

**BHARAT HEAVY ELECTRICLES LIMITED**  
(A government of India undertaking)  
Unit: High-Pressure Boiler Plant, boiler project P.O  
**TRICHIRAPALLI-14**  
**COMBINED CYCLE DEMONSTRATION PLANT**

**NOTICE INVITING TENDER**

01. Name of work : Gasifier/Gas cleaning Operation & Maintenance:2010-11
02. Estimate contract value : Rs. 51.70 lakh (approx)
03. Earnest money Deposit : Rs 1,50,000/-
04. Security Deposit : As per Works Policy
05. Operations & Maintenance period: One year
06. Cost of tender document : NIL
07. Last date for receipt of tenders : On or before 02.11.11 at 14:00 hrs.
08. Date of tender opening : On 02.11.11 at 14:30 hrs

This document contains Covering letter, Spec. and General conditions, Security Deposit details, Part-I (Qualification bid) and Part-II(Price bid).  
For Qualifying criteria refer General Conditions under head General requirements Point no. 9

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**BHARAT HEAVY ELECTRICLES LIMITED**  
**TRICHIRAPALLI-14**  
**COMBINED CYCLE DEMONSTRATION PLANT**

CCDP: GASI:2011-12

Date: 04.10.11

Sir,

Sub: Gasifier/Gas cleaning Operation and Maintenance Contract: 2011-12.

We are forwarding herewith one set of tender documents pertaining to the above work. You are requested to go through the Work Specification, General conditions and then reply your competitiveness in two parts in a sealed cover. The first part is technical bid and second part is a price bid. The contractor should visit the work spot at CCDP to assess the nature and quantum of work and study the specification/General conditions before quoting. The contractor must reply the technical competitiveness in Part-I and price bid in part-II in separate sealed covers. Both covers are to be put in a single sealed cover and submitted to BHEL within the specified time.

The Earnest Money Deposit amount of Rs 1,50,000/- (One Lakh fifty thousand only) prescribed for the work shall be furnished in the form of Demand Draft from Nationalized / Schedule bank payable at Trichy, drawn in favour of BHEL /Trichy. The details of EMD kept inside shall be mentioned on the sealed cover. No interest shall be allowed on EMD

The due date and time for submission of your offer is at 14:00 hrs on 02.11.11. When the tenders is received, technical bid (part-I) will be opened first at 14:30 hrs, price bid opening will be informed and opened on some other day. BHEL/CCDP reserves the right to reject any or all the tenders received without assigning any reason therefore. The scheduled period of work is 12 months (One year period) from the date of award of work.

If you are in need of any further clarifications, please contact the undersigned on any working days between 09.00 am and 04.00 pm. In case you are not in a position to quote, please intimate the fact by return post duly returning the blank tender documents with your reply.

Thanking you,

Sr. Manager / CCDP

CC : SDGM / Finance

**WORK SPECIFICATION**  
**(Gasifier/Gas cleaning plant operation/maintenance contract)**

**Plant Operation :**

As per the instructions of our Engineers and supervisors, the contract employees are required to assist our employees for Plant Operation activities (three shifts including Sunday & holiday) as listed below.

1. Leak check for gasifier system / gas cleaning system, flow check as per the instructions from control room.
2. Start up burner: starting burner, monitoring flame stability, controlling the flame temperature.
3. Coal feeding : opening closing of coal inlet valves, air valves, continuous monitoring of coal/bed material feeding through coal feed pipe, monitoring smooth functioning coal feeders against noise, gland leak, gear box oil leak, smooth transferring of coal in coal lock, coal receiver. Monitoring bunker level, transferring coal through weigh belt to coal lock
4. Bottom ash extraction: Monitoring of smooth functioning of three numbers bottom ash extractors, purging, gland leak, noise, temperature, gear box oil leak etc.
5. Bottom ash disposal: smooth discharge through gates, disposal through chain conveyor and belt conveyor, keeping the area neat and clean
6. Fly ash pump: monitoring fly ash collection in lock and hopper, continuous pumping of fly ash from hopper to silo through fly ash pump, clearing line block, monitoring hopper and silo levels. Fly ash disposal from silo and keeping the silo and gasifier area neat and clean.
7. Cooling water flow monitoring : Maintaining cooling water flow and temperature of fly ash coolers, bottom ash coolers, Y'pieces, Distributor cooling
8. Vent filter operation : Fly ash lock is depressurized through vent filter system and its operation like N2 purging, checking the discharge of fly ash collected in vent filter
9. Sampling : collection of samples for coal, bottom ash, fly ash, ash slurry at specified intervals and assistance during analysis
10. Gas cooler system operation monitoring
11. Gas cleaning quench column : Maintaining quench column level by suitably draining and filling level in order to remove dissolved dust periodically
12. Cyclone level maintaining: observation and controlling of ventury scrubbers and cyclone separators, knock out drum levels.
13. Settler drum level: Maintaining settler drum level by adding raw water, draining sediments during plant operation

