

TENDER DOCUMENT

FOR

**SUPPLY, INSTALLATION, TESTING & COMMISSINING
OF AUTOMATIC METER READING SYSTEM
FOR LT CONSUMERS [HAVING LOAD 15 HP TO UPTO
50 HP] OF CHHATTISGARH ON TURNKEY BASIS**

**TENDER SPECIFICATION NO. 02-03/CE(S&P)/363
(DUE FOR OPENING ON 20-01-2012 AT 3.30 PM)**

**OFFICE OF THE CHIEF ENGINEER (STORES & PURCHASE)
CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.
4th Floor, Vidhut Seva Bhavan
DANGANIA, RAIPUR (CG)-492 013**

PHONE: 0771-2574968, 2574992, 2574980

FAX: 0771-2574961

(Tender Fee: Rs.1000/- and Rs. 100/- Postal Charges Extra)

CONSERVE ELECTRICITY

CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.

(A Government of Chhattisgarh Undertaking and a Successor Company Of CSEB)

OFFICE OF THE CHIEF ENGINEER (S& P)
4th FLOOR, VIDYUT SEVA BHAVAN, DANGANIYA,
RAIPUR (CHHATTISGARH) - 492 013

Phone:0771-2574968, 2574992, 2574980, 2574963;

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TENDER SPECIFICATION NO.02-03/CE(S&P)/363

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(**Note:-** Only Price Bid (Schedule-III) should be detached and submitted in a separate envelope as Part-III. Remaining of the complete tender document along with enclosures should be submitted as Part-II. Tenderer should put his signature with seal on each page of the tender document including printed booklet and should fill in all requisite information in Schedules.)

CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LTD.

(A Successor Company of CSEB) (A Government of Chhattisgarh Undertaking)

OFFICE OF THE EXECUTIVE DIRECTOR (S&P)

4th floor, Vidyut Seva Bhawan, DANGANIYA, RAIPUR (C.G.)-492 013

Tel.: (0771)- 2574969/70/66/68/92/80:

Fax: (0771)2574961; E-mail-CEsnP@cseb.gov.in

No.02-03/ED(S&P)/ACE/NIT/5776

Raipur, dt.05.12.2011

NOTICE INVITING TENDER

Sealed tenders, in duplicate, for the following items are invited from the manufacturers only, by the dates mentioned against each.

Tender Specification No.	Item	Approx. tender value (in Lacs)	Tender fee	Last date of tender submission
02-03/ED(S&P)/360	Supply of Spot Billing Machine.	₹ 122.00	₹ 1000.00	05.01.2012
02-03/ED(S&P)/361	Supply, installation & commissioning of 20 position fully automatic electronic meter testing bench.	₹ 175.00	₹ 1000.00	06.01.2012
02-03/ED(S&P)/362	Supply of 3.15 & 5 MVA 33/11 KV Power Transformer	₹ 2755.00	₹ 1000.00	07.01.2012
02-03/ED(S&P)/363	Supply, installation & commissioning of Automatic meter reading system at premises of LT consumers having load 15HP & above and upto 50HP.	₹ 817.00	₹ 1000.00	20.01.2012

TENDER WILL BE SOLD TILL ONE DAY PRIOR TO THE DATE OF OPENING. IN CASE ANY OF THE ABOVE PRESCRIBED DATES IS DECLARED AS HOLIDAY, THEN THE PARTICULAR DATE WILL AUTOMATICALLY GET SHIFTED TO THE NEXT WORKING DAY. SEALED TENDER WILL BE ACCEPTED TILL 3.00 PM ON THE LAST DATE OF TENDER SUBMISSION AND WILL BE OPENED AT 3.30 PM ON THE SAME DAY.

IMPORTANT: Please note that any Notice for extension of due date of tender opening shall not be published in newspapers. It will be displayed only on official website of the company.

PURCHASE OF TENDER DOCUMENTS : Detailed tender document can be obtained from the office of the Executive Director (S&P), CSPDCL, Raipur, at the above address on payment of the tender fee (non-refundable), as shown above, through MICR Demand Draft drawn in favour of '**Manager (CAU), CSPDCL, Raipur**' NON-MICR DEMAND DRAFT WILL NOT BE ACCEPTABLE. Postal charges of Rs.100/- extra shall be paid, if tender document is required by post. The tender document can also be down-loaded from official website of the CSPDCL and required tender fee can be submitted alongwith bid. For details, visit our web site: www.cseb.gov.in/cspdcl.

//SAVE ELECTRICITY //

EXECUTIVE DIRECTOR (S&P)

CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.
(A Government of Chhattisgarh Undertaking & a Successor Company Of CSEB)
OFFICE OF THE CHIEF ENGINEER (S& P)
4th FLOOR, VIDYUT SEVA BHAVAN, DANGANIYA,
RAIPUR (CHHATTISGARH)- 492 013

S C H E D U L E - I

DD / MR No.
Tender issued to M/s.
.....
.....

T E N D E R F O R M

The undersigned hereby tender and offer (subject to the CSPDCL's conditions of tendering) the CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD. to supply the plant, machinery and materials and execute and to the several works and things which are described or referred to in the details of Technical Particulars attached to tender document No.02-03/CE(S&P)/**363** and its enclosures and in Schedules to the side Details of Technical Particular copies of which are annexed here to and which under the terms thereof are to be supplied, executed and done by the contractor and to perform and observe the provisions and agreements or the part of the contract contained in or reasonable to be referred from the said tender documents for the sums and at the rates sets out in Schedule-III annexed here to.

The questionnaire enclosed with this tender document has been fully answered and is enclosed herewith (if the questionnaire is not answered in full, the answer to various question may be taken so as to be advantageous to the CSPDCL unless contrary is mentioned in the body of the tender).

Date the.....day of

**TENDERER'S SIGNATURE
(With Seal)**

TENDERER'S ADDRESS

**(This tender form, in original, must be submitted with the offer in envelope of Part-II
i.e. techno-commercial bid)**

A N N E X U R E - I

SPECIAL CONDITIONS/ INSTRUCTIONS TO THE TENDERERS

(IMPORTANT : Except as otherwise provided in any subsequent modification/LOI/Order, the provision of this Annexure shall have effect notwithstanding anything inconsistent therewith contained in any other Schedule/ Annexure/ Clause/ Terms/ Condition of this tender document.)

1. Sealed offers in duplicate are invited for supply, installation and commissioning of Automated Meter Reading (AMR in brief) alongwith server at base station, at LT consumers of Chhattisgarh.

2. The Chhattisgarh State Power Distribution Company Ltd., Raipur (or any authority designated) - hereinafter called 'OWNER' or 'CSPDCL' or 'Company' - will receive bids as per the accompanying specification. All bids shall be prepared and submitted in accordance with instructions, terms and conditions stipulated in the tender.

3. **Deadline:** - Date of submission of tender is **20.01.2012** upto **3.00 PM** and tender will be opened on same day at 3.30 PM in the Office of CE (S&P), CSPDCL, Danganiya, Raipur.

4. **Scope of Work:-** This specification covers supply, installation, commissioning and operation of GPRS based Automated Meter Reading System alongwith head-end data centre for automatic meter reading data transfer from Electronic energy meters installed at the consumer premises to data centre of CSPDCL, analysis and report generation and integration with existing billing system. Work will cover electronic energy meters installed at premises of LT electricity consumers having load 15 hp and above and upto 50 hp located throughout the state of Chhattisgarh. Work will also include supply and installation of Meter Box, wherever required, for whole current meters. Work of interface with SAP-based billing software is also included in the scope of the tender.

