THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED
(A Govt. of West Bengal Enterprise)
Bakreswar Thermal Power Project
P.O.Bk.T.P.P , Dist -Birbhum,Pin -731104

Tender Notice No. WBPDCL/Tend-Adv/CC/14-15/146/BkTPP, dated:06.12.2014

SUB: Tender document for Procurement, Dismantling (including removal of scrap, debris from site) and Installation & Commissioning of One (01) set H2 Generator in place of Old Set at Bakreswar Thermal Power Project.

SALE OF TENDER PAPER	:	22/12/2014 to 16/01/2015 from 10:00 Hrs. to 14:00 Hrs. on all working days except Sundays and holidays and Saturday from 10:00 Hrs. to 12:00 Hrs. against deposition of Cost of Tender Document at Cash Section of BkTPP.
PRE-BID DISCUSSION ON	:	On 21/01/2015 at 11:00 Hrs.
LAST DATE & TIME OF SUBMISSION OF TENDER PAPER	:	29/01/2015 upto 14:30 Hrs.
DATE & TIME OF OPENING (PART-A FOR TECHNICAL BID ALONGWITH COMMERCIAL TERMS & CONDITIONS)	:	29/01/2015 at 15:00 Hrs.
COST OF TENDER PAPER	:	₹ 5,000/- (Rupees five thousand) only (cash)

DEPOSITED VIDE D.C.R.NO._____

DATED_____

ISSUED TO M/s._____

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SR. MANAGER (Materials)
BAKRESWAR THERMAL POWER PROJECT
W. B. P. D. C. L.

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED
(A Govt. of West Bengal Enterprise)
Bakreswar Thermal Power Project
P.O.Bk.T.P.P , Dist -Birbhum, Pin -731104

Tender Notice No. WBPDCL/Tend-Adv/CC/14-15/ /BkTPP, dated:

Sealed tenders in two parts, Part A (for technical specification bid alongwith commercial Terms & Conditions) and Part B (for price bid) in duplicate are invited by the General Manager, Bakreswar Thermal Power Project (BkTPP) under The West Bengal Power Development Corporation Limited from interested, resourceful and experienced agencies.

The agencies should submit the following documents in their quotation while submitting the offer:

1. Valid I.T. & S.T., Service Tax Registration, Professional Tax Clearance Certificates, Provident Fund A/c No. etc.
2. Credential of similar work done directly under a Government/Quasi Government Organization/Private Company during period of any three year within last seven years reckoning from 31.12.2013
   - "Similar Works" means 'Supply, installation, testing & commissioning of Hydrogen Generation Plant' with the rated capacity and specifications detailed elsewhere in the Tender Document
   - The value of work for similar type of job as mentioned above, completed by agency should be as follows:
     a) In single order of value not less than Rs. 102 lakhs.

     or

     b) In two orders each of value not less than Rs. 64 lakhs.

     or

     c) In Three orders each of value not less than Rs. 51 lakhs.
3. Average Annual Financial Turnover in last 3 financial years, (viz. 2011-12, 2012-13 & 2013-14) should be at least Rs. 38 lakhs.

4. Average net worth in last three financial years :- should be positive.
5. Audited balance sheet for last three financial years.

Job Description:

Procurement, Dismantling (including removal of scrap, debris from site) and Installation & Commissioning and Testing as per detailed technical specification of One set H2 Generator along with allied jobs in place of Old Set at Bakreswar Thermal Power Project.

Completion time

Material Delivery Schedule**: -** Twenty four (24) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDCL

Installation & Commissioning Period**:-** Two (02) months from arrival of material at BkTPP Store.

Earnest Money Deposit

₹ 2.5 lakhs (Rupees two lakh fifty thousand) in the form of Demand Draft or Bank Guarantee in favour of "THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED" drawn on /issued by any Nationalised /Scheduled Bank, Suri or United Bank of India, BkTPP Branch. The requisite earnest money should be deposited along with tender papers in a separate sealed envelope. No tender will be entertained without Earnest Money.

Cost of Tender Paper

₹ 5,000/- (Rupees five thousand) in cash only (non refundable)

Sale of Tender Paper

22/12/2014 to 16/01/2015 from 10:00 Hrs. to 14:00 Hrs. on all working days except Sundays and holidays and Saturday from 10:00 Hrs. to 12:00 Hrs. against deposition of Cost of Tender Document at Cash Section of BkTPP.

