



ODISHA POWER TRANSMISSION CORPORATION LTD
OFFICE OF THE SENIOR GENERAL MANAGER,
CENTRAL PROCUREMENT CELL,
JANPATH, BHUBANESWAR - 751022

TENDER SPECIFICATION
NO. Sr.G.M.-CPC -e-Tender-Telecom-RTU- 15 /2016-17

FOR PHASE WISE supply of RTU including Erection, Testing, Commissioning & Annual Maintenance Contract for 7 Years
(E tendering mode only)

SI. No.	ITEM DESCRIPTION	UNIT	Total Qty.
1(a)	Supply, Commissioning & AMC of Remote Terminal Unit (RTU) (Configured with MFT, OLTC transducer & Relays along with associated cables and accessories) in 3 phases	Nos.	52

Request for online tender documents : From Dt- 04.11.2016 (10.00 AM) to Dt- 05.12.2016 (12.30 PM)

Last date of submission of online tender : Dt. 06.12.2016 (1.00 PM)

Date of opening of Tender : Dt. 07.12.2016 (03.00 PM)

Per-bid conference : Dt. 11.11.2016 (11.00 AM)



**ODISHA POWER TRANSMISSION CORPORATION LTD
OFFICE OF THE SENIOR GENERAL MANAGER,
CENTRAL PROCUREMENT CELL,
JANPATH, BHUBANESWAR - 751022**

e-TENDER NOTICE NO. 15/ 2016-17

Tender specification No. Sr.G.M.-CPC-e-Tender-Telecom-RTU-15/2016-17

For and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD, Sr.G.M. [C.P.C.] invites Tenders from reputed manufacturers in two part bidding system for supply of RTU (in 3 phases) including Erection, Testing, Commissioning & Annual Maintenance Contract for 7 Years. The interested bidders would be required to enroll themselves on the tender portal www.tenderwizard.com/OPTCL. Complete set of bidding documents are available at www.tenderwizard.com/OPTCL from Dt. 04.11.2016 at 10.00 A.M to Dt. 05.12.2016 at 12.30 P.M.. Interested manufacturers may visit OPTCL's official web site <http://www.optcl.co.in> and www.tenderwizard.com/OPTCL for detail specification.

SENIOR GENERAL MANAGER [C.P.C.]

N.B:- All subsequent addendums/corrigendum to the tender shall be hosted in www.tenderwizard.com/OPTCL only.

NOTICE INVITING TENDER

ODISHA POWER TRANSMISSION CORPORATION LTD.,
REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,
ODISHA, INDIA.

e-TENDER NOTICE NO- 15 /2014-15.

For and on behalf of the ODISHA POWER TRANSMISSION CORPORATION LTD., the undersigned invites bids under two-part bidding system in e- tendering mode only as per the following details.

Tender Specification No.	Sl. No.	ITEM DESCRIPTION	UNIT	Total Qty.	EMD @ 1% of the Est. cost. In Rupees.	Cost of Tender document (in Rs.)	Last date of receipt & opening of tender
NO. Sr.G.M.- CPC- e-Tender- Telecom- RTU- 15 /2016-17		Supply, Commissioning & AMC of Remote Terminal Unit (RTU) (Configured with MFT, OLTC transducer & Relays along with associated cables and accessories) in 3 phases	Nos.	52	7,95,000.00	10,000/- + 500/- (VAT)	06.12.2016 (1.00 PM) & 07.12.2016 (03.00 PM)

The bidders can view the tender documents from website free of cost.

The bidders who want to submit bid shall have to pay **Rs. 10,500/- (Rupees Ten thousand five hundred only)**- non refundable including VAT @ 5%) towards the tender cost, in the form of Demand draft/Cash only, drawn in favour of the D.D.O Head qrs, OPTCL, Bhubaneswar.

The bidders shall have to pay nonrefundable amount of **Rs. 5750/- (Rupees Five thousand seven hundred fifty only)** towards the tender processing fee to K.S.E.D.C.Ltd, in e-payment mode. The e-payment of above amount is to be made to enable the bidder to download the bid proposal sheets and bid document in electronic mode.

The bidders shall scan the Demand Draft/Pay order/ Bank guarantee, towards EMD/ notarised hard copy of valid registration as local MSE(if any) and upload the same in the prescribed form in .gif or .jpg format in addition to submission of the originals on or before the last date of submission of tender.

The prospective bidders are advised to register their user ID, Password, company ID from website www.tenderwizard.com/OPTCL by clicking on hyper link "Register Me".

Any clarifications regarding the scope of work and technical features of the project can be had from the undersigned during office hours.

Minimum qualification criteria of bidders: AS STIPULATED IN SECTION-II, PART-I (G.T.C.C) OF THE TENDER SPECIFICATION.

SENIOR GENERAL MANAGER

CENTRAL PROCUREMENT CELL

e-mail: sgm.cpc@optcl.co.in

FAX NO.:0674 – 2542964

TELEPHONE NO.:0674 – 2541801

ODISHA POWER TRANSMISSION CORPORATION LTD.

OFFICE OF THE SR. GENERAL MANAGER

CENTRAL PROCUREMENT CELL

JANAPATH, BHUBANESWAR – 751022

TENDER SPECIFICATION NO.Sr.G.M.-CPC –e-Tender-Telecom-RTU- 15/ 2016-17

CONTAINING

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- SECTION – II : GENERAL TERMS AND CONDITIONS OF
CONTRACT (G.T.C.C.) (COMMERCIAL)**
- SECTION – III : LIST OF ANNEXURES (COMMERCIAL)**
- SECTION – IV : TECHNICAL SPECIFICATION**
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PART – I.

SECTION – I.

INSTRUCTIONS TO TENDERERS

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COMMERCIAL SPECIFICATION.

PART-I

SECTION-I

INSTRUCTIONS TO TENDERER

1. Submission of Bids: -

The bidder shall submit the bid in Electronic Mode only i.e. www.tenderwizard.com/OPTCL. The bidder must ensure that the bids are received in the specified website of the OPTCL by the date and time indicated in the Tender notice. Bids submitted by telex/telegram will not be accepted. No request from any bidder to the OPTCL to collect the Bids in physical form will be entertained by the OPTCL.

The OPTCL reserves the right to reject any bid, which is not deposited according to the instruction, stipulated above. The participants to the tender should be registered under ODISHA Sales Tax, Act, VAT Act / Central sales Tax Act.

1. For all the users it is mandatory to procure the Digital Signatures.
2. Contractors / Vendors / Bidders / Suppliers are requested to follow the below steps for **Registration**:
 - a. Click “Register”, fill the online registration form.
 - b. Pay the amount of Rs. 2300/- in the form of e-payment/ on line payment.
 - c. As soon as the verification is being done the e-tender user id will be enabled.
3. After viewing Tender Notification, if bidder intends to participate in tender, he has to use his e-tendering User Id and Password which has been received after registration and acquisition of DSCs.
4. If any Bidder wants to participate in the tender he will have to follow the instructions given below:
 - a. Insert the PKI (which consist of your Digital Signature Certificate) in your System.
(Note: Make sure that necessary software of PKI be installed in your system).
 - b. Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).
 - c. Go to Start > Programs > Internet Explorer.
 - d. Type **www.tenderwizard.com/OPTCL** in the address bar, to access the Login Screen.
 - e. Enter e-tender User Id and Password, click on “Go”.
 - f. Click on “Click here to login” for selecting the Digital Signature Certificate.
 - g. Select the Certificate and enter DSC Password.
 - h. Re-enter the e-Procurement User Id Password
5. To make an request for Tender Document Bidders will have to follow below mentioned steps.

- Click “Un Applied” to view / apply for new tenders.
 - Click on Request icon for online request.
6. After making the request Bidders will receive the Tender Documents which can be checked and downloaded by following the below steps:
 - Click to view the tender documents which are received by the user.
 - Tender document screen appears.
 - Click “Click here to download” to download the documents.
 7. After completing all the formalities Bidders will have to submit the tender and they must take care of following instructions.
 - Prior to submission, verify whether all the required documents have been attached and uploaded to the particular tender or not.
 - Note down / take a print of bid control number once it displayed on the screen
 8. Tender Opening event can be viewed online.
 9. Competitors bid sheets are available in the website for all.
 10. **For any e-tendering assistant contact help desk number mentioned below.**
 - Bangalore – 080- 40482000.

The participants to the tender should be registered under ODISHA Sales Tax, Act,VAT Act/Central sales Tax Act.

2. Division of Specification.

The specification is mainly divided into two parts viz. Part-I & Part-II.

Part-I Consists of

- | | |
|-------------------|-----------------------------------------|
| [i] Section-I | Instruction to Tenderers. |
| [ii] Section-II | General Terms & conditions of contract. |
| [iii] Section-III | Schedules and forms etc. |
| [iv] Section-IV | Technical Specification. |
| [v] Section-V | Specification for Comprehensive AMC |

Part-II Consists of

- [i] Abstract of price components as per Annexure-IV
- [ii] Schedule of prices as per Annexure-V

3. Tenders shall be in Two Parts.

The Tenderers are required to submit the tenders in two parts viz. Part-I (Techno commercial) & Part-II (Price bid).

4. Opening of Bids.

- [a] The part-I shall be opened on the date and time fixed by the OPTCL for opening of bids in Electronic mode in presence of such of the Tenderers or their authorized representatives [limited to one person only] on the due date of opening of tender who opt remain present. After scrutiny of the technical particulars and other commercial terms, clarifications, if required, shall be sought for from the bidders. The Tenderers shall be allowed 15 days' time for such activity.
- [b] On receipt of technical clarification, the bids shall be reviewed, evaluated and those not in conformity with the technical Specification / qualifying experience, shall be rejected. If any of the technical proposal requires modification to make them comparable, discussion will be held with the participating bidders.

All the responsive bidders shall be given opportunity to submit the revised technical and revised price proposals as a follow up to the clarification (modification if any) on the technical proposals. The qualified bidders shall be given opportunity to submit revised price proposals within 15 days from the date of such discussion or within time frame mutually agreed, whichever is earlier.

- [c] When the revised price proposals are received, only the revised technical and price proposals will be considered for bid evaluation. The price bids [Part-II] of such of the Tenderers, whose tenders have been found to be technically and commercially acceptable, including those supplementary revised price bids, submitted subsequently, shall be opened electronically on a date and time which will be intimated to all technically and commercially acceptable Tenderers.
- [d] The bidders are required to furnish sufficient information to the Purchaser to establish their qualification, capacity to manufacture and/or supply the materials/perform the work. Such information shall include details of bidder's experience, its financial, managerial and technical capabilities.
- [e] The bidders are also required to furnish details of availability of appropriate technical staff and capability to perform after sales services. The above information shall be considered during scrutiny and evaluation of bids and any bid which does not satisfactorily meet these requirements, shall not be considered for price bid evaluation.
- [f] The price bids of the technically and otherwise acceptable bids shall only be evaluated as per the norms applicable in terms of this Specification.

5. Purchaser's Right Regarding Alteration of Quantities Tendered.

The Purchaser may alter the quantities of materials/equipment at the time of placing orders. Initially the purchaser may place orders for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. Orders may also be split among more than one tenderer for any particular item, if considered necessary in the interest of the Purchaser to get the goods/equipment earlier.

6. Procedure and opening time of tenders.

Tenders will be opened electronically in the office of the Senior General Manager [C.P.C.] on the specified date and time in presence of the Tenderers or their authorized representatives [limited to one person only] in case of each bidder who may desire to be present, at the time of opening the bids.

7. Bidder's Liberty to deviate from Specification.

The Tenderer may deviate from the specification while quoting, if in his opinion, such deviation is in line with the manufacturer's standard practice and conducive to a better and more economical offer. All such deviations should however be clearly indicated giving full justifications for such deviation. [Read with Clause-9, Section-II of the Specification].

8. Eligibility for submission of bids.

Only those manufacturers who have deposited the cost of tender specification are eligible to participate in the tender. They should submit the money receipt as a proof of such payment. The local (In the state of Odisha) Micro and small Enterprises (MSEs) registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC (Registered in Odisha) can participate without payment of the cost of tender specification

9. Purchaser's right to accept/reject bids:

The purchaser reserves the right to reject any or all the tenders without assigning any reasons what so ever if it is in the interest of OPTCL, under the existing circumstances. [Read with clause-10, Section-II of the specification].

10. Mode of submission of Tenders.

[A] Tenders shall be submitted in electronic mode only. (www.tenderwizard.com/OPTCL)

[B] **Telegraphic or FAX tenders** shall not be accepted under any circumstances.

11. Earnest money deposit:

The tender shall be accompanied by Earnest Money deposit of value specified in the notice inviting tenders against each lot / bid. Tenders without the required EMD as indicated at **Annexure-VIII** will be rejected outrightly.

The local (In the state of Odisha) Micro and small Enterprises(MSEs) registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC (Registered in Odisha) can participate by submitting Earnest Money Deposit @ fifty percent of the amount indicated in the Notice Inviting Tender.

The earnest money deposit shall be furnished in one of the following forms subject to the conditions mentioned below:

- (a) **Cash:-** Payable to drawing & disbursing Officer, OPTCL (Hd.qrs. Office), Bhubaneswar - 751022
- (b) **Bank Draft:** -To be drawn in favour of Drawing & Disbursing Officer, OPTCL [H.Qrs.Office], Bhubaneswar-751 022.
- (c) Bank Guarantee from any Nationalized/Scheduled Bank strictly as per enclosed proforma vide **Annexure-VI** to be executed on non-judicial stamp paper worth Rs.29.00 or as applicable, as per prevailing laws in force and also to be accompanied by the confirmation letter of the issuing Bank Branch.
- (d) National saving certificate, duly pledged in favour of Senior General Manager [Central Procurement Cell] OPTCL {H.Qrs.Office}, Bhubaneswar-751 022.

NOTE:

- (i). The validity of the EMD in the form of Bank Guarantee shall be at least for 240 days from the date of opening of tender failing which the tender will be liable for rejection.
- (ii) No interest shall be paid on the Earnest Money Deposit.
- (iii) E.M.D. in shape of cash may be submitted up to Rs. 25,000/- (Rupees Twenty-five Thousand) only. Above Rs. 25,000/- (Rupees Twenty-five thousand) the Earnest Money Deposit shall be furnished in any one of the forms indicated above (i.e. Through Bank Draft, Bank Guarantee/ National Savings Certificate).
- (iv) No adjustment towards EMD shall be permitted against any outstanding amount with the **ODISHA POWER TRANSMISSION CORPORATION LTD.**
- (v) The chart showing particulars of EMD to be furnished by Tenderers of different categories is placed at **Annexure-VIII.**
- (vi) In the case of un- successful tenderer, the EMD will be refunded after the tender is decided. In the case of successful Tenderer, this will be refunded only after furnishing of security money referred to at clause-19of Section-II.
- (vii) Suits, if any, arising out of this clause shall be filed in a Court of law to which the jurisdiction of High Court of ODISHA extends.
- (vii) EMD will be forfeited if the tenderer fails to accept the letter of intent and/or purchase order issued in his favour or to execute the order, placed on them.
- (viii) Tenders not accompanied by Earnest Money shall be disqualified.

12. Validity of the Bids: -

The tenders should be kept valid for a period of **180** days from the date of opening of the tender, failing which the tenders will be rejected.

13. PRICE: -

Tenderers are requested to quote-‘FIRM’ Price. No deviation from **FIRM PRICE** will be entertained irrespective of deviation clause No.7 of this part of the specification.

14. Revision of tender price by Bidders: -

[a] After opening of tenders and within the validity of period, no reduction or enhancement in price will be entertained. If there is any change in price, the tender shall stand rejected and the EMD deposited shall be forfeited.

[b] After opening of price bid if the validity period is not sufficient to place purchase order, the tenderer may be asked by the purchaser to extend the validity period of the bid under the same terms and condition as per the original tender.

However, the tender are free to change any or all conditions including price except delivery period of their bids at their own risk, if they are asked by the purchaser to extend the validity period of the bid prior to opening of price bid.

15. Tenderers to be fully conversant with the clauses of the Specification: -

Tenderers are expected to be fully conversant with the meaning of all the clauses of the specification before submitting their tenders. In case of doubt regarding the meaning of any clause, the tenderer may seek clarification in writing from the Senior General Manager (Central Procurement Cell) OPTCL. This, however, does not entitle the Tenderer to ask for time beyond due date, fixed for receipt of tender.