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14. Flare stack: During plant start and gas generation, igniting and maintaining the flame in the flare stack
15. Barrier Filter system operation including N<sub>2</sub>/Syn. gas pulsing, ash level controls, fly ash pump, vent filter operation and keeping the area neat and clean
16. Nitrogen storage system operation and keeping the area neat and clean
17. During plant operation if any situation (gas leak, line puncture, line block, hot spot, gear box/feeder gland leak, valves leak, motor problem etc.) that requires stopping of plant are to be attended/rectified immediately and bring back the plant for starting at the earliest possible time.

### **Repair and maintenance work**

As per the instructions from our Engineers & supervisors, the contract employees (Skilled and unskilled in two shifts, excluding Sundays and holidays) are required to carry out the following repair and maintenance / modifications / improvement works during during shut down period along with our employees for early completion and restarting the plant.

1. Identification of problems : Any failure of welding, gas leak, pipe erosion, hot spot failure due to very high temperature/pressure, Feeder/extractor gland leak, valves failure, Line block or chocking in ash/coal lines or vessels. Any failure in Distributor like welding, nozzle melting, similarly in distributor plate, center pipe, cooling water lines, thermocouple damage, thermocouple welding failure, thermocouple bending, any other area of repair /maintenance work like gasifier, cyclones, Gas cooler, Barrier filter system, Nitrogen storage system, quench column, water knock out drum, Flare stack during operation/maintenance to be identified and rectified.
2. Investigation of failures: by opening flanges, cutting pipes, opening man holes, dismantling vessels, structures, lines that disturbs repair work, removing coal/ash from vessels, equipments, valves, lines and locating the failures
3. Preparation for repair work: arrangement for approaching failure spots, scaffoldings, ladders, supports, Cleaning the lines, vessels, equipments, preparing of plates, pipes, gaskets, bolts and nuts. Preparation of surfaces for repair work, by cutting grinding, edge preparing. Arranging welding set, cutting set, electrodes gas cylinders etc.
4. Repair work: cutting , welding, grinding other repair work like bending, gland packing, replacing damaged portion with new pipes, tubes, plates etc. Dye penetration tests for welding repair and other quality control tests etc.

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5. Assembly of system after repair work: assembly of vessels, flanges, pipe lines, equipments, dummies and tightening the manholes, flanges, equipments
6. Leak checking : After repair, the repaired area strength to be tested with leak check, hydraulic check or any other applicable method
7. Putting back to service: After checking the repair work, the system to be put back to service. Add bed material, ensure cooling water by starting pumps and opening/throttling valves, start the burner system, keeping steam ready for start
8. For system improvements, addition of gas lines, air lines, water lines, purge lines, valves, equipments, fabrication of burners, vessels or any other additions required to be added on need basis.
9. All electrical related repair and maintenance work will be carried out by a separate contract team along with electrical staff
10. All Instrumentation related repair and maintenance work shall be executed by by a separate contract's team along with instrumentation staff .

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## GENERAL CONDITIONS

(GASIFIER / GAS CLEANING, OPERATION / MAINTENANCE WORK)

### STATUTORY REQUIREMENTS

1. The contractor shall pay minimum wages to his labourers as per Tamil Nadu govt. latest circular.
2. The contractor shall pay **additional wages also** as per corporate guidelines (Refer BHEL/HR/Welfare circular Dt.16.08.2011) **along with Tamil Nadu Govt. minimum wages**. PF&ESI shall also be covered and separate record shall be maintained the additional wages.
3. The contractor shall maintain attendance and acquaintance Register and submit copies every month for both TN Govt. wages and additional wages (as per corporate guidelines)
4. The contractor shall pay Bonus to their employees as per minimum bonus act, for both TN Govt. wages and additional wages (as per corporate guidelines)
5. The contractor shall remit PF and ESI (for both TN Govt. wages and additional wages as per corporate guidelines) the actual labourers engaged and produce the original challan every month for our verification and record.
6. The contractor shall not employ anyone who has not completed 18 years of age.
7. The contractor shall comply with all state and central laws, statutory rules, and regulations, inclusive of labour and industrial laws, which are applicable from time to time.
8. Any increase in minimum wage by Tamil Nadu Government, has to be implemented to the persons engaged by the contractor (including PF & ESI). For any reason, no increase in contract value shall be agreed by BHEL.
9. Necessary gate entry, pass arrangement for labours shall be arranged by the contractor before commencement of the work. The authorized person / supervisor of the contractor are responsible for making the pass arrangement.
10. The contractor shall produce certificates for skilled workers engaged.
11. It is the sole responsibility of the contractor to ensure his workman against accident and injury while at work. They have to follow relevant pay compensation rules in case of accident/injury.

