



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

NIT No.: WBPDC/Tend-Adv/CC/15-16/72/BkTPP Date: 02.06.2015
Job-I

SUB: Tender document for Procurement of 12 nos. 0.2 Accuracy Class Capacitive Voltage Transformers for 400KV Switchyard at Bakreswar Thermal Power Project.

SALE OF TENDER PAPER : **08/06/2015 to 26/06/2015 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 Bk.TPP.

PRE-BID DISCUSSION ON : **On 02/07/2015 at 11:00 Hrs.**

LAST DATE & TIME OF SUBMISSION OF TENDER PAPER : **16/07/2015 upto 14:30 Hrs.**

DATE & TIME OF OPENING (PART-A FOR TECHNICAL BID ALONGWITH COMMERCIAL TERMS & CONDITIONS) : **16/07/2015 at 15:00 Hrs.**

COST OF TENDER PAPER : **Rs. 2,000/- (Rupees two thousand only)**

DEPOSITED VIDE D.C.R.NO. _____

DATED _____

ISSUED TO M/s. _____

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

NIT No.: WBPDC/Tend-Adv/CC/15-16/72/BkTPP

Date: 02.06.2015

Job-I

Sealed tender 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 30.04.2015**
 - “Similar Works” means ‘Supply of Capacitive Voltage Transformer’ with the 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. 40 lakhs.
or
 - b) In two orders each of value not less than Rs. 25 lakhs.
or
 - c) In three orders each of value not less than Rs. 20 lakhs.
3. Average Annual Financial Turnover in last 3 financial years, (viz. 2011-12, 2012-13 & 2013-14) should be at least Rs. 15 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 of 12 Nos. 0.2 Accuracy Class Capacitive Voltage Transformers for 400KV Switchyard as per detailed technical specification at Bakreswar Thermal Power Project.

Completion time

Material Delivery Schedule: - Twenty (20) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDC.

Earnest Money Deposit

Rs. 1.50 lakhs (Rupees one lakh and fifty thousand only) 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.

NSIC holders are exempted from deposition of EMD. Necessary enlistment certificate should be submitted by the respective bidder.

Cost of Tender Paper

Rs. 2,000/- (Rupees two thousand) in cash only (non refundable)

Sale of Tender Paper

08/06/2015 to 26/06/2015 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 02/07/2015 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 16/07/2015 upto 14:30 Hrs. and the same will be opened (Part-A) at 15:00 Hrs. on the same date in presence of the participating tenderers if any. 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 WBPDCCL does not bind itself to accept the lowest tender and qualification of tenderer will be adjudged as per sole discretion of WBPDCCL authority. The validity of tender will remain effective for 6 (six) months from the date of opening of Price Bid of tender. All other details are available in the tender document.

Encl:

- Information to Bidders
- Annexure – I & II

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

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

NIT No.: WBPDC/Adv-Tend/CC/15-16/72/BkTPP

Date: 02.06.2015

Job-I

INFORMATION TO BIDDERS

Sub :	Tender document for Procurement of 12 nos. 0.2 Accuracy Class Capacitive Voltage Transformers for 400KV Switchyard as per detailed technical specifications at Bakreswar Thermal Power Project.
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1.00.00. INTENT OF SPECIFICATION

This proposal is for the designing and procurement of 12 (twelve) Nos. 4400pF, 400kV, 0.2 accuracy class Capacitor Voltage Transformer (CVT) for Bk.TPP 400kV switchyard.

This specification is intended to cover the following activities in respect of above mentioned procurement with all components and accessories to be supplied to Central Store, BkTPP, WBPDC located in Birbhum district of West Bengal.

- a. Detailed design of the equipment and accessories.
- b. Providing Rating & Diagram Plate, Outline General Arrangement (OGA), Guaranteed Technical Particulars (GTP) & Quality Assurance (QA) Plan.
- c. Drawings, Data sheet, Format etc. for Owner's approval and records.
- d. Packing and transportation from the manufacturer's works to the site, including custom/port clearance, if required.
- e. Receipt, unloading, handling, storage and insurance of equipment.
- f. Reconciliation with customs authorities, if applicable.