Pre-bid Discussion

On 21/01/2015 at 11:00 Hrs. at the Administrative Building of BkTPP. Bidders are requested to submit their queries before the Pre-bid discussion.

Last Date of Submission of Tender Papers:

Last date of submission of Tender Paper is 29/01/2015 upto 14:30 Hrs. and the same will be opened at 15:00 Hrs. on the same date in presence of the participating tenderers. Sealed tenders of the parties only who have deposited the requisite amount of Earnest Money will be opened for two part bid.

The Corporation reserves the right to accept / cancel any or all tenders or to split the work without assigning any reason whatsoever. The WBPDCL does not bind itself to accept the lowest tender and qualification of tenderer will be adjudged as per sole discretion of WBPDCL authority. The validity of tender will remain effective fro 6 (six) months from the date of opening of Price Bid of tender. All other details are available in the tender document.

(K. Sarkar)
Sr. Manager (Materials)
BkTPP/WBPDCL

Enclo:

- Information to Bidders
- Annexure – I
- Annexure - II

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED
(A Govt. of West Bengal Enterprise)
Bakreswar Thermal Power Project.
P.O. Bk.T.P.P, Dist-Bibhum. Pin-731 104

Tender Notice No. WBPDCL/Tend-Adv/CC/14-15 / /BkTPP, dated:

INFORMATION TO BIDDERS

Sub **:** Tender document for Procurement, Dismantling (including removal of scrap, debris from site) and Installation & Commissioning of One set H2 Generator along with allied jobs in place of Old Set at Bakreswar Thermal Power Project.

1.0 Qualifying Requirement:

i) The bidder should be an original manufacturer of Similar Hydrogen Generator or authorized channel partner/Vendor of the same.

ii) The bidder should have capabilities with respect to personnel, equipment and manufacturing facilities.

iii) "Similar Works" means 'Supply, installation, testing & commissioning of Hydrogen Generation Plant' with the rated capacity and specifications detailed elsewhere in the Tender Document.

2.0 Terms and Conditions

1.0 Prior to submitting the tender, the bidder should inspect the site and be well acquainted with the nature of the work.

2.0 The bidder shall have to be acquainted with all possible hazards associated with the works and shall equip themselves accordingly beforehand.

3.0 The workers deputed to this work might have to perform the duties at night and / or as and when required or in shifts if specifically required.

4.0 The contractor / or his authorised representative should be present all the time so long the work continues for the safety of workers deputed to this job.

5.0 The necessary arrangement for First-Aid treatment should be provided at site during the works.

6.0 In case of any damage of departmental equipments, existing structure or any materials due to negligence on the part of the contractor, the sole responsibility will be upon him for replacement, repair or recovery of the cost thereof from the bill, etc.

7.0 The rate should include cost for all precautionary measures including payment of insurance premium i.r.o. workers to be adopted by the contractor against gas hazards / probable accident causing injury / death to the workers and compensation wherever applicable to be paid as per Workmen's Compensation Act.

8.0 The contractor's Camp should be situated in the vicinity of the work area with proper permission form the Department.

9.0 The statutory obligations as per the contract labour (Regulations & Abolition) Act, 1970, Govt. of West Bengal (latest amendment)

should be followed strictly by the contractor. It also ensures payment of statutory minimum wages to the unskilled workers employed by the contractor while executing this job in terms of Rule 75 (iv) of the West Bengal Contract (R&A) Rules – 1972.

10.0 As regards deployment of labours the contractor shall have to abide by the rules and regulations framed WBPDCL authority/ District Authority which may change from time to time in the interest of the project.

11.0 The contractor may have to arrange gate pass for the workmen from the Department and rules & regulations on this subject shall be binding on him.

12.0 Controlling Officer or Safety Officer at his discretion may check / examine any of contractor's tools / scaffolding / working condition, etc. and if not satisfied he may suspend the job temporarily till proper measures are adopted from contractor's end.

13.0 The contractor should supply the necessary preventive devices for safety of his workmen and he will ensure that the necessary safety or cautions have been taken by the workmen on job. WBPDCL in no way shall be responsible for safety of contractor's workmen.

14.0 Maintaining drainage and environment from pollution during execution, to keep all the roads thoroughly clean and to take all the measures to avoid any hazards and public inconveniences shall be done by the contractor at his cost.