The bidder shall also carry out operation of AMR for specified contract period and impart training to CSPDCL employees (approximately 10 Nos.) for operation & maintenance of AMR system.

5. **Earnest Money:-** Each tenderer should submit an earnest money amount equal to Rs.5.0 Lacs (Rs.Five Lacs only). Earnest Money should be submitted in a separate envelope (PART-I) super-scribing EMD. The tenders not accompanied with EMD or accompanied with inadequate EMD will summarily be rejected and returned unopened. EMD should be submitted in the form of BANK DRAFT in favour of Manager (CAU), CSPDCL, Raipur payable at Raipur. The tenders not accompanied with earnest money in the manner described here or accompanied with inadequate earnest money will summarily be rejected and returned unopened.

6. **Pre-Qualifying Requirement:-** The offer of those tenderers who fulfill following criteria will only be considered:

a. The bidding is open for experienced service provider, who has directly executed minimum two operational projects of work of installation and commissioning of AMR System (including modems, necessary software etc.) at least for total 5000 meters, in SEBs/power companies and which are running successfully. Bidder shall submit copies of contracts and performance

certificates in support of having required experience. The Company shall have right to call the performance directly from the SEB/power utility.

b. The bidders should have sound financial capability. Bidders having Minimum Average Annual Turnover (MAAT) of Rs.50.00 lakhs during last two financial years i.e.2009-10 and 2010-11 will only qualify to participate in the tender. The bidder is required to furnish Notary Attested documentary proof such as audited balance sheet for having required turnover.

7. **Prices:-** Prices and price components shall be firm and shall not be subject to any price variation or adjustment on account of any price escalations throughout the execution of the contract. Price bid has to be submitted in prescribed format only as per Schedule-III. The Price bid must be without any assumption, condition, qualification, reservation or variation. Conditional tender offer or offers at variance from prescribed specification would be ineligible to compete for the tender.

8. **Taxes & Duties:-**

(A) SUPPLY:-

8.1 **FOR BOUGHT OUT ITEMS:** All customs duties, excise duties, sales tax and other levies payable by the Bidders in respect of the transaction between the bidders and their vendors/sub-suppliers while procuring any components, subassemblies, raw materials and equipment shall be included in basic unit rates and no claim on this behalf will be entertained by the Owner. No variation in taxes and duties for bought out items will be paid.

However, Entry tax as applicable for destination site/state on all items of supply including bought out finished items (as identified in the Contract), which shall be dispatched directly from the sub-vendors' works to Owner's site (sale-in-transit) shall not be included in the bid price. The applicable Entry tax in respect of the said items of supply will be paid by the CSPDCL directly.

8.2 **FOR DIRECTLY SUPPLIED ITEMS BY CONTRACTOR TO OWNER:** Sales Tax, excise duties, local taxes and other levies in respect of the transactions between the Owner and the Contractor under the Contract, if any, should be indicated separately wherever applicable in respective columns in the Price Bid Proposal Sheets.

Wherever ex-works price / basic unit rate is quoted exclusive of Excise duty applicable on the transaction between the Owner and the Contractor, then the due credit under the MODVAT (Modified Value Added Tax), scheme as per the relevant Government policies wherever applicable, shall be taken into account by the Bidder while quoting price.

8.3 In respect of transactions solely between the Owner and the Contractor (for dispatches made from the Contractor's works under the Supply Contract), Sales Tax, Excise Duties, local taxes and other levies shall be paid/reimbursed by the Owner at the applicable rate at the time of dispatch subject to following:

a) No upward variation in statutory levies is paid upto the maximum slab of normal tax-structure applicable on the date of tender opening.

b) No upward variation shall be payable beyond the contractual delivery/work schedule. In case supply/work against the contract is completed late i.e. beyond contractual schedule and rate of Excise duty/Sales Tax undergoes upward revision, the payment will continue to be made only on the basis of rates prevailing during the contractual schedule. However, in case the

rate of statutory levy (ies) undergoes downwards revision then the delayed supply/work beyond contractual period will attract reduced rate of statutory levy (ies).

c) Downward revision in statutory levies shall always be passed on to CSPDCL.

d) No payment shall be made in any case, on account of upward revision of statutory levies due to change of taxation slab.

8.4 Concessional Sales Tax declaration forms, as admissible, would be issued to the Contractor, on request for all items (as identified in the price schedule of the bid) to be supplied directly by the Contractor as well as for the items to be supplied by the sub-supplies as sale in transit.

8.5 Any other Taxes: Duties if any applicable extra on finished material shall be specifically brought out in the offer. It will be presumed that while quoting the F.O.R. Destination prices, the bidder has taken into consideration all the taxes pertaining to the Central, State and local bodies. Implication of VAT in the State of Chhattisgarh should be considered. Any variation in statutory taxes within stipulated completion period shall be in the account of CSPDCL.

(B) CONSTRUCTION/INSTALLATION:-

8.6 Work Contract Tax:- The erection part of the contract is work contract, therefore Work contract tax as applicable will be recovered. The bidders are requested to offer their rates inclusive of Work Contract Tax as applicable.

8.7 Service Tax:- Service tax, if applicable, for the service rendered by the Contractor to the Owner shall also be indicated separately and shall not be included in bid price and same would be reimbursed to the Contractor separately by the Owner subject to furnishing of documentary proof. No upward variation in statutory levies is paid upto the maximum slab of normal tax-structure applicable on the date of tender opening.

8.8 Cess under "Building and other Construction Workers Act,1996" :- The contractor for carrying out any construction work in Chhattisgarh State must get themselves registered from the Registering office under section 7(1) of the "Building and other Construction Workers Act,1996" and rules made thereto by the Chhattisgarh Govt. and submit certificate of Registration issued from the registering officer of the Chhattisgarh Govt. (Labour deptt) for enactment of this Act. The constructor shall be required to pay cess @ 1% of the cost of construction work to be deducted from each bill.

8.9 Any other tax: - If any other taxes or duties except Work Contract Tax and Service Tax become payable during the completion period of contract, the same shall be paid extra by CSPDCL to the contractor as per actual on submission of documentary evidence, having paid the same as per the rules. Any variation in statutory taxes within stipulated completion period shall be in the account of CSPDCL.

8.10 The contractor shall be solely responsible for all taxes, duties, license fee etc. if any, for all the equipments and materials covered under this contract to the concerned authority as applicable time to time.

9. **Placement of Order**:- Only one bidder will be considered for awarding contracts at lowest quoted rates. However, CSPDCL at its option may award contract to any number of parties and CSPDCL decision in this regard will be final and binding.

10. **Demonstration of AMR**:- Bidders shall be required to demonstrate functioning of offered AMR system at Raipur before specially formed Committee of CSPDCL's officers. During demonstration, the AMR system shall be installed on existing meters of different makes and performance shall be monitored. The AMR system shall be examined by specially formed Committee for functioning and different features. The data downloaded through AMR should match completely with the data available in the meter downloaded through Meter Reading Instrument. The solution should be capable of retrieving the entire data available in the meter through the AMR solution. The bidder should give the print out copies of the data downloaded through AMR on the same day of demonstration. The Bidder shall generate the data Analysis report for the shared xml files.