2.00.00. GENERAL INSTRUCTION TO BIDDER

1. The bidder is advised to visit the plant/site, if required, and collect any information or data as may be required by them, before quoting against this specification. The bidder is also advised to give technical information of the material which is being quoted along with relevant literature covering all technical specifications and its features.
2. Bidder has to check receipt of complete documents referred to in the contents. In the event of order, the entire specification will form part of purchase order for compliance during execution.
3. Deviation, if any, shall be clearly brought out in the "Deviation Schedule". Otherwise, it will be interpreted that the bidder is fully complying with the specification.
4. In case of any dispute, Senior Manager (EM-OPH)'s decision will be final and binding.

3.00.00 BID PROPOSAL

1. Following documents shall be submitted along with the offer. The documents forming part of the offer shall be neat, legible and in English.
 - 1.1. Filled in data sheets of the product & its accessories offered. A list of such documents shall also be furnished.
 - 1.2. Outline General Arrangement drawing along with detailed descriptions.
 - 1.3. Guaranteed Technical Particulars
 - 1.4. Complete BOM of the offered material. The BOM submitted shall contain the make, model number, rating of the item etc. Vendor's name & addresses of brought out items are also to be mentioned along with warranty certificates. Warranty clauses would include name of the customer.
 - 1.5. Filled in "Deviation Schedule" with reason/justification for the deviation taken.
 - 1.6. **List and schedule of documents to be submitted by bidder for buyer's approval and information, after placement of order.**

4.00.00 SCOPE OF WORK (SOW):

1. It includes design & engineering of system, testing and supply of Capacitor Voltage Transformer at site. All the engineering drawings are to be get finalized (mutually agreed by supplier & customer) according to site requirement. Vendor may visit site for collection of required data/ drawing etc. before finalization of engineering of the system without any financial implication to WBPDCCL.
2. Quantity of all items, Bill of material is to be finalized after engineering & design of system architecture.
3. **Documents** : 3 Sets of as built drawings & manuals (hard copy & soft copy) are to be submitted clearly mentioning equipment details.
4. **Testing:** (a) Before dispatching of equipments and materials vendor should offer customer for testing at their works. All basic designing have to be completed before offering customer for inspection. Vendor should have all these testing facilities at their works. Vendor has the full responsibility to address & sort out the problems if arises so far.
5. Packing and transportation from the manufacturer's works to the site including custom/port clearance, as required.
6. If the bidder feels that, in his opinion, certain feature brought out in his offer are superior to what has been specified, these may be highlighted separately.
7. Warranty period of Capacitor Voltage Transformer has to be of Minimum 12 months, which starts after the acceptance of WBPDCCL.

5.00.00 BID QUALIFYING REQUIREMENT:

Required evidence for the following BQR conditions should be furnished along with the tender. Otherwise the offer will be summarily rejected.

1. Bidders must have the experience of manufacturing Capacitor Voltage Transformer of 400kV or above for at least past 7 years in India.
2. Bidder should have supplied orders of similar type to at least three other government, Quasi Government or private organizations.
3. Bidder must have a technical branch in India from where all type of technical support will be available for the next 20 years.
4. The bidder should confirm the support service or supplying spares of supplied capacitive voltage transformers for at least next 20 years.

6.00.00 TERMS AND CONDITIONS

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:-

1. Tender Notice No. Brief description of the supply and due date of opening should be clearly mentioned on the top of the envelope.
2. Material Delivery Schedule: - Twenty (20) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDCCL.
3. LEAF LET ETC: - The descriptive literature of materials shall have to be enclosed along with the tender / quotation.
4. INSPECTION:-
 - a) The complete equipment has to be offered for inspection by WBPDCCL representative at bidder's works and the bidder shall give 30 days advance notice for arranging the inspection after the equipment is made fully ready. Inspection will also be carried out at BkTPP stores by the representatives of concerned dept after effecting delivery.
 - b) Decision of Sr. Manager (EM-OPH), BkTPP would be final & binding for inspection at vendor's works & vendor must offer for inspection by WBPDCCL at their works.
 - c) The equipments can be dispatched only after the clearance by WBPDCCL.
 - d) 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.
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 that is to be furnished.
 - e) Bids or modification of bids received after opening of Tender will not be considered.
6. PAYMENT:
 - i) 90% 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.
 - ii) Balance 10% of payment will be released after 12 months from the date of

successful commissioning of equipment and after observing the performance of CVT or 18 months after delivery of the materials, whichever is earlier.