15.0 All tenderers are hereby cautioned that conditional offers or deviation from the conditions of contract or other requirements stipulated in these tender documents shall be rejected as non-

responsive and shall not be considered further in tender evaluation.

16.0 Agency shall not be allowed to sublet any part of the work without prior written consent of Employer/Engineer-in-Charge.

17.0 The Contractor shall take all precautions for safe-guarding the environment during the course of the construction of works. They shall abide by all laws, rules and regulations in force governing pollution and environmental protection that are applicable in the area where the works are situated.

18.0 The Contractor shall not use or generate any material in the works, which is hazardous to the health of person, animals or vegetation. If some substance can cause injury to the health of workers, the firms shall provide protective clothing or appliances to their workers.

19.0 The entire offer to be submitted by the tenderer should be unconditional. Any information, assumption, statement having a direct or indirect relation/ correspondence with the quoted rates shall be treated as a condition and as such a deviation from the tender norms stipulated in the tender documents. Bidders are therefore requested to thoroughly scrutinize the entire tender document and seek clarifications if required before submission of tender.

20.0 Deployment of unskilled workers shall have to be made in consultation with the HR&A department of BkTPP.

2.0 Special Terms and Conditions

1.0 The job shall be done as far as possible by mechanical means by deploying excavators, concrete mixers, nozzle/form vibrators & water pumps etc.

2.0 Quoted rate, after award of contract, shall remain firm.

3.0 Contractor will arrange cleaning, dewatering, cutting & filling of site as necessary at his cost.

4.0 Necessary temporary approach roads, wherever required to access the work site shall be constructed & maintained by the contractor at his cost, during execution of work.

5.0 Necessary temporary drainage of the construction water as well as storm water to be done and maintained by the contractor at his own cost.

6.0 Water and electricity for construction purpose, if required, shall have to be arranged by the contractor at his own cost. However, deptt. may provide water at a single source if possible. Further water supply line have to be drawn by the contractor.

7.0 The vegetation and trees, bushes, abandoned structures etc on the land is to be cleared by the contractor at his own cost as necessary for the execution of the job.

8.0 The contractor shall have to deploy at site the requisite nos. of Engineering staff and shall establish quality control laboratory at the site with technical staff for the proposed work.

9.0 Programme of works in the form of Bar Chart acceptable to the department/Consultant should be submitted before physical commencement of work and every effort should be made to adhere strictly to this approved work programme.

10.0 Periodic quality test of material supplied by the agency and final products are to be made at Contractor cost in his own modern equipped field laboratory with qualified Engineers and Technicians. The Engineer-in-charge/Consultant shall have the liberty to test any material at recognized laboratory.

11.0 The work shall have to be carried out as per standard and good engineering practice and safety norms. The work shall be carried out ensuring the safety and stability of adjacent structures & foundations.

Sealed Tenders in two parts, Part A (for Technical Specification bid alongwith commercial terms and conditions) and Part B (for Price Bid) in duplicate (Non-transferable) with firm's own seal are invited as detailed in the attached sheet ANNEXURE-II under following terms and conditions:-

Sl. No.	**Description**
1.	Tender Notice No. Brief description of the supply and due date of opening should be clearly mentioned on the top of the envelope.
2a.	Material Delivery Schedule**: -** Twenty four (24) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDCL.
2b.	Installation & Commissioning Period**:-** Two (02) months from arrival of material at BkTPP Store.
3.	LEAF LET ETC**: -** The descriptive literature of materials shall have to be enclosed along with the tender / quotation.
4.	INSPECTION**:-** a) Inspection will be carried out by our representative at your works, if required. b) Third party inspection such as D G S & D, LLYOD etc. may be agreed. In that case, inspection is to be arranged by the tenderer, cost of which will be borne by WBPDCL. c) Rejected Materials have to be lifted by party at their own cost. Loading at BkTPP for lifting the rejected materials will be arranged by party at their cost. d) Installation & Commissioning activities: The total system has to be installed, commissioned and integrated at site (i.e. BkTPP) upto satisfaction of the BkTPP Engineers.

Sl. No.	Description

5. PRICE**:-**

a) Rates and total amount should be mentioned both in figure and words, if there be any difference the fewer amounts will be considered.

b) Excise duty, S.T. /VAT, Service Tax, other statutory Levies, Forwarding & Packing & freight etc must be clearly mentioned in the tender/quotation.

c) The rates inclusive of delivery at Bk.T.P.P. Stores must be quoted. Break up should also be submitted.

d) The D G S & D rate should be quoted, if there be any D G S & D rate contract to be furnished.

e) Bids or modification of bids received after opening of Tender will not be considered.