In case performance of offered AMR is not found satisfactory during demonstration, bidder's eligibility and his offer for further processing will be rejected and **the price bid of offer shall not be opened**. CSPDCL shall not bound to accept the lowest or any proposals and reserve the right to accept any proposal in whole or in part and to reject any or all proposals without assigning any reason thereof and to contract any of the terms offered or on different terms.

(During demonstration, the bidder should bring the laptop with software for the AMR System and the AMR System submitted shall be installed in an existing meter.)

11. **Performance Reports**:- Bidders should also submit, performance reports of last three years about the similar material supplied by them to SEBs/Power Utilities. Performance Reports may be considered during the evaluation of bids.

12. **Work Schedule**:- (a) Work of supply, installation and commissioning of servers alongwith necessary hardware and software should be completed and work for communication of data from existing 7000 AMR equipped meters should be commenced within 3 months time from date of detailed order.

(b) Work of supply, installation and commissioning of AMR system at 25000 consumers' premises should be completed in following manner:

Commencement – Within 2 months

Completion – Target period is 24 months from date of detailed order subject to availability of sanctioned estimates and clearance. The clearance for starting of installation work alongwith sanctioned estimate no. and detail will be issued by ED(S&P) office and work will be completed division-wise. Overall rate of installation shall be @1000 No. per month subject to clearance by S&P office.

Further, Contractor will provide AMR on upcoming LT Connections during next 03 years as and when needed by CSPDCL. Such future work of supply and installation (for maximum 20 meters) should be completed within two month from the date written request made by the CSPDCL's authorities to the Contractor. Expected numbers of upcoming connections during next three years are 10000 numbers.

The bidders are also required to carry out operation and maintenance of AMR Data Centres for consumers where the system has been installed & commissioned by them, for a period of 6 months from the date of commissioning to ensure smooth working of the system. If felt necessary, the period can be extended further for next six month.

13. **Guarantee**:- The software and hardware supplied against the contract should be guaranteed for a period of 24 months from date of commissioning in CSPDCL.

14. **Security Deposit**:- Security deposit equal to an amount of 10% value of purchase order shall be required to be furnished in form of DD/BG to cover performance guarantee of material supplied and faithful execution of contract as detailed in Clause-15 of Annexure-B. Security Deposit should be furnished for a period of 30 months to cover complete period of delivery, guarantee and six month claim lodging.

Provision of Permanent Security Deposit shall not be applicable to the purchase order issue under this tender and separate security Deposit will have to be executed for each order.

15. **Terms of Payment**:- **(i) Progressive Payment**: The contractor shall present at the end of each calendar month, a bill for the works completed, and inspected and duly certified by CSPDCL Engineer-In-Charge, during the month at the charges/rates accepted. 90% value of the work done every month shall be paid within the period of one month or presentation of the bills complete in all respect. **(ii)** Balance 10% (ten percent) will be paid after successful completion of testing, commissioning and installation work pertaining to a particular O&M/City Division. Thus, payment will be paid division-wise. **(iii)** Payment regarding head-end Data Centre shall be passed by EE I/c of Data Centre. However, no interest claims shall be admitted in case of delay in payment.

16. **Training**: The bidder shall provide all necessary training to CSPDCL's employees (approximately 10 in Nos.) for operation and maintenance of AMR system.

17. **After sale support** :- You are required to provide support, preferably through a technically qualified person well conversant to maintenance of Hardware/Software, stationed at Raipur for period of contract to rectify minor defects and to educate users.

18. **Penalty for Delay in Completion of Contract**:- If the contractor fails to complete the supply, erection, testing and commissioning etc. within the specified schedule of the work order or any extension granted thereto, the CSPDCL shall recover from the contractor as penalty a sum of one half of one percent (0.5%) of the contract price of the incompleting portion of the work for each calendar week of delay. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed 10% (ten percent) of the contract price of the uncompleted portion of work. Alternatively, uncompleted work may be got done through other agency on account and at the risk of the contractor; OR CSPDCL may cancel the contract for the uncompleted work, with liability recoverable from the supplier, as assessed by the CSPDCL.

19. **CSPDCL's Right to vary Quantities at Time of Award**:-

The quantities of modems and other items mentioned in the tender document are tentative. The CSPDCL reserve the right to increase or decrease the quantity of goods/ services specified in the Price & Quantity Schedule based on actual requirement at the time of award of contract / at the time of execution of work without any change in price or other terms and conditions. Therefore, inter-item adjustment is not allowed. Tenderers are advised that prices of an item should not be adjusted in the prices of others in the price bid. Price of each item should be quoted on its own because quantity of any item

may increase or decrease at the time of award/execution of work and, in such a case, unit price of each item will be the basis of the payment.

20. **Conditions for Erection, Testing and Commissioning:-**

20.1 The Contractor's Scope of the Services in addition to supply of equipment and material interalia shall also include the following:

- i) Unloading, handling, preservation and storage at site
- ii) Testing and commissioning of the equipment.
- iii) Implementation of field quality plan and surveillance of field quality.

20.2 **Safety Precautions:** The Contractor shall observe all applicable regulations regarding safety on the Site and shall be fully responsible for the safety of man and materials.

21. **Power of Attorney:** Each page of tender document and enclosures shall be signed by the tenders. Power of Attorney from the competent directors of the CSPDCL/Company (original) is required to be submitted.

22. **Licence for Electrical Work:-** Contractor/sub-contractor, who is executing the erection, testing and commissioning work at site should have required electrical licence issued/endorsed by Chief Electrical Inspector, Govt. of Chhattisgarh. Copies of the licence shall be submitted to engineer-in-charge before commencement of the work.

23. **Insurance:** - The Insurance will have to be underwritten for the material and man-power at the contractor's cost. Contracting firms shall arrange insurance for the equipment/materials and all its accessories being supplied by them, through any of the Nationalised Insurance Companies. The equipment/ materials shall be insured to cover transport (from Warehouse) and 60 days storage risk at site. The damages, if any, during transit will be reported within 30 days of receipt of materials. It will be the responsibility of the contractor to replace the defective/damaged materials and make good the shortages and other losses in transit, free of cost, lodge and recover claim from Insurance, Under writers/Carriers.

24. **Progress Report:-** The suppliers will have to submit fortnightly progress report to the Executive Director (S&P)/SE(MT) every month following the month in which the order is placed if any, on the progress made by the supplier towards proper execution of order.

25. **Compulsory offer quantity:** - It would be obligatory for the tenders to offer full 100% tendered quantity for turnkey work of supply, installation & commissioning of AMR otherwise their offer shall be rejected.

26. **Tender Fee:** - The tender document can also be downloaded from official website of the CSPDCL (www.cseb.gov.in/cspdcl). In case bidder chooses to submit his offer on downloaded tender document, they will be required to deposit specified tender fee (cost of tender documents- non refundable) in form of DD in favour of Manager (CAU), CSPDCL, Raipur payable at Raipur. The bank draft shall be issued from the nationalized/ scheduled bank. DD should be enclosed with the part II of the tender offer. In absence of tender fee, offer will not be considered for opening of price bid.

