train free of cost personnel selected and sent by the owner/ purchaser to the works of contractor. The period and nature of training and number of individual personnel shall be agreed upon mutually between the contractor and Owner/purchaser. These engineers shall be given special training in the shops where the equipment shall be manufactured either in India or abroad and where possible in any other Power Plant where manufactured equipment is under installation or test to enable them to become familiar with the equipment being supplied to the Purchaser. In the event of the Owner/purchaser for any reason failing to avail of the training facilities, purchaser shall not be entitled to any rebate whatsoever on this account.
<b>25.0</b>	<b>TAXES AND DUTIES</b>
25.1	Service Tax ( including Educational Cess ) as legally leviable & payable by the vendor under the provisions of applicable law/ act shall be paid by BHEL as per vendor's bill. However, vendor shall have to submit proof of Service Tax deposited by them immediately after the deposit but not later than the next bill submitted after the due date of deposit. The vendor shall furnish proof of Service Tax registration

	with Central Excise Division covering the services covered under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by vendor on BHEL for this project. The vendor shall obtain prior approval of BHEL before billing Service Tax amount.
25.2	With introduction of CENVAT credit rules 2004 which came into force wef 10-09-04, Excise Duty paid on input goods including capital goods used for providing the output service and Service Tax paid on input service can be taken credit of against the Service Tax payable on output service. As such, while offering the rates, the vendors may take into account the benefit of above provisions as the cost of input to vendors will be the cost net of Excise Duty and Service Tax and adjust their offer price accordingly to make it more competitive.
25.3	As such, the bidder's quoted price shall be exclusive of Service Tax (including Educational Cess). Any changes in Service Tax rules (by Govt) shall be complied with .
25.4	TDS under Income Tax, V.A.T etc, if any, shall be deducted at prevailing rates on Gross Invoice Value from the Running Bills unless Exemption Certificate from the Appropriate Authority/ Authorities is furnished.
25.5	All taxes ( except Service Tax including Educational Cess and other Cess , if any ) , Works Contract Tax under V.A.T ACT, charges royalties, duties, Octroi , Entry Tax. any State or Central Levy and other Taxes for materials obtained for the work and for the Execution of the Contract shall be borne by the Contractor and shall not be payable extra. Any Increase of the same at any stage during execution of the Contract shall have to be borne by the Contractor . Quoted price of the bidder shall be inclusive of all such requirements after taking the Input Credit , if any, as per provisions of the State V.A.T ACT. The Contractor is responsible to furnish all documentary evidences towards payment of Works Contract Tax as and when required by BHEL. Submission of Tax Invoice is a must after Grossing up the Bills as the price is inclusive of VAT and other Taxes .
25.6	Contractor has to obtain Tax Clearance Certificate from the prescribed Authority in terms of SEC 42 OF BIHAR VALUE ADDED TAX ACT, 2005 read with Rule 28 of BIHAR VALUE ADDED TAX Rule , 2005 before issue of W.O to Contractor .
25.7	Entry Tax : Contractor has to get Entry Tax Registration Certificate from Local Sales Tax Authority and has to pay Entry Tax for bringing scheduled goods to local area Barauni for use, sale & consumption for this Project / Work Order . Entry Tax paid Challan / Invoice Copy shall be made available to BHEL-Site Finance on a monthly basis .
25.8	The Contractor has to make his own arrangement at his cost for completing the formalities ,if required, with State V.A.T. Act Authorities , for bringing their materials ,plants and machinery at Site for the execution of the Works under this Contract , Road Permit / Way Bill, if required, shall be arranged by the Contractor and BHEL-P.S.E.R will not supply any Road Permit/Way Bill for this purpose. The Contractor must be a Registered Dealer with the State VAT Act ,if not Registered yet and a copy of the said Registration Certificate along with TIN Number must be provided to Site R.A.O.
25.9	New tax & duties, if imposed subsequent to latest due date of offer submission, as per NIT & TCN, as applicable, by statutory authority after due date of submission of latest price offer and within the contract period including extension, if any (provided reason for extension is not attributable to vendor), shall be reimbursed by BHEL at actual on production of relevant supporting document to the satisfaction of BHEL. However, the vendor shall obtain prior approval from BHEL before depositing new taxes & duties.
<b>26.0</b>	<b>PAYING AUTHORITY</b>
	Construction Manager, BHEL site office, 2 X250 MW Barauni TPS extension project Barauni TPS, P.O. BTPS Dist. Begusarai Bihar – 851116
<b>27.0</b>	<b>INSURANCE</b>