6. PAYMENT**: -**

a. 10% advance payment against Advance Bank Guarantee (ABG).

b. 70% payment will be made by Cheque against Store Received Voucher (SRV). The SRV will be issued only after acceptance of material by user department. Payment by Demand Draft with bank charges on vendor's account may be considered subject to mention in relevant quotation / offer.

c. 20% payment will be made after successful Installation & Commissioning.

PAYING AUTHORITY**:**

a) For 10% advance payment: Advance Bank Guarantee in prescribed format alongwith Purchase Order is to be submitted to the G.M (F&A)/Dy.GM (F & A), WBPDCL Corporate Office towards release of advance payment.

b. For 70% payment: Bill in triplicate alongwith challans is to be submitted to the G.M (F&A)/Dy.GM (F & A), WBPDCL Corporate Office. STD Form for concessional rate of S.T can be provided to the supplier only after completion of supply with submission of final bill. Excise duty can not be without E. Duty Gate Pass (GP-I) E.D. Gate Pass is to be submitted in original along with the Invoice/Bill. Part payment for part delivery will not be allowed.

c. For 20% payment: Bill in triplicate is to be submitted after successful completion of the Installation & Commissioning job, to the concerned controlling officer for his certification and forwarding the same to the G.M(F&A)/Dy.GM (F & A), WBPDCL Corporate Office towards release of payment.

Sl. No.	Description
7.	TEST CERTIFICATE**:-** Material test certificate from Govt. Approved Laboratory may be submitted along with supplies.
8.	GUARANTEE**:-** The material must conform to the specifications as indicated in the purchase order. Also the material should be guaranteed against any manufacturing defects due to faulty design or bad workmanship or defected material for a period of 12 months from the date of commissioning or 18 months from the date of supply whichever is earlier. If any material or part thereof is found or proved to be defective within this period, you shall be liable to replace the same at free of cost within a reasonable period, failing which BkTPP authority will take necessary measure for replacement of damaged material from elsewhere and expenditure incurred on above ground shall be realized from you. Guarantee Certificate for supplied material is to be submitted along with material.
9.	PERFORMANCE BANK GUARANTEE**:-** A Bank Guarantee for 5% of the limiting value of basic price will be submitted for security cum performance guarantee. The said Bank Guarantee will be furnished prior to commencement of supply of materials and Bank Guarantee will remain valid till expiry of the guarantee period.
10.	LIQUIDATED DAMAGE**:-** The WBPDCL reserves the right to repudiate the contract if the materials are not delivered within the stipulated time. However, the authority may waive this condition and impose a L.D. for delayed supply @1/2% on the value of undelivered materials which may be either for total quantity or delivery effected partly beyond the scheduled time and for each week of delay or part thereof up to a maximum of 5% of the total value of the materials.
11.	OTHER REQUIREMENTS**:-** Copies of orders received from Govt. agencies, Undertaking along with proof of execution of the orders shall have to be furnished along with the bids.

Notwithstanding any thing stated above WBPDCL reserves the right to assess the bidder's capability and capacity to perform the contract, should be circumstances warrant such assessment in the overall interest of WBPDCL.

WBPDCL reserves the right to split the order, alter the quantity and reject any or all tenders without assigning any reasons whatsoever. WBPDCL does not take any responsibility for postal delays.

SR. MANAGER (Materials)
BAKRESWAR THERMAL POWER PROJECT
W. B. P. D. C. L.

ANNEXURE-I

TECHNICAL SPECIFICATION
FOR
Replacement of Existing Hydrogen Generator and Power Supply (Rectifiers) at WBPDCL Hydrogen Gen. Plant:

Description of Hydrogen Generator:

Sl No.	Item Code	Item Description	Quantity	UOM
1	04S070028	H2 Generator Set, H2 purity 99.99% (Minimum), Discharge Pressure 100 psig (Minimum 7.0 Barg without use of compressor at this stage), Discharge flow 11.2 Nm3/hr. with integral H2 purifier/drier assembly, power supply rectifier unit, Standard annunciation, protection and control panel, PC for SCADA with software for PLC environment friendly equipment. The equipments are to be designed and manufactured in accordance/compliance with specified Codes and Standards.	1.0	SET