PAYING AUTHORITY:

i) Bill in triplicate alongwith challans is to be submitted to the G.M (F&A)/ Dy.GM (F & A), WBPDCCL 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.

7. **TEST CERTIFICATE:-** Material test certificate from Govt. Approved Laboratory may be submitted along with supplies.
8. **GUARANTEE/WARRANTY:-** 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 Bk.TPP authority will take necessary measure for replacement of damaged material from elsewhere and expenditure incurred on above ground shall be realized from you. The equipment is to be made functional after attending the problem as early as possible. 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 WBPDCCL 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 WBPDCCL 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 WBPDCCL.

WBPDCCL reserves the right to split the order, alter the quantity and reject any or all tenders without assigning any reasons whatsoever. WBPDCCL 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

Capacitive Voltage Transformers of 400KV Switchyard at Bakreswar Thermal Power Project:

Sl No.	Item Code	Item Description	Quantity	UOM
1	05T050003	CVT, 420KV, 4400pF, Protection core accuracy class 3P Metering core accuracy class 0.2	12.0	NO

1. GENERAL TECHNICAL SPECIFICATIONS

Technical particulars:

- Primary voltage : $400000/\sqrt{3}$ V
- Type : Outdoor
- Phase : Single
- Insulation level : 630kVp/1050kVp/1425kVp
- Rated voltage factor/Time : 1.2/ Continuous, 1.5/30 seconds
- Highest system voltage : 420kV
- HV Capacitor : 4656pF
- IV Capacitor : 80000pF
- Rated capacitance : 4400pF
- Standard : IS:3156 / IEC:358
- Total Creepage distance : 10500mm
- Secondary details:

Secondary terminal	1a-1n / 1a'-1n	2a-2n / 2a'-2n	3a-3n / 3a'-3n
Secondary voltage (V)	$110/\sqrt{3}$	$110/\sqrt{3}$	$110/\sqrt{3}$
Rated burden (VA)	200	200	100
Class	3P	3P	0.2
Frequency (Hz)	48 - 51		49.5 - 50.5
Total simultaneous burden (VA)			100

More details available in GTP & OGA.

Each Capacitor Voltage Transformer set includes:

1. Top unit shall have primary terminal, sling guides & eye bolts for lifting and connection among units. Sling guides will be of removable type.
2. One corona ring with connecting provision with top unit.
3. Bottom unit, i.e., E.M. Unit shall contain Nitrogen filling Schrader valve cap, lifting & earthing pad, oil gauge, drain plug, pressure release device and secondary terminal box.
4. Dimension of all items mentioned in serial no. 1 to serial no. 3 shall be according to drawing available with the EMOPH Department, BkTPP, WBPDCCL.

N.B.

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



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NIT No.: WBPDCCL/Tend-Adv/CC/15-16/72/BkTPP Date: 02.06.2015
Job-II

SUB: Tender document for Procurement of 01 No. Circuit Breaker Analyser for 415V-400KV Circuit Breaker at Bakreswar Thermal Power Project.

SALE OF TENDER PAPER : **08/06/2015 to 26/06/2015 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 Bk.TPP.

PRE-BID DISCUSSION ON : **On 03/07/2015 at 11:00 Hrs.**

LAST DATE & TIME OF SUBMISSION OF TENDER PAPER : **17/07/2015 upto 14:30 Hrs.**

DATE & TIME OF OPENING (PART-A FOR TECHNICAL BID ALONGWITH COMMERCIAL TERMS & CONDITIONS) : **17/07/2015 at 15:00 Hrs.**

COST OF TENDER PAPER : **Rs. 2,000/- (Rupees two thousand only)**

DEPOSITED VIDE D.C.R.NO. _____

DATED _____

ISSUED TO M/s. _____

SR. MANAGER (Materials)
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W. B. P. D. C. L.

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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 30.04.2015**
 - “Similar Works” means ‘Supply of Circuit Breaker Analyser for 415V-400KV Circuit Breaker with the 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. 44 lakhs.
or
 - b) In two orders each of value not less than Rs. 27.50 lakhs.
or
 - c) In three orders each of value not less than Rs. 22 lakhs.
3. Average Annual Financial Turnover in last 3 financial years, (viz. 2011-12, 2012-13 & 2013-14) should be at least Rs. 17 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 of 01 No. Circuit Breaker Analyser for 415V-400KV Circuit Breaker as per detailed technical specification at Bakreswar Thermal Power Project.