27. **Modifications in printed booklet of General Instructions/Terms & conditions:** In printed booklet, wherever mentioned "CSPHCL" may please be read as "CSPDCL" and "Assistant Manager (CAU)" may please be read with "Manager(CAU)".

Besides above, the clause 12.4 of Annexure-B General Terms and conditions of purchase, is modified as under in respect of powers delegated to concerned manager/regional assistant manager:

"For bill amount upto RS.75000/-, payment will be released by concerned Manager(Sr. A.O.)/ Assistant Manager (A.O.).For amount upto Rs. 2,50,000/-, payment will be released jointly by two officers of the rank (Sr. A.O.) and Assistant Manager (A.O.)." Other contents of this clause shall remain unchanged.

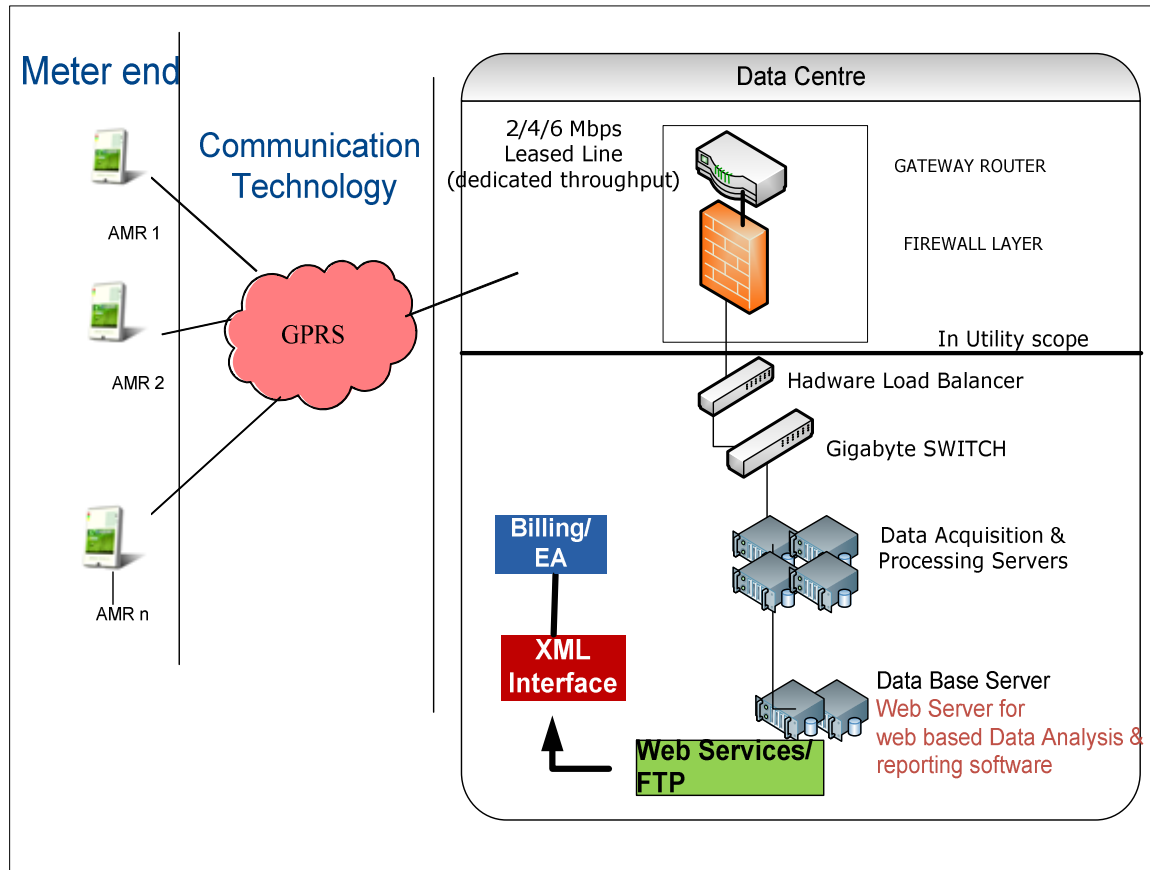
SUPERINTENDING ENGINEER (P)-II
O/o ED (S&P): CSPDCL: RAIPUR

SCHEDULE – II(A)

TECHNICAL SPECIFICATION FOR GPRS BASED AMR SYSTEM

1. Scope : This specification covers supply, installation, commissioning and operation of GPRS based Automated Meter Reading System alongwith head-end data centre for automatic meter reading data transfer from Electronic energy meters installed at the consumer premises to data centre of CSPDCL, analysis and report generation and integration with existing billing system. AMR system will cover electronic energy meters installed at premises of electricity consumers located through out the state of Chhattisgarh. The number of such consumers is approximately 25000 nos. The quantity may vary at the time of execution. Outline of overall system setup will be as follows:

MDAS Architecture -



Meter end (consumer premises) -

- GPRS based AMR (Hereinafter construed to include modem alongwith special features).
- Suitable communication cable between modem and meter.
- Meter Boxes, as required, are to be provided on existing whole current meters because existing polycarbonate boxes may not have space for installation of modems.

Head-end Data Centre -

- Servers with offered softwares and hardware accessories.
- Live Static IP Address, where communicated data will be uploaded through Service provider.

- Hardware & Software installed at Data Centre will also cover existing AMR of approximately 7000 consumer meters. Thus, 32000 Nos. of meters will be covered. Capacity should be scalable to 50000 Meter.

2.0 TECHNICAL SPECIFICATION OF GPRS based AMR:- The offered GPRS based AMR shall be an intelligent device connected to an Electronic Energy Meter by means of optical/RS232 port, installed at various consumer premises (HT/LT consumers) to collect the following data as per configured frequency/on demand.

a. Complete Raw data stored in the Meter.(daily/weekly/monthly)

- Instantaneous parameters, at the time of reading
- Billing data, present & last 12 months histories
- Load survey, 30 days/complete no. of days stored
- Tamper data,
- Settings/Configuration data

b. Instantaneous parameters.(every 15/60 minutes /daily/ at desired interval)

The acquired data is pushed to the Data centre over GPRS network. Meter Data Acquisition (MDA) software deployed at DC shall support data acquisition from thousands of AMRs simultaneously. The AMR shall have in-built intelligence and high speed data transfer rate or a kind of store-forward facility by which data from the meter is read at regular intervals and stored in AMR's internal memory and forwarded to Data Center (as configured). Acquired Raw data after processing shall be converted into XML CDF file for integrating with Data Analysis & reporting, Billing, EA System.

The intelligent AMR should be capable of a two way communication, which should automatically connect to GPRS network without requiring AT commands. The internal hardware watchdog protected input power circuit should be available. It should connect to any RS232 or optical port cable.

The AMR at consumer meter end should have suitable interface facility to connect with the meter by using the RS 232 cable. The AMR shall also be retrofitted on optical port/RS232 port of the meter.