16. Documents to Accompany Bids.

Tenderers are required to upload the Scanned/.pdf copy of the following document as vender generic document and also upload the .xls bid documents as mentioned below:-

Part-I (vender generic document)

Sl no	Document Details	File Name
1	Declaration Form duly filled in and signed. (As per Annexure –I)	Attachment1.pdf
2	(a)Earnest Money(As per Annexure-VI) or Documents in support of exemption from Earnest Money Deposit if any (b)Tender cost (c)Tender Processing fee.	Attachment2.pdf
3	Technical specification and Guaranteed Technical Particulars conforming to the Purchaser’s Specification along with drawings, literatures and all other required documents, duly filled in	Attachment3.pdf
4	Copies of type test certificates of materials/equipment offered as stipulated in the Technical Specification.	Attachment4.pdf
5	List of orders executed for similar materials/equipment during preceding 2 (two) years indicating the customer’s name, Purchase Order No. & Date, date of supply and date of commissioning etc.	Attachment5.pdf
6	Data on past experience as per Clause-7 of Section –II of the Specification.	Attachment6.pdf
7	Sales tax clearance certificate for the previous year. The permanent account number [PAN] of the firm is required under Income tax Act.	Attachment7.pdf
8	Audited Balance Sheet & Profit Loss Accounts for the last three years.	Attachment8.pdf

9	Schedule of quantity and delivery in the prescribed proforma vide Annexure as appended.	Attachment9.pdf
10	Abstract of price components as per Annexure-VI	Attachment10.pdf
11	Deviation schedule. (Both technical & commercial)	Attachment11.pdf
12	The notarized hard copy & soft copy of valid registration as local MSE local (In the state of Odisha) (if any) on or before the date & time of submission of bid.	Attachment12.pdf
13	Scanned copy of the affidavit as per the clause no 21 of ITB	Attachment13.pdf

N:B- Any attachment having size more than 5Mb is to be divided into parts like Attachment1part-I, Attachment1part-II etc.

Part-I (Techno-commercial Bid Sheet).

1	All the.xls sheets are to be down loaded and filled in completely and uploaded without any modification to the file name.	.xls sheet name /file name is not to be modified
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17. Documents/Papers to Accompany Part –II Bid

Part –II of the tender shall consist of the following.

Part-II (Price Bid Sheet).

1	All the .xls sheets are to be down loaded and filled in completely and uploaded without any modification to the file name.	.xls sheet name /file name is not to be modified
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18. Conditional Offer:

Conditional offer shall not be accepted.

19. General: -

- (i) In the event of discrepancy or arithmetical error in the schedule of price, the decision of the purchaser shall be final and binding on the Tenderer.
- (ii) For evaluation, the price mentioned in words shall be taken if there is any difference in figures and words in the price bid.
- (iii) Notice inviting tender shall form part of this specification.
- (iv) The price bids of the technically and otherwise acceptable bids shall only be evaluated. The EMD of others, if any, shall be returned to the bidders.
- (v) Tenderer can offer any lot or all the lots of the tender, if there are more than one lot. But the tender (bid) must be furnished separately for each lot. For each lot, the tenderer has to submit PART-I & PART-II of the bids separately.
- (vi) It should be distinctly understood that the part-II of the bid shall contain only details/documents relating to price, as outlined in clause-17 mentioned herein above. Inclusion of any of the documents/information etc. shall render the bid liable for rejection.

20.0 Expenses in respect of OPTCL's representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site.

The testing and inspection of the equipment/ materials at manufacturer works are in the scope of work of the Contractor/Supplier.

OPTCL inspecting officer, on receipt of offer for inspection from the contractor/supplier, proceeds to the manufacturer works to witness the Type/Acceptance/Routine test.

Important:

It is hereby informed to all the bidders that the relevant clauses of the contract specification, pertaining to inspection and testing of equipment/materials, are hereby supplemented with following additional terms and conditions.

The expenses under the following heads, in respect of OPTCL's representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site, shall be borne by the contractor / supplier.

a) Hotel Accommodation:

I. Single room accommodation in 4 star hotel for the OPTCL inspecting officer of the rank of Assistant General Manager (Grade E-6) and above.

II. Single room accommodation in 3 star hotel for the OPTCL inspecting officer of the rank below Assistant General Manager (Grade E-6).

N.B.: It is the responsibility of the contractor to arrange the hotel accommodation matching with their inspection and testing schedule, so that the inspecting officer can check-in the hotel one day prior to the date of inspection and check out after the completion of the inspection, subject to availability of the return travel ticket. In case of extended duration of inspection or non-availability of the return travel ticket, Contractor/supplier/manufacturer shall arrange for the extended stay of the inspecting officer in the Hotel accordingly. In case there is no hotel with prescribed standard in and around the place of inspection, the contractor/supplier/manufacturer shall suggest alternative suitable arrangement at the time of offer for inspection, which is subjected to acceptability of OPTCL inspecting officer.

b) Journey of the inspecting officer:

(i) To and fro travel expenditure from the Head Quarters of the inspecting officer to the place of inspection/testing shall be borne by the contractor/supplier/manufacturer. Journey from the Head Quarters of the inspecting officer to the nearest Air Port by train (Ist/IIInd A.C) & A/C Taxi then by Air to the place of inspection/testing or to the nearest place of inspection/testing and then by train (Ist/IIInd A.C) & A/C taxi to the place of inspection/testing shall be arranged by the contractor/supplier/manufacturer.

(ii) For train journey, inspecting officer of the rank Assistant General Manager and above shall be provided with 1st class AC ticket and inspecting officer below the rank of Assistant General Manager shall be provided with 2nd class AC ticket.

(iii) The Air-ticket / train-ticket booking/cancellation is the responsibility of the contractor / supplier.

(iv) Moreover, if during the journey there is an unavoidable necessity for intermediate travel by road/ waterway/sea-route, the contractor/supplier shall provide suitable conveyance to the inspecting officer for travel this stretch of journey or bear the cost towards this. Any such possibilities shall be duly intimated to OPTCL at the time of their offer for inspection.

c) Local Conveyance:

At the place of the inspection/testing, for local journey of the inspecting officer between Hotel and inspection/testing site and or any other places, Air-conditioned four wheeler vehicle in good condition shall be provided by the contractor/supplier/manufacturer.

d) Following points are also to be considered:

(i) All the above expenses shall be deemed to be included in the bidder's quoted price for that supply item. Bidder shall not be eligible to raise any extra claim in this regard.

(ii) Contractor/supplier/manufacturer may assume that only in 40% of the inspection and testing offer cases, OPTCL inspecting officer, not below the rank of Assistant General Manager will witness the inspection and testing.

(iii) In case of inspection and testing of some critical equipment/materials like Power transformers, OPTCL may depute more than one inspecting officer.

(iv) Contractor/supplier/manufacturer shall judiciously plan the inspection/testing schedule and place of inspection/testing, so that optimum number of inspection/testing and minimum time shall be required to cover all the equipment/materials of the relevant contract package.

(v) It shall be the responsibility of the Contractor/Supplier to organize the above tour related matters of OPTCL inspecting officer including the matters related to overseas inspection/testing, if any.

21. Litigation/Arbitration

(i)- Bidder has to furnish detailed information on any litigation or arbitration arising out of contracts completed or under execution by it over the last five years. A consistent history of litigation by or against the bidder may result in rejection of bid.

(ii) The bidder should not have any pending litigation or arbitration with OPTCL with regard to any project or related activity. The bidder should certify/declare the same in unequivocal terms by way of an affidavit duly sworn before a magistrate. Bid furnished by the bidder shall not be

eligible for consideration if it is not accompanied by the affidavit. Further, the bid/LOA/LOI shall liable for outright rejection/cancellation at any stage if any information contrary to the affidavit/declaration is detected.

22. Pre-bid conference : A pre-bid meeting shall be held on the scheduled date & time at the conference hall of the office of the Sr, General Manager, CPC. OPTCL. Interested bidders may raise written queries **three days (03)** prior to the pre bid conference, if any, pertaining to this tender package, which shall be clarified during the pre-bid conference and to be uploaded in OPTCL website. **Queries after the dead line as indicated above shall not be entertained.**

SECTION – II.

GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]

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PART-I
SECTION-II

GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]

1. **Scope of the contract:**

The scope of the contract shall be the design, manufacture, assembly, inspection and testing at the manufacture's work, packing and delivery F.O.R. (destination) of the RTU (Configured with required MFT, OLTC transducer, etc. along with associated accessories) and erection & commissioning of the RTU in 3(Three) phases at the consignee's site and rendering services in accordance with the enclosed technical specification and bill of quantity. The scope also covers supply & laying of required interface cable/data cable for CT, PT, DI, Transducer and AC/DC Power supply for the erection & commissioning of the RTU. The said cables may be supplied as bought out material meeting to the specification mentioned elsewhere in this specification. The tentative requirement of such cables has been specified station wise at [Appendix-III\(A,B&C\)](#) of technical specification, section-IV. The contractor has to bid for the RTU taking into account the supply of such cables. The contractor may visit the proposed RTU stations prior to bidding at their own cost.

Such supply & commissioning of RTU shall be made against replacement of existing RTU (model: S-900) of M/s Areva make. These old RTUs to be replaced are presently operational at the stations detailed at [Appendix-II\(A,B&C\)](#) of technical specification, section-IV. Hence utmost care should be taken to optimize the minimum data interruption.

The scope of the work further includes comprehensive annual maintenance contract of the configured RTU so commissioned for a period of 7(seven years).

2.0 **Definition of terms:**

For the purpose of this specification and General Terms and Conditions of contract [GTCC], the following words shall have the meanings hereby indicated, except where otherwise described or defined.

2.1 "The Purchaser" shall mean the Senior General Manager [Central Procurement Cell] for and on behalf of ORISSA POWER TRANSMISSION CORPORATION LTD., Bhubaneswar.

2.2 "The Engineer" shall mean the Engineer appointed by the Purchaser for the purpose of this contract.

2.3 "Purchaser's Representative" shall mean any person or persons or consulting firm appointed and remunerated by the Purchaser to supervise, inspect, test and examine workmanship and materials of the equipment to be supplied.

2.4 "The supplier" shall mean the bidder whose bid has been accepted by the purchaser and shall include the bidder's executives, administrators, successors and permitted assignees.

2.5 "Equipment" shall mean and include all machinery, apparatus, materials, and articles to be provided under the contract by the suppliers.

2.6 "Contract Price" shall mean the sum named in or calculated the bid.

2.7 "General Condition" shall mean these General Terms and Conditions of Contract.

- 2.8 The Specification” shall mean both the technical as well as commercial parts of the specification annexed to or issued with GTCC and shall include the schedules and drawings, attached thereto as well as all samples and pattern, if any.
- 2.9 “Month” shall mean “Calendar month”.
- 2.10 Writing” shall include any manuscript, type written, printed or other statement reproduction in any visible form and whether under seal or under hand.
- 2.11 “FOR Destination costs” shall mean the cost of equipment and material at the consignee’s store/site. The cost is inclusive of Excise duty, Sales tax and other local taxes, packing, forwarding and insurance and freight charges.
- 2.12 The term “Contract document” shall mean and include GTCC, specifications, schedules, drawings, form of tender, Notice Inviting Tender, covering letter, schedule of prices or the final General Conditions, any special conditions, applicable to the particular contract.
- 2.13 Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian Contract Act, failing that in the Orissa General Clauses Act.

3. **Manner of execution:**

All equipment supplied under the contract shall be manufactured in the manner, set out in the specification or where not set out, to the reasonable satisfaction of the Purchaser’s representative.

4. **Inspection and Testing:**

- [i] The purchaser’s representative shall be entitled at all reasonable times during manufacture to inspect, examine and test at the supplier’s premises, the materials and workmanship of all equipment/materials to be supplied under this contract and if part of the said equipment/material is being manufactured in other premises, the supplier shall obtain for the purchaser’s representative permission to inspect, examine and test as if the equipment/material were being manufactured in the contractor’s premises. Such inspection, examination and testing shall not relieve the supplier from his obligations under the contract.
- [ii] The Supplier shall give to the purchaser adequate time/notice (at least clear 15 days for inside the state suppliers and 20 days for outside the state suppliers) in writing for inspection of materials indicating the place at which the equipment/material is ready for testing and inspection and shall also furnish the shop Routine Test Certificate, Calibration certificates of Testing instruments, calibrated in Govt. approved laboratory with authenticity letter of that laboratory along with the offer for inspection. A packing list along with the offer, indicating the quantity which can be delivered in full truck load/Mini truck load to facilitate issue of dispatch instruction shall also be furnished.
- [iii] Where the contract provides for test at the Premises of the supplier or any of his sub-vendors, the supplier shall provide such assistance, labour, materials, electricity, fuel and instruments, as may be required or as may be reasonably demanded by the Purchaser’s representative to carry out such tests efficiently. The supplier is required to produce shop routine test Certificate, calibration certificates of Testing Instruments before offering their materials/equipment for inspection & testing. The test house/laboratory where tests are to be carried out must be approved by the Govt. A letter pertaining to Govt. approved laboratory must be furnished to the purchaser along with the offer for inspection.

- [iv] After completion of the tests, the Purchaser's representative shall forward the test results to the Purchaser. If the test results conform to the specific standard and specification, the Purchaser shall approve the test results and communicate the same to the supplier in writing. The supplier shall provide at least five copies of the test certificates to the Purchaser.
- [v] The Purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.
- [vi] If the firm fails to present the offered items for inspection/testing as per their inspection call due to any reason(s) during the visit of inspecting officer at the testing site, the firm shall have to bear all expenses towards repetition of inspection and testing of the total offered quantity or part thereof.

5. **Training facilities.**

The supplier shall provide all possible facilities for training of Purchaser's Technical personnel, when deputed by the Purchaser for acquiring first-hand knowledge in assembly of the equipment, its erection, commissioning and for its proper operation & maintenance in service at the manufacturer's works.

6. **Rejection of Materials.**

In the event any of the equipment/material supplied by the manufacturer is found defective due to faulty design, bad workmanship, bad materials used or otherwise not in conformity with the requirements of the Specification, the Purchaser shall either reject the equipment/material or ask the supplier in writing to rectify or replace the defective equipment/material free of cost to the purchaser. The Supplier on receipt of such notification shall either rectify or replace the defective equipment/material free of cost to the purchaser within 15 days from the date of issue of such notification by the purchaser. If the supplier fails to do so, the Purchaser may:-

- [a] At its option replace or rectify such defective equipment/materials and recover the extra costs so involved from the supplier plus fifteen percent and/or.
- [b] Terminate the contract for balance work/supplies, with enforcement of penalty Clause as per contract for the un-delivered goods and with forfeiture of Performance Guarantee/ Composite Bank guarantee.
- [c] Acquire the defective equipment/materials at reduced price, considered equitable under the circumstances.

7. **Experience of Bidders:**

The bidders should furnish information regarding experience particularly on the following points:

- [i] Name of the manufacturer:
- [ii] Standing of the firm and experience in manufacture of equipment/material quoted:
- [iii] Description of equipment/material similar to that quoted, supplied and installed during the last two years with the name(s) of the Organisations to whom supplies were made wherein, at least one (1) certificate shall be from a state/central P.S.U.
- [iv] Details as to where installed etc.
- [v] Testing facilities at manufacturer's works.

- [vi] If the manufacturer is having collaboration with another firm [s], details regarding the same.
- [vii] A list of purchase orders of identical material/equipment offered as per technical specification executed during the last two years along with users certificate. User's certificate shall be legible and must indicate, user's name, address, designation, place of use, and satisfactory performance of the equipment/materials for at least two years from the date of commissioning. Wherein at least one (1) certificate shall be from a State/Central or P.S.U. Bids will not be considered if the past manufacturing experience is found to be un-satisfactory or is of less than 2 (two) years on the date of opening of the bid and bids not accompanying user's certificate will be rejected.

8. **Language and measures:**

All documents pertaining to the contract including specifications, schedule, notices, correspondence, operating and maintenance instructions., drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

9. **Deviation from specification:**

It is in the interest of the tenderers to study the specification, specified in the tender schedule thoroughly before tendering so that, if any deviations are made by the Tenderers,(both commercial and Technical), the same are prominently brought out on a separate sheet under heading "Deviations Commercial" and "Deviations Technical".

A list of deviations shall be enclosed with the tender. Unless deviations in scope, technical and commercial stipulations are specifically mentioned in the list of deviations, it shall be presumed that the tenderer has accepted all the conditions, stipulated in the tender specification, notwithstanding any exemptions mentioned therein.

10. **Right to reject/accept any tender:**

The purchaser reserves the right either to reject or to accept any or all tenders if the situation so warrants in the interest of the purchaser. Orders may also be split up between different Tenderers on individual merits of the Tenderer. The purchaser has exclusive right to alter the quantities of materials/ equipment at the time of placing final purchase order. After placing of the order, the purchaser may defer the delivery of the materials. It may be clearly understood by the Tenderer that the purchaser need not assign any reason for any of the above action [s].