Completion time

Material Delivery Schedule: - Twenty (20) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDC.

Earnest Money Deposit

Rs. 1.50 lakhs (Rupees one lakh fifty thousand only) 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.

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Enclo:

- Information to Bidders
- Annexure – I, II & III

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

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NIT No.: WBPDC/ Tend-Adv/CC/15-16/72/BkTPP Date: 02.06.2015
Job-II

INFORMATION TO BIDDERS

Sub : Tender document for Procurement of 01 No. Circuit Breaker Analyser for 415V-400KV Circuit Breaker as per detailed technical specifications at Bakreswar Thermal Power Project.

1.0 BID QUALIFYING REQUIREMENT:

Required evidence for the following BQR conditions should be furnished along with the tender. Otherwise the offer will be summarily rejected.

1. Manufacturer or authorized distributor of circuit breaker analyzer should only participate in the tender.
2. The Bidder must have 24 Hours support facility in eastern region of India and details for the support should be enclosed. Any type of defectiveness of the kit to be rectified by the bidder in India on urgent priority basis.
3. The bidder should produce the performance certificate of the same kit using at any Central/State PSU's for at least 2 years
4. The bidder should produce the related support documents specified in the technical specification. i.e. different certificates of EMC: 2004/108/EC, Low voltage Directive (LVD): 2006/95/EC etc.
5. The bidder should confirm the support service or supplying spares of supplied circuit breaker analyzer for at least next 20 years.
6. After Techno-commercial bid submission, Bidder should give a field demonstration whenever asked by WBPDC/CL for technical scrutiny.

2.0 TERMS AND CONDITIONS

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:-

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2. Material Delivery Schedule: - Twenty (20) weeks from the date of the order. Delivery is to be effected at BkTPP Store. Unloading will be done by WBPDC/CL.

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. Inspection will also be carried out at BkTPP stores by the representatives of concerned dept after effecting delivery.
 - 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 WBPDCCL.
 - 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.
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 that is to be furnished.
 - e) Bids or modification of bids received after opening of Tender will not be considered.
6. PAYMENT: 80% 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. Rest 20% of payment to be made after 6 months successful operation of the kit, certified by the user department.

PAYING AUTHORITY: Bill in triplicate alongwith challans is to be submitted to the G.M (F&A)/ Dy.GM (F & A), WBPDCCL 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.

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 Bk.TPP 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.
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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.

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

ANNEXURE-I

TECHNICAL SPECIFICATION FOR

Circuit Breaker Analyser for 415V-400KV Circuit Breaker at Bakreswar Thermal Power Project:

Sl No.	Item Code	Item Description	Quantity	UOM
1	15T010004	Circuit Breaker Analyser for measuring the operation timing of main, PIR and Auxiliary contacts (Wet & Dry) as well as Individual coil currents, coil resistance & Control voltage of coil with PIR value (Resistance value of parallel contact) in single operation of all type breakers (415 V -400kV).The analyzer should record PIR value & CRM value in numerical form. The analyzer should be able to measure & store parameters.	1.0	NO

2. GENERAL TECHNICAL PARAMETERS

General: The scope of this specification covers Design, Engineering, Manufacturing, testing before dispatch, supply and delivery to site, demonstration of the kit in all types of breaker, training of fully automatic three phase Circuit Breaker test kit along with the accessories as per relevant standards and each set shall be supplied with 2 sets of technical / users manual. The party shall also give the details of all applicable standards with his offer.

BkTPP Breakers details:

400kV Switchyard:

Make: BHEL, Type : 3AT3 and 3AT2

220kV Switchyard:

1. Make : AEG, Type : S1 – 245

2. Make : AREVA, Type : GL314

33kV Switchyard:

1. Make : ABB, Type : EDF SK 1 - 1

2. Make : CGL, Type : 30 – SFGP – 25A

6.6 KV Breakers:

1. Make: BHEL Type: VM12

2. Make: ABB Type: HPA12/1640C

415 V Breakers

1. Make: L&T (ACB)

2. Make: C&S (ACB)

1.1. The analyzer should be required to measure healthiness of LV, MV, HV, EHV (415V, 6.6kV, 33kV, 220kV, 400kV) circuit breakers CGL / BHEL / ABB/AEG/ Areva /L&T/C&S etc make. The test results should have repeatability, consistency & immunity to electromagnetic interference in live switchyard up to UHV level.