GENERAL:

This specification is intended to cover dismantling of old Hydrogen Generator[size: L-110cm, W-94cm, H-171cm and it's Power Supply size: for Rectifier 76cmX76cmX151cm, for TB 76cmX15.5cmX91.5cm] and install new hydrogen generator in that space by design, engineering, manufacture, inspection, testing at manufacturer's works, supply/delivery duly packed (sea worthy packing for imported items) FOR Site Basis, including freight, storage and handling at site, erection and commissioning, trial run at site, PG test, and plant handing over to WBPDCL etc. inclusive of all prevailing taxes, duties and other levies of HYDROGEN GENERATOR as specified below:

i) The system must be compatible with the existing H2 Compressor (Hofer make) at suction pressure to be maintained at 6-7Kg/CM2 (g), and suction temperature 40^{o}C maximum. Cooling water flow available for the generator Maximum 44 Ltr./Minute from clarified water with MS pipe line from overhead tank free flow with operating temperature range from 0.6^{o}C to 47^{o}C. The Generator module must be acquired the same space as old one with the existing piping connection unaltered.

ii) New H2 Generator should be identical with that of old one, so that it can be retrofitted with the existing pipe lines, H2 compressor in respect to suction pressure and other parameters.

iii) If any changes required in protection system, that must be retrofitted to the existing system.

iv) One (1) Number Hydrogen Generator with Power Supply (Rectifiers) complete with all accessories and PLC based control panel including start up, and commissioning spares as required by for replacement of existing Hydrogen Generator.

Technical Specification:

1) a) Hydrogen Gas production process shall be by Alkaline/Water Electrolysis, bipolar process technology. The set must have at least two modules having capacity of 50% or 100% each.

b) The media used may either be Alkaline Electrolyte or pure water and must not be Acidic.

c) Tripolar process may also be accepted and each module should have capacity of 33.4%/33.33% or 100%.

d) It shall deliver Hydrogen gas at minimum 7 Barg pressure (Without use of compressor at this stage), 99.99% purity (minimum) and Gas Dew point (-) 60°C or better.

2) Alkaline/Water Electrolysis Bipolar/Tripolar design Hydrogen Generator with following Accessories:

i. Alkaline/Water, Bipolar/Tripolar Electrolyser with each Electrolysis module minimum 5 NM3/Hr. rating.
ii. Separate KoH Reservoir/ Phase separators for Hydrogen and Oxygen.
iii. Deoxo Tank for removing Oxygen from the Hydrogen gas.
iv. PLC controlled In-built Hydrogen Dryer having changeover cycle of 6 Hours each.
v. Recirculation KoH Pumps to feed electrolyte to individual cells and to remove Heat from the Modules.
vi. PLC controlled DM Water make Pump during operation.
vii. Heat Exchangers and Condensers for cooling the KoH coming out of Modules.
viii. Hydrogen in Oxygen Sensor to control and monitor H2 purity and trip the Generator if Purity falls below set point.

3) The equipments are to be designed and manufactured in accordance/compliance with following Codes and Standards. These include, but are not limited to, the applicable sections of the following:

- Pressure Vessels: ASME, Section VII, Div 1
- Piping: ASME B31.1
- Flanges, Fittings/Valve Bodies: ANSI, ASME
- Structures: ANSI/AWS D1 (American Welding Society)
- Electrical Wiring: ANSI/NFPA 70/ USA National Electrical Code

- Electrical Installation: ANSI/NFPA 70, Art. 500 for Class 1, Division 2, Group B
- Electrical Motors: NEMA, MG-1 & UL
- Electrical Enclosures: NEMA 250
- Grounding: NEC, Article 500
- Transformers: NEMA ST20

4) Specification of Hydrogen Gas produced by proposed Hydrogen Generator:

- Hydrogen (H2) Gas Capacity : 11.0 NM3/Hr.
- Hydrogen Purity : 99.99%
- Hydrogen Gas Delivery Pressure : It shall deliver Hydrogen Gas at minimum 7 berg pressure (Without use of compressor at this stage), 99.99% purity (Minimum) and a gas dew point (-)60°C or better.
- Oxygen Purity : < 5 PPM
- Oxygen Gas Delivery Pressure : 8 to 10 Bar.
- Dew Point (Moisture Content) : < (-) 60° C.

