

**TENUGHAT VIDYUT NIGAM LIMITED  
HINOO, DORANDA, RANCHI-834002**

**BILL OF QUANTITY**

**PART-I (TECHNICAL)**

NIT NO-0043/E/W/TVNL/RAN/11-12

Due on-18.11.2011

**Sub:- Annual job contract (ARC) for maintenance of Air conditioning Plants (AC Plants) for main building, GCR, ESP-I & II and maintenance of package ACs in co-ordination hall, library and CHP control room at TTPS, Lalpania**

Details to be furnished by the Tenderer (enclose separate sheets if required).

1. Name and Address of the firm :-  
(Along with phone no. if any)
2. Name of the proprietor/ partner of the firm :-  
(Attach copy of ownership/ partnership deeds)
3. Name and qualification of the site-in-charge :-
4. Experience in respective field :-  
(Attach copy of work orders of related field)
5. Financial credibility/ capacity :-  
(Attach Bank solvency certificate)
6. Annual Turn Over :-
7. Labour license no. :-  
(Attach copy of registration)
8. P.F. Code No- :-  
(Attach copy of registration)
9. Character certificate of the head of the firm :-  
(Issued from not below the rank of Magistrate)
10. PAN :-  
(Attach copy in proof)
11. Sales Tax clearance certificate, if any :-
12. Details of Earnest Money Deposit Amount :-
13. Electrical License No :-

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**Sub:-Annual job contract (ARC) for maintenance of Air conditioning Plants (AC Plants) for main building, GCR, ESP-I & II and maintenance of package ACs in co-ordination hall, library and CHP control room at TTPS, Lalpania.**

**SCOPE OF WORK**

**A. Annual operation & maintenance including Preventive maintenance, Breakdown maintenance and annual overhauling of Air-conditioning Plants of 2x210MW Unit at TTPS Lalpania.**

Round the clock operation and maintenance of the following Air conditioning Plants to maintain the temperature of the respective area between 24<sup>0</sup>C to 25<sup>0</sup>C:-

- i) Air conditioning plant no-I, 3x75TR capacity for unit control room-I &II, Computer room-I & II, Instrument Lab & SWAS room.
  - ii) Air conditioning plant no-III, 3x60TR capacity for Grid Control Room (GCR) and other offices.
  - iii) Air conditioning plant no-IV, 2x25 TR capacity for ESP control room of Unit no-I.
  - iv) Air conditioning plant no-V, 2x25TR capacity for ESP control room of Unit no-II.
  - v) Split unit Air conditioning 4x4TR capacity for unit control room no-I & II (standby).
  - vi) Room air conditioning, window type 6x2TR capacity for AVR room of Unit No-I & II.
2. Running maintenance, Routine maintenance, Preventive maintenance, Breakdown Maintenance and annual overhauling of equipments of above plants.
  3. Running maintenance, Routine maintenance, PM/BM and Annual overhauling for package ACs, 2x7TR (Coordination Hall), 2x7TR (Library), 3x7TR (CHP control room).
  4. Repair and rewinding of compressor and gas charging of room air conditioners are not included in the scope of work.
  5. Rewinding of motors is not included in the scope of work.
  6. Consumables like refrigerant, oil seals, V-belts, Compressor oil & spare like indicating will be supplied by the department and the cost is not included in the operating cost.
  7. Supply of all fast moving consumables like Petrol, diesel, Kerosene oil, Markene cloth, Cotton waste, Soldering & Brazing materials, welding gas etc & arrangement of all tools and tackles are included in the scope of work.
  8. Overhauling of all the motors of the under mentioned list are to be done once in a year, the spares required for replacement during the overhauling work have to be supplied by the department and their costs are not included in the operation cost.
  9. The cost on repair of RACs and split unit ACs are not included in the estimate.