1.2. The analyzer shall have the features of system configuration, rugged data acquisition and signal condition hardware, user friendly, windows based Graphical user interface.

1.3. The analyzer should be adapted for outdoor use and should be possible to run stand alone.

1.4. The instrument should be suitable for measuring the operation timing of main, PIR and Auxiliary contacts (Wet & Dry) as well as Individual coil currents, coil resistance & Control voltage of coil with PIR value (Resistance value of parallel contact) in single operation. The analyzer should record PIR value & CRM value in numerical form. The analyzer should be able to measure & store (min 1000 nos. of tests) parameters:

1) Timing of Main Contact of all three phase minimum two breaks per phase, simultaneously. Result should be presented as traditional timing measurement.

2) Value and Timing of PIR (Pre-insertion Resistor Contacts) of 20 Ohm to 5 K Ω or better with Main Contact measurement.

3) Healthiness checking of auxiliary contact by measurement of auxiliary contacts timings.

4) It is possible to measure Static contact resistance with same kit.

5) The kit should be capable of doing Dynamic contact resistance and static contact resistance measurement from the same current injection unit with up to 200A DC. The separate command of CRM needs to provide to get CRM value in parameter menu. DCRM cum SRM kit shall be maintenance free & battery less and to be supplied with accessories required.

6) Kit should be capable for Motion measurements of all type of breakers installed at BkTPP to reveal even marginal changes in the breaker mechanics and to be supplied with accessories required.

7) Coil current measurement for 3 phases to indicate whether a winding has been short-circuited or not.

8) Breaker Operation C, O, C-O, O-C, O-C-O timings.

9) Healthiness of Close / Trip coils of all three poles should be monitored simultaneously.

10) Minimum pick-up test.

11) The kit should be both side grounded during testing.

12) Calibrated cables of sufficient quantity, quality & length (quality, length, size, applicable standards & other details of each cable to be submitted with the offer) for current injection and sensing the voltage drop across the breaker contact during testing to be supplied along with the kit.

13) The kit should have sufficient quantity, quality, length of all control cables, travel cable, earthing cables etc with necessary clamps and clips etc required for easy, hassle free and time bound testing of breakers in switchyard/switchgear. The vendor shall supply all the accessories (even though not mentioned in the specification) required for performing all the tests mentioned here including stand by accessories etc with the kit.

14) The vendor may visit the BkTPP site for any clarification about the length and quantity of cables or any query regarding the requirement of circuit breaker analyzer. For performing the test on breaker each cable of 25

meter (approx) length may be required for connecting it to the breaker. All the required accessories should be provided for the smooth functioning of Kit.

1.5. It should be supported by Microsoft Windows (latest version) based software for handling measurement data & analysis.

1.6. The hardware & software shall be user friendly, portable and installed in another PC of similar configuration. The supplier has to assure that he will support in any such event where change of PC and software arise. Support services related to hardware and software for both kit and PC/HMI by the supplier should be given to customer end for minimum 20 years.

1.7. The analyzer should have inbuilt computer with trans-reflecting display for interfacing in open sunlight.

1.8. Printing of test report should be possible on any printer with its driver loaded in window.

1.9. The system shall have electrical safety featuring complying IEC 61010-1 and EMC as per IEC: 61326-1.

2. Technical Parameters:

2.1. Power Specification

Mains input: 100 – 240 V AC, 50 / 60 Hz

Power consumption: 250 VA (max)

2.2. Measuring Ranges:

1) General

A) Trigger Operations: C, O, C-O, O-C, O-C-O, C-O-C

B) Sampling Speed: 1 KHz to 40KHz – Selectable

C) Trigger: Internal through build in software/ hardware

D) Display: Build at least 5” diagonally LCD display

E) Test Leads: Suitable for circuit breaker (415V, 6.6kV, 33kV, 220kV, 400kV) testing

2) CONTACT TIMING MODULE

A) Configuration: Isolated channel for timing of 6 Main + 6 PIR + 6 Auxiliary Contacts

B) Resolution: 0.05 mSec at 20KC

C) Accuracy: Value \pm 0.01%

D) Isolation: 2kV between two channel & channel to earth

E) Power: DC, Internally derived

3) CONTROL MOUDLE

A) Channels: 3

B) Configuration: 3 Solid state ‘NO’ contacts rated at 25A/ 250V, DC for issuing commands to the breaker. Over current protection inbuilt.