### SAFETY

1. The contract employees shall follow safe working procedures by using appropriate safety equipments like safety shoes, safety helmets, safety belts, earplugs, nose filter cloth or nose filters etc. All safety equipments mentioned above shall be supplied by the contractor.
2. All workers should compulsorily wear safety shoes and helmets at work site.

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3. Scaffolding if required should be done by the contractor. Pipe, wooden planks & ropes will be provided by BHEL at free of cost.
4. The contractor shall strictly follow BHEL Engineers safety instructions daily and whenever pointed out during unsafe working.
5. Since the contract employees are working in a coal/ash dusty atmosphere, the contractor shall provide them with, long towel, soap, 100ml coconut oil, once in a week compulsorily.

### WORKS

1. The contractor shall engage sufficient skilled workers (Daily three shifts for Plant Operation 90days and two shifts maintenance work for 210days, **each shift minimum Fitters 3, Structural Welders 3, unskilled workers 10 and Supervisor 1) to meet the work listed in Specification**
2. Pipe welding shall be done only after the edge preparation as per standard.
3. Proper electrode shall be used for welding joints based on grade/ type of material.
4. General category welders shall be engaged for all welding works.
5. Preheating of electrode as recommended by the electrode manufacturer shall be carried out prior to welding.
6. Pipes, pipe fittings, bends, flanges, valves, gaskets, gland ropes, fasteners and spares etc. Consumables like welding electrodes, oxygen / acetylene cylinders, kerosene, paints, rustolene and other consumables like electric power supply shall be provided by BHEL at free of cost.
7. Welding machine, cutting set, drilling machine & accessories and special tools/sets shall also be provided by BHEL at free of cost.
8. All scrap materials shall be transferred to CCDP stores after inspection by the site in charge.
9. The contractor shall bring welding shield and arc welding holder for welding works.
10. The contractor has to bring two sets of tool boxes with spanners, hammers, chisels, cutters, wire brushes, steel tapes, bonds, shovels etc.,
11. The contractor shall supply to all their employees sufficient safety equipments like safety shoes, safety helmets, safety belts, earplugs etc.
12. The contractor shall engage sufficient skilled workers wherever necessary like structural welding, fitting, alignment, servicing, repair work of rotating parts, servicing of ball valves and other types of valves and all other maintenance activities. The contract supervisor shall take care of this responsibility.
13. Timely completion of work is very important. Hence the contractor shall engage sufficient no. of workers. If sufficient workers are not brought to the work spot, penalty will be imposed for the delay caused at 10% of value of such work and it may even be extended up to termination of contract.

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14. During plant operation, every location shall be manned with sufficient man power, to the satisfaction of site engineer.
15. Any deficiency in the supply of required man power for operational needs will be met by Department from other agencies at your risk & cost.
16. The contractor's supervisor will control the man power and he is responsible for maintaining quality, speedy and smooth overall work completion.

#### GENERAL

1. The contractor shall be responsible for the proper behavior and observing all rules and regulations by the labor employed by them.
2. BHEL rules will be applicable towards issue of refreshments /food which will be adhered by the contractor. As per existing procedure for Canteen facilities, the lunch coupon shall be issued @ Rs.5 (Rs. Five) per person. Sufficient and valid coupons are to be tendered for Tiffin, Tea, Coffee, Milk, etc. to the canteen staff.
3. No advance payment will be arranged for the contract
4. Monthly bill shall be raised as per the measurement of actual work completed on pro-rata basis.
5. The contractor is directly responsible for the payment of wages to his workmen.
6. The plant operation will be carried out in three shifts. Maintenance and repair work will have to be carried out as per BHEL engineer's instructions in two shifts.
7. Any urgent condition, it may be required to run the plant/maintenance work during Sunday and holiday.
8. The contractor shall submit an acceptance letter for the above terms and conditions.
9. The contractor shall visit the plant and assess the work content before quoting.
10. Qualification criteria: The tenderer should have executed a similar single contract of value not less than Rs18 lakh per year. Technical/Qualification competitiveness will be evaluated by technical committee and based on their recommendations only price bid will be opened. If the tenderer fails to satisfy qualifying criteria (both explicitly and implicitly stated) their offer will be rejected.
11. The contractor shall quote their offer on
  - a) Per day rate basis (three shifts per day) for plant operation
  - b) Per day rate basis (two shifts per day) for maintenance work