27.1	BHEL shall arrange comprehensive MCE (marine cum erection) Insurance Policy for total project supply & services including balance of plant package covering transit risks & loss, destruction or damage during handling at Site, Storage, civil works ,erection, testing and commissioning up to trial operation completion of each unit including theft, sabotage, fire, lightning and other natural calamities.
27.2	Contractor shall timely intimate despatches to the underwriter. The name of the underwriter and Policy No. shall be intimated in due course of time.
27.3	Contractor shall report to BHEL in writing any damages to equipments/components on receipt, storing, and during withdrawal of the materials from stores, in transit to site and unloading at place of work and during erection and commissioning till trial operation completion including handing over. The above report shall be as prescribed by BHEL site management. Any consequential loss arising out of non-compliance of this stipulation will be borne by contractor.
27.4	The contractor will take necessary precautions/due care to protect the material at Project site, while in his custody from any damage/loss till the same is handed over to BHEL / customer at Project site. For lodging/processing of insurance claim the contractor will submit necessary documents. BHEL will reserve the right to recover the loss from the contractor as detailed below in case the damage/loss is due to negligence/carelessness on the part of the contractor. In case of theft of material under contractor's custody, the same shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL/customer for taking up with insurance. However this will not relieve the contractor of his contractual obligation for the materials in his custody.
27.5	In case the damage/loss/theft of materials are attributable to negligence/failure in discharging the duties and obligations of the contractor, the expenses incurred for repair/replacement of such components in excess of the amount realized from the underwriters, limited to Normal Excess (Deductible Franchise) shall be recovered from the contractor.
27.6	In case the claim is summarily rejected by the underwriters due to WILFUL NEGLIGENCE of the contractor, the entire cost of repair/replacement will be recovered from the contractor.
27.7	It will be responsibility of the contractor to replenish the items lost/ damaged in time without hampering the schedule of work and without waiting for settlement of insurance claim. Amount received from the underwriters on settlement of insurance claim shall be passed on to the contractor as and when available.
27.8	Other conditions of Insurance shall be as per relevant clause of GCC.
<b>29.0</b>	<b>WARRANTY &amp; MAINTENANCE</b>
29.1	The Contractor shall warrant that the equipment will be new and in accordance with the Contract Documents and free from defects arising due to deficiencies in design and engineering and from defects in material and workmanship for a period of twelve (12) calendar months commencing immediately upon the satisfactory completion of the Trial Operations and handing over of individual unit. The equipment shall operate satisfactorily and reliably and the performance and efficiency of the equipment (s) shall not be less than the respective guaranteed values.
29.2	The contractor shall be liable to repair or replace/ upgrade with specific consent of owner, any defective parts that may develop in the plant of his own manufacture or those his sub suppliers under the conditions provided for by the contract and under proper use and arising solely from faulty design, materials and/ or workmanship. Any defect removal at site by repair/ up-gradation of the installed equipment/ component /material will be permitted by the owner only when such repair/ up-gradation in the meantime, is not detrimental to the commercial use of the plant. All replaced defective parts shall be returned to the contractor unless otherwise arranged. No repairs or replacement shall normally be carried out by the engineer when the plant is under the supervision of the contractor's supervisory engineers.
29.3	The contractor's obligations against the above clause shall be limited to repairing or replacing with all incidental charges from site to the contractor's work and/or his sub-supplier's works and back to site. In case of defective parts not repairable at site but, essential in the meantime for the commercial operation of the equipment, the contractor and the purchaser/ owner shall mutually agree to a program of

	replacement or renewal which will minimize to the maximum extent interruption in the operation of the equipment.	
29.4	The acceptance of the equipment by the Engineer shall in no way relieve the Contractor of his obligation under this clause.	
29.5	In the event of any emergency where, in the judgment of the engineer, delay would cause serious loss or damages, repairs or adjustment may be made by the engineer or a third party chosen by the engineer without advance notice to the contractor and the cost of such work shall be paid by the contractor. In the event such action is taken by the engineer, the contractor will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the contractor's liability under the terms and conditions of the contract.	
29.6	If it becomes necessary for the contractor to replace or renew any defective portions of the plant, the provision of this clause shall apply to portion of the plant so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the warranty period as specified in clause whichever may be later. If any defects are not remedied within 30 days, the engineer may proceed to do the work at the contractor's risk & cost, but without prejudice to any other rights which BHEL may have against the contractor in respect of such defects.	
29.7	If the replacement or renewals are of such character as may affect the efficiency of the plant, the purchaser/ owner shall have the right to give to the contractor within one month of such replacement or renewal, notice in writing that 'acceptance tests on completion' be made, in which case such tests shall be carried out as per approved QAP/ BHEL guidelines.	
29.8	The repaired or new parts will be furnished and erected free of cost by the contractor. If any repair is carried out on his behalf at the site, the contractor shall bear the cost of such repairs.	
29.9	The cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the plant or defective work carried out by the contractor shall be borne by the contractor.	
29.10	In respect of goods supplied by sub-contractors to the contractor where a longer guarantee (more than 12 months) is provided by such sub-contractors, the owner/BHEL shall be entitled to the benefit of such longer guarantee.	
<b>29.0</b>	<b>WORK &amp; SAFETY REGULATIONS</b>	
29.1	The contractor shall ensure the safety of all workmen, materials and equipment either belonging to him or to others working at site. He shall observe safety rules and codes applied by the owner/ BHEL at site without exception.	
29.2	Passenger lift should have safety cage with multiple rope, ie with safety rope & limit switch.	
29.3	Safety nets with hand railings must be provided on all both inside & outside hanging platform of slip-form equipment & hanging platform from brickwork.	
29.4	Emergency vehicle must be provided.	
29.5	Non-conformity of safety rules and safety appliances will be viewed seriously and BHEL has right to impose fines on the contractor on each incident/each non-conformity as per details given below:	
	Safety measure	Fine (Rs)
29.5.1	Not wearing safety helmet.	5/workmen
29.5.2	Not wearing safety belt.	10/workmen
29.5.3	Grinding without goggles.	25/workmen
29.5.4	Not using 24V supply for internal work.	500/case
29.5.5	Electrical plugs not used for hand machines.	100/case
29.5.6	Welding cables, electrical wires using insulated with proper/standard.	50/joint
29.5.7	Not removing scrap from platform.	Actual cost for removal plus 30 %
29.5.8	Gas cutting without taking proper precaution/not using sheet below per incidence.	100/case
29.5.9	Electrical winches having no guards earthed properly etc.	500/case
29.5.10	Improper earthing of electrical T&P.	200/ equipment
29.5.11	Not protecting/ locating the gas cylinder to avoid catching of	100/cylinder