C) Allotted for: 1 each for CLOSE & TRIP1 & TRIP2 commands

D) Switching: Within 40 μ Sec

E) Isolation: 2kV between two channels and between channels & earth

F) Power: internally derived

G) Accuracy: \pm 0.02% reading \pm 1 sample interval

H) Sample rate: 10 kHz (max.)

I) Non Bouncing Switch:

a) Max. Current: 50A AC/DC, pulse<100ms or better

b) Duration: user configurable 2 ms steps

c) Delay: user configurable 2 ms steps

J) Current Measurement:

a) Range: 0-50A (at least) AC/DC or better

- b) Resolution: 16 bits
- c) Accuracy: ± 0.01 of reading $\pm 0.1\%$ of range

K) Voltage Measurement:

- a) Range: 0-240 V AC/DC or better
- b) Resolution: 10mV
- c) Accuracy: ± 0.01 of reading $\pm 0.1\%$ of range

4) ANALOG INPUT MODULE

4.1.A) Configuration: Two for CLOSE/ TRIP1 or TRIP2 coil currents, signal conditioning inbuilt. Programmable gain selection for maximum amplification.

B) Current Range: 0 to 25 Amps. User selectable

C) Resolution: 8 bit

D) Accuracy: Value $\pm 1\% \pm$ resolution

E) Isolation: 2kV between two channels and between channels & earth

4.2.A) Configuration: One for closing/ tripping speed and mechanism travel, signal conditioning inbuilt, automatic gain/ offset selection for maximum amplification. Excitation source for transducer inbuilt (5V DC)

B) Resolution: 8 bit

C) Accuracy: Value $\pm 1\% \pm$ resolution

D) Isolation: 2kV between two channels and Channels & earth

5) CRM & DCRM CHANNEL

A) Configuration: In a single operation DCRM of all three phases should be carried out. In single operation CRM of all three phases shall be carried out, also there is a provision for measuring of individual poles DCRM.

B) Range: 0 to 10000 $\mu\Omega$

C) Current Range: up to 200A DC

D) Resolution: 8 bit

E) Accuracy: Value $\pm 0.01\% \pm$ resolution

F) Operation- C, O, & CO

G) Channels- 6 Current & 6 resistance

2.3. Environment

1) Application field: For use in high voltage generating station and industrial environments

2) Operating Temperature: at least -5 deg C to +55degC

3) Storage & transport: at least -45 deg C to +60degC

4) Humidity: at least 5% – 95% RH, non-condensing

2.4. System Requirement, apart from inbuilt computer.

Laptop: Branded laptop (Make: HP/COMPAQ/IBM/ DELL) with parallel and spare USB ports,

CPU: Pentium core i3 3.0 GHz or above

Hard disk: 500 GB Hard disk

RAM: 2GB or above

Operating System: User friendly Windows based operating system.

Windows XP not be allowed

Others: LAN Card, Inbuilt DVD Combo drive. Should be preloaded with license and registered software

Necessary Microsoft S/W: MS Office2010/ 2007 (Professional) version.

Interface: Ethernet, RJ45.

2.5. Printer : A4 size page, Colour laser Jet, Resolution in DPI: Colour 600X600

2.6. Dimension

The test set dimension should be such that it can be easily transported to any site via four wheeler jeep like vehicles. The kit should also be transported easily in internal yard.

2.7 Weight

The test set weight should be such that it can be easily lifted by 2 persons.

2.8. Shocks & Vibrations

The kit shall be used for testing of LV, MV and HV (415V, 6.6kV, 33kV, 220kV, 400kV) circuit breakers at various locations at BkTPP generating station. The kit will therefore be required extensive transportation by road, making it prone to shocks & vibration and its performance should not be affected in any way. This is very important feature and hence relevant type test satisfying relevant IEC/IS should be conducted in accredited national lab and test certificate should be attached for the same.