Features:

- Compatible with various standard existing meters like Secure, L&T, Genus, L+G, HPL-Socomec etc. – both non-DLMS & DLMS compliant Meters
- On demand SMS request through SMS for Instantaneous Parameters
- Real time outages, alarms
- Automatic GPRS connection (no AT commands required) and watchdog for reliable Communication
- Inbuilt 3 Phase Power supply as well as operational on single phase supply
- Automatic TCP or UDP socket connection
- Remote firmware up gradation facility
- Automatic pushing of meter data at configured regular intervals
- On line monitoring of vital Instantaneous parameters like voltages, currents energies, powers, power factors...
- IP (internet protocol) based Communication, enabling simultaneous data access from thousands of AMRs.
- Data shall be encrypted & compressed during data transfer

2.1 Power Supply Section:-

2.1.1 Input specifications:-

- a. The offered AMRs should be capable of operating on three phase supply drawn from the meter input itself. Auxiliary power supply will not be acceptable.
- b. The AMR shall have three phase AC input supply and should be capable of proper functioning within the power supply range of 77 AC P-P to 440V AC P-P, 50 Hz so that the AMR can be used for both HT and LT Trivector meters.
- c. However the AMR should also be capable of operating on single phase 230 V,50 Hz power supply. The AMR shall be suitably protected against surges.
- d. Average Power consumption of the AMR shall not be more than 3 VA under idle condition and 6 VA during data transfer.

Note: Power consumption may vary from site to site depending on signal strength at that particular location. Above values are typical values.

2.1.2 Withstand capacity against surges should be according to Indian conditions i.e. 6.0 kV.

2.1.3 Input terminals: The power supply input shall be a suitable two core integrated cable coming out from AMR box.

2.1.4 The AMR shall have capability to work under continuous power on condition.

2.2 GSM/GPRS Section:- The GSM/GPRS module shall comply with the following:

2.2.1 The module shall operate in dual Band GSM 900/1800MHz.

2.2.2 The module shall be compliant with ETSI GSM Phase 2+ Standard.

Class 4 (2W) @ 900 MHz
Class 1 (1W) @ 1800 MHz

2.2.3 The module shall support Point-to-Point transmission and Cell Broadcast features.

2.2.4 It shall have auto dial feature.

2.2.5 Serial binary and suitable data format for data transfer.

2.2.6 Short messaging service (SMS) features.

Text and PDU
Point to point (MT/MO)
Cell broadcast

2.2.7 AMR should support both data and SMS transmission.

2.3 SIM Card Section:-

2.3.1 For placing the SIM Card, a SIM Card Holder shall be provided on the motherboard and shall be accessible only by opening/sliding the cover, AMR shall not be opened for replacing the SIM card.

2.3.2 The SIM Card supported shall be of 3V Interface.

2.3.3 Interlocking facility shall be provided under the device cover.

2.3.4 SIM card slot/cover shall be sealed to avoid access to unauthorized. The offered AMR shall comply for ESD as per IEC61000-4-2. (SIM Cards will be provided by CSPDCL)

2.4 Communication Interface & Capabilities:-

2.4.1 A RS232 Serial Link supporting up to 115,200 bauds with an auto-bauding option shall be provided. However, data transfer rate for remote meter reading shall depend on meter compatibility.

2.4.2 The RS232 output shall be provided on a 9-pin female/RJ11 connector which can be connected to electronic energy meter's optical / serial communication port (RJ-11/D/Hardwire Connector) through suitable communication cable.

2.4.3 The AMR shall be suitably pre-configured for meter reading & transferring the data to the DC.

2.4.4 AMR should be Quad band AMR capable of operating at 900 and 1800 MHz GSM transmission.

2.4.5 AMR should support both Data and SMS transmission. It should have both GSM and GPRS features.

2.5 RF section:-

A SMA interface shall be provided on the GSM AMR to which either a fixed or a wired (with magnetic base) Dual Band built-in Antenna of minimum 3dbi gain can be connected. Provision shall also be made to connect 14dbi high gain external yagi antenna to improve poor signal strength.

2.6 Network Identification Section:-

For determining the health of the device an LED shall be provided on the AMR which will depict the current functioning status (power up/ registered in network/transmitting data).

2.7 Data Features for GSM/GPRS module :

- Internet Services : TCP, UDP, HTTP, FTP

GPRS Data transmission features:-

- GPRS Class B Multi slot class 12 or class B Multi slot class 10
- Packet channel support : PBCCH
- Coding Schemes: CS1 to CS4 compliant with SMG32 (Release 97)

3. EMI/EMC Specifications:- The GSM/GPRS AMR shall meet the following EMI/EMC specifications:

- Electrostatic Discharge IEC61000-4-2
- Fast Transient Burst IEC61000-4-4
- Surges Immunity IEC61000-4-5
- Conducted Emission CISPR22 (class B)

4. Mechanical Specifications:- The Mechanical Specifications of the AMR shall be as follows:

- AMR shall be compact, as this device will be placed in a compact meter boxes, dimensions shall be as minimum as possible.
- Mounting Arrangement: Easy mounting arrangement with a hook provision on the AMR supported with the screw fixing arrangement. so that it will be comfortably fixed inside the meter Box.
- The AMR shall comply with IP55 rating.
- Sealing Arrangement: The Top and Base Cover shall have a suitable sealing arrangement so that the AMR cannot be tampered.
- The AMR shall be a compact model housed in a polycarbonate/ engineering plastic enclosure.

5. Environmental specifications:- The AMR shall meet the following environmental specifications: Temperature: -10 degrees to +55 degree

Humidity: 95% RH (non - condensing)

6. Functional specifications:- The AMR should be an intelligent device and capable of providing the following functionalities on GSM/ GPRS network:

- The AMR should be capable for long duration data transfer to central station as per configuration via suitable AMR software.
- When the AMR is busy in collecting the data from the meter and the request comes to get the data, then priority shall be given to request from central station software.
- Power Outage Notification: In the event of an outage, the AMR should be able to send the outage alert to Data center, there after SMS to predefined number to notify the outage event with date and time of occurrence/restoration.
- The AMR should be capable of operating with SIMs of local GSM/GPRS/ Service provider in the area.
- AMR should be capable for continuous working for 24 hours every day under field conditions, even when enclosed in Metering Cubicles at Consumer sites.
- Software shall have facility for Auto-Scheduler to enable automatic/Unattended data collection during night hours.

6.9 Data transfer in push Mode:

- By default AMR should be configured for push mode of data transfer i.e. AMR shall automatically establish a session with Static IP of MDA Server at DC at specified time (once in a day/week/month) for the purpose of meter reading through GPRS only. This configuration of the AMR shall be configurable through MDA Software.
- If AMR could not establish connection to the Server placed at Data center at specified time, then it shall retry the same as configured.

6.10 Data transfer in pull Mode

- In case the data is required on demand from the Data center end (Server end), then connection shall be established from head end to the device.
- User shall have option to get the meter data available in the memory of intelligent AMR, invoke the Modem to read & upload the meter data.
- Provision to generate reports of successful automatic meter reading (AMR)calls and unsuccessful AMR calls separately shall be provided.
- Provision for flexible scheduling of meter reading by AMR software automatically on a pre-defined daily, weekly or monthly basis.
- Provision shall be made to read the groups of energy meters in one go from the AMR software and the searchable by Meter number, or as a separate group.

7.0 Data Analysis: It is proposed to carry out Data Analysis as follows:-

- a) The data for all consumers, gathered from AMR connected to multiple makes of meters, which is to be stored into a Common Database.
- b) Data Analysis is to be carried out to generate Alerts for the following, which, along with Instantaneous Parameters(for few alerts), are to be sent by SMS automatically to at least 3 nominated personnel on their cell phones :-**
 - **Tampered meters / Wiring defect / combination of wiring defects.**
 - Percentage slots, for which Demand < 5 %, when power is available, exceed10%.