NOTE: The contractor may contact BHEL welfare section for details regarding additional wages as per corporate guidelines, in addition to the Tamil Nadu Govt. minimum wages along with necessary additional PF &ESI

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## WORKS POLICY

### **8.2 Security Deposit:**

8.2.1 Security deposit should be collected from the successful tenderer. The rate of security deposit will be as given below:

- Upto Rs. 10 lakhs - 10% of work order value.
- Above Rs. 10 lakhs upto Rs.50 lakhs - 1 lakh +7.5% of the amount exceeding Rs. 10lakhs.
- Above Rs. 50 lakhs Rs 4 lakhs + 5% of the amount exceeding Rs. 50 lakhs

The security Deposit should be collected before start of the work from the contractor.

8.2.2 Security Deposit may be furnished in any one of the following forms:

- I. Cash (as permissible under the Income Tax Act)
- II. Pay Order, Demand Draft in favour of BHEL.
- III. Local cheques of Scheduled Banks, subject to realization.
- IV. Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc.(Certificates should be held in the name of contractor furnishing the security and duly pledged in favour of BHEL and discharge on the back.)
- V. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the companies act subject to a maximum of 50% of the total Security Deposit value. The balance 50% has to be remitted either by cash or in the form of security. The Bank Guarantee format should have the approval of BHEL.
- VI. Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in Companies Act. The FDR should be in the name of the Contractor, A/c BHEL, duly discharged on the back.
- VII. Security Deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be collected before start of the work and the balance 50% may be recovered from the running bills.
- VIII. EMD of the successful tenderer shall be converted and adjusted against the Security Deposit.
- IX. The Security Deposit Shall not carry any interest.

#### **NOTE:**

Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

Security Deposit shall not be refunded to the contractor except in accordance with the terms of the contract.

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**PART-I**  
**(TECHNICAL BID)**

1. Years of experience in the similar function :
2. Similar functions executed earlier. If so, cite examples :  
(Use separate sheet if required, including feedback letters from Customers)
3. Possess adequate manpower for deployment with required qualification/experience (Furnish details) :
4. Approximate quantum of business per annum :  
( For the past three years )
5. Number of contracts under execution at present :
6. Any instance of termination of contract in the middle :
7. Whether additional wages (as per corporate guidelines) also considered including PF,ESI, Bonus etc :
8. Whether service tax 10.30% is also added while quoting price offer :
9. PAN card No.:
10. ESI No.:
11. PF. Account No.:
12. Whether visited the plant for assessing work content for finalizing the offer :
13. Estimated man days category wise required for completing the Scope of work :
14. Permanent address of the Firm as well as the Contact details of Chief personnel :

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**PART - II**  
(Price Bid)

**Name & Address of the Contractor :**

Sl.No	Contract details	Rate to be filled by the contractor
01	Gasifier/Gas cleaning Plant Operation work as per specification and conditions. Rate per day for <b>three shifts</b> (24 hrs) work, including service tax 10.30%	Rs. (Rupees )
02	Gasifier/Gas cleaning Maintenance work as per specification and conditions. Rate per day for <b>two shifts</b> (8.00 to 16.30 and 16.30 to 01.00) work, including service tax 10.30%	Rs. (Rupees )

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## CHECK LIST

### Documents to be included in **Part I qualification bid (sealed cover)**

1. Documentary evidence as per qualification Criteria (Order copy, Bill copy, payment voucher, site visit certificate, bank solvency certificate etc)
2. EMD as per Tender
3. Tender documents signed in all pages
4. Part-I Technical/Qualification bid
5. Income tax PAN copy and latest IT return copy
6. Latest solvency certificate

### Documents to be included in **Part II Price bid (sealed cover)**

1. Part-II Price bid duly filled in with Address and Signature

PLANT VISIT CERTIFICATE

This is to inform you that I have visited the site on ..... and fully understood the work nature, the rates are quoted based on this and I will not ask for any revision of rates / contract value during the tenure of the contract.

Authorized person with seal

BHEL Engineer's Signature