2.9 HMI:

Software: User friendly

Language: English (mainly)

Keyboard: Built-in

2.10 Kit should be Suitable to test

Breaker 415V: L&T, C&S, ABB (ACB)

Breaker 6.6kV: BHEL, ABB (VCB & ACB)

Breaker 33kV: ABB & CGL (SF6); Operating mechanism: spring operated

Breaker 220kV: AEG & AREVA (SF6); Operating mechanism: spring operated

Breaker 400kV: BHEL (SF6); Operating mechanism: Hydraulic

2.11 CE-marking:

EMC: 2004/108/EC

Low voltage Directive (LVD): 2006/95/EC

2.12 Warranty/Guarantee

At least One year. Final acceptance of the kit at Bk.TPP site shall be considered only after performing the tests on the breaker at site and submission of warranty certificates only.

2.13. The party has to give a demonstration of the offered model up to the satisfaction level of Bk.TPP at site during technical scrutiny & before price bid opening.

N.B.

- 3. Maintenance Manual, Drawing, Other relevant certificates are to be supplied by the Party along with the package.**
- 4. Training is to be provided by the party.**
- 5. Complete recommended spare parts list with part number, drawing and ordering code for spare procurement must be provided.**
- 6. One hard Casing to absorb any vibration and shocks should be provided with the kit for safety of the kit.**
- 7. Vendors having any advanced technology/features/specification regarding the circuit breaker analyser other than those mentioned here in the specification may also quote and kit with the better specification may be preferred.**

- 8. Kit should be supplied with advance hardware compatibility so that in future any type up gradation may be done by only software modification/up gradation with accessories.**

ANNEXURE-II

GUARANTEED TECHNICAL PARTICULARS FOR CIRCUIT BREAKER ANALYZER WITH 3 CHANNEL DCRM (TO BE FILLED IN BY THE TENDERER AND FURNISH WITH TECHNICAL BID)

The GTP is to be filled up in this format and, in the page of Tender Specification only, to be submitted in duplicate along with the offer. This is intended for speedy comparison of various bidders GTP. The tenderer shall fill in the particulars against appropriate items in respect of each rating and type of equipment offered in the broad categories listed below:

Sl No.	Description	Details of the party's specification
1	Makers' Name	
2	Type and Model of Instruments	
	POWER SPECIFICATION	
	Input	
	MEASURING RANGES	
	General	
	Trigger Operation	
	Sampling Speed	
	Internal Trigger (Yes/ No)	
	Display Size (Diagonally)	
	Test Leads (Size & Nos)	
	Contact Timing Module	
	No. of Channel Configuration	
	Resolution	
	Accuracy	
	Isolation	
	Accuracy	
	Control Module	
	Channel Configuration	
	Allotted For	
	Switching Time	
	Isolation	
	Analog Input Module	
	Measurement of Close/Trip Coil Current	
	Channel Configuration	
	Current Range	
	Resolution	

	Accuracy	
	Isolation	
	Measurement of Mechanism speed, travel	
	Channel Configuration	
	Resolution	
	Accuracy	
	Isolation	
	DCRM Channel	
	Configuration	
	Range	
	Current injection	
	Resolution	
	Accuracy	
	No. of Channel	
	Safety: Provision for testing of CB with dual grounding (Yes/No)	
	All the above mentioned features of three phases to be tested in single operation (Yes/No)	
	Transducer to be Provided (Mentioned type) and nos	
	400kV Switchyard: Make : BHEL, Type : 3AT3 and 3AT2	
	220kV Switchyard: Make : AEG, Type : S1 – 245, Make : AREVA, Type : GL314	
	33kV Switchyard: Make : ABB, Type : EDF SK 1 – 1, Make : CGL, Type : 30 – SFGP – 25A	
	6.6 KV Breakers: Make: BHEL Type: VM12, Make: ABB Type: HPA12/1640C	
	415 V Breakers: Make: L&T (ACB), Make: C&S (ACB)	
	Laptop Configuration (In case no internal interface available)	
	Printer Configuration	
	Kit Warm Up Time to comply parameter as per specification	
	LIST OF ACCESSORIES	

	ENVIRONMENT	
	Temperature	
	RH	
	COMPITABILITY WITH EMI/EMC AS PER RELEVANT IEC. CERTIFICATE TO BE SUBMITTED	
	CE-Marking available (Yes/ No)	
	OTHER	
	Dimension	
	Weight (Including Accessories)	
	GURANTEE/WARRANTY OFFERED	
	ANY OTHER RELATED INFORMATIONS TO FURNISH	

X-----X