- Percentage black out slots exceed 10%
 - Percentage slots, for which load <20% of Contract Demand, exceed 10%.
 - Current consumption vs. last month consumption or Current Consumption vs. that of same month of last year is less than 50%.
- c) **Generate following reports :-**
- Contract Demand Violation.
 - Percentage slots, for which Demand is less than 5 %, when power is available.
 - Percentage black out slots.
 - Percentage slots, for which PF is less than 0.5, 0.5 to 0.7, 0.7 to 0.9 & > 0.9
 - Percentage slots for which load <20%, 20-40%, 40-60% & >60% CD Consumption vis-à-vis Usage Index for the Industry, based on data provided.
 - Average Demand / Contract Demand, Maximum Demand /Contract Demand, Average Demand /Maximum Demand.
 - Current consumption Vs Last month consumption, Current consumption / that for same month of last year.

8.0 Server Specifications:

Description	Specifications
Make	Manufactured by ISO 9000 and 14000 manufacturing unit HP/COMPAQ/IBM
Model	Must be specified and manuals must be submitted
Processor	Up to two 3.46 GHz six-core (3.60 GHz four-core) Intel Xeon 5600 series processors with Quick Path Interconnect technology
Memory	32 GB DDR RAM / Scalable to 128 GB max ECC DDR3 RAM memory (200 MHz) Multibit Error Correction capability using industry standard ECC DIMM
Maximum internal storage	Up to1 TB (hot-swap SAS/SATA) Disk bays (total/hot swap) Up to sixteen 2.5 in. hot-swap SAS/SATA HDDs or SSDs
RAID support	6 Gbps RAID-0, -1, -10 or 6 Gbps RAID-0, -1, -10, -5, -50 with 256 MB or 512 MB cache and additional option battery backup (model dependent)
Operating systems	Microsoft Windows Server 2008 R2 with IIS 7.5 with standard anti- virus loaded
Associated accessories	

9.0 Meter Data Acquisition Software:

Automatic Scheduling:

- As per pre-configured time every AMR shall transmit the data on daily basis to the server through GPRS.
- The Software shall first read the data in GPRS mode and there shall be a mechanism to confirm which Meters have already been read and which are unread, then it shall automatically create a schedule for the unread Meters, if any and start the scheduling in GSM mode.
- Finally, the communication status report shall be generated.
- As per the type of schedule (daily/weekly/monthly), data shall be acquired from a group of AMRs without any manual intervention including number of retries as selected. These groups shall be created by using a user-friendly scheduler feature

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Time Synchronization

- AMR data & time shall be synchronized with Central Server date & time.
- For accurate Energy Auditing, Energy data as per AMR date & time stampings shall be considered

The software shall have the capability of alarm system for any failure of communication with Meter & Server etc.

The software shall be **common** to all the standard makes of Meters like Secure, L&T, L+G, Genus, HPL-Socomec & DLMS Compliant Meters

A single common ASCII/XML file for all the Meters shall be generated for integrating the billing data with the existing billing system, irrespective of make & model of Meter.

10.0 DATA STORAGE: The software shall feature Structured Database for storage of data collected from the meters. The data has to be accessed only through different access levels provided by the software. Software shall be capable of storing last 2 years meter data in the database at the centralized data center for local validation and analysis. The bidder shall be responsible for secure data backup, archival and retrieval for the entire contract period.

The Software shall have the data base system developed on Oracle RDBMS, capable of handling large amounts of data with fast inserting retrieval, computation etc.

11.0 DATA MANAGEMENT AND VALIDATION: software shall be provided with extensive Data Management Tools and latest RDBMS platform. UTILITY shall have the option to free-up the space by moving the unwanted data, archiving, deletion and backing up of the data. Software shall also perform all the validation checks as per the requirement of UTILITY to ensure data correctness.

12.0 DATA SECURITY: The software should have necessary features to maintain audit trails with complete event logging and internal check system to prevent fraud and manipulations of data. The software shall have multilevel configurable password control for data protection, integrity and security of the system. The different software features shall be protected by different passwords. All configurations of User Management / Access Rights shall be as per the requirements of UTILITY.

13.0 MRI/ Existing AMR System COMPATIBILITY: Xml files from existing AMR system/ after uploading from CMRI, will be shared, the same to be integrated for Data analysis & reporting.

14.0 Installation: The Contractor shall be responsible for supply, installation, testing & commissioning of AMR alongwith associated material at as per direction of the CSPDCL. **The contractor shall transport all required material for installation to concern site.**

All material required for complete installation such as Lugs, Mounting Clamps, screws, wires, cables, connectors, as required for installation and commissioning of the modems shall be arranged by the Contractor.

All joints/ terminations shall be carried out by using of suitable size of lugs. Proper Identification of each cable shall be marked during installation.

Purchaser will provide written permission to contractor's staff to store the material to the nearest substation / office during installation.

Installation of modems on meters shall be done by the Contractors. Arrangement of data SIM cards will be done by CSPDCL.

Installation shall be carried out either only in presence of CSPDCL's authorised representative or in accordance with the instructions issued for the purpose.

15.0. Rejection of Materials

- (i) All the materials reported rejected should be replaced free of cost by the Contractor.
- (ii) To and fro transportation cost for replacement of material shall also be borne by the Contractor.

**SUPERINTENDING ENGINEER (P)-II
O/o ED (S&P): CSPDCL: RAIPUR**

SCHEDULE-II (B)

TECHNICAL SPECIFICATION OF COMMON TYPE GLASS REINFORCED POLYESTER SHEET MOULDING COMPOUNDS (SMC) METER BOXES FOR THREE PHASE WHOLE CURRENT L.T. METERS

- 1. SCOPE:** This specification covers design, manufacturing, pre-despatch testing and supply of tamper proof single compartment SMC meter boxes suitable for housing three phase electronic whole current LT Meters alongwith modem
- 2. PURPOSE:** The meter box should be suitable for all types of three phase whole current LT meters along with modem. The purpose of meter box is to protect meter from water, dust & tampering of meters. Meter Box should be shock proof, water proof, rust proof, tamper proof, leak proof and vermin proof.
- 3. MATERIAL AND EXTERNAL CONSTRUCTION OF THE BOX:** Meter box shall be made by hot press moulding of Glass reinforced Polyster Sheet Moulding Compound (SMC) grade S₁ conforming to IS:13410:1992 with latest amendments thereof. Material of Meter Box should not get soften on heating (Heat distortion temperature should be above **125°C**). The material of Meter Box should be self-extinguishing as per IS:4249 with latest amendments thereof.

It shall be moulded in a single piece forming the body of the Meter Box. Moulding should be without fabrication joint. The overall size of the box shall be minimum 450x280x200 mm.

The thickness of the box shall not be less than 3.0 mm on the load bearing side i.e. back side of the box and the other sides, door and roof shall not be less than 2.0 mm. The box shall have its roof 5° to 10° tapering down from rear to front side. All the corners of the meter box should be round and not pointed ones.

SMC Meter Box is to be mounted on the wall surface. Necessary arrangements should be provided for mounting of the box in such a way that weight of all types of whole current LT meter can be borne easily.