11. **Supplier to inform himself fully:**

The supplier shall examine the instructions to tenderers, general conditions of contract, specification and the schedules of quantity and delivery to satisfy himself as to all terms and conditions and circumstances affecting the contract price. He shall quote price [s] according to his own views on these matters and understand that no additional allowances except as otherwise provided there in will be admissible. The purchaser shall not be responsible for any misunderstanding or incorrect information, obtained by the supplier other than the information given to the supplier in writing by the purchaser.

12. **Patent rights Etc.**

The supplier shall indemnify the Purchaser against all claims, actions, suits and proceedings for the infringement of any patent design or copy right protected either in the country of origin or in India by the use of any equipment supplied by the manufacturer. Such indemnity shall also cover any use of the equipment, other than for the purpose indicated by or reasonably to be inferred from the specification.

13.A **Delivery:-**

- [a] Time being the essence of the contract; the equipment shall be supplied and commissioned within the delivery period, specified in the contract. The Purchaser, however, reserves the right to reschedule the delivery and change the destination if required. The delivery period shall be reckoned from the date of placing the Letter of Intent/Purchase order, as may be specified in LOI/Purchase order.
- [b] The desired delivery period shall be as indicated at **APPENDIX-II (A,B&C)** (Quantity & Delivery Schedule) of Section-IV (Technical Specification).

13.B **Erection & Commissioning:-**

The erection & commissioning of the equipment shall be completed within the schedule as indicated at **APPENDIX-II (A,B&C)**, (Quantity, delivery & commissioning Schedule) of Section-IV (Technical Specification). The tentative requirement of cables of different specification, required for the commissioning of the RTUs is given at **APPENDIX-III (A,B&C)** of Section-IV (Technical Specification). The actual requirement of such cable may vary. However the bidders may visit the respective site to assess the exact requirement of such cables for commissioning of the RTUs prior to submission of bid.

14. **Despatch instructions.**

I] The equipment/ materials should be securely packed and dispatched directly to the specified site at the supplier's risk by Road Transport only.

II] **Loading & unloading of Ordered Materials.**

It will be the sole responsibility of the supplier for loading and unloading of materials both at the factory site and at the destination site/store. The Purchaser shall have no responsibility on this account.

15. **Supplier's Default Liability.**

- [i] The Purchaser may, upon written notice of default to the supplier, terminate the contract in circumstances detailed hereunder.
- [a] If in the judgement of the Purchaser, the supplier fails to make delivery of equipment/material within the time specified in the contract or within the period for which if extension has been granted by the Purchaser in writing in response to written request of the supplier.
- [b] If in the judgement of the Purchaser, the supplier fails to comply with any of the provisions of this contract.
- [ii] In the event, Purchaser terminates the contract in whole or in part as provided in Clause-15 (I) of this section, the Purchaser reserves the right to purchase upon such terms and in such a manner as he may deem appropriate in relation to the equipment/material similar to that terminated and the supplier will be liable to the Purchaser for any additional costs for such similar equipment/material and/or for penalty for delay as defined in clause-22 of this section until such reasonable time as may be required for the final supply of equipment.
- [iii] In the event the Purchaser does not terminate the contract as provided in clause 15(I) of this Section, supplier shall be liable to the Purchaser for penalty for delay as set out in Clause-22 of this section until the equipment is accepted. This shall be based only on written request of the supplier and written willingness of the Purchaser.

16 **Force Majeure:**

The supplier shall not be liable for any penalty for delay or for failure to perform the contract for reasons of force majeure such as acts of god, acts of the public enemy, acts of Govt., Fires, floods, epidemics, Quarantine restrictions, strikes, Freight Embargo and provided that the supplier shall within Ten (10) days from the beginning of delay on such account notify the purchaser in writing of the cause of delay. The purchaser shall verify the facts and grant such extension, if facts justify.

17. **Extension of time:-**

If the delivery of equipment/material is delayed due to reasons beyond the control of the supplier, the supplier shall without delay give notice to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice may or may not agree to extend the contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

18. **Guarantee period: -**

[i] The stores covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of at least 36 [thirty six] months from the date of commissioning. The above guarantee certificate shall be furnished in triplicate to the purchaser for his approval. Any defect noticed during this period should be rectified by the supplier free of cost to the purchaser provided such defects are due to faulty design, bad workmanship or bad materials used, within one month upon written notice from the purchaser failing which provision of clause 22 (ii) shall apply.

[ii] Equipment/material failed or found defective during the guarantee period shall have to be guaranteed after repair/replacement for a further period of 36 months from the date of commissioning after such repair/replacement. The Bank Guarantee is to be extended accordingly. Date of delivery as used in this clause shall mean the date on which the materials are received in OPTCL'S stores/site in full & good condition which are released for Despatch by the purchaser after due inspection.

19 **B.G. towards security deposit, 100% payment and performance guarantee:**

[i] For manufacturers situated Inside & outside the state of Orissa.

A Composite Bank Guarantee as per the Proforma enclosed at Annexure-VII of the specification for 10% [ten percent] of the total FORD cost of the purchase order (In case of successful bidder who is a local Micro and small Enterprise (MSEs) registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC 5% (five percent)), shall be furnished from any nationalized/scheduled bank having a place of business at Bhubaneswar, to the office of Sr. General Manager [Central Procurement Cell] OPTCL within 15 days from the date of issue of the purchase order. The BG shall be executed on non judicial stamp paper worth of Rs.29.00 [Rupees twenty nine] only or as per the prevalent rules, valid for a period of 38 months **from the last date of stipulated delivery and commissioning period**, for scrutiny and acceptance, failing which the supply order will be liable for cancellation without any further written notices. The BG should be accompanied by a confirmation letter from the concerned bank and should have provision for encashment at Bhubaneswar, before the Bank Guarantee is accepted and all concerned intimated. The B.G should be revalidated as and when intimated to you to cover the entire guarantee period.

- [ii] No interest is payable on any kind of Bank Guarantee.
- [iii] In case of non-fulfillment of contractual obligation, as required in the detailed purchase order/Specification, the composite Bank guarantee shall be forfeited.

20. Import License

In case imported materials are offered, no assistance will be given for release of Foreign Exchange. The firm should arrange to import materials from their own quota. Equipment of indigenous origin will be preferred.

21. [i]

(A) Terms of Payment.

- (i) 90% value of each consignment with 100% Excise duty, Entry Tax, if any, and sales tax in full as applicable along with freight & Insurance charges will be paid on receipt of materials in good condition at stores/desired site and verification thereof, subject to furnishing and approval of Composite Bank Guarantee at the rate of 10% (Ten percent) of the cost of supplied materials, as stipulated under clause-19 of this specification & on prior approval of guarantee certificate & Test certificate by the Purchaser.

Balance 10% of the ex-works price of the equipment along with commissioning charges, if any, shall be paid after successful erection & commissioning of equipment at the required site, on issuance of taking over certificate by the concerned site-in-charge or within 1(one) year from the date of delivery whichever is earlier.

(ii) Payment of Freight & Insurance charges and Entry Tax.

Freight & Insurance Charges & Entry Tax, incorporated in the Purchase contract shall be paid after receipt of materials at stores/desired site in good condition and on production of authenticated documentary evidence, otherwise no Freight, Insurance charges & entry taxes shall be payable.

- (B)** The supplier shall furnish Composite Bank Guarantee of appropriate amount to OPTCL covering 10% of F.O.R. Destination cost of the purchase order well in advance (within 15 days from the date of issue of the purchase order) before despatch of materials.

- (C)** Payment & Penalty for AMC shall be as per the details indicated under PART-V for AMC.

- (D)** Any imposition of new tax or revision of tax shall be paid/ reimbursed at the time of dispatch, schedule or actual whichever is lower (i.e. if delivery is within the scheduled period, tax variation is applicable and if delivery is made beyond scheduled date, any additional financial implication due to statutory variation in tax shall be to bidders account.)

22. Penalty for Delay in Completion of Contract

- I) If the Supplier fails to deliver the materials/equipment within the delivery schedule, specified in the contract including delivery time extension, if any, granted thereto, the Purchaser shall recover from the Supplier, penalty for a sum of half percent (0.5 percent) of the Ex-works price of the un-delivered equipment for each calendar week of delay or part thereof. For this purpose, the date of receipted chalan shall be reckoned as the date of delivery. The total amount of penalty shall not exceed five percent (5%) of the ex-works price of the unit or units so delayed. Equipment will be deemed to have been delivered

only when all its components and accessories as per technical Specification are also delivered. If certain components & accessories are not delivered in time, the equipment will be considered delayed until such time as the missing parts are delivered.

- II) If the Supplier fails to rectify /replace the equipment/material within 30 days from the date of intimation of the defect, so noticed by the purchaser within the guarantee period then the penalty for sum of one half of the one percent (0.5%) of the total Purchase order amount for each calendar week of delay shall be recovered by the purchaser within the guarantee period. For this purpose, penalty date will start from the 30th. day from the date of issue of letter on defectiveness of equipment/material, so supplied, by the purchaser. The total amount of penalty in this case shall not exceed 10% (TEN PERCENT) of the purchase order amount. The purchase order amount shall mean ex-works price + freight & insurance and all taxes & duties. If the defects so intimated within the guarantee period will not be rectified by the Supplier within the stipulated period as per clause 18 (i), then whole of the B.G. will be forfeited by the purchaser, without any intimation to the Supplier.
- III) For A.M.C purpose the Penalty shall be levied as per clauses indicated under SECTION-V elsewhere in the T.S.

23. **Insurance**

The Supplier shall undertake insurance of stores covered by this Specification unless otherwise stated. The responsibility of delivery of the stores at destination in good condition rests with the Supplier. Any claim with the Insurance Company or transport agency arising due to loss or damage in transit has to be settled by the supplier. The Supplier shall undertake free replacement of materials damaged or lost, which will be reported by the consignee within 30 days of receipt of the materials at destination without awaiting for the settlement of their claims with the carriers and underwriters.

24. **Payment Due from the Supplier.**

All costs and damages, for which the supplier is liable to the purchaser, will be deducted by the purchaser from any money, due to the supplier, under any of the contract (s), executed with OPTCL.

25. **Sales Tax clearance certificate and Balance sheet and profit & Loss Account:**

- i. Sales Tax clearance certificate for the previous year shall be enclosed with the tender.
- ii. Audited Balance Sheet and Profit & Loss Account of the bidder for the previous three years shall be enclosed to assess the financial soundness of the bidder(s).

26. **Certificate of Exemption from Excise Duty/Sales tax.**

Offers with exemption from Excise duty including sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean attested Photostat copy of exemption certificate. Any claim towards Excise duty/ Sales Tax shall be paid on actual basis subject to production of authenticated documentary evidence.

27. **Supplier's Responsibility.**

Notwithstanding anything mentioned in the Specification or subsequent approval or acceptance by the Purchaser, the ultimate responsibility for design, manufacture, materials used and satisfactory performance shall rest with the Tenderers. The Supplier(s) shall be responsible for any discrepancy noticed in the documents, submitted by them along with the bid(s)

28. **Validity.**

Prices and conditions contained in the offer should be kept valid for a minimum period of 180 days from the date of opening of the tender, failing which the tender shall be rejected.

29. EVALUATION.

- (I) Evaluation of bids will be on the basis of the FOR DESTINATION PRICE (By Road Transport) including Excise Duty, sales Tax & other levies as may be applicable. The FOR PRICE shall consist of the following components
- a) Ex-works price.
 - b) Packing & Forwarding charges.
 - c) Freight
 - d) Insurance.
 - e) Excise Duty.
 - f) Sales Tax.
 - g) Other levies.
 - h) Mandatory spares, if any for maintenance of equipment. (At the discretion of the purchaser)
 - i) Test charges, if any.
 - j) Service tax
 - k) Any other items, as deemed proper for evaluation by the purchaser.
 - l) Loading factors will be taken into account during evaluation if the prices of some of the items, not quoted.
 - m) Any imposition of new tax or revision of tax shall be considered at the time of price bid evaluation.
- (II) Evaluation for Erection, Testing & Commissioning of equipment offered.
- (III) Evaluation of Bids for AMC of equipment offered shall be on the basis of Total (Full cost) basis.

* The Final Ranking of the eligible Bidders for equipment offered, shall be on the basis of
Total cost at (I) + Total cost at (II)+ Total cost at (III), as indicated above.

(IV) **Weightage shall be given to the Following factors in the Evaluation & Comparison of Bids.**

In comparing bids and in making awards, the Purchaser will consider other factors such as compliance with Specification, minimum qualification criteria as per clause-30, outright rejection of tenders clause-34 of this tender, relative quality, adaptability of Supplies or services, experience, financial soundness, record of integrity in dealings, performance of materials/equipment earlier supplied, ability to furnish repairs and maintenance services, the time of delivery, capability to perform including available facilities such as adequate shops, plants, equipment and technical organization.

- (V) The local MSE bidders shall be required to furnish their willingness to match their bid price with that of the lowest evaluated bidder without any price preference and in case they agree, they shall be eligible to get up to 30% of the tendered quantity to be distributed suitably among the willing MSE bidders failing which the said 30% of the tendered quantity be awarded to the lowest evaluated bidder.

30. Minimum Qualification Criteria of Bidders.

All the prospective bidders are requested to note that their bids for tendered equipment can only be considered for evaluation if:

- i) The bidder should have manufacture and supply experience of above rated or higher capacity equipment for a minimum period of 2 (two) years as on the date of opening of the tender.
- ii) At least 50% of the tendered quantity of above rated or higher capacity equipment should have been supplied and commissioned within the above-stipulated period in India.
- iii) The above rated or higher capacity equipment should have at least 2 (two) years successful performance from the date of commissioning. At least one of the performance certificates shall be submitted from Govt. of India/State Govt.(s) or their undertakings.
- iv) The bidder should have conducted type tests on the tendered equipment from NABL/ Internationally accredited laboratory within last five years from the date of opening of the techno-commercial bid.

31. Jurisdiction of the High Court of Orissa.

Suits, if any, arising out of this contract shall be filed by either Party in a court of Law to which the jurisdiction of High court of Orissa extends.

32. Correspondences.

- i) Any notice to the supplier under the terms of the contract shall be served by Registered Post or by hand at the Supplier's Principal Place of Business.
- ii) Any notice to the Purchaser shall be served at the Purchaser's Principal Office in the same manner.

33. Official Address of the Parties to the Contract

The address of the parties to the contract shall be specified:-

- [i] **Purchaser:** Senior General Manager (Procurement)(CPC) OPTCL

Bhubaneswar-751022 (Orissa)

Telephone No. 0674 - 2541801

FAX No. 0674 - 2542964

- [ii] **Supplier:** Address

Telephone No.

Fax No.

34. Outright Rejection of Tenders

Tenders shall be outrightly rejected if the followings are not complied with.

- [i] The tenderer shall submit the bid in electronic mode only and shall submit the tender cost and EMD on or before the date and time of submission of bid. In case of local Micro and small Enterprises(MSEs), based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC participating in the tender they have to submit notarised

hard copy of valid registration as local MSE as above on or before the date and time of submission of bid.

- [ii] The tenderer shall submit the bid in electronic mode only
- [iii] The Tender shall not be submitted telegraphically or by FAX.
- [iv] The prescribed EMD shall be submitted on or before the date and time of submission of bid.
- [v] The Tender shall be kept valid for a minimum period of 180 days from the date of opening of tender.
- [vi] The Tender shall be submitted in two parts as specified.
- [vii] The Tenders shall be accompanied by a list of major supplies effected prior to the date of opening of tender. Data of at least 5 (five) years shall be furnished.
- [viii] Tender shall be accompanied by Photostat copy of latest type test certificates (for the tests, carried out on the tendered equipments/materials, being offered). Such type tests should have been conducted within last five years from the date of opening of this tender in a Government approved laboratory/CPRI in presence of any Government Organisation's representative(s).
- [ix] The schedule of prices should be filled up fully to indicate the break-up of the prices including taxes and duties. Incomplete submission of this schedule will make the tender liable for rejection. Vide Clause-4(ii) of Part-II.
- [x] The Tenderer should quote 'FIRM' price only and the price should be kept valid for a minimum period of 180 days from the date of opening of the tender.
- [xi] The tenderer shall upload the scanned copy legibly written user's certificate to prove the satisfactory operation of the offered equipments/materials/materials for a minimum period of 3 (three) years from the date of commissioning/use as per the tender specification. User's certificate shall include the detailed address of the user with Equipment/Material, Name and type as per this specification, number of years of satisfactory use/operation & date of issue of this user's certificate with official seal written in English only & clearly visible must be furnished. At least one of the user's certificates shall be from state or Central Govt. or their Undertakings.
- (xii) Guaranteed Technical particulars & Abstract of terms and Conditions should be filled in completely.
- (xiii) The bidder should not have any pending litigation or arbitration with OPTCL with regard to any project or related activity. The bidder should certify/declare the same in unequivocal terms by way of an affidavit duly sworn before a magistrate. Bid furnished by the bidder shall not be eligible for consideration if it is not accompanied by the affidavit. Further, the bid/LOA/LOI shall liable for outright rejection/cancellation at any stage if any information contrary to the affidavit/declaration is detected.

35. **Documents to be treated as confidential.**

The supplier shall treat the details of the specification and other tender documents as private and confidential and these shall not be reproduced without written authorization from the Purchaser.

36. **Scheme/Projects**

The materials/equipment covered in this specification shall come under "CAPITAL WORKS "

SECTION – III.

LIST OF ANNEXURES

[I TO XIII]

[PAGE 01 TO 19]

SECTION – III
[LIST OF ANNEXURES]

The following schedules and proforma are annexed to this specification and contained in Section-III as referred to in the relevant clauses.

1	Declaration form	ANNEXURE-I
2	Abstract of terms and conditions to accompany Section-II of Part-I	ANNEXURE-II
3	Schedule of Quantity and Delivery	ANNEXURE-III
4	Abstract of price component [to accompany Part-II of this specification]	ANNEXURE-IV
5	Schedule of prices to accompany Part-II	ANNEXURE-V
6	Bank Guarantee form for earnest money deposit	ANNEXURE-VI
7	Composite Bank Guarantee form for security deposit, payment and performance	ANNEXURE-VII
8.	Chart showing particulars of E.M.D.	ANNEXURE . VIII
9.	Data on Experience.	ANNEXURE . IX
10.	Schedule of spare parts.	ANNEXURE-X
11.	Schedule of Installations.	ANNEXURE-XI
12.	Schedule of deviations.	ANNEXURE-XII
13.	Litigation/Arbitration history	ANNEXURE-XIII

ANNEXURE - I

DECLARATION FORM

To

The Sr. General Manager (CPC)

OPTCL Head Qrs.BBSR,751022

Sub:- Tender Specification No-_____

Sir,

1. Having examined the above specification together with terms & conditions referred to therein * I/We the undersigned hereby offer to supply the materials/equipments covered therein complete in all respects as per the specification and General conditions, at the rates, entered in the attached contract schedule of prices in the Tender.
2. * I/We hereby undertake to have the materials/equipment delivered within the time specified in the Tender.
3. * I/We hereby guarantee the technical particulars given in the Tender supported with necessary reports from concerned authorities.
4. * I/We certify to have submitted the bid electronically by remitting *cash/money order/D.D./ remitting the cost of tender, herewith and this has been acknowledged by your letter/ money receipt No.
Dated,
5. In the event of Tender, being decided in *my/our favour, * I/We agree to furnish the Composite B.G. in the manner, acceptable to ORISSA POWER TRANSMISSION CORPORATION LTD., and for the sum as applicable to *me/us as per clause-19 of section-II of this specification within 15 days of issue of letter of intent/purchase order failing which *I/We clearly understand that the said letter of Intent/Purchase order will be liable to be withdrawn by the purchaser, and the EMD deposited by us shall be forfeited by OPTCL.

Signed this

day of

2014

Yours faithfully

Signature of the Tenderer with seal of the company

[This form should be dully filled up by the tenderer and uploaded at the time of submission of tender.]

* (Strikeout whichever is not applicable).

ANNEXURE-II

**ABSTRACT OF GENERAL TERMS AND CONDITIONS OF CONTRACT
[COMMERCIAL] TO ACCOMPANY PART-I**

1	(a) The tenderer shall submit the bid in electronic mode only and shall submit the tender cost and EMD on or before the date and time of submission of bid. In case of local Micro and small Enterprises(MSEs) based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC participating in the tender they have to submit notarised hard copy of valid registration as local MSE as above on or before the date and time of submission of bid. (b) Earnest money furnished. (A) Bank Guarantee, (B) Bank Draft.	
2	Manufacturer's supply experience including user's certificate furnished or not.[As per clause No.7 of Section-II.]	Yes/No
3	Deviations to the specification if any[list enclosed or not] [As per clause-9 of the Section-II] (a) Commercial (b) Technical.	Yes/No Yes/No
4	Delivery(supply & commissioning) (period in months from the date of purchase order)	
5	Guarantee:- Whether agreeable to OPTCL's terms. [As per clause-18 of Section-II]	Yes/No
6	Whether agreeable to furnish Composite B.G. in case his tender be successful [As per clause-19 of Section-II]	Yes/No
7.	Terms of payment:- Whether agreeable to OPTCL's terms or not [As per clause-21 of Section-II]	Yes/No.
8.	Nature of price:- FIRM	Yes/No
9.	Penalty:- Whether agreeable to OPTCL's terms or not (As per clause-22 of Section-II)	Yes/No
10.	Whether STCC/ P&L A/C, Balance Sheet for the required period are furnished as per clause-25 of Section-II	Yes/No

11.	Validity: - Whether agreeable to OPTCL's terms or not [As per clause-28 of Section-II]	Yes/No
12.	Whether recent type test certificates from any Government approved laboratory are furnished or not. [As per clause-34[viii] of section-II]	Yes/No
13.	Whether guaranteed technical particulars in complete shape are furnished or not	Yes/No
14.	Whether dimensional design/drawings furnished or not	Yes/No
15.	Whether materials are ISI/ISO marked.	Yes/No
16.	Manufacturer's name and its trademark.	Yes/No
17.	Whether registered under ODISHA Sales Tax Act. 1947	Yes/No
18.	Whether declaration form duly filled in furnished or not.	Yes/No.

Place: -

Date: -
Tenderer

Signature of the

with seal of the company

ANNEXURE-III

SCHEDULE OF QUANTITY and DELIVERY & COMMISSIONING

(To be filled up by the tenderer)

SL No	Description of materials	Quantity required	Desired Delivery	Destination	Remarks.
1	2	3	4	5	6
1(a)	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with MFT, OLTC transducer & Relays along with associated cables and accessories)	52 Nos			

Place:

Date:

Signature of Tenderer

with seal of Company.

ANNEXURE-V

ABSTRACT OF PRICE COMPONENT [TO ACCOMPANY PRICEBID]

1	Price basis	F.O.R. Purchaser's destination Stores/sites.
2	Packing & forwarding	
3	Rate of Insurance charges	
4	Rate of Freight charges	
5	Rate of excise duty	
6	Rate of sales Tax	
7	Rate of other taxes/levies /duties etc.	
8	Rate of entry tax.	
9.	Rate of Service Tax on erection testing and commissioning	
	Rate of Service Tax on AMC	
10.	Nature of price.	
11.	Whether MODVAT benefit if any, has been fully passed on to the purchaser.	Yes / No.

Place

Date:
Tenderer

Signature of

With seal of
company

NB:- Abstract of price component shall be done for equipment/material offered, for testing & commissioning charges, if any. All the above prices will be taken during bid price evaluation.

ANNEXURE-VI.

SCHEDULE OF PRICES(SUPPLY & ERECTION)

TENDER

SPECIFICATION No.

Item No.	Description	(unit)	Qty	Unit Ex-factory Price.	Unit Packing & Forwarding.	Unit Freight Charges	Unit Insurance Charges.	Unit landing cost at destination store/site excluding ST,ED & Entry tax.
1.	2.	3	4	5	6	7	8	9

Unit E.D.	Unit S.T.	Unit Entry Tax.	Unit landing Cost including All taxes & Duties.	Total landing cost Including all taxes & duties.
10	11.	12	13= (9+10+11+12)	14= (4X13)

Erection Cost in INR (Rs)			Grand Total
Unit Erection cost	Unit service tax	Total erection cost	14+17
15	16	17	18

AMC Cost for 7(seven) years in INR (Rs)			Grand Total
Unit AMC cost for 7 years	Unit service tax	Total AMC cost for 7 years	18+21
19	20	21	22

Signature of Tenderer

Name, Designation and Seal

NB: -

RTU

1. The tenderer should fill up the schedule properly and in full. The tender will be rejected, if the schedule of price is submitted in incomplete form. No post tender correspondence will be entertained on break-up of prices. Also, the supplier should agree for delivery at sub-station site.
2. In case, where F&I components are not specifically indicated in this schedule, 5% of the ex-works price shall be taken towards F&I components for the purpose of comparison of price.
3. The Tenderer shall certify in the price bid that MODVAT benefit, if any, has been fully passed on to the purchaser while quoting the tender price.
4. Conditional offers will not be acceptable.
5. The bidder is to clearly indicate the period up to which the tax holidays are available to them.
6. Price bid in any other format will not be acceptable and the offer will be rejected.
7. Test charges (Routine/type) if any, mandatory spares, if any, maintenance equipment charges, if any, as per Technical Specification, supervisory charges, if any, (in case of equipment by taking 30 Man days) shall be indicated separately, row-wise.
8. All the above charges will be taken into account, during bid price evaluation.

ANNEXURE-VI

PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT

Ref _____ Date _____ Bank Guarantee No: _____
1 In accordance with invitation to Bid No. _____ Dated _____ of ODISHA
POWER TRANSMISSION CORPORATION LTD. [OPTCL][herein after referred
to as the OPTCL for the purchase of

Messers _____

Address _____

_____ wish/wished to participate in the said tender and as a Bank Guarantee
for _____ the _____ sum _____ of
Rs. _____ [Rupees _____]

Valid for a period of 240 days [Two hundred forty days] is required to be
submitted by the Tenderer. We the

_____ [Indicate the
Name of the Bank]

[Hereinafter referred to as ~~the~~ Bank] at the request of M/S

[Herein after referred to as supplier (s)] do hereby unequivocally and
unconditionally guarantee and undertake to pay during the above said period,
on written request by the Sr. General Manager [Procurement] ODISHA
POWER TRANSMISSION CORPORATION
LTD. _____

_____ [Indicate designation of the
purchaser]

an amount not exceeding Rs. _____ to the OPTCL, without any
reservation. The guarantee would remain valid up to 4.00 PM of

[date] and if any further extension to this is required, the same will be extended
on _____ receiving _____ instructions _____ from
the _____ on whose
behalf this guarantee has been issued.

2. We the _____ do hereby, further undertake

[Indicate the name of the bank]

to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the OPTCL by reason of any breach by the said supplier [s] of any of the terms or conditions or failure to perform the said Bid . Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____

3. We undertake to pay the OPTCL any money so demanded not withstanding any dispute or disputes so raised by the contractor [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the supplier(s) shall have no claim against us for making such payment.

4. We, the _____ further agree that the guarantee

[Indicate the Name of the Bank]

herein contained shall remain in full force and effect during the aforesaid period of 240 days [two hundred forty days] and it shall continue to be so enforceable till all the dues of the OPTCL under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till Managing Director, ODISHA POWER TRANSMISSION CORPORATION LTD. certifies that the terms and conditions of the said Bid have been fully and properly carried out by the said Supplier [s] and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the _____

we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ further agree with the OPTCL that

[Indicate the name of the Bank]

the OPTCL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and

conditions of the said Bid or to extend time of performance by the said Supplier [s] from time to time or to postpone for any time or from time to time any of the powers exercisable by the OPTCL against the said supplier [s] and to forbear or enforce any of the terms and conditions relating to the said bid and we shall not be relieved from our liability by reason of any such variation, postponement or extension being granted to the said Supplier [s] or for any forbearance act or omission on the part of the OPTCL or any indulgence by the OPTCL to the said Supplier[s] or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the name, style and constitution of the Bank or the supplier [s].

7. We, _____lastly undertake not revoke this

[Indicate the name of the Bank]

Guarantee during its currency except with the previous consent of the OPTCL in writing.

8. We the _____ Bank further agree that this guarantee shall also be invocable at our place of business at _____branch of Bhubaneswar (indicate the name of the branch) in the state of ODISHA.

Notwithstanding anything contained herein.

- 1) Our liability under this bank guarantee shall not exceed Rs.-----
----(Rupees-----).
- 2) The bank guarantee shall be valid up to dt.-----
- 3) We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only & only if you serve upon us at -----branch at Bhubaneswar(indicate the name of the branch) a written claim or demand on or before dt.-----.

Dated _____ Day of _____

For _____

[Indicate the name of

Bank]

Witness ((Signature, names & address)

- 1.
- 2.

ANNEXURE-VII

PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT

PAYMENT AND PERFORMANCE

This Guarantee Bond is executed this _____ day
of _____ 2014 by us the
_____ Bank at

_____ P.O. _____ P.S. _____

_____ District _____ State _____

1. WHEREAS the ODISHA POWER TRANSMISSION CORPORATION LTD., a body corporate constituted under the Electricity Act, 2003 [hereinafter called ~~the~~ OPTCL+ which shall include its successors and assigns has placed orders No. _____ Date _____ [hereinafter called ~~the~~ Agreement+] on M/s. _____ [hereinafter called ~~the~~ Supplier+] which shall include its successors & assigns for supply of materials.

AND WHERE AS the supplier has agreed to supply materials to the OPTCL in terms of the said agreement AND

WHEREAS the OPTCL has agreed [1] to exempt the supplier from making payment of Security [2] to release 100% payment of the cost of materials as per the said agreement and [3] to exempt from performance guarantee on furnishing by the Supplier to the OPTCL, a Composite bank Guarantee of the value of 10 % [ten percent] of the contract price of the said agreement.

NOW THEREFORE, in consideration of the OPTCL having agreed [1] to exempt the Supplier from making payment of Security [2] releasing 100% payment to the Supplier and [3] to exempt from furnishing performance guarantee in terms of the said agreement as aforesaid, we, the _____ [Bank][hereinafter referred to as ~~the Bank~~] do hereby undertake to pay to the OPTCL an amount not exceeding Rs. _____ [Rupees _____] against any loss or damage caused to or suffered by or would be caused to or suffered by

the OPTCL by reason of any breach by the said Supplier [s] of any of the terms or conditions contained, in the said agreement.

2. We the (_____ Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or suffered by the OPTCL by reason of any breach by the said Supplier [s] of any of the terms or conditions, contained in the said agreement or by reason of the supplier's failure to perform the said agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____
[Rupees _____

3. We the _____ Bank} also undertake to pay to the OPTCL any money so demanded notwithstanding any dispute or disputes raised by the supplier [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Supplier [s] shall have no claim against us for making such payment.

- 4 We, (_____ Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to do so enforceable till all the dues of the OPTCL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Managing Director, ODISHA POWER TRANSMISSION CORPORATION LTD. certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Supplier [s] and accordingly discharges this Guarantee.

Unless a demand or claim under this guarantee is made on us in writing on or before the [Date _____], we shall be discharged from all liability under this guarantee thereafter.

5. We, (_____ Bank) further agree that the OPTCL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the

said agreement or to extend time of performance by the said Supplier [s] and we shall not be relieved from our liability by reason of any such variations or extension being granted to the said supplier [s] or for any forbearance, act or omission on the part of the OPTCL or any indulgence by the OPTCL to the said Supplier [s] or by any such matter or thing whatsoever which under the law relating to sureties would but these provisions have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the name , style and constitution of the Bank and supplier [s].
7. We,[_____Bank] lastly undertake not to revoke this guarantee during its currency except with the previous consent of the OPTCL in writing.
8. We the _____ Bank further agree that this guarantee shall also be invocable at our place of business at _____branch of Bhubaneswar (indicate the name of the branch) in the state of ODISHA.

Notwithstanding anything contained herein.

- 1) Our liability under this bank guarantee shall not exceed Rs.------(Rupees-----).
- 2) The bank guarantee shall be valid up to dt.-----
- 3) We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only & only if you serve upon us at -----branch at Bhubaneswar(indicate the name of the branch) a written claim or demand on or before dt.-----.

Dated _____ Day of _____

For _____
[Indicate the name of Bank]

Witness ((Signature, names & address)

1.

2.

ANNEXURE-VIII

**CHART SHOWING PARTICULARS OF EARNEST MONEY DEPOSIT
FURNISHABLE BY TENDERERS**

1.	Central and State Government Undertakings	Exempted
2.	All other inside & outside state units.	The amount of EMD as specified in the specification /Tender Notice in shape of bank guarantee /DD.

NB: - REFUND OF E.M.D.

- [a] In case of unsuccessful tenderers, the EMD will be refunded immediately after the tender is decided. In case of successful tenderer, this will be refunded only after furnishing of Composite Bank Guarantee referred to in clause No.19 of Section-II of this specification.
- Suits, if any, arising out of EMD shall be filed in a court of law to which the jurisdiction of High Court of ODISHA extends.
- [b] Earnest Money will be forfeited if the tenderer fails to accept the letter of intent/purchase order, issued in his favour or revises the bid price[s] within the validity period of Bid.

ANNEXURE-IX

DATA ON EXPERIENCE

- [a] Name of the manufacturer.
- [b] Standing of the firm as manufacturer of equipment quoted.
- [c] Description of equipment similar to that quoted [supplied and installed during the last two years with the name of the organizations to whom supply was made].
- [d] Details as to where installed etc.
- [e] Testing facilities at manufacturer's works.
- [f] If the manufacturer is having collaboration with another firm, details regarding the same and present status.
- [g] A list of purchase orders, executed during last three years.
- [h] A list of similar equipment of specified rating, designed, manufactured, tested and commissioned which are in successful operation for at least two years from the date of commissioning with legible user's certificate. User's full complete postal address/fax/phone must be indicated. (Refer clause No.7 of the Part-I, Section-II of the specification).

Place:

Date:

Signature of tenderer

Name, Designation, Seal

ANNEXURE-X

**SCHEDULE OF SPARE PARTS FOR FIVE YEARS OF NORMAL
OPERATION & MAINTENANCE**

SL. No	Particulars	Quantity	Unit delivery rate	Total price

Place:

Date:

Signature of Tenderer

Name, Designation, Seal

ANNEXURE-XI

SCHEDULE OF INSTALLATIONS.

Equipment model and protocol	No of RTU installed	Place of installation and complete postal address	Year of commissioning

Place: -

Date

Signature of Tenderer:

Name, Designation, Seal

ANNEXURE-XII

DEVIATION SCHEDULE.

Tenderer shall enter below particulars of his alternative proposal for deviation from the specification, if any.

A) Technical

Sl.No	Clause No. of specification	Particulars of deviations.

Place: -

Date

Signature of Tenderer:

Name, Designation, Seal

B) Commercial deviations.

A) Commercial.

Sl.No	Clause No. of specification	Particulars of deviations.

Place: -

Date

Signature of Tenderer:

Name, Designation, Seal

LITIGATION HISTORY

Name of the Bidder:

Bidder should provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution.

Year.	Award for or against bidder	Name of client, cause of litigation and matter in dispute	Disputed amount (current value in Rs.)
-------	-----------------------------	-----------------------------------------------------------	----------------------------------------

Place: -

Date

Signature of Tenderer:

Name, Designation, Seal

SECTION – IV

TECHNICAL SPECIFICATION.

[PAGE 51 TO PAGE 89]

ODISHA POWER TRANSMISSION CORPORATION LIMITED

TECHNICAL SPECIFICATION

FOR

PHASE WISE REPLACEMENT OF RTU

Sl. No.	ITEM DESCRIPTION	UNIT	Total Qty.
1	Supply & Commissioning & AMC of Remote Terminal Unit (RTU) (Configured with MFT, OLTC transducer & Relays along with associated cables and accessories) in 3 phases	Nos.	52

SECTION – IV
TECHNICAL SPECIFICATION FOR RTU

1.0 SCOPE :

- 1.1.** The specification covers the design, manufacture, assembly, inspection and testing at the manufacturer's work, packing and delivery F.O.R. (destination) of the RTU (Configured with MFT & OLTC transducer along with associated accessories) and erection & commissioning of the RTU in 3(Three) phases. The scope also covers supply & laying of required interface cable/data cable for CT, PT, DI, Transducer and AC/DC Power supply for the erection & commissioning of the RTU. The said cables may be supplied as bought out material meeting to the specification mentioned elsewhere in this specification. The tentative requirement of such cables has been specified station wise at Appendix-III(A,B &C). The contractor has to bid for the RTU taking into account the supply of such cables.

Such supply & commissioning of RTU shall be made against replacement of existing RTU (model: S-900 of Areva make). These old RTUs to be replaced are presently operational at the stations mentioned at [Appendix-II\(A,B&C\)](#) of technical specification, section-IV. Hence utmost care should be taken to optimize the minimum data interruption. Further to minimize the data interruption, the new RTUs shall be installed mostly near to the place where the old RTUs are to be replaced. In few cases, due to space constraint, situation may warrant to install new RTU at the same place of old RTU by dismantling the old RTU. Such dismantling of old RTU and installations of supplied RTU are within the scope of the work. The laying of cables from the C R Panel to the terminal unit shall be done through the existing cable trench/cable tray.

The data pertaining to all the 132Kv feeders & above are being acquired in the said existing RTU of the respective sub-stations in OPTCL system. The provision of Analog (MW, MVAR, Bus Voltage, Frequency) and digital data(Breaker & Isolator status) for 33kv feeders are to be included in the new RTUs to be supplied & installed under this contract and for this purpose the bidders may assess the number of MFM/MFT & CMR etc. required from the SLD available in the official website of OPTCL ([The link has been specified in the table down below](#)).

Supply & commissioning of MFTs/MFMs required for acquiring all the data for all the feeders in the respective sub-station under this project, are within the scope of this contract.

The CMR for 132kv and above feeders, those are existing in the system are to be utilised.

The scope of the work further includes comprehensive annual maintenance contract of the configured RTU so commissioned for a period of 7(seven) years beyond the warranty period covered under the contract (Section-V).

Sl	Details of work
	Supply of RTU configured with MFT (multi-function transducer), OLTC transducer along with associated cables & accessories required for complete commissioning meeting to the technical specification, Section-IV of this tender specification.
	The requirement of cables of different specification as specified at Appendix-III(A,B &C) of Section-IV (technical specification), are tentative quantity only. Bidders may survey the respective sites for exact requirement of such cables prior to submission of their bid. OPTCL shall not be held responsible for any shortfall or variation in quantity of cables.
	<p>The requirement of MFT and OLTC transducers and other details for the complete configuration of the RTU shall be assessed from the primary data available at Appendix-III(A,B&C) and the SLD of the respective stations where the RTUs are to be commissioned, available in the official website of OPTCL or the same can be downloaded from the following link.</p> <p>http://www.optcl.co.in/view/schematicsswitchyard.aspx</p> <p>The bidders may perform survey the respective sites for the assessment of the above at their own cost prior to submission of bid.</p>

1.2. The RTU equipment shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of offer and purchaser shall have the power to reject any work or material which in his judgment is not in full accordance therewith. **Bidders are required to quote for the RTU equipment with the following data / information's etc**

- [a] Guaranteed Technical particulars to be furnished as prescribed in the tender specification.
- [b] Technical literatures, brochures and drawings as per this specification.
- [c] Type Test Reports.
- [d] List of orders, executed and Users certificates,

Failing submission of the above particulars with the offer, the tender may not be considered for evaluation.

1.5 Followings are the list of documents constituting this specification.

[i]	Technical specification(TS)	
[ii]	Technical Requirements	Appendix I
[iii]	Bill of Quantity, delivery & commissioning Schedule (Phase-I, II & III)	Appendix II(A) Appendix II(B) Appendix II(C)
[iv]	Station-wise details of requirement of RTU Configuration and details of required cables for supply & commissioning. (Phase-I, II & III)	Appendix III(A) Appendix III(B) Appendix III(C)
[vii]	Guaranteed Technical Particulars	Annexure-A
[viii]	Calibration Status of testing equipment and meters / Instruments	Annexure-B
[vii]	Check-List towards Type Test Reports	Annexure-C
[vii]	Check-List for Delivery & commissioning Schedule	Annexure-D
Note :	Annexure- A, B, C & D are to be filled up by the Bidder	

TECHNICAL REQUIREMENTS OF RTU

CHAPTER-1

1.0 General

The Remote Terminal Unit (RTU) shall be installed at all the prescribed substations of OPTCL to acquire data from Bay Control Units(BCUs),Multifunction Transducers (MFTs), discrete transducers & status input devices such as CMRs etc. RTU may also be used for control of Substation devices from Master station(s) under Sub-station Automation (SAS) packages. The supplied RTUs shall be interfaced with the substation equipment, communication equipment, power supply distribution boards; for which all the interface cables, TBs, wires, lugs, glands etc. shall be supplied, installed & terminated by the Contractor.

1.1 Design Standards

The RTUs shall be designed in accordance with applicable International Electro-technical Commission (IEC), Institute of Electrical and Electronics Engineer (IEEE) and National Equipment Manufacturers association (NEMA) standards, unless otherwise specified in this Technical specification. In all cases the provisions of the latest edition or revision of the applicable standards in effect shall be in force.

The RTU shall be designed around microprocessor based technology. For easy maintenance the architecture shall support pluggable modules on backplane. The field wiring shall be terminated such that these are easily detachable from the I/O module.

1.2 RTU Functions

All functional capability described herein shall be provided by the Contractor even if a function is not initially implemented.

As a minimum, the RTU shall be capable of performing the following functions:

- (a) Acquiring analog values from Multifunction Transducers or alternatively through transducer- less modules and the status inputs of devices from the substation, processing and transmitting to Master stations. Capability to acquire analog inputs from analog input cards receiving standard signals viz current loops 4-20ma standard signals such as 0-5vdc etc for RTD, transducer etc.
- (b) Receiving and processing digital commands from the master station(s)
- (c) Data transmission rates - 300 to 19200 bps for Serial ports for MODBUS and 10/100mbps for TCP/IP on Ethernet ports.
- (d) IEC 60870-5-104 protocol to communicate with the Master station(s) , IEC 60870-5-101 for slave devices. & MODBUS protocol over RS485 interface , to communicate with the MFTs.
- (e) RTU shall have the capability of automatic start-up and initialisation following restoration

of power after an outage without need of manual intervention. All restarts shall be reported to the connected master stations.

- (f) Remote database downloading of RTU from master station/SCADA/DMS control centre
- (g) Act as data concentrator on IEC60870-5-101/104/MODBUS protocols
- (h) Internal battery backup to hold data in SOE buffer memory & also maintaining the time & date. (i) As the SCADA/DMS system will use public domain such GPRS/ CDMA etc, therefore it mandatory to guard the data/ equipment from intrusion/ damage / breach of security & shall have SSL/VPN based security. (j) Shall have SNMP Support Feature:

All support feature as mentioned below will not be used now & may require in future . However, the same shall be tested in routine /Factory Tests. Further, it should be possible to have following capabilities in the RTU by way of addition of required hardware limited to addition of I/O modules & communication card only & using the same firmware at later date:

- a) Support for Analog output in form of standard current loops viz 4-20ma etc
- b) Support for IEC 60870-5-103, IEC 61850 protocols & ability to act as a gateway for Numerical relays may have to be interfaced in future with numerical relays with future vision of Smart grid.
- c) Have required number of communication ports for simultaneous communication with Master station(s), /MFTs and RTU configuration & maintenance tool.
- (d) PLC support
- (e) Communication with at least two master stations simultaneously on IEC 60870-5-104
- (f) Receiving and processing analog commands from master station(s) and Capability of driving analog output card.
- (g) RTU shall be capable of acquiring analog values through transducers having output as 4-20 mA, 0-10 mA, 0-+10 mA or +/- 5 volts etc using analog input modules.
- (h) Capability of time synchronisation with GPS receiver which may be required future at the time of SMART GRID.

1.3 Communication ports

The RTUs shall have following communication ports to communicate with master station, existing /MFTs and configuration & maintenance terminal.

RTU shall have two TCP/IP Ethernet ports for communication with Master station(s) using I EC 60870-5-104 simultaneously.

RTU shall have required number of RS 485 ports for communication with MFTs to be connected in daisy chain using MODBUS protocol . Minimum 15 analog values (including 4 energy values) to be considered per energy meter The RTU shall be designed to connect maximum 8(Eight) MFTs per port. Further, bidder to demonstrate during testing that all analog values are updated within 2 sec. The updation time shall be demonstrated during FAT(routine) & SAT testing . The bidder can offer MFT on IEC 60870-101/104 protocol to communicate with RTU.

In addition, if weather transducer & DC transducers are also having RS485 MODBUS port., the same can be also added in the daisy. However, total

devices including MFT connected on one port shall not exceed 15.
RTU shall have one port for connecting to PC for configuration and maintenance tool for RTU.
RTU as a data concentrator, then RTU shall have additional communication ports Ethernet or serial for IEC60870-5-104/101.
SSL/VPN ,NERC/CIP complaint

It shall be possible to increase the number of communication ports in the RTU by addition of cards, if required in future. The RTU shall support the use of a different communication data exchange rate (bits per second) and scanning cycle on each port & different database for each master station.

1.3.1 Master Station Communication Protocol

RTU shall use IEC 60870-5-104 communication protocol for communicating to master station. The RTU communication protocol shall be configured to report analog (except energy values) & status changes by exception to master stations. However, RTU shall support periodic reporting of analog data and periodicity shall be configurable from 2 sec to 1 hour. Digital status data shall have higher priority than the Analog data. The dead-band for reporting Analog value by exception shall be initially set to 1 % (user configurable) of the full scale value. In addition, analog values shall also be reported to Master station by exception on violation of a defined threshold limit. All the analog values and status data shall also be assigned to scan groups for integrity check by Master stations at every 10 minutes configurable up to 60 minutes RTU wise.

RTU shall report energy values to master station periodically. The periodicity shall be configurable from 5 minutes to 24 hours (initially set for 15 minutes)

1.3.2 Communication Protocol between RTU & MFTs

The RTU shall acquire data from the MFTs using the MODBUS protocol. In addition, usage of IEC 60870-5-101/104 protocols is also permitted. The MFT will act as slave to the RTU. The RTU shall transmit these values to the master station in the frame of IEC 60870-5-104 protocol.

1.4 Analog Inputs

The real time values like, Active power, Reactive Power, Apparent power three phase Current & Voltage and frequency, power factor & accumulated values of import /export energy values will be acquired RTU from the following in the given manner:

1. MFTs installed in substations
2. RTU shall also take 4-20 mA, 0-20mA, 0- -10mA, 0-+10mA, 0-5V etc as analog inputs to acquire transformer tap position, DC power supply voltage, weather transducer etc.

The RTU analog-to-digital (A/D) converters shall have a digital resolution of at least twelve (12) bits plus sign. The overall accuracy of the analog input system shall be at least 0.2%(i.e. 99.8%) at 25 °C of full scale . Mean accuracy shall not drift more than 0.002% per degree C within the temperature range of . 5 to +55 degree Linearity shall be better than 0.05%. The RTU shall be designed to reject common mode voltages up to 150 VAC (50 Hz). For DC inputs, normal mode noise voltages up to 5 VAC shall be rejected while maintaining the specified accuracy. Each input shall have suitable protection and filtering to provide protection against voltage spikes and residual current at 50 Hz, 0.1 ma (peak-to-peak) and overload. Loading upto 150% of the input value shall not sustain any failures to the RTU input.

The ability of the RTU to accommodate dc inputs shall include the following signal ranges:

Unipolar Voltage:0-0.5V, 0-1V, 0-5V, 0-10V,

Unipolar Current: 0-1mA, 0-10mA, 0-20mA, 4-20Ma,

Bipolar Voltage: 0.5V, 2.5V, 5V, -20-0-20mA (- to +)

The total burden imposed by the RTU/DC analog input circuit shall not exceed 0.5 volt-ampere for current and voltage inputs. As an option, contractor may also provide transducer less solution to connect direct CT/PT secondaries.

1.5 Status input

RTU shall be capable of accepting isolated dry (potential free) contact status inputs. The RTU shall provide necessary sensing voltage, current, optical isolation and de-bounce filtering independently for each status input. The sensing voltage shall not exceed 48Vdc.

The RTU shall be set to capture contact operations of 20 ms or more duration. Operations of less than 20 ms duration shall be considered no change (contact bounce condition). The RTU shall accept two types of status inputs i.e. Single point Status inputs and Double point status inputs.

To take care of status contact chattering, a time period for each point and the allowable number of operations per time period shall be defined. If the allowable number of operations exceed within this time period, the status change shall not be accepted as valid

Single point status input will be from a normally-open (NO) or normally-closed (NC) contact which is represented by 1-bit in the protocol message.

The Double point status input will be from two complementary contacts (one NO and one NC) which is represented by 2-bits in the protocol message. A switching device status is valid only when one contact is closed and the other contact is open. Invalid states shall be reported when both contacts are open or both contacts are closed.

All status inputs shall be scanned by the RTU from the field at 1 millisecond periodicity.

1.6 Sequence of Events (SOE) feature

To analyse the chronology or sequence of events occurring in the power system, time tagging of data is required which shall be achieved through SOE feature of RTU. The RTU shall have an internal clock with the stability of 10ppm or better . The RTU time shall be set from time synchronization messages received from master station using IEC 60870-5- 104 protocol. In addition, the message can be transmitted using NTP/SNTP. SOE time resolution shall be 1ms or better

The RTU shall maintain a clock and shall time-stamp the digital status data. Any digital status input data point in the RTU shall be assignable as an SOE point. Each time a SOE status indication point changes the state, the RTU shall time-tag the change and store in SOE buffer within the RTU. A minimum of 1000 events can be stored in the SOE buffer. SOE shall be transferred to Master Station as per IEC 60870-5-104 protocol. SOE buffer & time shall be maintained by RTU on power supply interruption.

1.7 IED pass through

The Master Station user shall be able to perform a virtual connection with any IED connected to the RTU/DC, provided the communication protocol functionality, to support the information transfer from and to the IEDs. For example, the Master Station shall gather on-demand IED data, visualize IED configuration parameters, and IED source code depending upon the IED capabilities. On the other hand, the Master Station shall be able to download to the IEDs configuration parameters, code changes, etc. depending upon the IED capabilities. This feature is a support function considering in future SMART GRID implementation. The capability can be demonstrated with the upload & download of data from master station with IEDs connected to the RTUs using the support of protocols specified in this chapter. Numerical relays Analog data viz voltage ,current, sag swell instantaneous, momentary , temporary, over voltage, under voltage , over current , phasor measurement , THD, current TDD & current unbalance ratio etc at numerical relays if installed at bay of S/S

1.8 PLC capability

The RTU shall be provided with programmable logic capabilities supported by easy to use editor facilities. The programmable logic capability shall enable the RTU to perform control functions using ladder logic language conforming IEC 1131.

1.9 Control Outputs

The RTU shall provide the capability for a master station to select and change the state of digital output points. These control outputs shall be used to control power system devices such as Circuit breakers relay disable/enable and other two-state devices, which shall be supported by the RTU.

A set of control outputs shall be provided for each controllable device. On receipt of command from a master station using the select check-before-execute operate (SCBO) sequence, the appropriate control output shall be operated for a preset time period which is adjustable for each point from 0.1 to 2 seconds.

Each control output shall consist of one set of potential free NO contact. The output contacts shall be rated for at least 0.2 Amp. at 48 Vdc. These output contact shall be used to drive heavy duty relays. In case Control output module of RTU does not provide potential free control output contact of this rating, then separate control output relays shall be provided by the contractor. These relay coils shall be shunted with diodes to suppress inductive transients associated with energizing and de-energizing of the relay coils & shall conform to the relevant IEC requirements. **Control output from digital output card will facilitate implementation of Automatic Demand Management Scheme(ADMS)/Load shed support(LSS) and related DMS/ADMS application software should be part of software tools installed in RTU. All the required ADMS/LSS features are to be included in the RTU..**

1.9.1 Heavy duty control output relays

The control output contact from the RTU shall be used for initiating heavy duty relays for trip/close of switching devices and energising relays of OLTC raise lower. The contractor shall provide heavy duty relays. Each control output relays shall consist of at least 2 NO contacts. The output contacts shall be rated for at least 5 Amps Continuous at 220Vdc and shall provide arc suppression to permit interruptions of an inductive load. Relay coils shall be shunted with diodes to suppress inductive transients associated with energizing and de-energizing of the relay coils. The relays shall conform to the IEC255-1-00 and IEC 255-5 requirements.

1.9.2 Control Security and Safety Requirements

The RTU shall include the following security and safety features as a minimum for control outputs:

- (a) Select- check-before-operate operate (SCBO) sequence for control output.
- (b) No more than one control point shall be selected/executed at any given time.
- (c) The control selection shall be automatically cancelled if after receiving the "control selection" message, the "control execute" command is not received within the set time period.
- (d) No control command shall be generated during power up or power down of RTU.

1.9.3 Local/Remote selector switch

A manual Local/Remote selector switch shall be provided for each RTU to disable all control outputs by breaking the power supply connection to the control outputs. When in the "Local" position, the Local/Remote switch shall allow testing of all the control outputs of RTU without activating the control outputs to field devices. A status input indication shall be provided for the Local/Remote switch to allow the SCADA system to monitor the position of the switch.

1.9.4 Dummy breaker latching relay

The Contractor shall provide a latching relay to be used to simulate and test supervisory control from the Master station. The latching relay shall accept the control signals from the RTU to open and close, and shall provide the correct indication response through a single point status input.

1.10 Contact Multiplying Relays (CMRs)

Contact Multiplying Relays (CMRs) are required to multiply the contacts of breaker, isolators and protection relays etc. The contacts of these relays shall be used to provide status inputs to the RTUs.

The relays shall be DC operated, self reset type. The rated voltage for relay operation shall be on 220V DC usually depending on the station DC supply.

The relay shall be able to operate for +/-20% variation from nominal voltage.

The relay shall have a minimum of two change over contacts, out of which one shall be used for telemetry purposes. The contacts shall be rated to carry minimum current capacity of 5A.

The relay shall conform to following requirement.

- a) Power Frequency withstand voltage. 2KV for 1 minute as per IEC 255-5.
- b) Insulation Resistance of 100M ohms measured using 500V DC megger.
- c) 5KV Impulse test as per IEC 255-5

The relays coils shall be shunted with diodes to suppress inductive transients associated with energizing and de-energizing of the relay coils. The relays shall conform to the IEC 255-1-00 and IEC 255-5 requirements or provisions of latest edition or revision of the applicable standard as per Sec-2 Chapter 1 CLAUSE 1.1 of MTS. The relays must be protected against the effects of humidity, corrosion & provide with a dust tight cover. The connecting terminals shall be screw type & legibly marked. The relays may optionally have a visual operation indicator. The relays are to be mounted in Control & Relay (C&R) panels and therefore shall be equipped with suitable mounting arrangements. In case suitable space is not available in C&R panel the same shall be mounted in RTU panel or suitable panels , which shall be supplied & mounted on the top of the C&R panel by the contractor.

1.11 Time facility

The internal RTU time base shall have a stability of 10 ppm. The RTU shall be synchronised through synchronisation message from master station at every 15 minutes (configurable from 15 minutes to 24hrs) over IEC 60870-5-104/NTP/SNTP. The RTU shall also carry out time stamping of the events which are not received as time stamped from connected IEDs/ FPIs etc.

1.12 Diagnostic Software

Diagnostic Software shall be provided to continuously monitor operation of the RTU and report RTU hardware errors to the connected master stations. The software shall check for memory, processor, and input/output ports errors and failures of other functional areas defined in the specification of the RTU.

1.13 SCADA language based on IEC61131-3

RTU shall have capability to write various programs based IEC 61131-3 SCADA language . it will facilitate user to write various programs using points defined in the database .

1.14 Input DC Power Supply

The RTU will be powered from a 48 V DC power supply system. The RTU shall not place additional ground on the input power source. The characteristics of the input DC power supply shall be

- (a) Nominal voltage of 48 VDC with variation between 40.8 and 57.6 VDC.(i.e. 48(+20%/-15%)
- (b) Maximum AC component of frequency equal to or greater than 100 Hz and 0.012 times the rated voltage peak-to-peak.

The RTU shall have adequate protection against reversed polarity, over current and under voltage conditions, to prevent the RTU internal logic from being damaged and becoming unstable causing mal-operation. The specification for DCPS is given in respective section of MTS.

1.15 Environmental Requirements

The RTU will be installed in control room buildings with no temperature or humidity control. The RTUs shall be capable of operating in ambient temperature from 0 to +55 degree C with rate of temperature change of 20 degree C/hour and relative humidity less than 95%, non-condensing. For RTUs to be installed in the hilly region with the history of snowfall, the lower ambient temperature limit shall be -5 degree C.

1.16 RTU Size and Expandability

RTU shall be equipped for the point counts defined in the BOQ (Basic+20% spare (wired & hardware). It shall be possible to expand the RTU capability for additional 100 % of the basic point counts by way of addition of hardware such as modules, racks, panels, , however, RTU software and database shall be sized to accommodate such growth without requiring software or database regeneration.

1.17 RTU Panels

At least 50% of the space inside each enclosure shall be unused (spare) space that shall be reserved for future use. The Contractor shall provide required panels conforming to IEC 529 for housing the RTU modules/racks, relays etc. and other required hardware. The panels shall meet the following requirements:

- (a) shall be free-standing, floor mounted and height shall not exceed 2200 mm. All doors and removable panels shall be fitted with long life rubber beading. All non-load bearing panels/doors shall be fabricated from minimum 1.6 mm thickness steel sheet and all load bearing panels, frames, top & bottom panels shall be fabricated from minimum 2.0 mm thickness steel sheet
- (b) shall have maintenance access to the hardware and wiring through lockable full height doors.
- (c) shall have the provisions for bottom cable entry
- (d) The safety ground shall be isolated from the signal ground and shall be connected to the ground network. Safety ground shall be a copper bus bar. The contractor shall connect the panel's safety ground of to the owner's grounding network. Signal ground shall be connected to the communication equipment signal ground.
- (e) All panels shall be supplied with 230 VAC, 50 Hz, single-phase switch and 15/5A duplex socket arrangement for maintenance.
- (f) All panels shall be provided with an internal maintenance lamp, space heaters and gaskets.
- (g) All panels shall be indoor, dust-proof with rodent protection, and meet IP41 class of protection.
- (h) There shall be no sharp corners or edges. All edges shall be rounded to prevent injury.
- (i) Document Holder shall be provided inside the cabinet to keep test report, drawing,

maintenance register etc.

(j) All materials used in the enclosures including cable insulation or sheathing, wire troughs, terminal blocks, and enclosure trim shall be made of flame retardant material and shall not produce toxic gasses under fire conditions.

1.18 Wiring/Cabling requirements

The RTU panels shall gather all signals from and to the devices located in Control & Relay panels in the substation control room. All wires that carry low-level signals shall be adequately protected and separated as far as possible from power wiring. All wires shall be identified either by using ferrules or by colour coding. In addition, cables shall be provided with cable numbers at both ends, attached to the cable itself at the floor plate where it enters the cubicles.

Shielded cables shall be used for external Cabling from the RTU panels. The external cables (except communication cables) shall have the following characteristics:

- a) All cables shall have stranded copper conductor.
- b) Minimum core cross-section of 2.5 mm² for PT cables, 2.5mm² for CT cables and 2.5 mm² for Control outputs and 1.5mm² for Status inputs
- c) Rated voltage U₀/U of 0.6/1.1KV
- d) External sheathing of cable shall have oxygen index not less than 29 & temperature index not less than 250. Cable sheath shall meet fire resistance test as per IS 1554 Part- I.
- e) Shielding, longitudinally laid with overlap.
- f) Dielectric withstand 2.5 kV at 50 Hz for 5 minutes
- g) External marking with manufacture's name, type, core quantity, cross-section, and year of manufacture.

1.19 Terminal Blocks (TBs)

Terminal blocks shall be having provision for disconnection (isolation), with full-depth insulating barriers made from moulded self-extinguishing material. Terminal blocks shall be appropriately sized and rated for the electrical capacity of the circuit and wire used. No more than two wires shall be connected to any terminal. Required number of TBs shall be provided for common shield termination for each cable.

All terminal blocks shall be suitably arranged for easy identification of its usages such as CT circuits, PT circuits, analog inputs, status inputs, control outputs, auxiliary power supply circuits, communication signals etc. TBs for CT circuits shall have feature for CT shorting (on CT side) & disconnection (from load side) to facilitate testing by current injection. Similarly, TBs for PT circuit shall have feature for disconnection to facilitate voltage injection for testing.

1.20 RTU Architecture

Bidder has the option to offer RTUs having following architectural design:

- a) Centralized RTU design where all I/O modules are housed in RTU panels and communicating with master station through communication port.
- b) Distributed RTU design where distributed I/O modules/processor with I/O modules are housed in respective bay panels/RTU panel. All these distributed I/O modules / I/O modules with processor shall be connected to a central processor for further communication with master station. The bidder shall assess the requirement of RTU panels for such design and supply panels accordingly.

In both cases the RTU requirements as envisaged in this specification shall be followed.

1.21 LOCAL DATA MONITORING SYSTEM (LDMS)

The LDMS is a client workstation of main SCADA/ DMS control centre connected on 2Mbps or 64kbps leased line for local monitoring of SCADA/DMS system . The hardware & software specification, features shall be same as of remote VDU defined for SCADA/DMS system.

CHAPTER-2

2.0 Transducer

All transducers including weather sensor shall use a 48 VDC auxiliary power supply as provided for the RTU. Optionally, MFTs can also be self-powered. All transducers shall have a maximum power consumption of 10 watts. Transducer shall be din rail or wall/plate mounted.

The input, output and auxiliary circuits shall be isolated from each other and earth ground. The transducer output shall be ungrounded and shall have short circuit and open circuit protection. The transducers shall comply with the following requirements, in addition to the requirement of IEC 60688, without damage to the transducer.

Voltage:

Voltage test and other safety requirement compliance as specified in IEC 60688 or 60687 and IEC 414.

- (c) Impulse Withstand: IEC 60688 or 60687 compliance is required.
- (d) Electromagnetic Compatibility: IEC 60688 or 60687 and IEC 801-3, level 1 compliance is required.
- (e) Permanent Overload Protection: IEC 60688 or 60687 compliance is required.
- (f) Temporary Overload Protection: IEC 60688 or 60687 compliance is required.
- (g) High Frequency Disturbance:

IEC 60688 or 60687 compliance is required. The transducers shall comply with the following general characteristics:

- (a) Shock Resistance: Minimum severity 50 A, IEC 68-2-27 requirements
- (b) Vibration Strength: Minimum severity 55/05, IEC 68-2-6 requirements.
- (c) Input Circuit Consumption: Less than or equal to 0.2 VA for voltage and 0.6VA for current circuits.
- (d) Reference Conditions For Accuracy Class:
IEC 60688 or 60687 compliance is required.
- (e) Temperature Rise: IEC 60688 or 60687 compliance is required.
- (f) Operating Temperature: 0 ° C to + 60 ° C (-5 ° C to + 55 ° C for project area with snowfall history)

2.1 Multi Function Transducers/Meters (MFT/MFM)

The contractor shall provide the multi function transducers/Meters for acquiring the real time analog inputs through 3 phase 3 wire CT/PTs circuits/ 3 phase 4 wire CT/PTs circuits (Based on the field requirement). Based on the CT/PT secondary rating , the multi function transducer shall be designed for nominal 110 V (Ph-Ph voltage) and 1A/5A (per phase current). The MFT shall be suitable for 20% continuous over load and shall be able to withstanding 20 times the normal current rating for a period one second. The MFT shall be able to accept the input voltages up to 120% of the nominal voltage. The MFT shall have low VA burden. MFTs shall be mounted in the interface cabinet to be supplied by the contractor.

Multi function transducers shall provide at least phase voltage, phase current active/reactive power , import & export energy (active & reactive) , pf , frequency with class 0.5 accuracy or better.

The parameters to be acquired from multifunction transducers shall be selectable. MFT shall provide the 15 minute values (configurable 15 minute/1 hour) of Active Energy Import, Active Energy Export, Reactive Energy Import and Reactive Energy Export.

Multi function transducers shall accept nominal 48 V DC as auxiliary power supply Optionally, MFT can be self powered also. Multi function transducer shall be provided with RS485 interface to communicate with RTU over Modbus protocol in multi-drop mode. Optionally, the MFT with IEC60870-5-101/104 can be used. Baud rate of data transfer between MFTs and RTU shall be 19.2 Kbps. The MFTs shall be suitable for mounting on DIN rails. The MFT terminals shall accept up to two 2.5 mm² / 4 mm² for PT/CT circuit terminations as applicable.

The MFT shall be programmable with password protection thru suitable facia mounted key pad arrangement so that the configuration parameters such as CT /PT ratio , integration time of energy , reset, communication parameters setting (Address, baud , parity) can be set up at site also. The device shall have LCD displays to visualize all parameters being monitored & configuration etc have configurable at site for CT/PT ratio etc.

2.2 DC Transducer

The DC transducer(DCT) are of two types.

(i) Voltage (ii) Current

The DC Transducer are required to measure battery charger current & voltage shall be suitable for 20% continuous over load and shall be able to withstanding 20 times the normal current rating for a period one second. The DCT shall be able to accept the input up to 120% of the nominal voltage. The DCT shall have low VA burden. DCT shall be mounted in the interface cabinet to be supplied by the contractor. The input range for current & voltage are site specific & hence the same shall be specified RFP floated by utility/state Output of the device shall preferably be 4-20ma or MODBUS in order to optimize the BOQ. However, as a specific case the output in line ranges specified in analog input card in clause for analog input shall be selected. The accuracy of transducer shall be $\pm 0.5\%$.

2.3 Transformer Tap Position Transducer

The transformer tap position indications shall be either of two types based on field requirement.

- (i) Variable resistance type
- (ii) Lamp type

The Contractor shall provide suitable resistance tap position transducers which shall have the following characteristics

- (a) The input measuring ranges shall be from 2 to 1000 ohms per step, which is tuneable at site with at least 25 steps.
- (b) Dual output signal of 4 to 20 mA DC, 0.5% accuracy class as per IEC 688 shall be provided. One output will be used for driving a local digital indicator (to be provided by the contractor) and the other will be used for interfacing with the RTU. Alternatively for RTU, MODBUS(RS 485) link may be used. In case of lamp type, additional resistance/potentiometer unit shall be provided to convert the dry type contacts to a variable resistance as defined in (a) above, suitable for the remote indication.

CHAPTER –3

TEST EQUIPMENTS FOR RTU

3.0 RTU Configuration and Maintenance Tool

Test equipment for RTU shall have Configuration and maintenance tool consisting of the followings:

3.1 RTU Data base configuration & Maintenance software tool

The RTU database configuration & Maintenance software tool shall be required to perform the database modification, configuration, compilation and documentation. The database compiler shall provide error detection services. It shall also perform the downloading of the compiled database into the RTU database.

3.2 Master station-cum-RTU simulator & protocol analyzer software tool

The Master station cum RTU simulator tool shall be used to test the communication interfaces of Master station, RTU and Electronic MFT. The Master station simulator tool shall be capable of emulating the master station for IEC 60870-5-104,101 and MODBUS protocols. The RTU simulator shall be capable of emulating the slave protocols for both the IEC 60870-5-104,101, and MODBUS protocols for MFTs. It shall also be possible to prepare illegal messages for transmission, such as messages having invalid checksum.

The protocol analyser shall be used to monitor all communication traffic on a channel (between Master station & RTU and between RTU & MFT without interfering channels operation. Channel traffic captured in the active or passive modes of operation shall be displayed.

The Master station simulator and protocol analyser tool shall also have following features:

- Each received message shall be checked for validity, including the check sum.
- The tool shall maintain and display error counters so that the number of errors during a period of unattended testing can be determined.
- All fields of a message shall be displayed. A pass/fail indication for the message shall be included.

3.3 Software applicable for configuration and maintenance

Software applicable for RTU configuration, diagnostic software for RTU & Communication link shall be handed over to the employer.

CHAPTER –4

TESTING, TRAINING & DOCUMENTATION

4.0 RTU Testing

This chapter describes testing, training & documentation requirement for RTU

(a) Type Testing:

RTU including Transducers shall conform to the type tests listed in the relevant table. Type test reports of tests conducted in NABL accredited Labs or internationally accredited labs with in last 5years from the date of bid opening may be submitted. In case, the submitted reports are not as per specification, the type tests shall be conducted without any cost implication to employer. A complete integrated unit shall be tested to assure full compliance with the functional and technical requirements of the Specification including functional requirement. The testing sample shall include one of each type of cards/modules and devices. The list of Type tests to be performed on the RTU is mentioned in **Table-1** & type test requirements are mentioned in **Table-2 of this chapter**. For other items also such as MFT, sensor etc the requirements are mentioned in the respective sub sections of specification.. However, the type tests shall be only be limited to the specification of that item only & not as specified for RTU.

(b) Routine Testing or Factory acceptance test (FAT):

Each complete unit shall undergo routine testing. The list of Routine tests to be performed in the factory is mentioned in **Table-2**.

(c) Site Acceptance Test (SAT)

(i) Field Tests

After RTU panel installation, interface cabling with C&R panels/Termination boxes ,communication panel and interface cabling with field & communication equipment, the Contractor shall carry out the field-testing. The list of field tests for RTU is mentioned in **Table-2**

(ii) Availability Tests

After field testing, RTU shall exhibit a 98% availability during test period. Availability tests shall be performed along with Master station. The RTU shall be considered available only when all its functionality and hardware is operational. The non-available period due to external factors such as failure of DC power supply, communication link etc., shall be treated as hold-time & availability test duration shall be extended by such hold time.

4.1 TRAINING

The contractor shall provide training to the Employer's personnel. The training program shall be comprehensive and provide for interdisciplinary training on hardware and software. The training program shall be conducted in English. RTU training course shall cover broadly the followings:

- a) Principle of operation
- b) Description of modules with schematic drawing
- c) Troubleshooting, identification and replacement of faulty Modules.
- d) Preventive maintenance of the RTU
- e) Use of RTU configuration and Maintenance tool
- f) All functional and Diagnostic testing of RTU
- g) Database modification and configuration of RTU

4.2 DOCUMENTATION

The Contractor shall submit 3 sets of all the standard and customised RTU documents for review and approval which includes the following:

- a) Function design document
- b) Hardware description document & all the documents referred therein to meet all the clauses of the specification.
- c) Test equipment user documents
- d) user guide
- e) Operation & Maintenance document
- f) Training documentation
- g) Database document
- h) RTU I/O list
- i) RTU Test procedures
- j) Data Requirement Sheet (DRS) of all items
- k) Protocol documentation including implementation profile etc.
- l) RTU installation and Layout, GA, BOQ, schematics and internal wiring drawings for each RTU site
- m) RTU to C&R panels/ field device cabling details for each RTU site

After approval of all the above documents, the Contractor shall submit three sets as final documents. The site-specific drawings as indicated at item (i) and (j) above shall be submitted in three sets for each site before installation of RTU. In case some modifications/corrections are carried out at site, the contractor shall again submit as built site-specific drawings in three sets after incorporating all such corrections as noticed during commissioning of the RTU.

Type Testing

RTU including MFMs shall confirm to the type tests listed in the relevant table. Type test reports of tests conducted in NABL accredited lab within last 5 years from the date of bid opening may be submitted. In case the submitted reports are not as per specification that type tests shall be conducted without any cost implication . A complete integrated unit shall be tested to assure full compliance with the functional and technical requirements . The list of type tests to be performed on the RTU is mentioned in **Table-1** . The requirement of tests are mentioned in **Table-2**

Table-1: List of Tests on RTU

Test Nos.	DESCRIPTION OF THE TEST	Type test	Routine test	Field test
A	FUNCTIONAL TESTS FOR RTU			
1.	Check for BOQ, Technical details, Construction & Wiring as per RTU drawings	ç	ç	ç
2.	Check for RTU database & configuration settings	ç	ç	ç
3.	Check the operation of all Analog inputs, Status input & Control output points of RTU	ç	ç	ç
4.	Check operation of all communication ports of RTU	ç	ç	ç
5.	Check for communication with master stations or master station simulator for RTU	ç	ç	ç
6.	Test for downloading of RTU database from Master	ç	ç	ç
7.	Test for RTU time synchronization from Master	ç	ç	ç
8.	Test Power Supply Voltage Margin, Ripple Levels and Short Circuit Protection	ç	ç (except short ckt)	
9.	Test for RTU operation with DC power supply voltage	ç		
10.	Auto restoration of RTU on DC power recovery after its failure	ç	ç	ç
11.	Test for RTU diagnostic feature	ç	ç	
12.	Test for RTU SOE feature	ç	ç	ç
13.	RTU Analog accuracy test for analog input	ç	ç	ç
14.	Transducer accuracy test	ç	ç	
15.	Test for IEC 60870-5 -104, 61850 & Modbus protocol implemented	ç	ç	
16.	Test for RTU internal Clock stability	ç	ç	
17.	Test for RTU Noise level measurement	ç	ç	
18.	Test for Control Security and Safety for Control outputs	ç	ç	
19.	Other functional tests as per technical specification	ç	ç	
20.	End to end test (between RTU & Master station) for all I/O points			ç
B	EMI/EMC IMMUNITY TESTS FOR RTU			
21.	Surge Immunity Test as per IEC 60870-2-1	ç		
22.	Electrical Fast Transient Burst Test as per IEC-60870-2-1	ç		
23.	Damped Oscillatory Wave Test as per IEC 60870-2-1	ç		
24.	Electrostatic Discharge test as per IEC 60870-2-1	ç		
25.	Radiated Electromagnetic Field Test as per IEC 60870-2-	ç		
26.	Damped Oscillatory magnetic Field Test as per IEC-	ç		
27.	2Power Frequency magnetic Field Test as per IEC-60870-2-1	ç		
C	INSULATION TEST FOR RTU			
28.	Power frequency voltage withstand Test as per IEC	ç		
29.	21.-21/ 50 µs Impulse voltage withstand Test as per IEC 60870-2-	ç		
30.	Insulation resistance test	ç		

D	ENVIRONMENTAL TEST FOR RTU	ç		
31.	Dry heat test as per IEC60068-2-2 / 2-3	ç		
32.	Damp heat test as per IEC60068-2-78	ç		
33.	Cold Test as per IEC60068-2-1	ç		

Note: 1) Test levels for above type tests mentioned in B, C & D above are elaborated in Table 2 of this Chapter

2) Contractor can provide test certificates for the type tests mentioned in B,C,D & supporting protocols from Govt of India/NABL/International accredited Labs. If not provided, the same needs to be conducted at Govt of India/NABL/International accredited Labs

3) Transducer type test requirements are mentioned in the respective sub section of specification.

Table--2 RTU Type Test Requirements

Test Nos.	Test Name	EUT Status	Test Level	Power Supply Points		I/O Points	Passing Criteria
				CM	DM	CM	
20.	Surge Immunity Test	ON	Level 3	2 kV	1 kV	2 kV	A
21.	Electrical Fast Transient Burst Test	ON	Level 3	2 KV	-	1 kV	A
22.	Damped Oscillatory Wave Test	ON	Level 3	2.5 kV	1 kV	2.5 kV	A
23.	Electrostatic Discharge Test	ON	Level 3	+/- 6 kV in Contact discharge mode or +/- 8 kV in Air discharge mode			A
24.	Radiated Electromagnetic Field Test	ON	Level 3	10 V/m electric field strength			A
25.	Damped Oscillatory Magnetic Field Test	ON	Level 3	30 A/m at 1MHz of magnetic field strength			A
26.	Power frequency magnetic field	ON	Level 3	30 A/m of magnetic field strength (Continuous duration sine wave)			A
27.	Power frequency voltage withstand	OFF	-	1 KVrms for 1 minute			No break down or flashover shall occur
28.	1.2/50µs impulse voltage withstand	OFF	-	2 kVp			No break down or flashover shall occur
29.	Insulation Resistance Test	OFF	-	Measure Insulation resistance using 500 V DC Megger before & after Power Freq & Impulse voltage withstand tests			As per manufacturer standard
30.	Dry heat test	ON	-	Continuous operation at 55 ⁰ C for 16 hrs			0
31.	Damp heat test	ON	-	at 95% RH and 40 ⁰ C			0

Note:-

1. EUT - Equipment Under Test
2. CM - Common Mode; DM - Differential mode
3. I/O pints do not include Communication ports
4. Passing Criteria 0 - no failure: normal performance within the specified limits A : minor failure : temporary degradation or loss of function or performance which is self-recoverable

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BILL OF QUANTITY & DELIVERY SCHEDULE (Phase-I)

Sl	Item description	Destination station	Quantity in No ϕ	Delivery & commissioning schedule
01	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning against prescribed station and as per the technical specification)	Balimela	01	Within 6(six) months from the date of placement of order.
02		Indravati	01	
03		U. Kolab	01	
04		Bhanjanagar	01	
05		Narendrapur	01	
06		Chandaka	01	
07		Mendhasal	01	
08		Rengali PH	01	
09		Duburi (N)	01	
10		Duburi (O)	01	
11		Paradeep	01	
12		Burla (N)	01	
13		IB TPS	01	
14		Burla PH	01	
15		Bolangir (N)	01	
16		Chiplima PH	01	
17		Tarkera	01	
18		Joda	01	

BILL OF QUANTITY & DELIVERY SCHEDULE (Phase-II)

Sl	Item description	Destination station	Quantity No ϕ	in	Delivery & commissioning schedule
01	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning against prescribed station and as per the technical specification)	NAYAGADH	01		Within 6(six) months from the last date of delivery of the 1 st phase of supply & commissioning.
02		BIDANASI	01		
03		TTPS	01		
04		RENGALI S/Y	01		
05		BHADRAK	01		
06		BARKOTE	01		
07		THERUBALI	01		
08		KESINGA	01		
09		BRAHMAPUR	01		
10		CHATRAPUR	01		
11		KHORDA	01		
12		CHOUDWAR	01		
13		RAIRANGPUR	01		
14		ANGUL	01		
15		JAJPUR ROAD	01		
16		KENDRAPADA	01		
17		KAMAKHYANAGAR	01		
18		RAYAGADA	01		

BILL OF QUANTITY & DELIVERY SCHEDULE (Phase-III)

Sl	Item description	Destination station	Quantity No ϕ	in	Delivery & commissioning schedule
01	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning against prescribed station and as per the technical specification)	SUNABEDA	01		Within 6(six) months from the last date of delivery of the 2 nd phase of supply & commissioning.
02		ASKA	01		
03		CUTTACK	01		
04		ICCL	01		
05		SIJUA	01		
06		DHENKANAL	01		
07		BARIPADA	01		
08		BOINDA	01		
09		ROURKELA	01		
10		SAMBALPUR	01		
11		RAJGANGPUR	01		
12		BARGARH	01		
13		BOLANGIR (Old)	01		
14		CHAINPAL	01		
15		PURI	01		
16		AKHUSINGI	01		

APPENDIX-III(A)**REPLACEMENT OF AREVA MAKE - S-900 RTU [Phase - I]****(RTU configuration and estimated cable requirement for commissioning)**

SL No.	Name of the Sub-Station	Analog Counts	Digital Counts	2.5 ² mm 4core Cable for PT in Mts	2.5 ² mm 7core Cable for CT in Mts	1.5 ² mm 10core Cable for Digital input in Mts	2 pair Screened Data Cable for MFM O/P in Mts.	2.5 ² mm 3core Cable for AC Supplyin Mts	2.5 ² mm 2core Cable for DC Supplyin Mts	OLTC	1.5 ² mm 4core Cable for OLTC input in Mts
1	Balimela	30	71	170	180	740	350	10	100	-	-
2	Indravati	38	77	260	285	1200	200	50	200	-	-
3	U. Kolab	18	38	148	54	320	100	30	100	-	-
4	Bhanjanagar	39	125	388	134	800	300	-	300	-	-
5	Narendrapur	46	170	720	240	1400	520	-	400	-	-
6	Chandaka	55	132	500	1000	1000	200	-	60	7	100
7	Mendhasal	46	105	750	1500	1500	250	-	10	4	500
8	Rengali PH	30	58	2429	2189	2189	150	300	300	-	-
9	Duburi (N)	49	164	384	480	1150	150	40	200	4	-
10	Duburi (O)	60	164	432	540	850	150	40	200	5	-
11	Paradeep	54	107	320	500	500	200	-	40	6	150
12	Burla (N)	54	166	390	390	985	350	-	350	12	-
13	IB TPS	26	48	556	556	556	10	-	-	3	-
14	Burla PH	36	91	270	270	3103	700	-	700	1	-
15	Bolangir (N)	38	103	340	430	600	180	80	250	-	-
16	Chiplima PH	18	42	155	155	611	200	-	200	2	-
17	Tarkera	54	160	500	600	900	300	120	350	5	-
18	Joda	68	190	464	580	1350	200	40	300	8	-
	Total:	759	2011	9176	10083	19754	4510	710	4060	57	750

**REPLACEMENT OF AREVA MAKE - S-900 RTU [Phase - II]
(RTU configuration and estimated cable requirement for commissioning)**

SL	Name of the Sub-Station	Analog Counts	Digital Counts	2.5 ² mm 4core Cable for PT in Mts	2.5 ² mm 7core Cable for CT in Mts	1.5 ² mm 10core Cable for Digital input in Mts	2 pair Screened Data Cable for MFM O/P in Mts.	2.5 ² mm 3core Cable for AC Supply in Mts	2.5 ² mm 2core Cable for DC Supply in Mts	OLTC	1.5 ² mm 4core Cable for OLTC input in Mts
1	NAYAGADH	25	54	150	160	160	100	-	30	3	100
2	BIDANASI	38	94	130	450	450	200	-	30	6	120
3	ITPS	42	80	3475	2867	3157	440	630	630	2	-
4	RENGALI S/Y	36	84	677	517	517	110	140	140	2	-
5	BHADRAK	69	168	464	580	1500	200	40	300	6	-
6	BARKOTE	30	87	300	300	480	150	30	200		-
7	THERUBALI	80	131	2480	2480	2520	280	140	140	2	160
8	KESINGA	16	31	500	1000	1000	200	-	60	-	-
9	BRAHMAPUR	20	98	270	90	400	150	-	150	-	-
10	CHATRAPUR	21	113	414	138	600	200	-	120	-	-
11	KHORDA	29	53	60	540		150	-	40	-	100
12	CHOUDWAR	27	35	420	570	570	150	-	40	3	100
13	RAIRANGPUR	30	61	208	260	820	150	40	200	3	-
14	ANGUL	32	62	462	380	380	68	47	115	3	-
15	JAJPUR ROAD	45	120	320	400	810	150	40	200	3	-
16	KENDRAPADA	27	55	80	360	360	150	-	30	3	100
17	KAMAKHYA NAGAR	14	26	439	341	341	65	28	93	3	
18	RAYAGADA	32	32	351	351	281	149	35	35	3	57
	TOTAL	613	1384	11200	11784	14346	3062	1170	2553	42	737

**REPLACEMENT OF AREVA MAKE - S-900 RTU [Phase - III]
(RTU configuration and estimated cable requirement for commissioning)**

SL	Name of the Sub-Station	Analog Counts	Digital Counts	2.5 ² mm 4core Cable for PT in Mts	2.5 ² mm 7core Cable for CT in Mts	1.5 ² mm 10core Cable for Digital input in Mts	2 pair Screened Data Cable for MFM O/P in Mts.	2.5 ² mm 3core Cable for AC Supply in Mts	2.5 ² mm 2core Cable for DC Supply in Mts	OLTC	1.5 ² mm 4core Cable for OLTC input in Mts
1	SUNABE DA	20	82	194	216	440	100	30	100	-	-
2	ASKA	21	98	385	134	800	300	-	150	-	-
3	CUTTACK	33	67	90	700	700	200	-	30	3	100
4	ICCL	11	26	60	75	75	100	-	25		-
5	SIJUA	27	55	90	320	320	150	-	30	3	120
6	DHENKANAL	20	38	826	678	678	75	51	136	3	-
7	BARIPADA	30	62	256	320	600	150	40	200	3	-
8	BOINDA	14	25	316	254	254	45	35	90		-
9	ROURKELA	48	134	450	550	1750	250	120	400	4	-
10	SAMBALPUR	40	88	335	335	927	200	-	250	4	-
11	RAJGANGPUR	46	103	350	450	520	200	60	250		-
12	BARGARH	40	82	300	425	550	200	60	250		-
13	BOLANGIR (O)	44	92	350	450	600	160	60	180		-
14	CHAINPAL	24	48	720	650	650	75	30	115	3	-
15	PURI	21	42	70	250	250	150		30	3	100
16	AKHUSINGI	32	54	453	453	383	260	15	15	2	41
	TOTAL	471	1096	5245	6260	9497	2615	501	2251	28	361

6. GUARANTEED TECHNICAL PARTICULARS OF RTU:

SI No	Technical Particulars	Value	Remarks
1.	Make & Model		
1.	Data transmission rate: 300 to 9600 bps for serial port & 10/100 Mbps for Ethernet port.	Configurable	
2.	Communication ports: Minimum 8 ports	<ul style="list-style-type: none"> • 3 Ethernet port for comm. With master stations on 104 & IEDs on 61850. • 1 RS232 port -for comm. with master/Slave stations on 101 • 1 Port- for RTU configuration & Maintenance tool • 1 port for LDMS and local Logger • 2 RS 48S ports for polling MFTs/Energy Meters 	
3.	Communication protocol with Master stations:	IEC 60870-5-104/101	
4.	Communication protocol with LDMS:	IEC 60870-5-101/104	
5.	Communication protocol with MFTS:	MODBUS/103	
6.	Communication protocol with IEDs:	IEC 61850	
7.	Status data transfer to Master station:	by change of state	
8.	Analog data transfer to Master station:	Normally Periodic	

9.	No. of Scan Groups supported:	16	
10.	RTU shall be able to capture contact operations:	of 20ms or more duration	
11.	SOE buffer size	at least 1000 events	
12.	Time stamping accuracy for SOE	1ms	
13.	Supporting Control of Devices	Two state & OLTC capacitors	
14.	Down loading of RTU database from master station	Supported	
15.	RTU internal clock stability	At least 1 ppm	
16.	Nominal Power supply voltage	48V DC/230 V AC	
17.	Management protocol supported	SNMP	
18.	LED indication	<ul style="list-style-type: none"> • CPU healthiness • Data Tx/RX 	
19.	Diagnostic	LED indication for module status	

ANNEXTURE – B.

CALLIBRATION STATUS OF TESTING EQUIPMENTS AND INSTRUMENTS / METERS

Name of the Test	Meters & Equipment required for the corresponding test with range accuracy, make & Sl.No.	Date of Calibration	Due Date of Calibration	Name of the Calibrating Agency	Whether Calibrating Agency is Govt. approved	Whether documents relating to Govt. approval of the calibrating Agency furnished	Whether the meters / equipment fulfill the accuracy class as per calibration report	Whether the calibrating agency has put any limitation towards the use of the particular meter / equipment. If yes state the limitations.	Whether green sticker or Blue Sticker or Yellow Sticker has been affixed on the body of the particular equipment / meter. State the colour of the affixed sticker	Inspite of imposed limitations, whether the particular meter / equipment can still be used? Justify its use for corresponding test (s)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

Signature of the tenderer with Seal & date

ANNEXURE – C

CHECK-LIST TOWARDS TYPE TEST & SPECIAL TEST REPORTS

Name of the Type Test & special test	Date of Test.	Name of the Laboratory where the Test has been conducted	Whether the Laboratory is Government approved	Whether the Test report is valid as per CI.No. 6.1 of TS	Whether the copy of test report in complete shape alongwith drawings etc. furnished or not ?	Whether the tested digital protection coupler fulfill the technical requirements as per TS	If the tested RTU does not fulfill the technical requirements as per this specification, whether the bidder agrees to conduct the particular type test again at their own cost without any financial liability to OPTCL in the presence of OPTCL representative(s) within the specified delivery period.	Remarks
1	2	3	4	5	6	7	8	9

Signature of the Tenderer with seal and date

ANNEXURE-D(A)

CHECK LIST FOR DELEVERY & COMMISSIONIONG SCHEDULE(Phase-I)

Sl. No.	ITEM DESCRIPTION	UNIT	Total Qty.	Delivery & commissioning Schedule
1(a)	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning, each against following station and as per the technical specification). BALIMELA, INDRAVATI, U.KOLAB, BHANJANAGAR, NARENDRAPUR, CHANDAKA, MENDHASAL, RENGALI(PH), DUBURI(N), DUBURI(O), PARADEEP, BURLA(N), IB TPS, BURLA(PH),BOLANGIR(N), CHIPILIMA(PH), TARKERA, JODA			

ANNEXURE-D(B)

CHECK LIST FOR DELEVERY & COMMISSIONIONG SCHEDULE(Phase-II)

Sl. No.	ITEM DESCRIPTION	UNIT	Total Qty.	Delivery & commissioning Schedule
1(a)	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning, each against following station and as per the technical specification). NAYAGADH, BIDANASI, TTPS, RENGALI(S/Y), BHADRAK, BARKOTE, THERUBALI, KESINGA, BRAHMAPUR, CHATRAPUR, KHORDA, CHOUDWAR, RAIRANGPUR, ANGUL,JAJPUR ROAD, KENDRAPADA, KAMAKHYANAGAR, RAYAGADA			

ANNEXURE-D(C)

CHECK LIST FOR DELEVERY & COMMISSIONIONG SCHEDULE(Phase-III)

Sl. No.	ITEM DESCRIPTION	UNIT	Total Qty.	Delivery & commissioning Schedule
1(a)	Supply & Commissioning of Remote Terminal Unit (RTU) (Configured with required MFT & OLTC transducer along with associated cables and accessories required for the commissioning, each against following station and as per the technical specification). SUNABEDA, ASKA, CUTTACK, ICCL, SIJUA, DHENKANAL, BARIPADA, BOINDA, ROURKELLA, SAMBALPUR, RAJGANGPUR, BARGARH, BOLANGIR(O), CHAINPAL, PURI, AKHUSINGI			

SECTION – V

(Tender Specification No. NO. Sr.G.M.-CPC -e-Tender-Telecom-RTU- 15 /2016-17)

COMPREHENSIVE AMC FOR REMOTE TERMINAL UNIT (RTU)

SCOPE OF AMC(Comprehensive) for above equipment.

(I) **Annual Maintenance Contract (Comprehensive)** for the Remote Terminal Unit (RTU) to be commissioned at different Grid sub-stations for a period of **7 (Seven) years** beyond the Guarantee period(36 months from the date of commissioning) and shall have following scope:-

(a) **Preventive Maintenance** [Half yearly (every six months)]: Contractor to Check Properly to ascertain the performance to the satisfaction of OPTCL in every six months of Remote Terminal Unit. These inspections are to be carried out in presence of OPTCL Engineer and contractor's representative. A report on inspection & testing along with the status of the Remote Terminal Unit is to be jointly signed for reference and record. In case any defects are noticed during Preventive Maintenance, such defects are to be rectified within 15 days of such inspection. The spare materials/equipment required to rectify the defects are to be supplied by the contractor free of cost to OPTCL. In case contractor fails to perform the Preventive maintenance within the scheduled stipulated time, the purchaser shall recover from the supplier/contractor a penalty for the delay as per the Penalty clause indicated below (III-B).

(b) **Break down maintenance:** In case any defect is noticed, the Contractor shall be intimated by the owner, and Contractor shall attend the spot within 07 days from the date of intimation (Date of issue of Letter) positively and shall ascertain the defects and shall rectify the same within 15 days from the date of intimation (Date of issue of Letter) to the Contractor. The spare materials/equipment required to rectify such defects are to be supplied by the contractor free of cost to OPTCL In case Contractor fails to rectify the defects within the scheduled time, the purchaser shall recover from the supplier/ Contractor a penalty for the delay as per the Penalty clause indicated below (III-A). The date of intimation to the Contractor regarding the troubles/defects of the item(s) shall be reckoned as the base date for computing the Penalty amount

(II) **TERMS OF PAYMENT:** (For AMC Contract of Remote Terminal Unit)

The terms of payments under this contract shall be governed as per the following:

1. Your unconditional acceptance of this order.
2. A performance Bank Guarantee as per the proforma enclosed for 10% of the total Maintenance Contract price (for 07 years) , which will remain valid for more than two months from the expiry of the contract period i.e, 86 months from the last date of the guarantee period. Initially, the BG shall be submitted within 30 days from the date of AMC order and remain valid for 18 months and the same to be revalidated from time to time to cover the entire guarantee period.
3. Payment will be made equally at the end of every six months, period starting from the date of contract period as per the details below:

(a) Release of payment for the 1st installment:- The payment of 1st installments of each year are to be paid to you at the end of 6(six) months. All the Remote Terminal Unit need to be Checked Properly under Preventive Maintenance (PM) to ascertain the performance to the satisfaction of OPTCL in every six months. This inspection is to be carried out in presence of OPTCL Engineer and contractor's representative. A report on inspection & testing along with the status of Remote Terminal Unit (RTU) should be jointly signed and furnished to the verifying authority (Concerned Telecommunication Division) for verification and onward transmission to the designated Nodal Officer.

(b) Similarly, the payment of 2nd installments of each year are to be paid to you at the end of 12(Twelve) months, during which the inspection of Remote Terminal Unit (RTU) to keep the schemes in a healthy and functional condition, shall be carried out by the contractor, on production of documents as indicated above.

* The payment for other years of AMC shall be as indicated above.

* The Service Tax shall be payable at applicable rate considering abatement available, if any.

* The statutory deduction of taxes shall be made from bill.

(III) PERFORMANCE SECURITY:

A performance Bank Guarantee as per the proforma enclosed for 10% of the total Maintenance Contract price (**for 07 years**) , which will remain valid for more than two months from the expiry of the contract period i.e, 86 months from the last date of the guarantee period. Initially, the BG shall remain valid for 18 months and the same to be re-validated from time to time to cover the entire contract period. You are requested to furnish the Composite Bank Guarantee of required amount in our standard Bank Guarantee format (enclosed herewith) towards Security, Payment and Performance from any Nationalized/ Scheduled Bank on non-judicial stamp paper worth of Rs. 29.00 (Rupees Twenty Nine) only or as applicable as per prevalent rules.

The B.G. shall be furnished to Sr. General Manager, central Procurement Cell, OPTCL Bhubaneswar-751022 within 30(thirty) days from the date of issue of **NOA (Notification of Award) for AMC** and shall remain valid for a period of **18 (Eighteen)** months and the same to be validated from time to time to cover the entire AMC period. Validation of BG shall be made well before expiry of the validity of BG. The said Bank Guarantee should be accompanied by a confirmation letter from the concerned issuing Bank & should have provision for encashment at Bhubaneswar before the B.G. is accepted and all concerned intimated. No interest is payable on the Composite Bank Guarantee.

b. In case of non-fulfillment of contractual obligation, Composite Bank Guarantee shall be encashed without intimation to you.

(IV) PAYING OFFICER:

For the purpose of this AMC Contract, **Deputy General Manager, Telecommunication Division, OPTCL**, of the concerned sub-station, shall be the Paying Officer.

(V) PENALTY:

(a) In the event of failure on your part to comply with the provisions of the contract regarding attending to the **Break down** of the Remote Terminal Unit (RTU) at various grid substations as indicated elsewhere, a penalty @0.5% of the total contract value for each day of delay, or part thereof, for such delay, subject to upper limit of penalty of 10% of the total contract value if delay is within 30 days and up to 20% if delay exceeds one month, will be levied, without prejudice to any other remedies to which OPTCL may also be entitled, under the provisions of the contract/bid specifications.

(b) In the event of failure on your part to comply with the provisions of the contract regarding attending to the Preventive maintenance (PM) of the Remote Terminal Unit (RTU) at various grid substations as indicated elsewhere, a penalty @30% of the total AMC value for the period shall be imposed for that quarter.

(VI) CONTRACTOR'S RESPONSIBILITY:

It will be contractor's responsibility to maintain the entire Remote Terminal Unit (RTU), as described in the scope of the contract in healthy and functional manner. The repair and replacement work will be completed within 15 days from the registering of the complaints by OPTCL Engineers of the concerned Grid substations or MANAGER/ AGM/DGM/GM of the concerned Division or Circles respectively failing which the penalty clause as at clause-V shall be applied. The replacement of equipment will be done by using materials from the stock to be kept under contractor's scope. Any equipment removed from the Remote Terminal Unit (RTU) Equipment location and taken for rectification, will be rectified and returned back to OPTCL at contractor's own risk and expense, within 15 days from the date of such removal. The date of removal will be reckoned as the date of handing over & taking over report jointly signed by OPTCL Engineer of the concerned Grid substations and contractor's representative.

(a) An indemnity bond shall be furnished before receiving materials from OPTCL .

(b) In case the Bidder did not return the materials taken from the Remote Terminal Unit (RTU) Equipment then the BG furnished towards the AMC shall be encashed without any intimation to you.

(VII) NODAL OFFICER:

A nodal officer shall be appointed by OPTCL, who will monitor the execution of entire maintenance activities within the scope of this contract. You will furnish all the records, reports, receipts etc., to the Nodal Officer, who will forward the documents, after due verification, for initiation of Half yearly payment activities. The name of the Nodal officer shall be intimated during placement of order to the successful contractor.

(VIII) CONTRACT AGREEMENT:

Contractor shall prepare and finalize the Contract Document for signing of the formal Contract Agreement with us, as per the proforma to be provided to you, on non-judicial stamp paper of appropriate value within fifteen days from the date of this order.

(IX) DURATION OF CONTRACT:

This AMC shall be in force for a period of 07 (Seven) Years, beyond the Guarantee period of 36 months as stipulated in the Specification.

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----End of the section---

PART – II
PRICE BID

1. **PRICE:**
 - (i) Bidders are required to quote their price(s) for goods offered indicating they are 'FIRM'
 - (ii) The prices quoted shall be FOR Destination only at the consignee's site/store inclusive of packing, forwarding, Freight & Insurance. In addition, the break-up of FOR Destination price shall be given as per schedule of Prices in Annexure-V of Section – III. The Tenderer has to certify in the price bid that MODVAT benefit if any, has been fully passed on to the Purchaser, while quoting the tender prices.
2. **INSURANCE :**

Insurance of materials/equipment, covered by the Specification should normally be done by the Suppliers with their own Insurance Company unless otherwise stated. The responsibility of delivery of the materials/equipment at destination stores/site in good condition rests with the Supplier. Any claim with the Insurance Company or Transport agency arising due to loss or damage in transit has to be settled by the Supplier. The Supplier shall undertake free replacement of equipment/materials damaged or lost which will be reported by the Consignee within 30 days of receipt of the equipment/materials at Destination without awaiting for the settlement of their claims with the carriers and underwriters.
3. **CERTIFICATE FOR EXEMPTION FROM EXCISE DUTY/SALES TAX:**

Offers with exemption from excise Duty/ Sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean Photostat copy of exemption certificates, attested by Gazetted Officers of State or Central Government.
4. **PROPER FILLING UP OF THE PRICE SCHEDULE:**
 - (i) In case where Freight & Insurance charges are not furnished, 5% of the Ex-works price shall be considered as the freight & Insurance charges.
 - (ii) The tenderer should fill up the price schedule (Annexure-V of Section-III) properly and in full. The tender may be rejected if the schedule of price is submitted in incomplete form as per clause-34 (ix) of Section-II of the Specification.
5. **NATURE OF PRICE INDICATED IN SPECIFICATION SHALL BE FINAL.**

The nature of price indicated in the Clause-13, Section – I of PART –I of the Specification shall be final and binding.