5) Availability of Space for installation of new Hydrogen Generator:

- The space available for installation of New Hydrogen Generator (in place of old H2 Generator) is as per below:
  Length: 2.00 Meters.
  Width: 1.00 Meters.
  Hence Hydrogen Generator proposed by the bidder must be installed in the above specified area of 2 Meters X 1 Meter only.
  Note: It is to be noted that there is no other space available as the other Hydrogen Generator is there.

A) Mechanical scope/ Requirement:

- Alkaline/Water Electrolysis Bipolar/Tripolar design Electrolyser of Capacity 11.0 NM3/Hr. Electrolyser have at least 2 electrolysis modules having capacity 50% or 100% each. Each module shall be more than 5.0 Nm3/hr capacities.
- Electrolyser shall be standalone unit (installed on skid) and all the accessories shall be installed on that skid only.
- Physical dimension of Electrolyser shall be such that it is installed in 2 Meter X 1 Meter area. There is no other space left out as there is another Hydrogen Generator in the same room.
- Phase separators for Hydrogen and Oxygen where KoH is initially filled for operation. DM water inlet/ make up point in one of the Phase separator for Make up of DM water which is consumed during normal operation.
- Nitrogen purging system. Hydrogen Being Explosive Gas inert gas or Nitrogen Purging is to be done before start-up and after shutdown.
- Adequate Heat exchangers/ condensers to cool down the KoH coming out of Electrolysis Modules.

- Inbuilt Hydrogen Dryer dual tower type with Changeover facility after 6 hours.
- Equipment is to be designed such that it can operate continuously or intermittently as per requirement.

B) Electrical scope/ Requirement:

The scope of electrical works, equipment and services shall be as per following:

- WBPDCL will provide only one feeder from their existing MCC suitable for Power Supply. No other feeder is available.
- Bidder has to make their own arrangement if they require additional feeders for their equipments.
- Power supply (rectifiers) shall be standalone unit and must be installed in a separate room (non Hazardous area). The Power Supply can be installed on the existing Power Supply panel space on the Cable Trench.
- Bidder has to provide their own DC cables as per requirements.
- Motors present in hazardous area of the hydrogen generation plant shall be Constant speed Sq. cage type Electric motor suitable for group IIC of IS 2148 or equivalent international standards like Class I Div II of NEC/ zone 2 or classification IIC of IEC 60079.

C) Control and instrumentation scope/requirement:

a) All necessary instruments such as transmitters, temperature elements, sensors, switches, gauges, controller, analyzer, solenoid valve, etc should be provided for safe, efficient & reliable operation and maintenance of the H2 generation plant. All instrument devices should be intrinsically safe with explosion proof enclosure suitable for hazardous area described in NEC article 500, Class-1, division-2 or EN60079-14 or shall comply with the essential requirements of ATEX directives as approved by CCE, India and other statutory authorities. All fittings, cable glands, etc. shall be strictly as per NEC recommendation Article 500 to 503.

b) General requirement for PLC and HMI (SCADA) system:

- The control of Hydrogen generator should be cold redundant processor (CPU) based PLC system. PLC unit should be supplied with power supply and necessary analogue and binary Input and Output cards, communication cards for normal operation.
- The PLC system should be provided with UPS system (30 mints back-up) for safe operation and shutdown incase of power interruption.
- Hydrogen generator & Compressor can be start and stop from remote PC and logging of the equipments operation.
- SCADA shall display following parameters:
  - Module Percentage Loading.
  - Different Annunciations related to generator & Compressor.
  - Compressor parameters (1st.stage & 2nd Stage pressure, temperature, etc)
  - Production rate.

- Feed Water pump timing, purge status, Elapse time, etc.
- All parameters including all field inputs to be displayed in the SCADA. Complete HMI and DATA Monitoring, Trend, event log, Software alarm are to be incorporated in the SCADA Computer (In addition to touch screen).
- Even log configuration from alarm and trip value of all analog parameters and state change of binary inputs are to be configured properly.
- License Document in paper/CD/DVD for SCADA computer is required.

c) All the instrument and controls shall have to Device Net Control system. Signal from the hydrogen generator shall be transmitted to PLC control panel installed in the control room.

d) Touch screen of the new Generator from local basis and system should be such that the total operation can be done from a remotely placed less than 50Mtr. Both the touch screen and PC should show parameter details along with the annunciation.