## LIST OF EQUIPMENTS

SL No	Description of equipments	Quantity
<b>A.</b>	<b>Air conditioning Plant no-I UCR (3x75TR) with their electrical parts and fresh air system</b>	
01.	Chiller and chiller pumps with valves and strainers (pump fitted with 11KW, 3 phase, 415V motor)	03Nos
02.	ACCEL make compressors, type SMC-8-100, 75TR capacity, fitted with 75KW, 3phase, 415V motor	03Nos
03.	Condensers and condenser pumps with valves and strainers (pump fitted with 11KW, 3phase, 415V motor)	03 Nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower & motors	03nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>B.</b>	<b>Air conditioning plant no-III for GCR (3x60TR) with their electrical parts and fresh air system</b>	
01.	ACCEL make compressors type SMC-6-100, 60TR capacity, fitted with 55KW, 3phase, 415V motor	03nos
02.	Chiller and chiller pump with valves and strainer (pump fitted 9.3Kw, 3phase, 415V motor)	03nos
03.	Condensers and condenser pumps with valves and strainers (pump fitted with 9.3Kw, 3phase, 415V motor)	03nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower and motors	03nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>C</b>	<b>Air conditioning plant no-IV for ESP control room of unit no-I (2x25TR) with their Electrical parts and accessories:-</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with 55KW, 3phase, 415V motor	02nos
02	Condensers and condenser pumps with valves and strainers (pump fitted with 5.5 KW, 3phase, 415V motor)	02nos
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Completer instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>D.</b>	<b>Air conditioning plant no-V for ESP control room of unit I (2x25TR) with their electrical parts and accessories</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with 55KW, 3phase, 415V motor	02nos
02	Condensers and condenser pumps with valves and strainers (pump fitted with	02nos

	5.5 KW, 3phase, 415V motor)	
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>E</b>	<b>Room air conditioning 2TR each fitted in AVR room of Unit no-I &amp; II</b>	<b>06nos</b>
<b>F</b>	<b>Maintenance of package AC for Co-ordination Hall, Library &amp; CHP control room, 7x7TR</b>	<b>07nos</b>

## **B. PREVENTIVE MAINTENANCE:-**

### **LIST OF EQUIPMENTS**

<b>SL No</b>	<b>Description of equipments</b>	<b>Quantity</b>
<b>A.</b>	<b>Air conditioning Plant no-I UCR (3x75TR) with their electrical parts and fresh air system</b>	
01.	Chiller and chiller pumps with valves and strainers (pump fitted with 11KW, 3 phase, 415V motor)	03Nos
02.	ACCEL make compressors, type SMC-8-100, 75TR capacity, fitted with 75KW, 3phase, 415V motor	03Nos
03.	Condensers and condenser pumps with valves and strainers (pump fitted with 11KW, 3phase, 415V motor)	03 Nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower & motors	05nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>B.</b>	<b>Air conditioning plant no-III for GCR (3x60TR) with their electrical parts and fresh air system</b>	
01.	ACCEL make compressors type SMC-6-100, 60TR capacity, fitted with 55KW, 3phase, 415V motor	03nos
02.	Chiller and chiller pump with valves and strainer (pump fitted 9.3Kw, 3phase, 415V motor)	03nos
03.	Condensers and condenser pumps with valves and strainers (pump fitted with 9.3Kw, 3phase, 415V motor)	03nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower and motors	03nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>C</b>	<b>Air conditioning plant no-IV for ESP control room of unit no-I (2x25TR) with their Electrical parts and accessories:-</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with	02nos

	55KW, 3phase, 415V motor	
02	Condensers and condenser pumps with valves and strainers (pump fitted with 5.5 KW, 3phase, 415V motor)	02nos
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Completer instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>D.</b>	<b>Air conditioning plant no-V for ESP control room of unit I (2x25TR) with their electrical parts and accessories</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with 55KW, 3phase, 415V motor	02nos
02	Condensers and condenser pumps with valves and strainers (pump fitted with 5.5 KW, 3phase, 415V motor)	02nos
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Completer instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>E</b>	<b>Room air conditioning 2TR each fitted in AVR room of Unit no-I &amp; II</b>	<b>06nos</b>

### C. ANNUAL OVERHAULING:-

### LIST OF EQUIPMENTS

SL No	Description of equipments	Quantity
<b>A.</b>	<b>Air conditioning Plant no-I UCR (3x75TR) with their electrical parts and fresh air system</b>	
01.	Chiller and chiller pumps with valves and strainers (pump fitted with 11KW, 3 phase, 415V motor)	03Nos
02.	ACCEL make compressors, type SMC-8-100, 75TR capacity, fitted with 75KW, 3phase, 415V motor	03Nos
03.	Condensers and condenser pumps with valves and strainers (pump fitted with 11KW, 3phase, 415V motor)	03 Nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower & motors	05nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>B.</b>	<b>Air conditioning plant no-III for GCR (3x60TR) with their electrical parts and fresh air system</b>	
01.	ACCEL make compressors type SMC-6-100, 60TR capacity, fitted with 55KW, 3phase, 415V motor	03nos
02.	Chiller and chiller pump with valves and strainer (pump fitted 9.3Kw, 3phase, 415V motor)	03nos