	fire.	
29.5.12	Not providing earth leakage circuit breaker as per direction of BHEL.	1000/point
29.6	Any other nonconformity noticed not listed above will also be fined. The decision of BHEL engineer is final on the above. The amount will be deducted from running bills of the contractor. The amount collected on the above will be utilised for giving award to the employee who could avoid accidents by following safety rules. Also, the amount will be spent for improving the safety at site.	
29.7	The contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislation and BHEL/ owner, as he may deem necessary.	
29.8	The contractor will notify well in advance to BHEL/ owner of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals, which may involve hazards. BHEL/ owner shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the contractor shall strictly adhere to and comply with such instructions. BHEL/ owner shall have the right at his sole discretion to inspect any such container or such construction plant/equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its use. BHEL/ owner shall entertain no claim due to such prohibition and BHEL/ owner shall not entertain any claim of the contractor towards additional safety provisions/ conditions to be provided for/ constructed as per BHEL/ owner's instructions.	
29.9	Further, any such decision of BHEL/owner shall not, in any way, absolve the contractor of his responsibilities and in case, use of such a container or entry thereof into the Site area is forbidden by BHEL/owner, the contractor shall use alternative methods with the approval of BHEL/owner without any cost implication to owner or extension of work schedule.	
29.10	Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosives, the Contractor shall be responsible for carrying-out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act, 1948, and Petroleum and Carbide of Calcium Manual published by the Chief Inspector of Explosives of India. All such storage shall have prior approval of BHEL/ owner. In case, any approvals are necessary from the Chief Inspector (Explosives) or any statutory authorities, the Contractor shall be responsible for obtaining the same.	
29.11	All equipment used in construction and erection by contractor shall meet Indian/ International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipments shall be strictly operated and maintained by the contractor in accordance with manufacturer's operation Manual and safety instructions and as per Guidelines/ Rules of owner in this regard.	
29.12	Periodical examinations and all tests for all lifting/ hoisting equipment & tackles shall be carried-out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/ Rules in force from time to time. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by BHEL/owner or by the person authorized by him.	
29.13	The contractor shall be fully responsible for the safe storage of his and his sub-contractor's radioactive sources in accordance with BARC/ DAE (Bhabha Atomic Research Center/ Department of Atomic Energy, Govt. of India) Rules and other applicable provisions. All precautionary measures stipulated by BARC/ DAE in connection with use, Contractor would take storage and handling of such material.	
29.14	The contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need, as may be directed by BHEL/owner who will also have right to examine these safety equipments to determine their suitability, reliability, acceptability and adaptability.	
29.15	Where explosives are to be used, the same shall be used under the direct control and supervision of an expert, experienced, qualified and competent person strictly in accordance with the Code of Practices/Rules framed under Indian Explosives Act	

	pertaining to handling, storage and use of explosives.
29.16	The contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control & supervision of an experienced and competent person. For erection, the contractor only shall use good and standard quality of material.
29.17	The contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to BHEL/ owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by owner to handle such fuses, wiring or electrical equipment.
29.18	Before the contractor connects any electrical appliances to any plug or socket belonging to the other contractor or BHEL/ owner, he shall comply with following.
29.18.1	Satisfy the BHEL/owner that the appliance is in good working condition.
29.18.2	Inform the BHEL/owner of the maximum current rating, voltage and phases of the appliances.
29.18.3	Obtain permission of the BHEL/owner detailing the sockets to which the appliances may be connected.
29.19	BHEL/owner will not grant permission to connect until he is satisfied with following.
29.19.1	The appliance is in good condition and is fitted with suitable plug;
29.19.2	The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.
29.20	No electric cable in use by the contractor/ BHEL/ owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.
29.21	No repair work shall be carried out on any live equipment. BHEL/owner must declare the equipment safe and a permit to work shall be issued by the BHEL/owner before the Contractor carries out any repair work. While working on electric lines/equipments whether live or dead, suitable type and sufficient quantity of tools will have to be provided by Contractor to electricians/workmen/officers.
29.22	The contractors shall employ necessary number of qualified, full time Electricians/ Electrical Supervisors to maintain his temporary electrical installations.
29.23	The contractor shall employ a qualified Safety Officer under approval of BHEL site-in-charge at site before submission of first RA bill to supervise day to day safety aspects of the equipments and workmen, who will co- ordinate with BHEL/ owner Safety Officer. In case of work being carried out through sub- contractors, the sub-contractor's workmen/ employees will also be considered as the contractor's employees/ workmen for the above purpose.
29.24	The name and address of such Safety Officer of contractor will be promptly informed in writing to BHEL/ owner with a copy to Safety Officer-In charge before he starts work or immediately after any change of the incumbent is made during currency of the contract.
29.25	In case any accident occurs during the construction/ erection or other associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the contractor to promptly inform the same to BHEL/ owner in prescribed form and also to all the authorities envisaged under the applicable laws.
29.26	BHEL/ owner shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipments. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/ accident and he shall comply to remove shortcomings promptly.
29.27	The contractor shall not be entitled for any damages/ compensation for stoppage of work due to safety reasons above and the period of such stoppage of work will not be taken as an extension of time for completion of the facilities and will not be the ground for waiver of levy of penalty.
29.29	The contractor shall follow and comply with all Safety Rules of BHEL/ owner, relevant provisions of applicable laws pertaining to the safety of workmen, employees plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservation. In case of any inconformity between