e) Space should be such that the new one can be spaced in existing place.

f) Following instruments for proposed hydrogen generator are envisaged as minimum:

- Level transmitter for measuring KOH leveling phase separator.
- Pressure transmitter for measuring the pressure of hydrogen and Oxygen gases as well as Dryer pressures for normal operation and safe shutdown.
- Flow switch to measure the KOH flow entering the electrolysis Modules.
- Thermocouples to measure KOH temperature at inlet and outlet of Modules, De-Oxo temperature, etc.

g) Panel for PLC, annunciation and relay control shall be provided with necessary alarms display with hooter. This panel should be wall mounted and the size of the panel should match with the space already provided. Max panel size (Width X Height X Depth) =1000 X 1000 X 600 in mm.

h) Documents in soft form (DVD/CD) as well as 3 nos. hard copy.

i) Complete Spare list with part no, parameters and ordering code for spare procurement.

D) Civil scope:

All civil foundation of equipment if required will be done by bidder. Bidder has to do the complete grouting of their equipments.

E) Others Requirement:

I. Safety points:

a) Checking & shut down due to feed water quality.

b) Nitrogen purging during start-up of Generator.

c) Automatic shut-down of system when deviated from normal design parameter.

d) Hydrogen in Oxygen monitor to determine the Hydrogen content in the Oxygen produced.

e) DC Current monitoring to Generator.

f) Hydrogen leak detectors to be inter locked with the Generation.

g) Dew point of Hydrogen generated should show and shut down the Unit if limit value crosses.

II. COMMISSIONING SPARES:

All the necessary commissioning spares shall be supplied as a part of base offer. Bidder will submit the list of commissioning spares for hydrogen generation plant along with the Bid.

III. QUALITY ASSURANCE PLANS:

Bidder has to submit Quality Assurance Plan after successful award of Contract along with Drawings and documents for WBPDCL approval. Detailed QAP, inspection, checklist etc, shall be approved by WBPDCL. All inspection & testing etc. shall be carried out as per the approved Quality plan.

Any changes/additional tests insisted upon by WBPDCL during detailed engineering shall be accepted by bidder without any commercial implication.

IV. SUB VENDOR:

Bidder to note the sub vendors shall be selected from the sub vendor list enclosed as annexure. Additionally proposed sub vendor over and above specified in the enclosed list shall be subjected to WBPDCL approval during detailed engineering without any commercial / delivery implication to WBPDCL. Decision of WBPDCL shall be binding on vendor in this regard.

V. PG TEST:

Bidder shall perform required tests in presence of WBPDCL to prove and guarantee the performance guarantee parameters as indicated in Technical Proposal of the bid to the satisfaction of WBPDCL. The exact modalities of verifying guarantee for the parameters indicated in the specification shall be finally as agreed with the WBPDCL during detailed engineering & mutually agreed.

The Bidder shall arrange all the monitoring gadgets / instruments / equipments required for performing guarantee parameters (returnable after PG test). Site facility as available or as extended by WBPDCL shall only be provided.

VI. INSTRUMENT AIR/SERVICE AIR:

Instrument air and service air shall not be provided by WBPDCL. If Instrument air or Service air is required then bidder has to make their own arrangement.

N.B.

1. **Mandatory Spares, Maintenance Manual, Drawing, Other relevant certificates are to be supplied by the Party along with the package.**
2. **Training is to be provided by the party.**
3. **Complete recommended spare parts list with part number, drawing and ordering code for spare procurement must be provided.**

ANNEXURE-II

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED
Bakreswar Thermal Power Project, Birbhum

Tender Notice No. WBPDCL/Tend-Adv/CC/ / /BkTPP, dated / /2014

SUB.: TENDER DOCUMENTS FOR PROCUREMENT, DISMANTLING AND INSTALLATION & COMMISSIONING OF ONE SET OF H_2 GENERATOR IN PLACE OF OLD SET AT BAKRESWAR THERMAL POWER PROJECT.

Description	Qty.	Ex-Works Unit Rate (Rs.)	Dismantling and installation & Commissioning Charge (Rs.)	E.D. & Surcharge	S.T./VAT (Rs.)	Service Tax (Rs.)	Transportation Charge (Rs.)	Any other Charges if any (Rs.)	Discount if any	Gross Rate at BkTPP Store (Rs.)
For material										
For Dismantling and installation & Commissioning										