03.	Condensers and condenser pumps with valves and strainers (pump fitted with 9.3Kw, 3phase, 415V motor)	03nos
04.	Cooling tower with valves, water line, fans and motors	03nos
05.	Air handling units complete with valves piping, blower and motors	03nos
06.	Complete instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
07.	Cooling ducts and grills	LOT
<b>C</b>	<b>Air conditioning plant no-V for ESP control room of unit no-I (2x25TR) with their Electrical parts and accessories:-</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with 55KW, 3phase, 415V motor	02nos
02	Condensers and condenser pumps with valves and strainers (pump fitted with 5.5 KW, 3phase, 415V motor)	02nos
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Completer instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>D.</b>	<b>Air conditioning plant no-V for ESP control room of unit I (2x25TR) with their electrical parts and accessories</b>	
01	ACCEL make compressors type SMC-6-65, 25TR capacity, fitted with 55KW, 3phase, 415V motor	02nos
02	Condensers and condenser pumps with valves and strainers (pump fitted with 5.5 KW, 3phase, 415V motor)	02nos
03	Cooling tower with valves, water line, fans and motors	02nos
04	Air handling units complete with valves piping, blower and motors	01no
05	Completer instrumentation annunciation and electrical system right from incoming supply and onwards	LOT
06	Cooling ducts and grills	LOT
<b>E</b>	<b>Room air conditioning 2TR each fitted in AVR room of Unit no-I &amp; II</b>	<b>06nos</b>

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NIT NO-0043/E/W/TVNL/RAN/2011-12

Due on-18.11.2011

**SPECIAL TERMS AND CONDITIONS**

- 1. ENGAGEMENT OF MAN POWER-** The qualification and experience of the man-power engaged should be as per B.O.Q. The contractor shall replace the person not found suitable for the job by the Engineer-in-charge.
- 2. DEPLOYMENT OF MAN POWER-** Deployment of man- power engaged may be changed by the Engineer-in-charge or his representative as per the requirement of the job. No extra payment will be made by TVNL for the work beyond normal working hours, Sundays and Holidays.
- 3. TOOLS AND PLANTS** The contractor shall have to arrange tools and tackles like grease gun, lubricating can, ladders, torches, gun-boots, hand gloves, boxes for keeping tools, rain coat, D-spanner set, box spanner set, Ring spanner set, slide wrench, pipe wrench, 5MT pulling lifting machine, hammers, different sizes of files, pliers, different sizes of screw drivers and Allen key sets etc. at their own cost. However special tools and plants will be supplied by the department.
- 4. SPARES & LUBRICANTS-** All spares and lubricants will be supplied by the department.
- 5. CLEANING OF WORK SITE-** All the debris, scraps, unserviceable materials and temporary scaffolding will be removed by the contractor from the work site after the completion of maintenance work.
- 6. PREMATURED TERMINATION OF THE CONTRACT-** If the performance of the contractor is not found satisfactory, the contract may be terminated after one month's notice.

In case both the units are put under shut-down for a period of more than two months the contract may be suspended temporarily or cancelled on prior notice.

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**GENERAL TERMS AND CONDITIONS.**

1. The tender shall be submitted in duplicate in two parts (Part-I (Technical) and Part-II (Commercial)).
2. The rate to be quoted in Price Part (Part-II) shall be in figure and in words both.
3. The Tenderer must quote definite rates. Tenders with variable rates shall be considered invalid. The period of contract shall be normally for a period of one year. The rate quoted by the Tenderers shall remain firm during the entire tenure of contract agreement.
4. The quoted rate should be workable rate.
5. The quoted rate shall be inclusive of all fringe benefits to laborers under labor laws. Any escalation in the rate of minimum wages or VDA or any other allowance during the contract period will have to be borne by the contractor.
6. **Earnest money-** The Tenderers are required to deposit Earnest Money as indicated against the tender notice in the shape of Bank Draft issued by any Nationalized Bank in favour of "TENUGHAT VIDYUT NIGAM LIMITED", Payable at Ranchi. The Bank Draft must be enclosed with the Technical Part of the tender. Tender without or with inadequate Earnest Money will be rejected out rightly.
7. **Agreement-**The successful Tenderer will have to execute an agreement in prescribed format on a non-judicial stamp paper with concerned Electrical Superintending Engineer within 15 days of the receipt of the work order. The successful Tenderer is required to deposit initial security money @5% of the ordered value before executing the agreement. The earnest money deposited with the tender shall be adjusted towards initial security deposit. Further 5% security money will be deducted from the running bills of contractor to raise the security deposit up to 10%. The entire amount so deposited/ deducted against security deposit shall be released after successful execution of the contract.
8. **Engineer-in-charge-** The concerned Electrical Executive Engineer will be the Engineer-in-charge of the work.
9. **Paying Authority -** The Accounts officer, TTPS, Lalpania will be the paying authority.
10. **Payment-** The bill in triplicate will be submitted by the contractor to the Engineer-in-charge of the work for verification and onward transmission to the paying authority for payment.
11. **Safety-** All the safety rules prescribed for the particular job shall strictly be followed by the contractor and safety appliances have to be provided by them to their staff at their own cost.
12. **Consumables-** Consumables such as lubricating oil, grease, bolts and nuts, gaskets, oil seals etc will be supplied by the department free of cost, if available. However, consumables such as Kerosene oil, cotton waste, mark-in cloth, emery cloth paper, DA, Oxygen gas, Welding electrodes etc will have to be supplied by the contractor at their own cost.
13. **Tools and Plants -** All Tools and Plants required for the work shall be arranged by the contractor at their own cost.
14. The contractors will have to follow the guidelines laid under the labour laws in respect of salary payment and other service conditions. In the event of any accident/ casualty to the employees of the contractor, the compensation payable to the employees shall be borne by the contractor only and TVNL will not be responsible in any way.