	statutory requirement and owner's Safety Rules of BHEL/ owner referred above, the later shall be binding on contractor unless statutory provisions are more stringent.
29.29	If the contractor fails in providing safe working environment as per the owner's Safety Rules or continues the work even after being instructed to stop work by BHEL/ owner as provided above, the contractor shall promptly pay to BHEL/ owner, on demand by the BHEL/owner compensation at the rate of Rs 5,000.00 per day or part thereof till the instructions are complied with and so certified by BHEL/ owner. However, in case of accident taking place-causing injury, to any individual, the provisions contained in relevant paragraph shall also apply in addition to compensation mentioned in this paragraph.
29.30	If the contractor does not take all safety precautions and/or fails to comply with the Safety Rules as prescribed by owner or under the applicable law for the safety of the equipment & plant and for the safety of personnel and the contractor does not prevent hazardous conditions which cause injury to his own employees or employees of other contractors, or the owner employees or any other person who are at Site or adjacent thereto, the contractor shall be responsible for payment of compensation to owner as per the following schedule:
29.30.1	Fatal injury or accident causing death - Rs 1,00,000/person.
29.30.2	Major injuries or accident causing 25% or more permanent disablement to workmen or employees – Rs 20,000/person.
29.31	Permanent disablement shall have same meaning as indicated in Workmen's Compensation Act. The compensation mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the Workmen's Compensation Act and rules framed there under or any other applicable laws as applicable from time to time. In case the BHEL/ owner is made to pay such Compensation then the contractor is liable to reimburse BHEL/ owner such amount in addition to the compensation indicated above.
29.32	These insurance covers have to be taken prior to start of his work at the subject project and he shall make available the Policy to BHEL Construction Manager for necessary verification before commencement of work. However, irrespective of such verification/ acceptance, the sole responsibility to maintain adequate insurance cover for his workmen, T&P, assets etc. at all times during the period of contract shall lie with the contractor. Regarding the aforesaid insurance cover, the contractor shall directly deal with the Insurance Company for all matters regarding the insurance in his scope.
29.33	The vendor will follow HSE policy of BHEL/ PSER and work as per the safety guidelines which is in line with ISO:14001 and OHSAS:18001 standards. A list of the guidelines which should be strictly followed by the vendor is as follows. The scope of vendor shall not be limited to the followings only but shall be guided by the HSE related policies/ guidelines of BHEL as revised to suit the requirement of the standards and statutory requirements.
29.33.1	Nominate a safety officer who will supervise all the HSE aspects.
29.33.2	The safety officer will participate in all safety meeting conducted by BHEL.
29.33.3	Submit site safety plan indicating safety measures to be taken, fire fighting equipments & PPE to be deployed.
29.33.4	Report every near miss incident to BHEL.
29.33.5	Report accident report immediately after the occurrence.
29.33.6	Obtain operation control procedures (OCPs) from BHEL for the work to be executed
29.33.7	Follow factory act.
29.33.8	Every worker should use PPE as per his trade. All PPE should confirm to IS.
29.33.9	Conduct tool box meeting with workers everyday before start of work instructing about the use of PPE. The outcome of the meeting to be recorded in a register.
29.33.10	Check fitness of the PPE and lifting tackles weekly and record in a register which will be verified by BHEL.
29.33.11	No person below 18 years will be employed.
29.33.12	Deploy fire-fighting equipments and refill before expiry.
29.33.13	Keep fire extinguishers of adequate type near the hot job and near the electrical machines.
29.33.14	Copy of valid Test certificates of all T&Ps should be given to BHEL as soon as the

	item enters the project, without which the T&P can not be allowed to be used.
29.33.15	No body will be allowed to work above 2 meters without safety belt/ harness with lifeline secured to a fixed member.
29.33.16	Good housekeeping has to be maintained. All debris shall be removed from workplace within shortest possible time.
29.33.17	Approach roads should not be blocked with cables, materials or debris.
29.33.18	First aid boxes have to be kept and maintained with all requisite materials as per factory act.
29.33.19	Trained person has to be kept for giving first aid.
29.33.20	Adequate illumination shall be provided where working.
29.33.21	All vehicles should have backlight, reverse horn and reversing light.
29.33.22	Crane operator shall have proper license.'
29.33.23	Crane should have reverse horn.
29.33.24	Only skilled person maintain and operate electrical items.
29.33.25	ELCB has to be used. No temporary connection shall be allowed.
29.33.26	All fuses shall have standard rating and capacity.
29.33.27	All power supply cables should be laid above 3 meter level or underground.
29.33.29	All hand lamps should be powered by 24 volts.
29.33.29	Water-logging of working area shall be removed.
29.33.30	For operating portable machines 3 pin plugs shall be used.
29.33.31	Oxygen and DA cylinders shall be separated labeling full or empty. Full cylinders shall be kept upright.
29.33.32	Cylinders are not transported by rolling.
29.33.33	All oil drums shall be kept horizontal.
29.33.34	Excavated area shall be barricaded off with red-& white tape.
29.33.35	Proper slope of excavation shall be maintained.
29.33.36	Proper sign board and illumination shall be maintained at excavated area.
29.33.37	Wherever possible safety net shall be provided.
29.33.38	Proper platform and hand rail has to be provided at the work place.
29.33.39	All electrical equipments shall be earthed at two points.
29.33.40	Temporary platform should be strong enough, have proper approach and hand rails
29.34	The above clauses are indicative only and not exhaustive. The other activities to maintain strong HSE conditions at site which may be beyond the above list of guidelines shall have to be done by the vendor.
<b>30.0</b>	<b>CONTRACT PRICE</b>
30.1	Bidder shall quote their lump sum & firm prices as per Volume-III, Price Schedule only.
<b>31.0</b>	<b>PROJECT INFORMATION</b>
31.1	<p><u>Details of proposed stage/ units</u>  Project name: <b>BARAUNI THERMAL POWER PLANT -2x250 MW EXTENSION PROJECT</b>  No of units x capacity: <b>2 x 250 MW.</b>  Project setting up by: <b>Bihar State Electricity Board (BSEB)</b></p> <p>Bihar State Electricity Board, hereafter referred to as BSEB, has awarded BHEL the job for establishing two numbers of coal fired of</p> <p>rating 250 MW each on Engineering, Procurement and Construction (EPC) package basis The units are proposed to be set up adjoining existing plant at Barauni Thermal Power Station, Extension unit 8 &amp;9 at district Begusarai in the state of Bihar, India.  Project site is disposed at N25<sup>0</sup>23'13.5" to N N25<sup>0</sup>23'54"latitude and E 86<sup>0</sup>01'05" to 86<sup>0</sup>01'46.3" longitude,</p> <p>It is essential that the bidder visit site and acquaint with the conditions prevailing at site before submission of the bid . The information given hereunder is for general</p>

	guidance and shall not be contractually binding on the/ BHEL.
31.1.1	APPROACH TO SITE
31.1.2	<p>LOCATION :Barauni Thermal Power Station, Begusarai, Bihar</p> <p>NEAREST RAILWAY STATION :Hathidah Railway Station (Broad Gauge) on Howrah-Patna route is about 3.5 KM away from the site.</p> <p>:Barauni Railway Station (Broad Gauge) on Howrah-Muzzafarpur route is about 15 KM away from the site.</p> <p>ROAD DISTANCES :NH-31 is adjacent to site.</p> <p>NEAREST AIR PORT :Patna, 110 KM away from Barauni.</p> <p>MODE OF TRANSPORTATION :Rail/Road</p> <p>DESIGN AMBIENT TEMPERATURE: 35.2 Deg.C maximum, 12.1 Deg.C minimum,</p> <p>DESIGN RELATIVE HUMIDITY : 98% (Maximum)</p> <p>AVERAGE ANNUAL RAINFALL : 1003.4 MM</p> <p>SEISMIC ZONE : Zone-IV as per IS-1893 Part-I (2002)</p> <p>WIND SPEED : 47 m/s</p>
31.1.2.1	Owner: Bihar State Electricity Board (BSEB)
<b>32.0</b>	<b>MOBILISATION ADVANCE / IBRA (INTEREST BEARING RECOVERABLE ADVANCE)</b>
32.1	No mobilization advance / Interest Bearing Recoverable Advance shall be given for this contract.
<b>33.0</b>	<b>OTHER TERMS</b>
	All other term & conditions of this specification shall be governed by the pertinent provisions of GCC, Volume-IB as applicable.

<b>VOLUME-III PRICE SCHEDULE, REV-1</b>	
<b>Design, engineering, manufacturing, supply/ delivery, storage &amp; handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 &amp; 9 at BEGUSARAI, BIHAR.</b>	
<b>TENDER NO. PSER:SCT:BRM-M1330:12</b>	
<b>PREAMBLE</b>	
01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with Volume-IA, Volume-IB, Volume-IC, Volume-ID, Volume-II together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and/ or engineer's instructions.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/ culverts/ bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
06	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English.
07	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
08	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
09	Unless otherwise specified & except for tender on lumpsum basis, for all item rate based tenders, the quantities of the various items mentioned in price schedule are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted/ accepted rates shall remain firm and valid as long as variation in total value of work executed under this contract including extra items, but excluding any price escalation, remains within +/- 30% (thirty percent) of the contract price given in the LOI/ WO.

**VOLUME-III  
PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System  
for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-1 - MAIN PRICE**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	TOTAL QUOTED PRICE ( <sup>₹</sup> )
1.0	Total price for supply part & service part together for design, engineering, manufacturing, inspection and testing, painting, supply/ delivery duly packed at project site including freight, receipt, unloading, storage & handling at site, erection, commissioning, trial run, handing over to customer etc in line with drawings/ documents/ test procedures approved by BHEL/ customer, including supply of consumables, start-up & commissioning spares, special tools & tackles for maintenance, for the total scope defined in technical specification and terms & conditions of tender, taking into account all clarifications, confirmations and agreements till date for Ventilation System.	
<b>Note</b>		
1.0	Bidder to note that total price indicated above at 1.0 shall be considered for evaluation and hence should be complete in all respect for the full scope defined and considering all terms and conditions.	
2.0	While total price at sl no 1.0 as per above will be considered for evaluation, bidder shall furnish further break-up of price in the following schedules.	
2.1	SCH-2 - Main price break-up.	
2.2	SCH-3 - Supply price break-up.	
2.3	SCH-4 - Service price break-up.	
2.4	SCH-5 - Guaranteed Power Consumption	
3.0	Any item as per scope of work if not included in the price quoted above and shown separately will not be taken into cognizance and the offer shall be liable for rejection.	
4.0	Total price of 1.1 & 1.2 should match with 1.0.	
5.0	Total price of supply price break up should match with 1.1.	
6.0	Total price of service price break up should match with 1.2.	
7.0	Bidder shall note that ED,VAT,CST & Service Tax (On service part) shall be paid extra at actual as per tender provision. As such, bidder's price shall be exclusive of these components and evaluation of bidders total price will be done on this basis.	
8.0	There will be no technical loading for evaluation of bids on power consumption. However, in case power consumption is noted higher than estimated total power consumption figure specified in relevant portion schedule during the inspection/ PG test, penalty @ Rs 1.60 lac per additional KW shall be levied on vendor.	
9.0	If freight component is not specifically indicated, 2 % of total amount will be considered as freight component against each item for further processing.	

**VOLUME-III  
PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System  
for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-1 - MAIN PRICE**

<b>SL NO</b>	<b>DESCRIPTION OF EQUIPMENT/ ITEM</b>	<b>TOTAL QUOTED PRICE (<sup>₹</sup>)</b>
10.0	<p>The bidder shall furnish unit rates for variable item (marked *) for necessary adjustment (plus or minus) variation during detailed engineering stage. The quantity of variable items is likely to vary during detailed design &amp; engineering stage mainly due to changes in building layouts/ dimensions etc necessitating change in quantities of variable items as above. The unit rates quoted &amp; accepted by BHEL shall be considered and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract. Bidder to note that BHEL reserve the right to rationalize the rates quoted by L-1 bidder against variable items and with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.</p> <p>The bidder shall furnish unit rates for variable item (marked *) i.e., Finished ducting, supply grilles (with and without VCD), fire damper, Finished thermal insulation for ducting, gravity damper, Louvers for Aux. Bldg. 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.</p>	
11.0	Price format shall not be changed by bidder in any case, since it may lead to cancellation of bidder's offer.	

**VOLUME-III  
PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-2 - MAIN PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUOTED PRICE (₹)		
		BASIC PRICE	FREIGHT	TOTAL
(1)	(2)	(3)	(4)	(5)=(3) + (4)
1.1	Total price for supply part for design, engineering, manufacturing, inspection and testing, painting, supply/ delivery duly packed at project site including freight, in line with drawings/ documents/ test procedures approved by BHEL/ customer, including supply of consumables, start-up & commissioning spares, special tools & tackles for maintenance, for the total scope defined in technical specification and terms & conditions of tender, taking into account all clarifications, confirmations and agreements till date for Ventilation System.			
1.2	Total price for service part for receipt, unloading, storage & handling at site, erection, commissioning, trial run, handing over to customer, etc in line with drawings/ documents/ test procedures approved by BHEL/ customer, for the total scope defined in technical specification and terms & conditions of tender, taking into account all clarifications, confirmations and agreements till date for Ventilation System.		NA	
<b>TOTAL</b>				

**VOLUME-III A  
PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
			BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)

**Price break-up of 1.1 of SCH-2.**

1.1.1	Sheet Metal containerised type air washer unit with double skin body containing centrifugal fan with motor, dry panel type pre-filter, spray header with water piping, moisture eliminator, tank, air washer internals, inlet air louvers, Bird screen, nozzles etc within the container and pumps with motors outside the air washer skid, valves & all fittings complete with fixing frame, valves for auto start of standby equipment, strainers, makeup water piping with isolating valves at battery limit, level switch, pressure switches, Temp. Indicators, back wash arrangement, galvanised drain piping etc. as per spec. (Each Air Washer shall have 1X1,30,000 CMH capacity fan at 70 mmwc. static pressure), local control panel with IP-65 protection as specified.	8 SET						
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**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
				BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)		(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)
1.1.2	Unitary air filtration unit with centrifugal fan (SISW) with motor, pumps with motors, SS metallic filter, spray header with water piping, valves & all fittings complete with fixing frame, valves for auto start of standby equipment, inlet air louvers, Bird seen, nozzles, strainers, makeup water piping with isolating valves at battery limit, piping as per IS: 1239 pt I (heavy class galvanised), valves, level switch, pressure switches, Temp. Indicators, back wash arrangement, galvanised drain piping, vibration isolators for fans etc. as per spec. (Fan capacity 50,000 CMH at 60 mmwc. static pressure) as specified.	2	SET						
1.1.3*	Ducting, diffuser/ grill, thermal insulation for duct.								
1.1.3.1*	<b>Finished GSS</b> (zinc coating 275 gms/sqm) ducting with hangers, supprts, volume control dampers, splitters, access doors, supporting structure etc.								
1.1.3.1.1*	18 G	2000	SQM						
1.1.3.1.2*	20 G	3000	SQM						
1.1.3.1.3*	22 G	3000	SQM						

**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
				BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)	
1.1.3.1.4*	24 G	2000	SQM						
1.1.3.2*	MS duct with epoxy paint for battery room.	100	SQM						
1.1.3.3*	MS grilles with VCD.	125	SQM						
1.1.3.4*	MS grilles without VCD.	10	SQM						
1.1.3.5*	Thermal insulation for Ventilation Ducting with finish as per specification.	1500	SQM						
1.1.3.6*	Wall mounted dampers (gravity operated) for aux bldg only.	20	SQM						
1.1.3.7*	Inlet louvres for aux buildings only.	10	SQM						
1.1.4*	<b>Fire damper</b>								
1.1.4.1*	Fire damper with auto resetting, limit switches, indication lamps etc.	8	SQM						
1.1.4.2*	Motorized actuator with single phase power supply for the above fire damper.	10	NO						
1.1.5*	Roof extractor units (Axial flow type) with hood, disconnect switch, bird screen and all accessories as specified.								
1.1.5.1*	40,000 CMH at 15 mm WC.	20	NO						
1.1.5.2*	20,000 CMH at 15 mm WC.	2	NO						
1.1.6*	Axial flow supply fans with pre filter & fine filter (Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl, bird screen and								
1.1.6.1*	10,000 CMH at 30 mmWC	4	Nos*						

**VOLUME-III A  
PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
				BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)		(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)
1.1.6.2*	6000 CMH at 30 mmWC	8	Nos*						
1.1.6.3*	4000 CMH at 30 mmWC	2	Nos*						
1.1.7*	Axial flow supply fans with pre filter (Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply)								
1.1.7.1*	10000 CMH at 15 mmWC	8	Nos*						
1.1.7.2*	7500 CMH at 15 MMWC	8	Nos*						
1.1..8*	Axial flow exhaust fans Wall mounted complete with casing, flame proof motors, mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted as specified.								
1.1.8.1*	7500 CMH at 15 mmWC	4	Nos*						
1.1.8.2*	5000 CMH at 15 mmWC	4	Nos*						

**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
				BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)		(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)
1.1.9*	Axial flow exhaust fans ( Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl with bird screen, wire guard at inlet and all other accessories as specified								
1.1.9.1*	10000 CMH at 7 mmWC	6	Nos*						
1.1.9.2*	6300 CMH at 7 mmWC	40	Nos*						
1.1.9.3*	2000 CMH at 7 mmWC	4	Nos*						
1.1.10*	Exhaust fan (Propeller type) completes with induction motor & mounting frame MS rain protection cowl, bird screen and all other accessories as specified. (suitable for 220V/1 Phase) for Toilets.								
1.1.10.1*	1200 CMH at 5 mmWC	30	Nos*						
1.1.11	Any other item not indicated above, but required to complete air-conditioning package as per system requirements	1	Lot						
1.1.12	Total lump sum prices for Maintenance Tool & Tackles inclusive of packing, forwarding, transportation upto site, taxes, duties, insurance etc	1	Lot						

**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-3 - SUPPLY PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED UNIT RATE (₹)			QUOTED AMOUNT (₹)		
				BASIC	FREIGHT	TOTAL	BASIC	FREIGHT	TOTAL
(1)	(2)	(3)		(4)	(5)	(6)=(4) + (5)	(7)	(8)	(9)=(7) - (8)
1.1.13	Bidder's lump sum prices for commissioning spares inclusive of packing forwarding, transportation up to site, taxes, duties, etc. (bidder to furnish lists of spares with item wise prices separately).	1	Lot						
<b>TOTAL</b>									

VOLUME-III A				
PRICE SCHEDULE, REV-1				
Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.				
TENDER NO. PSER:SCT:BRM-M1330:12				
SCH-4 - SERVICE PRICE BREAK-UP				
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	UNIT RATE (₹)	AMOUNT (₹)
<b>Price break-up of 1.2 of SCH-2.</b>				
1.2.1	Sheet Metal containerised type air washer unit with double skin body containing centrifugal fan with motor, dry panel type pre-filter, spray header with water piping, moisture eliminator, tank, air washer internals, inlet air louvers, Bird sceen, nozzles etc within the container and pumps with motors outside the air washer skid, valves & all fittings complete with fixing frame, valves for auto start of standby equipment, strainers, makeup water piping with isolating valves at battery limit, level switch, pressure switches, Temp. Indicators, back wash arrangement, galvanised drain piping etc. as per spec. (Each Air Waher shall have 1X1,30,000 CMH capacity fan at 70 mmwc. static pressure), local control panel with IP-65 protection as specified.	8	SET	
1.2.2	Unitary air filtration unit with centrifugal fan (SISW) with motor, pumps with motors, SS metallic filter, spray header with water piping, valves & all fittings complete with fixing frame, valves for auto start of standby equipment, inlet air louvers, Bird sceen, nozzles, strainers, makeup water piping with isolating valves at battery limit, piping as per IS: 1239 pt I (heavy class galvanised), valves, level switch, pressure switches, Temp. Indicators, back wash arrangement, galvanised drain piping, vibration isolators for fans etc. as per spec. (Fan capacity 50,000 CMH at 60 mmwc. static pressure) as specified.	2	SET	
1.2.3*	Ducting, diffuser/ grill, thermal insulation for duct.			
1.2.3.1*	<b>Finished GSS</b> (zinc coating 275 gms/sqm) ducting with hangers, supprts, volume control dampers, splitters, access doors, supporting structure etc.			
1.2.3.1.2*	18 G	2000	SQM	
1.2.3.1.2*	20 G	3000	SQM	
1.2.3.1.3*	22 G	3000	SQM	
1.2.3.1.4*	24 G	2000	SQM	
1.2.3.2*	MS duct with epoxy paint for battery room.	100	SQM	
1.2.3.3*	MS grilles with VCD.	125	SQM	
1.2.3.4*	MS grilles without VCD.	10	SQM	
1.2.3.5*	Thermal insulation for Ventilation Dicking with finish as per specification.	1500	SQM	
1.2.3.6*	Wall mounted dampers (gravity operated) for aux bldg only.	20	SQM	
1.2.3.7*	Inlet louvres for aux buildings only.	10	SQM	
1.2.4*	<b>Fire damper</b>			