- 4. DOOR:** The door shall be provided duly fitted with the base by two nos. concealed type brass /stainless steel hinges from inside on the left side of the box. The concealed brass / stainless steel hinges shall be fitted with the Meter box body base and the door rigidly in such a way that the same are neither visible nor accessible from outside, thereby making the Meter Box pilfer proof. The hinges should be provided such that the door may get fully opened. The door shall be made overlapping type having collars on all four sides with neoprene rubber lining to make box water proof. The door shall rest within the collar of the Meter Box body base. The edge of the collar of the meter box body base is molded in such a way that no slit or entry is possible directly. Wire or film cannot be inserted from the door in closed position. The door of the box shall be provided with semicircular gasket of sufficient size to completely fit in the cover grooves of the box. The gasket should be made of neoprene rubber.
- 5. SEALING ARRANGEMENT:** Sealing arrangement is to be provided at 2-points on the door at about 100 mm from top and bottom of the meter box. Sealing holes 2 mm dia with stainless steel U-clamps should be provided. U-clamps should be Zinc passivated and riveted from inside. In addition, one more sealing hole of 2 mm dia may also be provided at mid point between both the hinges.
- 6. HANDLE / COVER KNOB:** A cover knob with spring should be provided on mid-point of left side which can be tightened in a threaded hole provided on the box base. This Cover Knob will serve as handle as well as prevent the door from any vibration and thus avoids the consequent damage to the sealing wire.

7. METER READING WINDOW: A window of 210x110 mm size should be provided on door cover for viewing and taking meter reading. Window should be located in such a way that meter display area is visible comfortably after fixing modem at top of the meter. Viewing window shall be provided with transparent cover made out of toughened glass (6 mm thick). The glass should be fitted on window from inside such that it will not be possible to remove the glass from outside without opening door. Alternatively polycarbonate cover ultrasonically welded will be acceptable which should have a minimum thickness of 3 mm. The reading of the meter shall be clearly visible through the window. There shall not be any ingress of moisture through this window into the box.

8. METER & MODEM MOUNTING ARRANGEMENT: ISI marked Boiling Water Proof plywood of 12 mm thickness should be provided on the rear inside surface of meter box for mounting the meter & modem. Modem will be mounted in upper part of the box above the meter with approx. 50 mm gap between the two. Plywood should be fixed through four nos. 8 mm nuts and bolts. Bolts' head should be fixed moulded grooves on all four corners of rear side of meter box and plywood should be fixed on them through nuts. Size of plywood should be such that it should cover rear inside surface of the meter box completely. Meters will be fixed on the plywood through wooden screws as per convenience at the site. Separate similar arrangement shall be made for modem also, according to the modem size. Width of the modem to be attached to base of the box will be approx.40-50mm. It should be noted that plywood should be ISI marked and Boiling Water Proof and duly coated with transparent wooden polish / varnish so that ingress of moisture can be avoided and marking on plywood can be seen easily.

9. CABLE ENTRY: Two nos. 38 mm dia holes should be made on the bottom of the meter box for incoming and outgoing cables. Suitable size of good quality nylon / PVC cable glands closed from bottom should be provided on both of these holes. Nylon / PVC cable glands closed from bottom are essential so that appropriate size of opening as per the size of cable, can be made at the time of installation.

10. COLOUR: The SMC Meter Box shall have white/off white/light grey colour. The finished appearance of equipment shall present an aesthetically pleasing appearance, free from spots and un-even surfaces.

11. EARTHING: The meter box body shall be provided with one no. independent Zinc passivated earthing stud 10 mm dia 50 mm long threaded on both ends. It should be fixed on right side of the box in such a way, so that the inside and outside earthing can be done on a common earthing stud. For this one nut, one spring washer & one plane washer shall be provided inside the box and one nut, one spring washer & one plane washer shall be provided outside of the box.

12. GUARANTEED TECHNICAL PARTICULARS: The tenderer shall furnish all the necessary information as desired in the Schedule of Guaranteed Technical Particulars annexed with this specification. If the tenderer desired to furnish any other information in addition to the details asked for, the same may be furnished against the last item of the schedule.

13. MARKINGS: Each box shall be legibly marked with indelible ink on the front of the box and shall indicate the following (Stickers are not allowed):-

- (i) Manufacturer's name and place.
- (ii) Trade Mark, if any
- (iii) Purchaser's name
- (iv) CSPDCL order No. & Dt.

14. GUARANTEE: The meter boxes should be guaranteed for a period of 24 months from the date of commissioning of AMR. In the event of any defect noticed or damages observed in the meter box due to manufacturing or any other reason during the guarantee period, the same shall have to be replaced free of cost.

15. PACKING: The meter boxes shall have to be securely and suitably packed to avoid damages / scratch during loading, handling and transportation.

16. TESTS: The Meter Box and material of Meter Box shall be subject to type tests, routine tests and acceptance tests conforming to IS:13410:1992 read with IS:13411, IS:5133, IS:14772 and IS:4249 with latest amendments thereof as per details given below:

(a) TYPE TESTS: Type tests are to be performed on material of meter box in a Govt. approved Laboratory. Notarised photocopies of these type test should be submitted with the tender otherwise offer will be liable for rejection.

- | | | |
|-------|--|------------------------------|
| (i) | Test for water absorption | (As per IS:13411:1992) |
| (ii) | Glass content percent test by mass | (As per IS:13410,13411:1992) |
| (iii) | IZOD Impact Strength Test | (As per IS:13410,13411:1992) |
| (iv) | Heat Distortion Temperature Test
(for 125 ⁰ C minimum) | (As per IS:13410,13411:1992) |
| (v) | Surface Resistivity Test | (As per IS:13410:13396) |
| (vi) | Volume Resistivity Test | (As per IS:13410:13396) |

(b) ACCEPTANCE TESTS:

- | | | |
|-------|-----------------------------------|---|
| (i) | Marking | IS:14772 |
| (ii) | Protection against electric shock | IS:14772 |
| (iii) | Provision for earthing | IS:14772 |
| (iv) | Tests for dimensions | IS:14772 |
| (v) | Construction | IS:14772 |
| (vi) | Mechanical Strength | IS:14772 |
| (vii) | Spirit Burner Test | IS:4249:1967
(Self extinguishing material) |

**SUPERINTENDING ENGINEER (P) II
O/o ED (S&P), CSPDCL: RAIPUR**

SCHEDULE - III**Schedule of Price & Quantities****(A) Supply Part**

S. No	Description	Unit Price in Rupees						TOTAL
		Quantities Required	Item is bought out or self-manufactured.	Unit Base Rate	Excise Duty + Cess	CST/VAT	Other charges, if any	
1.	Supply of GPRS Modems with requisite accessories and connecting cables for data transfer from the Meters to the Workstation at Data Centers. (As per specification of the tender)	25000 Nos.						
2.	Supply of meter box (As per specification of the tender)	20000 nos.						
3	Supply of server with requisite software and accessories at the base workstation (As per specification of the tender)	5 no.						
	Total							

(B) Installation & Commissioning

S N	Description	Quantity Required (Nos.)	Unit Price in Rupees			Total
			Basic Rate for anywhere in state of CG	Service Tax Amount & %age	Any Other Tax in % and amount	
1	Installation, Site Testing and commissioning of the AMR hardware at consumer premises and interfacing with Data Center. This includes associated works, supply and fixing of matching connectors etc completely for successful working of the system.	25000 Nos.				
2	Removal of existing meter box and installation of meter in new meter box. This includes associated works.	20000 nos.				