15. The work shall be executed in accordance with the specifications, drawings, designs etc. as per direction of Engineer-in-charge for the work. In case of any work for which there is no specification mentioned, such work shall be carried out as per the instructions and requirements prescribed by the Engineer-in-charge of the work. The Engineer-in-charge may make any alteration/ addition in the scope of work and to the specifications, drawings, designs etc, if necessary during the progress of work and the contractor shall have to carry out the work accordingly. Anything not mentioned herein shall be decided by the Engineer-in-charge of the work and shall be binding to the contractor.
16. In case of any damage to the equipments and plants due to mishandling during maintenance by the employee of the contractor, the damage would be made good by them.
17. The carriage, loading and unloading of materials to be brought at site have to be arranged by the contractor at their own cost and no claim for the same will be entertained.
- 18. facilities to be provide by TVNL :-**
  - i. Unfurnished accommodation for office with water and electricity inside the power house will be provided. If available.
  - ii. Guest house facilities shall be provided to visiting Engineers/ officers of the contractor on chargeable basis, if available.
  - iii. Medical facilities to the working personnel will be provided at TTPS Hospital to the extent it is available. No payment shall be made for any medicine purchase of for ant treatment done outside the hospital.
  - iv. Unfurnished accommodations to the contractor and their employees for the contract work shall be provided in the township, if available on chargeable basis. Electricity supply will also be chargeable as per tariff rates.
  - v. Conveyance facility for working personnel will not be provided except in emergency calls.
  - vi. The contractor shall be allowed to avail the facilities available at our chemical laboratory at TTPS.
19. Any other matter not mentioned above shall be mutually discussed and settled. In case any dispute the decision of the General Manager cum Chief Engineer, TTPS, Lalpania will be final.
20. **Legal jurisdiction-** All suits and proceedings in connection with this contract will be under the jurisdiction of the court at Tenughat (Bermo) in the district of Bokaro, Jharkhand only.
21. The Tenderer should go through all the terms and conditions and technical specifications and sign in all the papers of the tender.
22. The Tenderer who are agreeable to the above terms and conditions should only submit their offer.

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**HINOO, DORANDA, RANCHI-834002**

**BILL OF QUANTITY**

NIT No-0043/E/W/TVNL/RAN/2011-12

**PART-II (PRICE-PART)**

Due on-18.11.2011

**SUB:- Annual job contract (ARC) for maintenance of Air conditioning Plants (AC Plants) for main building, GCR, ESP-I & II and maintenance of package ACs in co-ordination hall, library and CHP control room at TTPS, Lalpania.**

**\*Price to be quoted as per Scope of work given in BOQ (Technical –Part).**

**PART-I**

**Air-conditioning Plants of 2x210MW unit of Tenughat Thermal Power Station:-**

SI No.	Description	Qty	Rate	Amount
A.	Round the clock operation of AC Plant			
B.	Preventive maintenance of AC Plant			
C.	Annual Overhauling in AC Plant			
D.	Break Down maintenance of AC Plant			
		<b>TOTAL</b>		

**PART-II**

**Maintenance of Package Air conditioner of 2x210MW unit at Tenughat TPS:-**

SI No.	Description	Qty	Rate	Amount
A.	Preventive maintenance of Package AC Plant			
B.	Breakdown maintenance of Package AC Plant			
C.	Annual Overhauling of Package AC Plant			
		<b>TOTAL</b>		