**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

**Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.**

**TENDER NO. PSER:SCT:BRM-M1330:12**

**SCH-4 - SERVICE PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	UNIT RATE ( <sup>₹</sup> )	AMOUNT ( <sup>₹</sup> )
1.2.4.1*	Fire damper with auto resetting, limit switches, indication lamps etc.	8	SQM	
1.2.4.2*	Motorized actuator with single phase power supply for the above fire damper.	10	NO	
1.2.5*	Roof extractor units (Axial flow type) with hood, disconnect switch, bird screen and all accessories as specified.			
1.2.5.1*	40,000 CMH at 15 mm WC.	20	NO	
1.2.5.2*	20,000 CMH at 15 mm WC.	2	NO	
1.2.6*	Axial flow supply fans with pre filter & fine filter (Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories as specified			
1.2.6.1*	10,000 CMH at 30 mmWC	4	Nos*	
1.2.6.2*	6000 CMH at 30 mmWC	8	Nos*	
1.2.6.3*	4000 CMH at 30 mmWC	2	Nos*	
1.2.7*	Axial flow supply fans with pre filter (Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply)			
1.2.7.1*	10000 CMH at 15 mmWC	8	Nos*	
1.2.7.2*	7500 CMH at 15 MMWC	8	Nos*	
1.2.8*	Axial flow exhaust fans Wall mounted complete with casing, flame proof motors, mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted as specified.			
1.2.8.1*	7500 CMH at 15 mmWC	4	Nos*	
1.2.8.2*	5000 CMH at 15 mmWC	4	Nos*	
1.2.9*	Axial flow exhaust fans ( Wall mounted) complete with casing, TEFC Squirrel Cage induction motors & mounting frame, MS rain protection cowl with bird screen, wire guard at inlet and all other accessories as specified			
1.2.9.1*	10000 CMH at 7 mmWC	6	Nos*	
1.2.9.2*	6300 CMH at 7 mmWC	40	Nos*	
1.2.9.3*	2000 CMH at 7 mmWC	4	Nos*	
1.2.10*	Exhaust fan (Propeller type) completes with induction motor & mounting frame MS rain protection cowl, bird screen and all other accessories as specified. (suitable for 220V/1 Phase) for Toilets.			

**VOLUME-III A**  
**PRICE SCHEDULE, REV-1**

Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.

TENDER NO. PSER:SCT:BRM-M1330:12

**SCH-4 - SERVICE PRICE BREAK-UP**

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		UNIT RATE (₹)	AMOUNT (₹)
1.2.10.1*	1200 CMH at 5 mmWC	30	Nos*		
1.2.11	Any other item not indicated above, but required to complete the package as per system requirements.	1	LOT		
	<b>TOTAL</b>				

<b>VOLUME-III A</b>					
<b>PRICE SCHEDULE, REV-1</b>					
Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.					
<b>TENDER NO. PSER:SCT:BRM-M1330:12</b>					
Design, engineering, manufacturing, supply/ delivery, storage & handling, erection, commissioning, trial run, handing over to customer etc of Ventilation System for 2x250 MW Barauni Extension project unit # 8 & 9 at BEGUSARAI, BIHAR.					
<b>SCH-5 - GUARANTEED POWER CONSUMPTION</b>					
SL NO	DESCRIPTION	QUANTITY (WORKING)		POWER CONSUMPTION AS GUARANTEED (KW) AT MOTOR INPUT TERMINAL	TOTAL POWER CONSUMPTION AS GUARANTEED (KW)
1.0	Centrifugal fans for air-washer units, 1,30,000 cumh at 70 mmwc.	8	NO		
2.0	Centrifugal pump backpullout type for above air washer.	8	NO		
3.0	Centrifugal fans for UAF unit, 50,000 cumh at 60 mmwc	2	NO		
4.0	pump for above UAF	2	NO		
5.0	RE units.				
5.1	40,000 cmh at 15 mmwc.	18	NO		
<b>TOTAL CONSUMPTION (IN KW)</b>					<b>500</b>