3	Installation, Site Testing and commissioning of the server and interfacing with Data Center. This includes associated works, supply and fixing of matching connectors etc completely for successful working of the system.	5 no.				
4	Interfacing with SAP billing software with end to end solution	1 no.				
5	Configuration of existing AMR system of HT & LT consumers	7000 nos.				
	Total					

(C) Operation & Maintenance of AMR system

S N	Particulars	Qty.	Basic Price per month(in Rs)	Service Tax in % and amount (in Rs)	Total price per month inclusive of service tax (in Rs)	Total price for 6 months inclusive of service tax(in Rs)
1	2	3	4	5	6=(4+5)	7=col6*6
1	O& M of Complete AMR system developed against TS:363 for proposed consumers and consumers already existing with AMR.	Complete AMR System				
	Training to CSPDCL's engineers and staff (approximately 10 Nos.) regarding operation and maintenance of AMR System.	Approx. 10 Nos.				

Signature of Tenderer
Name :
Designation & seal of the firm

Note:-

- i. Prices quoted shall be FIRM and same should be confirmed.
- ii. CSPDCL/CSPHCL is registered for availing the benefit of concessional rate of Sales / Commercial tax. For the purpose, necessary declaration form C/D as applicable shall be issued after receipt of the materials at destinations. This shall be kept in mind by the tenderers while quoting the competitive prices.
- iii. The offer with the rates given in any form / proforma, other than that mentioned above shall be liable for rejection.
- iv. The price shall be indicated as per unit basis only (rate in words may also be mentioned along with figures).
- v. Rate in various tapering steps shall not be considered and hence supply shall be indicated by a singular figure only.
- vi. The column no. 8 'Any other tax' should be specific regarding its applicability i.e. it is leviable on what amount and what percentage.
- vii. In case of exemption / non -applicability of any duty or tax etc. documentary evidence to be furnished in support.
- viii. Bidder is required to quote separate rate in schedule III (A), (B) &(C). Prices shall be evaluated by adding all the three schedules. For further operation of AMR, if required after 6 months, rates quoted for operation in Sch-III(C) will only be considered.

Signature Of Tenderer

Name,, Designation & Seal of the Firm

SCHEDULE - IV (A)
GUARANTEED TECHNICAL PARTICULARS FOR AMR

S.N.	PARTICULARS	AS REQUIRED	OFFERED
1	Make	To be furnished	
2	Model	-do-	
3	Size	Please indicate	
4	Quantity offered	Please indicate	
5	Enclosure	Polycarbonate / Engg. Plastic	
6	Average Power Consumption	3 VA under idle condition 6 VA during data transfer	
7	Power Supply	3ph, 440V, 50 Hz, Capable of operating on 1ph 230 V. Voltage range 77 V -440V	
8	GSM Frequency band	Dual band 900/1800 MHz	
9	Memory	Please indicate	
10	Baud Rate	Please indicate	
11	Withstand capacity against surges	6 KV	
12	AMR has auto dial feature	Please confirm	
13	AMR has SMS feature	Please confirm	
14	RS 232 output provided through	9 pin female/ RJ 11 connector	
15	Configuration for data transfer in push as well as pull mode provided	Please confirm	
16	Interlocking facility provided	Please confirm	
17	Others		

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

S C H E D U L E – I V (B)
GUARANTEED TECHNICAL PARTICULARS FOR SERVERS

Particulars	As Required	As offered
Make	Manufactured by ISO 9000 and 14000 manufacturing unit HP/COMPAQ/IBM	
Model	Must be specified and manuals must be submitted	
Quantity offered	Please indicate	
Processor	Up to two 3.46 GHz six-core (3.60 GHz four-core) Intel Xeon 5600 series processors with Quick Path Interconnect technology	
Memory	32 GB DDR RAM / Scalable to 128 GB max ECC DDR3 RAM memory (200 MHz) Multibit Error Correction capability using industry standard ECC DIMM	
Maximum internal storage	Up to 1 TB (hot-swap SAS/SATA) Disk bays (total/hot swap) Up to sixteen 2.5 in. hot-swap SAS/SATA HDDs or SSDs	
RAID support	6 Gbps RAID-0, -1, -10 or 6 Gbps RAID-0, -1, -10, -5, -50 with 256 MB or 512 MB cache and additional option battery backup (model dependent)	
Operating systems	Microsoft Windows Server 2008 R2 with IIS 7.5 with standard anti-virus loaded	
Associated accessories		

PLACE
DATE

SIGNATURE OF TENDERER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-IV (C)
GUARANTEED TECHNICAL PARTICULARS OF COMMON TYPE SMC
METER BOXES FOR WHOLE CURRENT L.T. METERS

S. N.	Particular	Minimum Requirement as per tender	Offered specifications
1	2	3	
1.	Name of manufacturer & place	----	
2	Quantity offered	Please indicate	
3	Min. thickness of back side & other sides of meter box	3.0 & 2.0 mm	
4	Whether entire box is made out by hot press moulding of Glass reinforced Polyester Sheet Moulding Compound (SMC) grade S ₁ conforming to IS:13410:1992 with latest amendments thereof?	To be confirmed	
5	Whether dimensions and general arrangements of the box has been made as per attached drawing?	To be confirmed	
6	Whether neoprene gasket provided for front door.	To be provided	
7	Whether hinges on front door are fitted from inside right?	-do-	
8	Type and size of hinges (hinges should be of concealed type)	To be indicated	
9	Whether sealing arrangement as per specification has been done on door's left side at two points as per drawing?	Yes	
10	Whether Cover Knob with spring is provided to fix the door as well as to serve as handle?	To be indicated	
11	Size of window glass on door.	210x110 mm	
12	Material, make and thickness of window glass (Reading of meter shall clearly be visible from glass).	To be indicated	

13	Fixing arrangement of window glass from inside of front door.	Yes	
14	Whether gasket provided along the edges of glass with epoxy base sealing compound to rule out any possibility of ingress of moisture/dust?	To be indicated (to be used as per necessity)	
15	Type, make & details of plywood provided	To be indicated	
16	Fixing arrangements of plywood	To be indicated	
17	Whether ISI marked plywood is provided	Yes	
18	Whether door can be opened fully without hinderance	Yes	
19	Size of the nylon / PVC cable glands closed from bottom for cables entry	Yes	
20	Colour of Meter box	Light Grey/ white	
21	Whether marking provide all details as per specification?	Yes	
22	Overall dimension of meter box. (Minimum)	450x280x200 mm	
23	Weight of complete meter box.		
24	Any other details.	To be indicated if any	

PLACE
DATE

SIGNATURE OF TENDERER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

S C H E D U L E - V

SCHEDULE OF TENDER'S EXPERIENCE

Tenderer shall furnish here a list of similar jobs executed by him. A reference may be made by the purchase to them in order be considers such a reference necessary.

S.No	Name & Description of work. (adequate details to be given certifying the work done)	Order No. & date	Period & date of supply	Client or order placing authority	Person to whom reference to be made

PLACE
DATE

SIGNATURE OF TENDERER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL