ଓଡିଶା ବିଦ୍ୟୁତ୍ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲି୫.
ODISHA POWER TRANSMISSION CORPORATION LIMITED
(A Government of Odisha Undertaking)
OFFICE OF THE CHIEF GENERAL MANAGER, TELECOM.
MULTI STORIED BUILDING,OPTCL HQRS, JANAPATH,BHUBANESWAR 751022
Ph - 0674 - 2542403, FAX - 2540875. Email id : cgm.tel@optcl.co.in
CIN-U401020R2004SGC007553

NOTICE INVITING TENDER-NIT –NO- **CGM(Tel)-03/2025-26.**

TENDER SPECIFICATION No**: CGM(Tel)_ e-TENDER_IOCL_03/2025-26**
FOR
Supply, Erection, Testing and Commissioning of equipment for data and speech communication between IOCL, Paradeep and SLDC, Bhubaneswar through OPGW On turnkey contract basis

(e-tendering mode only)

PART-I

SECTION-I- INSTRUCTION TO TENDERERS
SECTION-II- GENERAL TERMS AND CONDITIONS OF CONTRACT
SECTION-III- LIST OF ANNEXURE
SECTION-IV- TECHNICAL SPECIFICATION.
SECTION-V- COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT

PART-II

PRICE BID

1	Request for online tender documents	From Date 26.09.2025 (12.00Hrs) To Date 16.10.2025 (12.00 Hrs)
2	Last date of submission of online tender	Dated 16.10.2025 (15.00 Hrs)
3	Date of opening of Tender	Dated 17.10.2025 (15.00 Hrs)

ODISHA POWER TRANSMISSION CORPORATION LTD.

REGD. OFFICE: TECH TOWER, JANPATH, BHUBANESWAR – 751 007,

ODISHA

e-TENDER NOTICE NO- CGM(Tel)-03/2025-26

For and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD, C.G.M. (Telecom) invites Tenders from reputed EPC/Turnkey contractors for **Supply, Erection, Testing and Commissioning of equipment for data and speech communication between IOCL, Paradeep and SLDC, Bhubaneswar through OPGW on "Turnkey CONTRACT BASIS**" as per the following details:

- The interested bidders would be required to enrol themselves on the tender portal **www.tenderwizard.com/OPTCL**.
- Complete set of bidding documents are available at **www.tenderwizard.com/OPTCL** from Dt. 26.09.2025 at 12.00 P.M to 16.10.2025 at 12.00 P.M.
- Interested bidders may visit OPTCL's official web site **http://www.optcl.co.in.** and **www.tenderwizard.com/OPTCL** for detail specification.

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

CHIEF GENERAL MANAGER [TEL.]

NOTICE INVITING TENDER

ODISHA POWER TRANSMISSION CORPORATION LTD.,

REGD. OFFICE : TECH TOWER, JANPATH, BHUBANESWAR – 751 007,

ODISHA, INDIA.

e-TENDER NOTICE NO- CGM(Tel)-03/2025-26

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

Sl. No	Tender Specification No.	Description of work	Unit/ Quantity	EMD (In Rs.)	Cost of Tender document (in Rs.)	Tender Processing Fee (in Rs.)	Last date of receipt & opening of tender
1.	CGM(Tel) _e-TENDER _IOCL_03/ 2025-26	Supply, Erection, Testing and Commissioning of equipment for data and speech communication between IOCL, Paradeep and SLDC, Bhubaneswar through OPGW	1 Job	1,57,973/-	12,000/- + GST @18% = 14,160/-	5000/- + GST @18% = 5900/-	Dated 16.10.2025 (12.00 Hrs) & Dated 17.10.2025 (15.00 Hrs)

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

TENDER COST:

The bidders who want to submit bids shall have to pay non-refundable amount Rs. 14,160/- (Rupees Fourteen Thousand One Hundred Sixty) Only towards the tender cost (including GST) **online** through e-payment gateway link provided in e-tender portal (by using Net Banking, Debit Card or Credit Card). They have to also submit notarized hard copy of GST registration certificate on or before the date & time of opening of techno-commercial bid (Part-I). The bidders can also submit Tender Cost as per tender notice. The online payment can be made prior to last date & time of submission of online tender.

TENDER PROCESSING FEE:

The bidders shall have to submit non-refundable amount of Rs.5,900/- (Rupees Five thousand nine hundred) only including GST @ 18%) 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 down load the bid proposal sheets & bid document in electronic mode.

SUBMISSION OF TENDER COST & TENDER PROCESSING FEE & EMD:

The bidder shall deposit the tender cost, tender processing fee & EMD BG prior to last date & time of opening of bid(Part-I) as notified in tender notice.

The bidders shall scan and upload the same in the prescribed form in .gif or .jpg format in addition to sending the original as stated above. The bidder(s) shall submit Proof of payment of Tender Cost, Tender Processing fees and shall upload the same in the prescribed attachment in .gif or .jpg format in addition to submitting the original to the undersigned on or before the scheduled date and time for opening of Technical Bid.

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

Chief General Manager (Tel.)
OPTCL, Bhubaneswar
FAX NO.:0674 – 2540875
TELEPHONE NO.:0674 – 2542403

ODISHA POWER TRANSMISSION CORPORATION LTD.

OFFICE OF THE CHIEF GENERAL MANAGER,

TELECOMMUNICATION

JANAPATH, BHUBANESWAR – 751022

TENDER SPECIFICATION NO – CGM (Tel)_ e-TENDER_IOCL_03/2025-26

CONTAINING

PART – I

SECTION – I	:	INSTRUCTION TO TENDERERS
SECTION – II	:	GENERAL TERMS AND CONDITIONS OF CONTRACT (G.T.C.C.) (COMMERCIAL)
SECTION – III	:	LIST OF ANNEXURES (COMMERCIAL)
SECTION – IV	:	TECHNICAL SPECIFICATION Technical Specification of all equipment
SECTION-V-	:	COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT

PART – II **PRICE BID**

PART – I.

SECTION – I.

INSTRUCTIONS TO TENDERERS

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5	Purchaser's right regarding alteration in Quantities, Tendered.	10
6	Procedure and opening time of tenders.	10
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8	Eligibility for submission of bids.	10
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COMMERCIAL SPECIFICATION.

P A R T – I

S E C T I O N - 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 GST Laws.

i. For all the users it is mandatory to procure the Digital Signatures of Class-III.

ii. Contractors/ Vendors/ Bidders/ Suppliers are requested to follow the below steps for Registration:

- Click "Register", fill the online registration form.
- Pay the amount of Rs. 2360/- through e-payment/DD in favor of K S E D C Ltd Payable at Bangalore.
- Send the acknowledgment copy for verification.
- As soon as the verification is being done the e-tender user id will be enabled.

iii. 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.

iv. If any Bidder wants to participate in the tender he will have to follow the instructions given below:

- 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).
- Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).
- Go to Start > Programs > Internet Explorer.
- Type **www.tenderwizard.com/OPTCL** in the address bar, to access the Login Screen.
- Enter e-tender User Id and Password, click on "Go".
- Click on "Click here to login" for selecting the Digital Signature Certificate.
- Select the Certificate and enter DSC Password.
- Re-enter the e-Procurement User Id Password

v. To make a 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.

vi. 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.

vii. 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

viii. Tender Opening event can be viewed online.

ix. Competitors bid sheets are available in the website for all.

x. **For any e-tendering assistant contact help desk number mentioned below.**

- Bangalore – 080- 40482000.

The participants to the tender should be registered under GST Laws.

2. <u>Division of Specification :</u>

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

<u>Part-I Consists of</u>

[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	Comprehensive AMC

<u>Part-II Consists of</u>

Schedule of prices as per Annexure-V

3. <u>Tenders shall be in Two Parts :</u>

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

The Tenderers are required to submit the tenders in two parts Part-I, technical and commercial and 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, the original price proposals will be returned to the bidders unopened along with their original technical proposals. 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 in the presence of the bidder's representative 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 in the office of the Chief General Manager [Tel] 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 bidders 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.

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 out rightly.

The local Micro and small Enterprises(MSEs) (In the state of Odisha) based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC 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.

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-19 of 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 :

i) 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 Chief General Manager (Telecommunication) 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 submit tenders in the following manner :

Part-I of the Tender shall Contain the following documents.

[i] Declaration Form. [As per Annexure-I]

[ii] Earnest Money. [As per **Annexure-VIII**], Tender Cost.

[iii] Technical specification and Guaranteed Technical Particulars conforming to the Purchaser's Specification along with drawings, literatures and all other required Annexures, duly filled in.

[iv] Photostat copies of type test certificates of materials/equipment offered as stipulated in the Technical Specification.

[v] Abstract of Terms & conditions in prescribed proforma as per **Annexure-II.**

[vi] General Terms & Conditions of supply offer as per Section-II of the Specification.

[vii] List of orders executed for similar works during the period as against "minimum qualification requirement", indicating the customer's name, Purchase Order No. & Date, date of supply and date of commissioning etc.

[viii] Data on past experience **as per Clause-7 of Section-II** of the Specification.

[ix] GST Compliance Rating. The GST Identification Number (GSTIN) under GST Laws and permanent account number [PAN] of the firm under Income tax Act are required.

[x] Audited Balance sheet & profit loss accounts of the bidder, for past (3) three years.

[xi] Schedule of quantity and delivery in the prescribed Proforma vide Annexure, as appended.

[xii] List of Orders in hand to be executed.

[xiii] Deviation schedule.

(xiv) Local micro & small enterprisers (MSEs) **(In the state of Odisha)** based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC have to submit notarized hard copy of valid registration as local MSE **(In the state of Odisha)** as above on or before the date & time of submission of techno-commercial bid and upload the scan/soft copy of the same in e-tender portal.

[xv] 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/notary.

17. **Documents/Papers to accompany Part-II Bid :**

(a) Part – II of the tender shall consist of the following

(i) Schedule of prices in the prescribed proforma

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 lots. 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. 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 officers, 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 officers.

b) Journey of the inspecting officers:

(i) To and fro travel expenditure from the Head Quarters of the inspecting officers 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/IInd 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/IInd A.C) & A/C taxi to the place of inspection/testing shall be arranged by the contractor/supplier/manufacturer.

(ii) For train journey, inspecting officers 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 officers 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 or notary. 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.

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PART-I

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.]

1.0 **Scope of the contract :**

The scope of the contract shall be engineering, supply and installation of equipment as per the specification, and rendering services in accordance with the enclosed technical specification and bill of quantity.

1.1 The scope shall be the OPGW connectivity between IOCL, Paradeep S/S & 220/132/33 KV S/S, OPTCL, Paradeep with the supply & commissioning of the 24F OPGW with associated hardware fittings, Joint Box, FOAC (Fibre Optic Approach Cable) with associated Hardware and FODP (Fibre Optic Distribution panel) as detailed in the technical Specification and as per the BOQ specified.

1.2 The scope also covers engineering, assembly, inspection and testing, packing and delivery F.O.R. (destination) and complete commissioning of the (i) FOTE, configured with the associated required cards and (ii) Digital protection Coupler (iii) RTU (Configured with required MFT, CMR, OLTC transducer, etc.) with necessary associated cards (iv) 48V VRLA Battery (v) SMPS based Charger along with supply & laying of associated cables in all respect for all the above equipment as detailed in the technical Specification and as per the BOQ specified.

1.3 The contractor has to carry out a survey after award of contract and submit the survey report jointly signed by the site in-charge to the employer for approval and for subsequent amendment to the work order if there is a change in the BOQ.

1.4 ~~There shall be provision of housing the digital protection coupler in the SDH rack at both ends.~~

1.5 All the above equipment shall be properly earthed with the supply of required earth flat. Cables for the equipment shall be properly dressed before termination with the supply of required cable tray where ever necessary.

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 CHIEF GENERAL MANAGER (TEL) for and on behalf of ODISHA 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 "Basic Price (Taxable value for Goods & Services) at the point of destination" shall mean the price quoted by the bidder for equipment, material & services at the consignee's store/site. The cost is inclusive of packing, forwarding, freight, insurance and all expenses and taxes & duties at the end of the supplier excluding Goods & Service Tax. The Goods & Service Tax shall be shown in a separate column item wise alongside the Basic Price quoted at the applicable rate in the Tax Invoice. The applicable rate of GST shall refer to the HSN/SAC code of the material/service supplied. The Basic Price and GST thereon shall be the "FOR Destination Price" as quoted by the bidder.

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 Odisha General Clauses Act.

3.0 **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.

4.0 **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.

5.0 **Training facilities:**

The supplier shall provide all possible facilities for training of Purchaser's Technical personnel, when deputed by the Purchaser for acquiring firsthand knowledge in assembly of the equipment, its erection, commissioning and for its proper operation & maintenance in service, wherein it is thought necessary by the purchaser.

6.0 **Rejection of Materials :**

In the event any of the equipment /material / services supplied / provided 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.

7.0 **Experience of Bidders** :

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

[i] Name of the bidder:

[ii] Standing of the firm and experience in executing similar nature of work tendered:

[iii] Description of the work to that quoted (at least one) with the details of supply and commissioning during the last five years with the name(s) of the Organization's for which work has been executed 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 for the major supply items.

[vi] ~~If the manufacturer is having collaboration with another firm [s], details regarding the same.~~

[vii] A list of work orders of identical work, offered as per technical specification executed during the last five 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 one year 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 experience is found to be un-satisfactory or is of less than 3 (three) 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, not- withstanding 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. The purchaser has exclusive right to alter the quantities of materials/ equipment / services. 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. **Delivery (Work Completion):**

[a] Time being the essence of the contract; the work shall be completed within the scheduled period, specified in the contract. The Purchaser, however, reserves the right to reschedule 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/Work order.

[b] The desired delivery/ work Completion period shall be as indicated at **APPENDIX-I** of Section-IV (Technical Specification).

14. **Dispatch Instructions** :

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

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 judgment 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 judgment 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 contractor 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 contractor 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 execution of the work in complete shape is delayed due to reasons beyond the control of the contractor, the contractor 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: - (As per Clause-K of the technical specification):**

[i] The work covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of 12 months from the date of complete commissioning of the work. 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) of this section shall apply.

[ii] Equipment/material /services failed or found defective during the guarantee period shall have to be guaranteed after repair/replacement for a further period of 12 months from the date of commissioning. 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 & installed/commissioned in OPTCL'S 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/system integrators situated Inside & outside the state of Odisha.

A Composite Bank Guarantee as per the Proforma enclosed at Annexure-XXI of the specification for 10% [ten percent] of the Total Landing cost (Taxable Value plus GST thereon) of the purchase order, shall be furnished from any nationalized/scheduled bank having a place of business at Bhubaneswar, to the office of Chief General Manager [Tel] 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 14 months from the last date of 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. **Terms of Payment :**

Being a works contract under GST Laws, the on-account payments shall be made as below.

Payments

(A) 90% taxable value of each consignment with 100% Goods and Services Tax in full as applicable will be paid on receipt of materials in good condition at stores/desired site and verification thereof, subject to furnishing and approval of

(a) Contract cum Performance Bank Guarantee at the rate of 10%(ten percent) of Taxable Value plus GST thereon.

(b) i) Guarantee certificate, Test certificate by the Purchaser.

ii) TDS under Income Tax Act and GST Laws shall be deducted as applicable.

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

(B) Balance 10% of the taxable value of the supplies made along with commissioning charges with GST, shall be paid after successful erection & commissioning of the complete work at the required site, on issuance of taking over certificate by the concerned site-in-charge.

22. **Price Reduction Schedule for Delay in Completion of Contract:**

(i) If the contractor fails to deliver the materials/equipment /complete installation & commissioning within the work completion schedule, specified in the Purchase Order/Contract including delivery time extension, if any, granted with waiver of Price Reduction Schedule, the Purchaser shall recover from the contractor a sum of half per cent (0.5 per cent) of the Taxable Value of the un-delivered equipment /materials and incomplete portion of works for each calendar week of delay or part thereof. For this purpose, the date of receipted challan shall be reckoned as the date of delivery. The total amount of Price Reduction Schedule shall not exceed five per cent (5%) of the Taxable Value of the un-delivered equipment/ materials/ service. Equipment will be deemed to have been delivered only when all its components, accessories and spares as per technical Specification are also delivered. If certain components, accessories and spares are not delivered in time, the equipment/ materials will be considered delayed until such time as the missing components, accessories and spares are delivered.

(ii) During the guarantee period, if the Contractor fails to rectify/replace the equipment/material / installations within 30 days from the date of intimation of defect by the purchaser, then the Price Reduction Schedule at the rate of half percent (0.5%) of the Total Taxable Value for each calendar week of delay or part thereof shall be recovered by the purchaser. For this purpose, Price Reduction Schedule shall be reckoned from the 30th day from the date of issue of letter on defectiveness of equipment/material. The total amount of Price Reduction Schedule in this case shall not exceed 10% (TEN PERCENT) of the Purchase Order/Contract amount except GST (i.e. Total Taxable Value). If the defects, so intimated are not rectified or equipment/materials not replaced by the supplier within the guarantee period, then whole of the C.P.B.G. will be forfeited by the purchaser, without any intimation to the supplier.

23. **Insurance :**

The Contractor 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 contractor. The Contractor 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 Contractor :**

All costs and damages, for which the Contractor 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. **Rating under Goods and Services Tax and Balance sheet and profit & Loss Account :**

The following documents are to be submitted at the time of Tender Submission:

i. Compliance rating under Goods and Services Tax for immediate preceding financial year

ii. Audited Balance Sheet and Profit & Loss Account of the bidder for the previous three years to assess the financial soundness of the bidder(s).

iii. GST registration certificate and PAN Card Copy.

iv. Tax holiday/exemption certificate under GST or any other Act.

v. TDS exemption certificate under the Income Tax Act or any other act.

26. **Certificate of Exemption from Goods and Services Tax** :

Offers with exemption from Goods and Services Tax shall be accompanied with authenticated attested Photostat copy of exemption certificate. Any claim towards Goods and Services Tax shall be paid on actual basis subject to payment of GST by the Contractor. In case Outward supply details of the supplier of Goods in GSTR-1 do not match with GSTR -2 of OPTCL on GSTN portal, the same will be adjusted through debit/credit advice issued by OPTCL under intimation to the Contractor after allowing cooling period of 3 months after the date of supply.

27. **Contractor'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 Contractor(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 Goods and Services Tax & other levies as may be applicable. The FORD PRICE shall consist of the following components

a) Taxable value of equipment/materials

b) Goods and Services Tax

c) Other levies.

d) Mandatory spares, if any for maintenance of equipment. (At the discretion of the purchaser)

e) Test charges, if any.

f) Erection, testing and commissioning charges, if any.

g) Any other items, as deemed proper for evaluation by the purchaser.

h) Loading factors will be taken in to account during evaluation if the prices of some of the items, not quoted.

i) Any imposition of new tax or revision of tax shall be considered at the time of price bid evaluation.

(II) **e-Reverse Auction is hereby incorporated in the referred tender as follows.**

STRATEGY FOR E-REVERSE AUCTION	
1	Bidders are required to go through the guide lines given below and submit their acceptance to the same.
2	e-Reverse Auction (RA) will be conducted in e-tender portal of OPTCL on specified date and time, while bidders shall quote from their own offices/places of their choice. Internet connectivity shall be ensured by the respective agencies/bidders themselves.
3	Demonstration/ training (if not trained earlier) of bidder's nominated person(s), shall be done to explain all the rules related to e-Reverse Auction/ Business Rule document to be adopted.
4	The strategy to be used for reverse auction shall be "DYNAMIC TEMPLATE BIDDING"
Procedure for electronic Reverse Auctioning (e-RA):	

5	a. The e-RA shall be conducted on www.tenderwizard/OPTCL.com only. b. Bidder has to submit letter towards agreement to the Process related Terms & Conditions for e-Reverse Auction, as per (Reverse Auction Process Compliance Form at Annexure-IB). In non-receipt of the same, vendors will not be allowed to participate in e-RA. c. e-RA shall be carried out after opening of Price bids and completion of Price bid evaluation, which will be intimated only to the techno-commercially qualified bidders by OPTCL as per procedure given below. d. OPTCL reserves the right to conduct e-RA and it is obligatory on part of bidder(s) invited to participate in e-RA process once they have responded to the techno-commercial bid.
6	Prior intimation/ Notice for RA invitation will be given to techno-commercially qualified bidders regarding the date & time of opening of the e-RA. The start bid price (SBP) for e-Reverse Auction of each bidder under a particular package shall be the L1 evaluated price for the subject package including Taxes & Duties for the total scope for subject Package. Taking the above discovered L1 price as the upper limit e-RA will be conducted to determine the lowest possible price. Reverse Auction will be conducted amongst first 50% of the technically qualified bidders arranged in order of prices from lowest to highest, as L1, L2,L3---------- Ln, and L1 price will be discovered. Minimum of 3 bidders shall be eligible for e RA. (eg. If 4 bidders are financially evaluated then the L1, L2 and L3 bidders shall be eligible for e-RA). Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of technically qualified bidders is odd (e.g. if 7 bids are technically qualified, then RA will be conducted amongst L1 to L4). However, in case only two bidders are found to be responsive, e-RA would be carried out with both the parties without any elimination. However, OPTCL reserves the right to invite the evaluated L1 bidder for negotiation without conducting the e-RA. In case of price submitted by any bidder is found to be abnormal, OPTCL reserves the right to reject the bid of the bidder(s) . Rank of bidders would be displayed as per the total cost to OPTCL, i.e including Taxes and Duties payable by OPTCL as per the provisions of the biding document & after e-RA process is over.
7	Names of bidders/ vendors shall not be disclosed during the e-RA process. Names of bidders/ vendors shall be anonymously masked in the e-RA process. (i) In case of RA, start/ reference price and step value of decrement shall be indicated to the bidders at the start of the auction. Any participating bidder can bid one or multiple step decrement lower than the prevailing lowest bid at that time. The Bidder shall be able to view Bid Start Price, Bid Decrement Value, Prevailing Lowest Bid value, last Bid Placed by him and time left for bidding. (ii) The step value of decrement in a package to be offered by bidder (the

	minimum amount of reduction in the total bid price including all taxes & duties during auction) , shall be kept at 0.15% of L1 bidder's final evaluated price (or) at approved amount as decided by OPTCL. (iii) Bidders can only quote any value lower than their previous quoted price. However, at no stage, increase in Price will be permissible. (iv) At any point during Reverse Auction, bidding Price field shall remain enabled for the bidders. The reverse auction period shall be unlimited and the initial auction period (1st slot) will be of thirty (30) minutes with provision of auto extension by (10) ten minutes from the schedule/ extended closing time. If any fresh lower bid is received in last ten minutes of initial auction period or extended auction period, the auction shall get extended automatically for another 10 minutes. In case, there is no bid received during schedule/extended slot, the auction shall get closed automatically without further extension. (v) However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the period of e-reverse auction to avoid complication related with internet connectivity, network problem, system crash down, power failure etc.
8	After conclusion of e-Reverse Auction i.e (Closing Price in Reverse Auction will be taken as offered price by the L1 bidder), decrease in price of individual head of the template shall be considered proportionately on all individual line items of the respective head of the price schedule of the successful L1 bidder . Any bid received at the tender wizard server end subsequent to closure of the e-RA shall be summarily rejected and shall not be considered as a valid bid under whatsoever circumstances. For this purpose, tender wizard server log shall prevail. The bidder shall not involve himself or any of his representatives in price manipulation of any kind directly or indirectly by communicating with other bidders. During Reverse Auction, If no bid is received within the specified time, OPTCL, at its discretion, may decide to close the reverse auction process/ proceed with conventional mode of tendering [Evaluation of Part-II (price bid) submitted by bidders earlier].
9	Consequent upon completion of e-Reverse Auction, OPTCL's decision on award of contract shall be final and binding on the bidders. OPTCL shall be at liberty to call the L1 bidder for further process/ negotiation and also at liberty to cancel the e-reverse auction process/ re-tender at any time, without assigning any reason thereof. OPTCL can decide to reschedule or cancel any reverse auction: the bidders shall be informed accordingly. OPTCL/ Service Provider shall not have any liability to bidders for any interruption or delay in access to the e-Tender site/ Reverse Auction link irrespective of the cause.

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.

30. **Minimum Qualification Criteria of Bidders:**

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

i. The bidder should have minimum **3 years** of experience in executing similar type of work as on the date of opening of the techno-commercial bid.

ii. The bidder, must have successfully executed similar type of projects comprising of at least any two of the following works in a single project on EPC Contract/Turnkey Contract basis in India during last five years as on the date of opening of the techno-commercial bid.

1. Stringing of OPGW
2. Installation & commissioning of FOTE
3. Installation & commissioning of RTU
4. Installation & commissioning of DTPC

iii. The above work should have been under successful operation for a minimum period of one year reckoned from the date of opening of Bid(s). One of such performance certificate against satisfactory operation should have been issued by any Transmission/Generation Utility State Govt./Central Govt./any PSU/ any associated Transmission system for IPPs (Independent Power Producers) having installed capacity of 500MW or above in India/ any Agency awarded in a tariff based competitive Bidding (TBCB) by any State Govt./Central Govt./PSU in India.

iv. The type tests on the major equipment offered against the tender should have been conducted in NABL laboratory within last five years from the date of opening of the tender (pt-I).

v. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority as per the requirement of Govt. of India.

vi. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated herein before, including any agency branch or office controlled by such person, participating in a procurement process.

vii. "Bidder from a country which shares a land border with India" for the purpose of this Order means :-

a. An entity incorporated, established or registered in such a country ; or
b. A subsidiary of an entity incorporated, established or registered in such a country ' or
c. An entity substantially controlled through entities incorporated , established or registered in such a country ; or
d. An entity whose beneficial owner is situated in such a country ; or
e. An Indian (or other) agent of such an entity ; or
f. A natural person who is a citizen of such a country ; or
g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

viii. The beneficial owner for the purpose of (viii)(d) above will be as under :
In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting along or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

ix. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

[A] Certificate (to be furnished in bidder's letter head)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evident of valid registration by the Competent Authority shall be attached.]

30.1 **Other Technical Qualification:**

The contractor/ sub-contractor who will do the OPGW stringing work should be a **HT/EHT** electrical contractor having a valid license from the competent licensing authority.

30.2 **Bidder's Financial Qualification:**

(i) Minimum Average Annual Turnover :

The Minimum Average Annual Turnover (MAAT) requirement of the bidder during last Three Financial Years as indicated in the following Table, shall not be less than **Rs. 7.11 crore.** In case the Bidder is in existence for less than three financial years, the average annual turnover shall be sum of turnover in the completed no of financial years divided by three for the purpose of meeting the above criteria. Turnover of the bidding company on standalone basis only (excluding its associate companies on Standalone Basis) shall be considered for arriving at Annual Turnover. While calculating the turnover, only project related turnover shall be taken into consideration.

MAAT Schedule

Sl. No	Financial Year	Project Related Annual Turnover (excluding associate companies on Standalone Basis) of the Bidder (in INR Crores)
1	2024-25 (Amount in RS.)	
2	2023-24 (Amount in RS.)	
3	2022-23 (Amount in RS.)	
A. Total of 3FY Project related Annual Turnover		
B. (A/3) Average of project related Annual Turnover for 3FY		

Note:

1. The bidder has to furnish the certificate from the Chartered Accountant (CA) certifying the Project related Annual Turnover of the company only (excluding its Associated Companies on Standalone Basis) based on audited accounts of the last Five Financial Years. In case the bidder has executed any project in Joint Venture/ Consortium, the project related turnover certified the Chartered Accountant (CA) should reflect his share of the project related turnover only.

31. Solving Right of Way :

i) The responsibilities of acquiring **Right of Way (ROW)** lies with the contractor at his own risk and cost. Similarly, responsibilities of getting clearance from Railway, NHAI, Forest, Water and other Statutory/Govt. bodies lie with the contractor at his risk and cost (except payment of statutory fees) . However, OPTCL will facilitate the process for getting clearance and reimburse the Statutory Fee.

ii) The responsibilities of acquiring Right of Way (ROW) lies with the contractor at his own risk and cost. However, OPTCL will make all endeavors to facilitate process of securing the ROW. OPTCL shall assist the Contractor for getting clearances from Railway, NHAI, Forest, Water, and other Govt./Statutory bodies, if any. All statutory fees for getting clearance shall be to OPTCL's account.

32. **Rejection of materials/equipment :**

The equipment shall be supplied as per the GTP specified by OPTCL and should be from approved manufacturer Vendors list of OPTCL(as enclosed) for this tender. The equipment for which GTP or selected Vendors is not specified by OPTCL, the same shall be supplied only after obtaining approval from OPTCL. In the event, any of the materials supplied by the Contractor 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 materials / equipment or ask the Contractor in writing to rectify the same. The Contractor on receipt of such notification shall either rectify or replace the defective materials free of cost to OPTCL. If the Contractor fails to do so, OPTCL may :

i. At its option replace or rectify such defective materials/equipment and recover the extra costs so involved from the Contractor plus fifteen percent and / or.

ii. Terminate the contract for balance work / supplies with enforcement of Price Reduction Schedule Clause as per contract for the un-delivered materials and with forfeiture of Contract Performance Bank Guarantee.

iii. Acquire the defective equipment / materials at reduced price considered equitable under the circumstances.

33. **Jurisdiction of the High Court of Odisha:**

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 Odisha extends.

34. **Correspondences:**

i) Any notice to the Contractor under the terms of the contract shall be served by Registered Post or by hand at the Contractor's Principal Place of Business.

ii) Any notice to the Purchaser shall be served at the Purchaser's Principal Office in the same manner.

35. **Official Address of the Parties to the Contract:**

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

[i] **Purchaser**: Chief General Manager (Telecom)
ODISHA POWER TRANSMISSION CORPORATION LIMITED,
Bhubaneswar-751022, Odisha.
Telephone No. 0674 - 2542403
FAX No. 0674 – 2540875

[ii] **Contractor:** Address
Telephone No.
Fax No.

36. **Outright Rejection of Tenders:**

Tenders shall be out rightly 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 on or before the date and time of opening of technical bid (part-I).

[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 opening of technical bid (Part-I).

[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 single stage two part as specified.

[vii] The tenderer shall upload the scanned copy of latest type test certificates (for the tests, carried out on the tendered equipment, 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 Organization's representative(s).

[viii] 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.

[ix] 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.

(x) Guaranteed Technical particulars & Abstract of terms and Conditions should be filled in completely.

(xi) (a) Detailed information on any litigation or arbitration arising out of contract 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.

(b) 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 the unequivocal terms by way of an affidavit duly sworn before a magistrate/notary. 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 be liable for outright rejection/ cancellation at any stage if any information contrary to the affidavit / declaration is detected.

37. **Documents to be treated as confidential:**

The Contractor 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.

38. **Scheme/Projects:**

The materials/equipment covered in this specification shall come under deposit works of OPTCL.

PART-I

SECTION – III

LIST OF ANNEXURES

(I TO XVII)

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(A)
2	Reverse Auction Process Compliance Form	ANNEXURE-I(B)
3	Abstract of terms and conditions to accompany Section-II of Part-I	ANNEXURE-II
4	Schedule of Quantity and Delivery	ANNEXURE-III
5	Abstract of price component [to accompany Part-II of this specification]	ANNEXURE-IV
6	Schedule of prices to accompany Part-II	ANNEXURE-V
7	Bank Guarantee form for earnest money deposit	ANNEXURE-VI
8	Composite Bank Guarantee form for security deposit, payment and performance	ANNEXURE-VII
9	Chart showing particulars of E.M.D.	ANNEXURE -VIII
10	Data on Experience.	ANNEXURE -IX
11	Schedule of spare parts.	ANNEXURE-X
12	Schedule of Installations.	ANNEXURE-XI
13	Schedule of deviations (Technical)	ANNEXURE-XII (A)
14	Schedule of deviations (Commercial)	ANNEXURE-XII (B)
15	Litigation /Arbitration	ANNEXURE-XIII
16	Format for extension of Bank guarantee	ANNEXURE-XIV
17	Tender specific authorization from the manufacturer of the offered equipment.	ANNEXURE-XV
18	DPIIT Certificate	ANNEXURE-XVI
19	Manufacturer’s Authorization	ANNEXURE-XVII

ANNEXURE – I (A)

DECLARATION FORM

To

The Chief General Manager (Tel)
OPTCL Head Qrs. BBSR, 751022

Sub :- Tender Specification No-_____

Sir,

Having examined the above specification together with terms & conditions referred to therein

1. * I/We the undersigned hereby offer to supply the materials/equipment 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 ODISHA 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 2025

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 – I (B)

(Reverse Auction Process Compliance Form)

(To be submitted on letter head of the bidding company with sign and stamp and along with Technical bid)

To,

The Chief General Manager (Tel)
OPTCL Head Qrs.BBSR,751022

Sub : Agreement to the Process related Terms & Conditions for e-Reverse Auction.

Dear Sir,

This letter is to confirm that:

- The undersigned is authorized representative of the company.
- We have studied the Commercial Terms and the Business rules governing the Reverse Auction as mentioned in your tender and confirm our agreement to that.
- We also confirm that we have gone through the auction manual and have understood the functionality of the same thoroughly.
- We, hereby, confirm that we will honour the Bids placed by us during the tendering/ e- Reverse auction process as called as e-RA.
- We also confirm that we will accept our Rank / Position that will be displayed when the Bidding Time for the Online Reverse Auction is over.

With regards,

Signature with Designation with company seal Name & Address

(Person having power of attorney for the subject package)

ANNEXURE-II

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

(To be filled up by the tenderer as indicated in the excel sheet for "Abstract of price component & other commercial terms")

ANNEXURE-III

SCHEDULE OF QUANTITY AND DELIVERY ALONG WITH INSTALLATION & COMMISSIONING

Sl.No	Item Description	Quantity	UOM	Desired delivery, Installation & commissioning
1(i)	24Fibre(DWSM)OPGW fibre Optic Cable	7.7	km	04 Months from the date of LOA
1(ii)	Hardware set like suspension Assembly, Tension Assembly (Dead end assembly, Pass through assembly) ,Vibration Damper, Down Lead Clamp Assemblies & Joint Box for 24F OPGW.	7.7	km	-do-
2	24 Fibre Optic Approach cable along with installation hardware including HDPE Pipes	0.8	km	-do-
3	FODP(Fibre Optic Distribution Panel)48 F: Indoor type, rack mounted with FCPC coupling and pig tails(DWSM Fibre)	2	Set	-do-
4	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with cabinet, each configured with Cross-Connect & Timing Card (Minium 4 ports STM-4) -2nos , Ethernet Interface Card (8 Port)-2 nos , 63xE1 2Mbit/s Interface Card (120Ω 16 Ports Minium)-1 nos, Optical Fibre Patch Cords Single Mode Simplex (LC-LC) 10 Mtrs- 2nos, Optical Fibre Patch Cords Single Mode Simplex (LC-FC) 5 Mtrs-4nos, STM-4 SFP Module (L-4.2)-4nos, Voice Gateway 2w(FXS)- 2 nos . Power cable(2.5 sq. mm 2 core DC supply) =25mtr, cable for AC supply(2.5 sq. mm 3 core) = 25 mtr.	2	No's	-do-
5	Remote Terminal Unit (RTU) with AI cards -2nos, DI card-3 nos,, OLTC Xducer-3nos, CMR-40 Nos . Laptop-1 no cat-6 cable = 100 mtr , 4 core 2.5 sq.mm cable for OLTC= 100mtr 2.5 sq.mm single core flexible control cable(MFT PT supply)= 350mtr, 4 sq. mm single core flexible control cable(MFT CT supply)= 500mtr. 1.5sq. mm 10 core control cable (Digital Input)= 1200 mtr. .	1	Set	-do-

	2 pair 0.5 sq.mm screened armoured twisted pair data cable for MFM O/P = 150 mtr. 2.5 sq. mm 3 core control cable AC supply=60 mtr, 2.5 sq. mm 2 core control cable DC supply=40 mtr 2.5 sqmm 2 core cable for 48V DC supply=300mtr			
6	DTPC-Digital Tele-protection Coupler with cabinet compatible for interfacing with SDH MUX a. Laptop-1 no(for configuration & monitoring) b. 2.5 sq. mm 2 core power cable for DC supply to DTPC (Black and red) = 180 mtr c. 2.5SQMM 10Core flexible control cable = 1960mtr d. Cat-6 cable for connectivity- 500 MTR	4	No's	-do-
7	48 V, 300 AH, maintenance free VRLA Battery set. 16 sq.mm multi strand Black & red copper wire = 80 mtr each	2	Set	-do-
8	SMPS based battery charger of 75A suitable for 48V VRLA battery. 4 core 4 sq.mm copper cable = 80 mtr, 6 sq.mm multi strand Black & red copper wire = 80 mtr each	2	Set	-do-
9	Earth Flat, Cable Tray, Telephone cable, ACDB, DCDB, Foundation rail, Junction Box, etc.	1	LS	-do-

Signature of Tenderer
with seal of Company

ANNEXURE-IV

(To be filled up by the tenderer as indicated in the excel sheet)

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

ANNEXURE-V.

SCHEDULE OF PRICES TENDER SPECIFICATION No.

(To be filled up by the tenderer as indicated in the excel sheet**)**

1. The tenderer should fill up the price schedule properly in excel file in e-tender mode. The tender will be rejected, if the price bid is not submitted in accordance with the price schedule. No post tender correspondence will be entertained on break-up of prices. Also, the Contractor should agree for delivery at the desired site.
2. The Tenderer shall give an undertaking in part-I of the bid that, entire implication of lower tax and input tax credit benefit have been fully passed on to the purchaser as per anti-profiteering and other provisions under GST Laws while quoting the tender price.

3. Conditional offers will not be acceptable.

Signature of Tenderer

Name, Designation and Seal

ANNEXURE-VI

[PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT]

(To be Stamped in accordance with Stamp Act and the Non-Judicial Stamp Paper of appropriate value should be in the name of Issuing Bank)

a) **Ref No: …….**

b) **Bank Guarantee No. …….**

Date:……
BG Amount:…….
Validity Period:……..

This Guarantee Bond is executed this…… day of …… by us the…… Bank at …… , P.O…… , Dist……, State…… and Code No……..

Whereas the ODISHA POWER TRANSMISSION CORPORATION Limited, Janpath, Bhubaneswar, a company constituted under the Companies Act-1956 (hereinafter called OPTCL) has invited Tender vide e-NIT No……. Dated…… for the purpose of …… work under Package(s) No……../ purchase of ---------- .

1. Now, therefore, in accordance with Notice Inviting Tender (e-NIT) No…….. Dated …… of OPTCL, Ms/Shri……Address……..... Wish / wishes to participate in the said tender and as a Bank Guarantee for the sum of Rs……. [Rupees in ***words***----------] valid for a period of …….days is required to be submitted by the bidder, as per Tender Specification, we the _____) [indicate the name, Address & Code of the bank] [hereinafter referred to as "Bank"] at the request of Ms/Shri……... [hereinafter referred to as "Bidder"] do hereby unequivocally and unconditionally guarantee and undertake to pay during the above said period on written request by the <Tender Issuing Authority, Dept. of Telecom ODISHA POWER TRANSMISSION CORPORATION Ltd. , Bhubaneswar an amount not exceeding Rs……. to OPTCL., without any reservation. The guarantee would remain valid up to …….. [Date] and if any further extension to this is required, the same will be extended on receiving instruction from ---------- on whose behalf this Bank Guarantee has been issued.

2. We, the _____ [indicate the name of the Bank, Address, Code] do hereby further undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from OPTCL. 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 in words……)

3. We undertake to pay to OPTCL any money so demanded not withstanding any dispute or disputes so raised by the bidder 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 thereunder and the bidder shall have no claim against us for making such payment.

4. We, the _____ Bank further agree that the guarantee herein contained shall remain in full force and effect during the aforesaid period of _____ days [in words]…….. (as per Tender Specification) and it shall continue to be so enforceable till all the dues of OPTCL under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till OPTCL certifies that the terms and conditions of the said Bid have been fully and properly carried out by the said bidder and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us or our Branch Office at Bhubaneswar <Mention Name, Address & Code of the Branch Office at Bhubaneswar of Issuing Bank> in writing on or before _____ we shall be discharged from all liability under this guarantee thereafter.

5. We the _____ Bank further agree with OPTCL that 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 Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by OPTCL against the said Bidder 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 granted to the Bidder or for any forbearance, act or omission on the part of OPTCL or any indulgence by OPTCL to the said Bidder or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the 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/or of the Bidder.

7 We _____ [indicate the name of Bank, Address &Code] lastly undertake not to revoke this guarantee during its currency except with the previous consent of OPTCL in writing.

8. We, the _____Bank (Name, Address & Code) further agree that this guarantee shall also be invokable at our place of business at ---------- Branch of **Bhubaneswar** (indicate Name, Address & Code of the Branch at Bhubaneswar) in the State of Odisha."

" Notwithstanding anything contained herein"

a) Our liability under the bank guarantee shall not exceed Rs.----------(Rupees in words----------) only.

b) This Bank guarantee shall be valid up to ----------.

c) We or our Branch at Bhubaneswar <Mention Name, Address & Code…….> shall be liable to pay guaranteed amount or any part thereof under this guarantee only if you serve upon us at--------- Branch of Bhubaneswar a written claim or demand on or before ……,

The Bank Guarantee is issued in paper form and Advice transmitted through SFMS with required details to the beneficiary's advising bank (ICICI Bank Bhubaneswar, IFSC Code ICIC0000061).

Dated, the _____Day of _____

For _____ [Indicate name of Bank]

Signature ……
Full name …….
Designation ……
Power of Attorney No. …….
Date…….
Seal of the Bank…….

WITNESS: (SIGNATURE WITH NAME AND ADDRESS)
(1)
Signature ……
Full name …….
(2)
Signature ……
Full name …….

N.B.:

1. Name of the Bidder.: ……
2. BG No & Date :……
3. Amount (In Rs.):……
4. Validity up to :……
5. E-NIT No……..
6. Package/Works No……..
7. Name, Address & Code of Issuing Bank:……
8. Name, Address & Code Bhubaneswar Branch of the Issuing Bank:……
9. The Bank Guarantee shall be accepted after getting SFMS advice as per details below.

Format for SFMS details

(The Unique Identifier for field 7037 is "OPTCL541405793")

Sl. No	PARTICULARS	TYPE	DETAILS
1	Type of Bank Guarantee	Mandatory	EMD
2	Currency & Amount	Mandatory	
3	Validity Period(from—to --)	Mandatory	
4	Effective Date	Mandatory	
5	End date of lodgment of Claim	Mandatory	
6	Place of lodgment of claim	Mandatory	Bhubaneswar, Branch Name------ of Bhubaneswar Branch code------- of Bhubaneswar Branch Address ------ at Bhubaneswar
7	Issuing Branch IFSC Code	Mandatory	
8	Issuing Branch name & address	Mandatory	
9	Name of applicant and its details	Mandatory	
10	Name of Beneficiary and its details	Mandatory	
11	Beneficiary's Bank/Branch and IFSC Code	Mandatory	ICICI Bank Ltd IFSC Code-ICIC0000061
12	Beneficiary's Bank/Branch name and address	Mandatory	ICICI Bank Ltd Bhubaneswar Main Branch, Bhubaneswar
13	Sender to receiver information	Mandatory	
14	Purpose of Guarantee	Mandatory	EMD
15	Reference/Description of the underlined tender/contract	Mandatory	NIT No

ANNEXURE-VII

[PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT PAYMENT AND PERFORMANCE]

(To be stamped in accordance with Stamp Act and the Non-Judicial stamp paper of appropriate value should be in the name of the Issuing Bank.)

c) **Ref No:- …….**

d) **Bank Guarantee No. …….**

Date: ……
BG Amount:…….
Validity Period:……..

This Guarantee Bond is executed this…… day of …… by us the…… Bank at …… , P.O…… , Dist……, State…… and Code No……..

Whereas the ODISHA POWER TRANSMISSION CORPORATION Limited, Janpath, Bhubaneswar, a company constituted under the Companies Act-1956 (hereinafter called OPTCL) has issued Letter of Award (LOA) No…… Dated…… for the purpose of …… work under Package No……. (herein after called "the Agreement") to M/s/Shri …….. , Address…….. (herein after called the "Contractor") for supply, erection, installation & commissioning and associated civil works under the above LoA and whereas OPTCL has agreed (1) to exempt demand of security deposit under the terms and conditions of the LOA (2) to release payment of the cost of the Contract Price to the Contractor on furnishing by the Contractor to OPTCL a Contract Performance Bank Guarantee (CPBG) of the value of 10% of the Contract Price of the said Agreement.

1. Now therefore, in accordance with the terms and conditions of LOA No. _____ dated _____ for the due fulfillment by the said Contractor of the terms and conditions contained in the said agreement, on production of a Bank Guarantee for Rs._____ (Rupees_____) only, we the bank _____ [Indicate bank Name , Address & Code] (hereinafter referred to as "the Bank") at the request of M/s/Shri _____ contractor do hereby undertake to pay to OPTCL, an amount not exceeding Rs._____ (Rupees _____) only .

2. We, the _____ Bank [indicate the name of the Bank, Address & Code] do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from OPTCL. 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---------- In Words).

3. We, the …… Bank also undertake to pay to OPTCL any money so demanded not withstanding any dispute or disputes raised by the Contractor in any suit or proceeding instituted / pending before any court or tribunal relating thereto, our liability under this present being absolute and irrevocable. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor shall have no claim against us for making such payment.

4. We, the _____ Bank further agree that the guarantee herein contained shall remain in full force and effect during the aforesaid period of _____ days and it shall continue to be so enforceable till all the dues of OPTCL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till OPTCL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor and accordingly discharges this guarantee.

Unless a demand or claim under this guarantee is made on us or our Branch Office at Bhubaneswar <Mention Name, Address & Code of the Branch Office at Bhubaneswar of issuing Bank> in writing on or before …… (Date), we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ Bank [indicate the name of the Bank, Address & Code] further agree with the Board that 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 or performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by OPTCL against the said contractor(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 contractor(s) or for any forbearance, act or omission on the part of OPTCL or any indulgence by OPTCL to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of so relieving us.

This guarantee will not be discharged due to the change in the name, style or constitution of the Bank and/or of the contractor(s).

6.We, the _____ Bank [indicate the name of the bank, Address & Code] lastly undertake not to revoke this guarantee during its currency except with the previous consent of OPTCL in writing.

7. We, the _____Bank (Name, Address & Code) further agree that this guarantee shall also be invokable at our place of business at **Bhubaneswar** (indicate Name, Address & Code of the Branch at Bhubaneswar) in the State of Odisha.

" Notwithstanding anything contained herein"

a) Our liability under the bank guarantee shall not exceed Rs.----------(Rupees in words----------) only.

b) This Bank guarantee shall be valid up to ----------.

c) We or our Branch at **Bhubaneswar** <Mention Name, Address & Code…….> shall be liable to pay guaranteed amount or any part thereof under this guarantee only if you serve upon us at--------- Branch of Bhubaneswar a written claim or demand on or before ……,

The Bank Guarantee is issued in paper form and Advice transmitted through SFMS with required details to the beneficiary's advising bank (**ICICI Bank Bhubaneswar**, IFSC Code ICIC0000061).

Dated, the _____Day of _____
For _____ [Indicate name of Bank]

Signature……..

Full Name…….

Designation……..

Power Of Attorney……..

Dated……

Seal of the Bank……..

WITNESS: (SIGNATURE WITH NAME AND ADDRESS)

1.Signature…….

Full Name…….

2. Signature…….

Full Name…….

N.B.:

1. Name of the Contractor.: ……
2. BG No & Date :……
3. Amount (In Rs.):……
4. Validity up to :……
5. LOA No……..
6. Package No……..
7. Name, Address & Code of Issuing Bank:……
8. Name, Address & Code of Bhubaneswar Branch of the Issuing Bank:……
10. The Bank Guarantee shall be accepted after getting SFMS advice as per details below.

Format for SFMS details

(The Unique Identifier for field 7037 is "OPTCL541405793")

Sl. No	PARTICULARS	TYPE	DETAILS
1	Type of Bank Guarantee	Mandatory	Contract Performance
2	Currency & Amount	Mandatory	
3	Validity Period(from—to --)	Mandatory	
4	Effective Date	Mandatory	
5	End date of lodgment of Claim	Mandatory	
6	Place of lodgment of claim	Mandatory	Bhubaneswar, Branch Name------ of Bhubaneswar Branch code------- of Bhubaneswar Branch Address ------ at Bhubaneswar
7	Issuing Branch IFSC Code	Mandatory	
8	Issuing Branch name & address	Mandatory	
9	Name of applicant and its details	Mandatory	
10	Name of Beneficiary and its details	Mandatory	
11	Beneficiary's Bank/Branch and IFSC Code	Mandatory	ICICI Bank Ltd IFSC Code-ICIC0000061
12	Beneficiary's Bank/Branch name and address	Mandatory	ICICI Bank Ltd Bhubaneswar Main Branch, Bhubaneswar
13	Sender to receiver information	Mandatory	
14	Purpose of Guarantee	Mandatory	Contract Performance
15	Reference/Description of the underlined tender/contract	Mandatory	LOA No----

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 five 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/ capacity, voltage class, Designed, manufactured, tested and commissioned which are in successful operation for at least one year 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.

Voltage Class, Rating/Capacity	Rated Voltage	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.

TO ACCOMPANY PART-I

(To be filled up by the tenderer as indicated in the excel sheet**)**

i. Technical deviations TO ACCOMPANY PART-I

(To be filled up by the tenderer as indicated in the excel sheet**)**

ii. Commercial deviations.TO ACCOMPANY PART-I

(To be filled up by the tenderer as indicated in the excel sheet**)**

ANNEXURE – XIII

LITIGATION HISTORY

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

ANNEXURE – XIV

PROFORMA OF EXTENSION OF BANK GUARANTEE

(To be stamped in accordance with Stamp Act and the Non-Judicial stamp paper should be in the name of the issuing Bank)

a) **Ref No:- …….** **Date:-**
……

Sub: Extension of Bank Guarantee No. ……..for Rs. …… favouring yourselves, expiring on …….on account of M/s. ……. in respect of LOA No. …… dated ……. (hereinafter called original Bank Guarantee).

At the request of M/s. ……., we…… Bank, branch office at ……..and having its Head Office at …….. do hereby extend our liability under the above mentioned Guarantee No. ……. Dated ……..for a further period of ……..years / months/ days from ……. to expire on ……..,except as provided above, all other terms and conditions of the original Bank Guarantee No. …….. dated ……. shall remain unaltered and binding.

Please treat this as an integral part of the original Bank Guarantee to which it would be attached.

" Notwithstanding anything contained herein"

a) Our liability under the bank guarantee shall not exceed Rs.----------(Rupees in words----------) only.

b) This Bank guarantee shall be valid up to ----------.

c) We or our Branch at **Bhubaneswar** <Mention Name, Address & Code…….> shall be liable to pay guaranteed amount or any part thereof under this guarantee only if you serve upon us at--------- Branch of Bhubaneswar a written claim or demand on or before ……..,

The Bank Guarantee extension is issued in paper form and Advice transmitted through SFMS with required details to the beneficiary's advising bank (ICICI Bank Bhubaneswar, IFSC Code ICIC0000061).
Dated this ..... Day of .....20..... at .....

For ……[Indicate name of the Bank]

Signature……

Full Name …….

Designation ……..

Power Of Attorney No……

Seal of the Bank……..

NOTE: i) SFMS advice as per details below.

Format for SFMS details

Sl. No	PARTICULARS	TYPE	DETAILS
1	Type of Bank Guarantee	Mandatory	Contract Performance/ . . . .
2	Currency & Amount	Mandatory	
3	Validity Period(from—to --)	Mandatory	
4	Effective Date	Mandatory	
5	End date of lodgment of Claim	Mandatory	
6	Place of lodgment of claim	Mandatory	Bhubaneswar, Branch Name------ of Bhubaneswar Branch code------- of Bhubaneswar Branch Address ------ at Bhubaneswar
7	Issuing Branch IFSC Code	Mandatory	
8	Issuing Branch name & address	Mandatory	
9	Name of applicant and its details	Mandatory	
10	Name of Beneficiary and its details	Mandatory	
11	Beneficiary's Bank/Branch and IFSC Code	Mandatory	ICICI Bank Ltd IFSC Code-ICIC0000061
12	Beneficiary's Bank/Branch name and address	Mandatory	ICICI Bank Ltd Bhubaneswar Main Branch, Bhubaneswar
13	Sender to receiver information	Mandatory	
14	Purpose of Guarantee	Mandatory	Contract Performance/ . . . .
15	Reference/Description of the	Mandatory	NIT No/LoA No . . . . .

Annexure-XVI

Certificate (to be furnished in bidder company's letter head)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable evidence of valid registration by the Competent Authority shall be attached.]

Authorized signatory

Company seal

ANNEXURE – XVII

Proforma of Manufacturer's Authorization

To : _____

WE M/s _____, manufacturers of equipment for …… having production facilities at _____, do hereby authorize M/s <Name of the Bidder>_____ to submit a bid and subsequently sign the Contract, if he becomes successful against e-NIT No…….. and Tender Specification No……...

We hereby extend our full guarantee, warranty and latent defects liability period for the above specified Material/ Equipment offered by the bidder, M/s ……against the above e-NIT/ Tender Specification. We also hereby authorize the said bidder to act on our behalf in fulfillment of these guarantee, warranty and latent defects liability obligation. We, the Manufacturer will make our technical and engineering staff fully available to the successful Bidder, on a reasonable and best effort basis, in fulfilling the performance of all its obligations to OPTCL under the Contract.

For and on behalf of the Manufacturer.

Signed : …….

Date …….

Place ……

(Signature) …….

Printed Name) ……..

(This form shall be duly filled-up, signed by the bidder & uploaded as an attachment).

Note: Proforma Of Manufacturer's Authorization(ANNEXURE – XVII) submitted on letter Pad of the Manufacturer shall be acceptable for tender evaluation subject to an undertaking by the bidder(s) that they will submit the same in non-judicial stamp paper of worth Rs.100/- prior to placing of order, in the event of award of the contract.

PART-I

SECTION – IV

NOTICE INVITING TENDER-NIT –NO- CGM(Tel)-03/2025-26.

TENDER SPECIFICATION No: CGM(Tel)_ e-TENDER_IOCL_03/2024-25

TECHNICAL SPECIFICATION

Scope of the contract:

The scope of the contract shall be engineering, supply and installation of equipment as per the specification, and rendering services in accordance with the enclosed technical specification and bill of quantity.

A. The scope shall be the OPGW connectivity between IOCL, Paradeep S/S & 220/132/33 S/S,OPTCL Paradeep with the supply & commissioning of the 24F OPGW with associated hardware fittings, Joint Box, FOAC with associated Hardware and FODP as detailed in the technical Specification and as per the BOQ specified.

B. The scope also covers engineering, assembly, inspection and testing, packing and delivery F.O.R. (destination) and complete commissioning of the (i) FOTE, configured with the associated required cards and (ii) Digital protection Coupler (iii) RTU (Configured with required MFT, CMR, OLTC transducer, etc.) with necessary associated cards (iv) 48V VRLA Battery (v) SMPS based Charger along with supply & laying of associated cables in all respect for all the above equipment as detailed in the technical Specification and as per the BOQ specified.

C. The contractor has to carry out a survey after award of contract and submit the survey report jointly signed by the site in-charge to the employer for approval and for subsequent amendment to the work order if there is a change in the BOQ.

D. ~~There shall be provision of housing the digital protection coupler in the SDH rack.~~

E. All the above equipment shall be properly earthed with the supply of required earth flat. Cables for the equipment shall be properly dressed before termination with the supply of required cable tray where ever necessary. **The price component towards such petty items like earth flat, cable tray, etc., required for earthing of the equipment under the tender and for the cable laying, which items are not reflected in the price bid sheet, should be included in the offered price of the respective equipment.**

General Information.

1.1 Telemetry data is to be integrated for 220 KV IOCL, Paradeep S/S and this Substation needs to be connected to 220/132/33 KV Paradeep S/S of OPTCL through OPGW and SDH terminal equipment acquiring data at IOCL, Paradeep through RTU at IOCL, Paradeep Switch yard. The voice communication and protection also needs to be established.

The broad scope of this turnkey project includes the survey, planning, design, engineering, supply, transportation, insurance, delivery at site, unloading, handling, storage, installation, splicing, termination, testing, and demonstration for acceptance, commissioning and documentation for the following as applicable:

i)	OPGW cable including all associated hardware, accessories & fittings
ii)	Fibre Optic approach cable including installation material
iii)	Fibre Optic Distribution Panels (FODP) & Joint Box
iv)	FOTE (SDH Equipment) along with supporting cards as specified in the detail technical specification. FOTE have to compatible with existing UNMS system in operation at SLDC, Bhubaneswar.
v)	RTU with required MFM, CMR, Transducer etc. for data reporting to MCC, BBSR and BCC, Meramundali.
vi)	Digital protection Coupler (DTPC) with cabinet and accessories.
vii)	48V VRLA Battery
viii)	75A SMPS Charger
ix)	ACDB , DCDB, Earth Flat etc.
x)	All the associated cables for commissioning of the above equipment
xi)	All remaining associated work/items described in the technical specifications

Note: *All the above equipment shall be supplied as per the technical specification specified by OPTCL and from approved manufacturer Vendors list of OPTCL for this tender. The equipment for which GTP or selected Vendors is not specified by OPTCL, the same shall be supplied only after obtaining approval from OPTCL.*

1.2. The scope of the works covers Survey, Planning, Design, Supply and erection (stringing) of OPGW and Accessories in the existing 220KV IOCL, Paradeep Grid S/s---220/132/33 KV Paradeep Grid S/s line of OPTCL along with supply and commissioning of FOTE, DTPC, RTU, Battery and Charger and other equipment for integration with existing SCADA/EMS system of SLDC as per the details as follows.

i)	Supply of all materials & equipment such as **OPGW(24F),** associated hardware fittings, Optical fibre approach cable including HDPE duct pipe , FODP, Joint box, **FOTE** & associated cards (SFP module, VFX card etc). FOTE have to compatible with existing UNMS system in operation at SLDC, Bhubaneswar.
ii)	Detailed survey, planning, drum scheduling for supply of 24F OPGW. The tower schedule of the 220 KV Paradeep,OPTCL – IOCL, Paradeep S/s has been provided with this specification for the purpose.
iii)	Supply of Remote Terminal Unit (**RTU**) with required MFMs designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels & MFMs. The RTU should be dual reporting i.e to SLDC , BBSR & to Sub LDC Meramundali . Supply of Laptop is a part of the contract for monitoring, local data acquisition & configuration of RTU.

iv)	The RTU shall be installed and commissioned along with all the cabling work and earthling for the purpose and shall be tested locally. The integration of the RTU with the central SCADA is not within the scope of this contract. However the contractor shall extend full cooperation at the scheduled time of such integration with the SCADA OEM.
v)	Supply & commissioning of Digital Tele protection Coupler (**DTPC**) with cabinet compatible for interfacing with SDH MUX along with all required interface cable.
vi)	Supply & commissioning of 48 V, 300 AH, maintenance free **VRLA Battery set** along with required clamps, connectors and cables.
vii)	Supply & commissioning of SMPS based battery **charger** of 75A suitable for 48V VRLA battery. The charger shall be properly earthed with the supply of suitable earth flat, cables etc.
viii)	Providing engineering data and drawings, as per specified format, for employer's review, approval and records.
ix)	Complete documentation regarding manufacturing including Type, Acceptance & Routine testing, as specified.
x)	Packing and transportation to the site including transit insurance & customs clearance/ port clearance (if required), port handling, clearance for imported goods and further loading (if applicable)" As delivered at site basis"
xi)	Receipt, Unloading, Storage, Insurance and Preservation of materials and equipment at site as required.
xii)	Erection, testing, commissioning of all material & equipment and handing over of the all equipment & Fibre optic network complete in all respect as per approved scheme and to the satisfaction of the Employer including statutory inspection if any.
xiii)	Complete commissioning of supplied DTPC, FOTE along with supporting cards, accessories & cables for integration with the existing SCADA/EMS system of SLDC.
xiv)	The recovered earth wire & hardware, on installation of supplied OPGW, shall be handed over to the employer at Paradeep S/s of OPTCL in bundles.
xv)	All other associated work/items described in the technical specifications

1.3 OPGW: The OPGW Cable under this specification shall be installed against replacement of existing earth-wire ((where it is available) under live line conditions. The bill of quantities for the same is specified in the specification accordingly. However, the actual required quantities may vary which shall be determined after detailed survey. The Contractor has to carry out the detailed survey and collect the required data for preparation of OPGW drum schedule etc and submit detail project report after award of contract. The tower schedule of the 220/132/33 KV Paradeep S/S, OPTCL – IOCL, Paradeep S/S has been provided with this specification for this purpose. Owner shall arrange shut-down on the line where it is felt barely necessary for the stringing of OPGW.

1.3.1 Fiber Optic Cabling :

This section defines the requirements for **G.652D** Dual-window Single mode (DWSM) telecommunications grade fibre optic cable. Bidders shall furnish with their bids, detailed descriptions of the fibres & cable(s) proposed.

All optical fibre cabling including fibre itself and all associated installation hardware shall have a minimum guaranteed design life span of 25 years. Documentary evidence in support of guaranteed life span of cable & fibre shall be submitted by the Contractor during detailed engineering.

1.3.2 Physical Characteristics:

Dual-Window Single mode (DWSM), G.652D optical fibres shall be provided in the fibre optic cables. DWSM optical fibres shall meet the requirements defined in Table 1-1(a).

1.3.3 Attenuation:

The attenuation coefficient for wavelengths between 1525 nm and 1575 nm shall not exceed the attenuation coefficient at 1550 nm by more than 0.05 dB/km. The attenuation coefficient between 1285 nm and 1330 nm shall not exceed the attenuation coefficient at 1310 nm by more than 0.05 dB/km. The attenuation of the fibre shall be distributed uniformly throughout its length such that there are no point discontinuities in excess of 0.10 dB. The fibre attenuation characteristics specified in table 1-1 (a) shall be "guaranteed" fibre attenuation of any & every fibre reel.

The overall optical fibre path attenuation shall not be more than calculated below:

Maximum attenuation @ 1550nm: 0.21 dB/km x total km + 0.05 dB/splice x no. of splices + 0.5 dB/connector x no. of connectors

Maximum attenuation @ 1310nm: 0.35dB/km x total km + 0.05 dB/splice x no. of splices + 0.5 dB/connector x no. of connectors

Table 1-1(a)
DWSM Optical Fibre Characteristics

Fibre Description:	Dual-Window Single-Mode
Mode Field Diameter:	8.6 to 9.5 μm (± 0.6μm)
Cladding Diameter:	125.0 μm ± 1 μm
Mode field concentricity error	≤ 0.6μm
Cladding non-circularity	≤ 1%
Cable Cut-off Wavelength λ_{cc}	≤□□1260 nm
1550 nm loss performance	As per G.652 D
Proof Test Level	≥ 0.69 Gpa
Attenuation Coefficient:	@ 1310 nm ≤ 0.35 dB/km @ 1550 nm ≤ 0.21 dB/km
Chromatic Dispersion; Maximum: **Zero Dispersion Wavelength:** **Zero Dispersion Slope:**	18 ps/(nm x km) @ 1550 nm 3.5 ps/(nm x km) 1288-1339nm 5.3 ps/(nm x km) 1271-1360nm 1300 to 1324nm 0.092 ps/(nm^{2}xkm) maximum
Polarization mode dispersion coefficient	≤ 0.2 ps/km^½
Temperature Dependence:	Induced attenuation ≤ 0.05 dB (-60ºC - +85ºC
Bend Performance:	@ 1310 nm (75±2 mm dia Mandrel), 100 turns; Attenuation Rise ≤ 0.05 dB @ 1550 nm (30±1 mm radius Mandrel), 100 turns; Attenuation Rise ≤ 0.05 dB @ 1550 nm (32±0.5 mm dia Mandrel, 1 turn; Attenuation Rise ≤ 0.50 dB

1.3.4: Fibre Optic Cable Construction:

Overhead Fibre Optic Cables shall be OPGW (Optical Ground Wire). The OPGW cable is proposed to be installed on the transmission lines of Orissa Power Transmission Corporation

Ltd. (OPTCL). The design of cable shall account for the varying operating and environmental conditions that the cable shall experience while in service. The OPGW cable to be supplied shall be designed to meet the overall requirements of all the transmission lines. The exact details of span length shall be collected by the Contractor during survey. OPGW cable construction shall comply with IEEE-1138, 2009. The cable provided shall meet both the construction and performance requirements such that the ground wire function, the optical fibre integrity and optical transmission characteristics are suitable for the intended purpose. The cable shall consist of optical fibre units as defined in this specification. There shall be no factory splices within the cable structure of a continuous cable length.

1.3.5: Optical Fibre Identification:

Individual optical fibres within a fibre unit and fibre units shall be identifiable in accordance with EIA/TIA 598 or IEC 60304 or Bellcore GR-20 colour-coding scheme. Colouring utilized for colour coding optical fibres shall be integrated into the fibre coating and shall be homogenous. The colour shall not bleed from one fibre to another and shall not fade during fibre preparation for termination or splicing.

Each cable shall have traceability of each fibre back to the original fibre manufacturer's fibre number and parameters of the fibre. If more than the specified number of fibres are included in any cable, the spare fibres shall be tested by the cable manufacturer and any defective fibres shall be suitably bundled, tagged and identified at the factory by the vendor.

1.3.6 The quantities of hardware fittings such as tension assembly, suspension assembly, vibration damper, etc required for the stringing of the OPGW are not reflected in the BOQ. The contractor has to assess the quantities of such hardware fittings required for the OPGW stringing per km as per the tower schedule provided for submission of bid proposal. The contractor may take site visit for assessment of the same prior to submission of bid proposal at his own cost.

1.3.7: The recovered earth wire & Hardware (if any), on installation of OPGW, shall be handed over to the employer at 220/132/33 KV Line S/D Paradeep of OPTCL in bundles.

1.3.8: The bidder shall submit along with the Bid the sag-tension chart of the offered OPGW, based on the profile, for verification and approval by the employer.

1.3.9: The successful bidder (Contractor) is required to visit the site. The site visit after contract award shall include all necessary surveys to allow the contractor to perform the design and implementation functions. The Contractor shall inform their site survey schedule to the Employer well in advance. The site survey schedule shall be finalised in consultation with the Employer. The Employer shall also be associated with the contractor during their site/route survey activities.

After the site/route survey the Contractor shall submit to the Employer a survey report on link and site. This report shall include at least the following items:

a) List of all span lengths and the total link length for OPGW.

b) Tower wise identification of type(s) and numbers of fittings & accessories required. If the vibration analysis is not carried out by the time of survey report submission, the vibration damper placement chart may be submitted separately.

c) Proposed splice locations, cable drum schedules and types of in-line splice enclosure requirement at each location.

d) Proposed routing of the approach FO cable from the end tower / gantry to the communication room to be marked on the site layout drawing. The existing cable trenches/cable raceways proposed to be used shall be identified.

e) The positions of fibre optic distribution panel (FODP) shall also be finalised during survey and the same shall be indicated in the survey report.

f) Proposed layout of all Communication equipment in the existing rooms and buildings.

g) Proposed routing of power, earthing, signal cables and patch cords etc.

h) Identification of facility modifications, if required.

i) Confirmation of adequacy of Space requirements

j) Identify all additional items required for integration for each site/location.

1.4 – DTPC

BASIC TECHNICAL REQUIREMENTS:

1.4.1 The Digital protection signalling equipment is required to transfer the trip commands from one end of the line to the other end in the shortest possible time with adequate security and dependability. It shall also monitor the healthiness of the link from one end to the other and give alarms in case of any abnormality. The protection signalling equipment shall have a proven operating record in similar application over EHT systems and shall operate on 48 V, DC (+10%, -10%). It shall provide minimum four commands. ***Each command individually configurable*** for direct tripping, Inter-tripping (Permissive Tripping) and Blocking protection schemes of EHT lines.

1.4.2 The equipment should be compact and housed in standard 19" Rack mountable chassis to be commissioned in the SDH panel.

1.4.3 The protection signalling equipment shall communicate to the remote end interfacing with SDH terminal equipment at its 2Mbps port. It shall be compatible and support the interfaces such as E1 (2 Mbps) as required for transmission of protection signal. It may be managed from dedicated Network Management System (NMS).

1.4.4 G.703 (E1) is to be transported over 75Ω co-axial cable terminated in BNC available at the existing SDH equipment. *Automatic switchover to redundant link in the event of primary link failure.*

The input/output interface to the protection equipment shall be achieved by means of relays and the input/output rack wiring shall be carefully segregated from other shelf/cubicle wiring.

IEC-61850 GOOSE interface option to transmit / receive IEC-61850 GOOSE messages to implement distance protection using IEC-61850 GOOSE messages over an E1 link, or E1 + IEEE C37.94 compliant optical links, or over a routable IP/MPLS network.

1.4.5 The isolation requirements of the protection interface shall be for 2kV rms.

1.4.6 The Tele-protection equipment shall have trip counter with LCD display in the form of event register. It shall provide suitable interfaces for protective relays, which operate at 220V DC. Power supply points shall be immune to electromagnetic interface. Digital Protection Coupler should have redundant Power Supply Unit to ensure failure of one power supply module; it should not affect the Protection Application.

1.4.7. STANDARD :

The digital protection coupler shall conform to the IEC 60834-1 standard/ latest revision of relevant standards at the time of offer and the purchaser shall have the full power to reject any material which is not in full accordance therewith.

Relays shall conform to the IS-8686.

The digital protection coupler shall support IEC 61850 protocol.

1.4.8 Principle of operation:

During normal operation, protection signalling equipment shall transmit a guard signal/code. In case Protection signalling equipment is actuated by protective relays for transmission of commands, it shall interrupt the guard signal/code and shall transmit the command code to the remote end. The receiver shall recognize the command code and absence of the guard code will generate the command to the protective relays. All signal processing i.e. generation of tripping signal and the processing of the signals shall be performed completely digitally using Digital Signal Processing techniques.

1.4.9 Loop testing:

An automatic loop testing routine shall check the Tele-protection channel. It shall also be possible to initiate a loop test manually at any station by pressing a button on the front of the equipment.

Internal test routine shall continuously monitor the availability of the protection signalling equipment.

Proper tripping signal shall always take the priority over the test procedure.

The high speed digital protection signalling equipment shall be designed and provided with following features.

- Shall work in conjunction with SDH terminal equipment.
- It shall communicate on G 703 (E1,2 Mbps)
- Full Duplex operation

- Auto loop facility shall be provided
- Shall meet IEC 60834-1 standard
- Shall be able to transmit up to 4 commands with trip counter simultaneously or sequentially in one 2Mbps channel

Bidder shall quote for protection signalling equipment suitable for 4 commands with separate trip counters (LCD display) for transmit and receive. Built-in trip counters in the Digital protection coupler is mandatory.

High security and dependability shall be ensured by the manufacturer. Probability of false tripping and failure to trip should be avoided. **Statistical curves / figures indicating above mentioned measures shall be submitted along with the bid**.

Reports of the following tests shall be carried out as routine test/ during inspection for protection signalling equipment and relays associated with the protection signalling equipment and interface unit with protective relay units, if any.

1.4.10. Major technical Particulars:

The major technical particulars of protection signalling equipment shall be as follows.

i) *Optional plug in Modules for Ethernet transmission.*

ii) *The equipment Trip Counter should be compact and housed in standard 19" Rack mountable chasis.*

iii) Power supply 48V DC +10%, -10%

iv) Number of commands *Up to 4 independent commands for analog communication channels.* 8 independent commands in digital/optical channels an Ethernet/IP circuits.

v) *Relay* Operating time < 4ms

vi) Back to back operate time without propagation delay ≤ 8 ms

vii) *Interface to Protection relays*

Input:		*Contact Rating:*
Rated voltage	*:*	*250 volts DC*
Maximum current rating:		*5 mA.*

Output:		*Contact Rating:*
Rated voltage	*:*	*250 volts DC*
Rated current	*:*	*5 A DC*
Other parameters	:	As per IEC-255-0-20

viii) Alarm contact

Rated voltage	:	250 volts DC
Rated current	:	0.1 A DC
Other parameters	:	As per IEC-255-0-20.

ix) Digital communication interface: G 703(E1)

x) Protection interface:

xi) IRIG-B / *NTP / IEEE-1588v2* Time synchronization options.

Operations and Maintenance Interfaces :

- 10/100 BaseT Ethernet Interface for local/ remote access over an IP network.
- Remote monitoring and configuration, including Simple Network Management Protocol (SNMP) alarm traps for serving a communication Network Management System (NMS).
- HMI integrated Element Management System (EMS) for supervising and managing of the entire DTPC network
- Front panel LEDs and an optional integrated LCD display should indicate the equipment status without requiring additional tools.
- Recording up to 1000 dated events and alarm with 1ms time accuracy.

1.5 FOTE (Fibre Optic Terminal Equipment) :

1.5.1 Scope: This specification covers the design, manufacture, assembly, testing before dispatch, delivery at site and erection, testing & commissioning of 2 nos of SDH (STM-4) at both the sites. FOTE have to compatible with existing UNMS system in operation at SLDC, Bhubaneswar.

1.5.2. Description :

The existing fibre optic communication network of OPTCL support the voice & data communication requirements of RTUs/GATEWAYs and the SCADA/EMS system. The communication system is providing data & voice connectivity across the various locations or connectivity of RTUs with Control Centers. The RTUs located at various locations are reporting to Control Center using IEC 60870-5-104 Protocol. The proposed communication system shall provide connectivity of IOCL, Paradeep RTU over 104 protocol using Ethernet interface. The fibre optic network shall be based on Synchronous Digital Hierarchy (SDH) i.e. STM-4 ***with three protected directions (3 MSP).*** However, the offered equipment can be upgraded to STM-16 by changing the optical card or aggregate card only. The offered FOTE have to compatible with existing UNMS system in operation at SLDC, Bhubaneswar.

The Contractor shall be responsible to provide VOIP system for voice communication. The VOIP gateway needs to be integrated with the supplied SDH Equipment for communication with subscribers located at sub-station using the communication network. The VOIP gateway must be capable of interfacing with Ethernet channels provided by wideband communication equipment.

1.5.3. Functional Requirement:

The primary function of the FOTE is to provide a highly reliable voice, protection and data communication system in support of the SCADA/EMS. The communications support requirement for SCADA/EMS system is for low & high speed data, express voice circuits and administrative voice circuits as defined in appendices. A brief summary of the communication system requirements is as follows:

(a) High speed E1 channel support
(b) Voice (2 wires) channel support.

(c) Data transport supporting Network Management channels

The connectivity envisaged between RTUs/Gateways and Control Centre is Wide Area Network (WAN) on TCP-IP using IEC 60870-5-104 protocol .

1.5.4 System Synchronization:

Both the SDH equipment under the project are to be synchronized with the existing GPS based master clock system in OPTCL. In addition to GPS input reference, the synchronization clock must have provision to take INPUT reference coming from other clock. The contractor shall submit the synchronization plan as per standard ITU-T G.811. All sync equipment proposed under this contract should meet ITU-T G.811 criterion. The holdover quality of clock shall meet ITU-T G.812 standard requirements.
The Contractor shall provide system wide synchronization fully distributed throughout the telecom network and connected to all equipment. The Contractor shall submit the synchronization plan for the entire network meeting the requirement of ITU-T G.803.
The system equipment requiring "clock" shall be connected to the master clock using external clocking. For this purpose, appropriate interfaces(s) in the transmission & termination equipment being supplied and all other associated hardware shall be provided by the Contractor.

1.5.5 Equipment Availability:

The availability requirements are as follows, which shall be demonstrated at site for the equipment being provided under this contract:
The availability of each fibre optic link (E1 to E1) shall be at least 99.999%.
The availability of network end to end (E1 to E1) shall be at least 99.998%.
(3) The average per link subscriber to subscriber availability shall be at least 99.97%. The per link subscriber to subscriber availability is defined as the availability between any two data or voice subscribers between RTU to reporting Control Centre.
(4) The network-wide subscriber to subscriber availability shall be at least 99.8% .The network-wide subscriber to subscriber availability is defined as the availability between any two data or voice subscribers on the wideband network.

The calculated availability is defined as the theoretical availability determined by a statistical calculation based on the mean-time-between-failure (MTBF) and the mean-time-to-repair (MTTR) of the components and subsystems comprising the FOTS. The down time of the fibre optic cable shall not be considered in the aforesaid availability calculations.
In order to ensure that the equipment & configuration proposed by the bidders shall be capable of demonstrating the specified availability figures it is required that the Bidders shall include in their proposal a calculated availability analysis for the proposed equipment/ sub system. The calculated failure rates of the units and the calculated availabilities of the equipment being offered shall be provided in the proposal. The analysis shall be based on an availability block diagram and shall include the mean-time-between failure (MTBF) and mean-time-to-repair (MTTR) of all of the components on the link. The Contractor shall indicate in the analysis the MTBF and MTTR and the resulting availability of each point-to-point link. For this analysis, an MTTR of at least 4 hours shall be assumed.

1.5.6 General Equipment Characteristics:

All Contractor supplied equipment shall be new and of the finest production quality. OPTCL will not accept modules or printed-circuit boards that are modified by appending wires or components. Wired strapping options shall be incorporated in the board design to meet the

above requirement.

All applicable requirements stated in this section shall equally apply to the TMN equipment as specified in this Section.

The offered equipment shall support at least SNCP **as per standard ITU-T G.841**. In case the equipment offered by the Bidder does not support the above mentioned minimum protection methods, the bidder shall have to provide all additional equipment needed to provide same level of flexibility, redundancy and functionality at no additional cost to OPTCL. The bidders shall provide details of protection schemes supported in the Bid document.

The offered equipment shall support automatic switchover function between the redundant modules and all required modules and hardware to support the automatic switch over shall be provided by the Contractor.

1.5.7 Equipment Life span:

All equipment supplied shall have a minimum expected life of fifteen (15) years from the date of operational acceptance.

1.5.8 Fibre Optic Transmission System:

The Fibre Optic Transmission System (FOTS) is defined herein to include ETSI digital optical line termination equipment. The FOTS shall be based on SDH technology. Minimum aggregate bit rate shall be STM-4 and equipped with minimum 2 nos. of 16 port E1 interface(G.703) card & two no. of minimum 8 port Ethernet interface (IEEE 802.3/IEEE 802.3u) card supporting layer 2 switching as tributaries. The Ethernet interfaces shall support VLAN (IEEE 802.1P/Q), spanning tree (IEEE 802.1D) quality of service.
The Contractor shall provide (supply and install) connectorised jumpers (patch cords) for FODP-to-equipment and equipment-to-equipment connection. Two number spare jumpers shall be provided for each equipment connection. Fiber jumpers shall be of sufficient lengths as to provide at least 0.5m of service loop when connected for their intended purpose.

1.5.9 SDH Equipment:

Functional Requirement

The SDH Equipment is considered to be divided in three parts i.e. Optical cards (Line), Tributary Cards (Electrical tributaries such as E1 & Ethernet 10/100 Mbps) and Base Equipment (Consisting of Common Cards, Power supply cards, sub-rack, cabinet, other hardware and accessories required for installation of equipment i.e. everything besides optical cards and tributary cards).

1.5.10. Service Channel:

Service channels shall be provided as a function of the SDH equipment and shall be equipped with Service Channel that shall provide at a minimum: One voice channel (order wire) with analog interface (0.3 to 3.4 kHz) and one data channel. Both omnibus and selective calling facilities shall be provided. There shall be a facility to extend the line system order-wire to any other system or exchange lines on 2W/4W basis.

1.5.11. Supervision and Alarms :

ISM (In Service Monitoring) circuitry shall be provided as a function of the SDH equipment. Local visual alarm indicators shall be provided on the equipment, as a rack summary alarm panel. Alarms shall be as per ITU-T Standards G.774/ G.783 / G.784. Additionally, F2/Q2 interfaces for a local craftsperson terminal interface and remote equipment monitoring is required.

The Equipment shall support collection of at least four (4) external alarms for monitoring and control of station associated devices by the TMN.

1.5.12. General Software/Firmware Requirements:

Due to various alternative design approaches, it is neither intended nor possible to specify all software and firmware characteristics. It is the intent herein to provide design boundaries and guidelines that help to ensure a demonstrated, integrated program package that is maintainable and meets both hardware systems requirements and the customer's operational requirements.

1.5.13. Operating System Software:

Operating system software shall be provided to control the execution of system programs, application programs, and management devices, to allocate system resources, and manage communications among the system processors. The contractor shall make no modifications to the OEM's operating system, except as provided as USER installation parameters

1.6 DISTRIBUTION BOARDS

1) ACDB
2) DCDB

1.6.1. AC Distribution Board (ACDB)

The ACDB’s shall be in accordance with the relevant IEC or Indian Standards and shall also comply with the following requirements:

- The ACDB shall be located near the supplied loads or inside the control room/carrier at a suitable place.
- The circuit breakers of the ACDB shall be individually interlocked to prevent paralleling of two buses from two different sources.
- The 240V loads shall be supplied by 240V panels located in the ACDB room or outside where it is required.

This shall comprise two sections each of which shall be supplied through different cables from both sections of the Main Distribution Board. ***Each sections may be equipped with a backup feed from the standby diesel generator set with automatic change-over facility to generator in the event of loss of supply from the main distribution board.***

The AC distribution board shall supply the following loads:

- Carrier / Control room supply for panels, lighting etc.
- One section of the 50V battery charger / rectifier.
- Spare feeders for future use.

Suitable annunciation for failure of A.C supply and for any of the incomer is to be provided.

A 415 V single line diagram accommodating the above facilities and to suit the system is to be design and submitted to the Employer for approval. However, exact requirement layout is to be taken up by the contractor depending on the layout, rating and type of equipment for preparation of drawing.

1.6.2 DESIRED TECHNICAL PARTUCULARS (ACDB)

<table>
<tr><td>1.</td><td>Type</td><td colspan="4">Indoor</td></tr>
<tr><td>2.</td><td>Mounting</td><td colspan="4">Floor mounted.</td></tr>
<tr><td>3.</td><td>Thickness/ Material of steel sheet</td><td colspan="4">2mm. CR steel sheet & gland plate is 3mm CR steel sheet</td></tr>
<tr><td>4.</td><td>Bus Bar</td><td colspan="4">50 x 10 mm Aluminium for Phase
50 x 10 for Aluminium Neutral</td></tr>
<tr><td>5.</td><td>Earth bus bar</td><td colspan="4">40 x 4 copper</td></tr>
<tr><td>6.</td><td colspan="5">Incomer & Bus coupler: Motorized MCCB (4P) The MCCB should have the required number of NO & NC aux switch contacts (or through Aux contactors) for interlock, indication. The current rating of the MCCB should be sufficient to carry the load of Telecom equipment.</td></tr>
<tr><td>7.</td><td colspan="5">The DG set Incomers shall also be of same rating as above.</td></tr>
<tr><td>8.</td><td colspan="5">Push Buttons for local control.</td></tr>
<tr><td>9.</td><td colspan="5">HRC control fuse.</td></tr>
<tr><td>10.</td><td colspan="5">LED Type Indicating lamps
(for MCCB ON/OFF, Auto Trip, Spring charge, R/Y/B Healthy)</td></tr>
<tr><td>11.</td><td colspan="5">Auxiliary contactors / Time delay Relays etc</td></tr>
<tr><td>12.</td><td colspan="5">Auto/Manual and Local/Remote switches</td></tr>
<tr><td>13.</td><td colspan="5">The incomers shall trip automatically when the power supply fails and the DG should start automatically with a time lag.
Similarly, the DG set should stop automatically when the power supply to the ACDB is restored and the incomers shall close automatically. The DG incomer shall also have the appropriate numerical protection relay.
Logic applicable for Incomers, DG set incomers and Bus coupler</td></tr>
<tr><td></td><td>Incomer-1</td><td>Incomer-2</td><td>DG</td><td>Bus Coupler</td><td></td></tr>
<tr><td></td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td></td></tr>
<tr><td></td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td></td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td></td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td></td></tr>
<tr><td></td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>14.</td><td colspan="5">Any other material for successful implementation of scheme.</td></tr>
<tr><td>15.</td><td colspan="5">Two Outgoing Feeders per section of Bus bar</td></tr>
</table>

- ***Provision of DG set is optional.***
- 2. DC supply equipment

General scheme:

DC supply system (50V) shall comprise duplicate batteries and battery chargers**,** a DC distribution board and control gear. The system shall be arranged such that only one of the station batteries and one of the battery chargers shall be in service at any one time, but should either item of equipment fail or need to be taken out of service for maintenance, then the duplicate item of equipment can be brought into service without disruption of supplies.

The batteries, Charger & and DC distribution boards may be installed in carrier/control room in AC environment.

The battery rated output shall be that available at the outgoing terminals, after making due allowance for the resistance of inter cell connections. The battery size selected by the Contractor shall be proved by calculation which shall be subject to the approval of the Project Manager. Allowance shall be made for ageing of the battery during its service life.

Earthing of current free metallic parts on the body of the distribution boards shall be done with soft drawn bare copper bus. Tail connections shall have a minimum cross sectional area of 16 mm^2 and the main earth bar for the distribution shall be brought out to two terminals for connection to the station earth grid.

Earthing connections shall be carried out with green wire and the earthing studs shall be identified as such by an earthing symbol

The distribution board shall be provided with 240V single phase ac illumination and anti-condensation space heaters and each heater shall be provided with an ON/OFF switch.

1.6.3 D.C. SYSTEM :

The 48 volts D.C. supply will be available from the VRLA battery banks associated with battery charging equipment.

In the 48 Volt D.C. supply may be available from two sources. So the system should be designed with provision for a bus coupler. The battery shall normally float under trickle charge conditions with the charger which continuously supplies the D.C. load to the load bus in D.C. switchboard and trickle charging current to the battery. The charger will be connected to the load bus of DCDB through double pole MCCB (DC). These two double pole MCCB (DC) should be mechanically interlocked so that only one switch can be closed at a time.

D.C. fail alarm both audible and visual shall be provided in case of total failure of D.C. supply at the load bus as per drawing. As the entire D.C. system is to be designed by the contractor depending on the rating and type of equipment being supplied, the necessary modification in the schematic diagram has to be taken up by the contractor and got approved from the Engineer.

1.6.4. DESIRED TECHNICAL PARTUCULARS (DCDB) :

<table>
<tr><td>1.</td><td>Type</td><td colspan="3">Indoor</td></tr>
<tr><td>2.</td><td>Mounting</td><td colspan="3">Floor mounted.</td></tr>
<tr><td>3.</td><td>Thickness/ Material of steel sheet</td><td colspan="3">2mm CR steel sheet & gland plate is 3mm CR steel sheet</td></tr>
<tr><td>4.</td><td>Bus Bar</td><td colspan="3">20 x 4 mm Copper +ive & -ive</td></tr>
<tr><td>5.</td><td>Earth bus bar</td><td colspan="3">20 x 3 copper</td></tr>
<tr><td>6.</td><td colspan="4">Incomer & Bus coupler: 63A DC DP MCB</td></tr>
<tr><td>7.</td><td colspan="4">Outgoing for each section: DP MCB 32A- 4 nos</td></tr>
<tr><td>8.</td><td colspan="4">Aux contactor & Auto Manual Switch</td></tr>
<tr><td>9.</td><td colspan="4">The incomers & bus coupler shall be interlocked mechanically as per the below logic.</td></tr>
<tr><td rowspan="4"></td><td>I/C-1</td><td>I/C-2</td><td>B/C</td></tr>
<tr><td>ON</td><td>ON</td><td>OFF</td></tr>
<tr><td>ON</td><td>OFF</td><td>ON</td></tr>
<tr><td>OFF</td><td>ON</td><td>ON</td></tr>
<tr><td>10.</td><td colspan="4">Each section having Earth fault relay (Earth leakage), under and over voltage relay, DC Ammeter and Voltmeter.</td></tr>
</table>

Note: The outgoing feeders mentioned against each of the Panels / Kiosks / console boxes / receptacle boards / distribution boards are only the minimum requirements. The actual number of outgoing feeders may increase depending on the requirement for the substation.

1.7 SMPS based battery Charger suitable for 48Volt VRLA battery set.

BASIC REQUIREMENT:

1.7.1. The charger shall preferably be modular type based on high frequency switching mode power supply(SMPS) technique using IGBT devices and the front mounted SMPS modules should be hot swappable.

1.7.2. The float -cum- boost charger shall be suitable for charging 48V battery in addition to trickle charging and feeding power to communication equipment whenever AC mains supply is available to the charger.

1.7.3. In spite of the fluctuations in the voltage and the frequency variation of mains supply to the charger, there must be line regulated DC output voltage for feeding the communication equipment load. The DC output voltage shall also be load regulated.

1.7.4. In the event of mains supply failure, the batteries shall supply total load current as long as the battery is not discharged below 40V. A Low Voltage Disconnect or (LVD) should protect the battery from deep discharge. On restoration of main supply the float-cum-boost charger shall resume its normal function of charging the battery as well as feeding communication equipment load automatically.

1.7.5. Depending on the status of battery i.e voltage per cell and previous discharge history, there shall be need for automatic switching between float and boost charging. Separate outputs for battery and equipment should be available, otherwise dropping diode technique may be used to prevent boost voltage appearing across the load.

1.7.6. Digital Control: charger should employ digital control with DSP controller for providing predictive control of rectification & monitoring capability. The charger should have a multi-line dot matrix display of suitable size, on front panel to indicate control status and event log.

1.7.7. The side and top panels of the equipment should be designed in such a way to allow sufficient ventilation for the components. The ON – OFF switch, input and output fuses, indication lamps, voltmeters, ammeters, filters, condensers fuses, output voltage control are to be provided on the front panel. Cable entry holes shall be provided at the bottom with suitable clamping arrangements.

1.7.8. **The positive output of SMPS units must be connected to common ground**. Circuit breakers, output fuse, ammeter shunt etc should be provided on the negative path of the output. Sensing circuit , fuses or circuit breakers shall be provided wherever appropriate to protect the charger

1.7.9. Suitable mechanical front loading rack arrangement for holding modules in position shall be provided so that the modules are held firmly by sliding through it.

1.7.10. Efficient earthing of the Charger shall be provided with supply of required accessories for such earthing, **taking care that in communication system 48V DC positive is always connected to earth.**

1.8 48V VRLA Battery

1.8.1. The scope of supply shall include all parts and accessories etc., which are usual and necessary for erection, operation and maintenance of MF- VRLA batteries as specified, though not individually and specifically stated or enumerated**.**

1.8.2. STANDARDS:-

1 All equipment and their accessories, covered by this specification shall be designed, manufactured and tested in compliance with the latest relevant standards, published by the Bureau of Indian Standards including those, listed at Clause 1.7.4 in order that specific aspects under Indian climatic conditions are taken care of.

2 The equipment and accessories for which Indian Standards are not available shall be designed, manufactured and tested in accordance with the latest standards, published by any other recognized National Standards Institution and latest publication of International Electro Technical commission [IEC].

3 **The equipment manufactured according to any other authoritative national / international standard, which ensures an equal or better quality than the provisions of these specifications shall also be acceptable. Where the equipment, offered conform to any other standard, salient points of differences between the proposed standard and the provisions of these specification shall be clearly brought**

out in the offer. A copy of such standards [in English] shall be enclosed with the offer.

4 The equipment shall conform to the Indian Electricity Rules, 1956 with latest amendments as regards safety earthling and other essential provisions specified therein for installation and operation of electrical plants.

5 All equipment shall also comply with the statutory requirements of the Government of Orissa where the equipment will be installed. Nothing shall be construed to relieve the supplier of his responsibility.

1.8.3 GOVERNING SPECIFICATION:-

The MF-VRLA batteries shall unless otherwise specified, conform to the following standards. The firms are requested to furnish the following specifications for our further reference.

i	IS-1651/1991	Specification for stationary cells batteries, leads acid
ii	IS-1885 [Part-8] / 1986	Electro technical vocabulary: Part- 8-Secondary cells & batteries.
iii	IS-266/1977	Sulphuric acid
Iv	BS-46290 (Part-4) / 1997	British standard specification for lead acid type valve regulated sealed type batteries.
v	ANSI, IEEE STD 450/1987	IEEE recommended practice for maintenance, testing and replacement of large lead storage batteries for generating stations and sub-stations.
vi	IEC 896-2/1995	Stationary lead-acid batteries, general requirements and methods of test (part-2, valve regulated types)
vii	IS-(1146 / UI-94) / ASTM - d -29863	Plastic container for lead acid storage batteries.
viii	IS-3136-1965	Specification for polycrystalline semiconductor rectifier equipment
ix	IS-1248-1968	Specification for direct acting indicating analogue electrical measuring instruments and tier accessories. (Part - I)-1983-General Requirements. (Part - II)- 1983 - Ammeters & voltmeters. (Part-III)-1984-Accessories.
x	IS-2208-1962	Specification of HRC Cartridge fuse link up to 650V
xi	IS-2959-1966	Specification of contractors for voltages not exceeding 1000V AC or 1200V DC
xii	IS-3395-1966	Specification for monocrystalline semiconductor rectified cells and stacks.
xiii	IS-4540-1968	Monocrystalline semiconductor rectifier assemblies & equipment
xiv	IS-2147/1962	Degree of protection provided by enclosure for low voltage switchgear and control gear
xv	IS-5578/1984	Guide for marking of insulated conductors.
xvi	IS-8623/1993 [Part 1 to 3]	Low voltage switchgear and control gear assemblies.
xvii	IS-11171/1985	Dry type power transformers.
xviii	IS-11353-1985	Guide for uniform system of marking and identification of conductors and apparatus
xix	IS-13947-1993 (Part 1 to 5)	Low voltage switchgear and control gear

1.8 .4. OTHER REQUIREMENTS:-

- ACCESSIBILITY AND INTER CHANGEABILITY:-
  BATTERY: Easy installation and handling and easy cell replacement. Batteries should be compact and can be used in any orientation without any leakage or spillage of electrolyte
- QUALITY AND WORKMANSHIP:-
  Workmanship and materials shall be of good commercial quality, suitable for the purpose, intended and in accordance with the highest standards and practices for equipment of the class, covered by this specification.

1.8.5 **SAFETY**

- All equipment shall be complete with approved safety devices wherever a potential hazard to personnel exists and with provision for safe access of personnel to and around the equipment for operational and maintenance functions. The design shall include all necessary precautions and provisions for the safety of operating and maintenance personnel.

- There should be no emission of corrosive fumes or gases under normal operating condition in case of Battery.
- Special care shall be taken to make enclosed equipment proof against entry of rat, lizards and other creeping reptiles, which may create electrical short circuits inside, live equipment.
- Continuity of power supply is the first consideration and the design shall be such as to provide facilities to simplify inspection, testing maintenance, clearing and repair at site.

1.9 RTU (Remote Terminal Unit)

1.9.1-The Remote Terminal Unit (RTU) shall be installed at Substation to acquire analog data and device status signals. RTU shall also be used for control of station devices from Master station. The supplied RTUs shall be interfaced with the Control & Relay (C&R) panels, communication equipment, power supply distribution boards; for which all the interface cables shall be supplied by the Contractor.

1.9.2- The contractor shall supply RTU, associated equipment such as MFM, CMR, cables etc for housing of all the hardware envisaged for the RTU and system interface cubicle. The contractor shall be responsible for supplying all hardware, software, installation, cabling and field implementation for RTU as defined in this Specification. The contractor shall also provide complete documentation, training and testing to fully support the hardware and software provided. The RTU shall be used for real-time supervision and control of substation/ power plant through SCADA system. The use of contractor's standard hardware and software may cause the contractor to conclude that there is a need for additional items specifically mentioned in this specification. The contractor shall supply all such items and provide a complete RTU design that meets all of the Employer's functional requirements defined in this specification.

1.9.3-

- Erection of RTU panel at Ear marked place in control room of IOCL as per site survey.
- Wiring is to be carried out between C/R panel and RTU Panel as per approved I/O list of OPTCL.

- Installation of MFM in C & R panel for measuring analog parameters like MW, MVAR, MVA, KV,HZ.
- Installation of CMR in C & R panel for monitoring Breaker and isolator status.
- Creating and loading of the RTU configuration in the RTU with approved signals and data parameters.
- Local data validation and validation with SLDC, BBSR & BCC meramundali.

1.9.4- RTU functions-

All functional capability described herein shall be provided by the Contractor even if a function is not initially implemented. The term master station is used to denote the SCADA systems. As a minimum, the RTUs shall be capable of performing the following functions:

(a) Collecting and processing the digital status inputs, analog inputs, accumulated values and transmitting to master station(s)

(b) Receiving and processing digital & analog control commands from the master station(s)

(c) Accepting polling messages from at least two master station(s) simultaneously using separate logical databases for each master station. ***There should be provision for two separate ports on two separate NIC cards for communicating with master stations.***

(d) Communication simultaneously on all Communication ports and using multiple concurrent protocols, including the 60870-5-104 & MODBUS/103 protocol.

(e) Data transmission rates from 300 to 9600 baud for serial ports (MODBUS/103) and 10/100 Mbps for TCP/IP Ethernet ports.

(f) RTU shall be compatible with protocol 61850 for communication with IEDs.

(g) RTU shall have the capability of automatic start-up and initialization following restoration of power after an outage without need of manual intervention. CPU will also resets if error is detected and status LED will the flash the error code. All restarts shall be reported to the connected master station(s).

(h) RTU shall support downloading of RTU database from the master station using Intranet

(i) RTU shall support SOE (Sequence of events) feature. ***Internal battery back up to hold data in SOE buffer memory and also maintain date & time.***

(j) Acting as a data concentrator for acquiring data from Slave RTUs and exercising supervisory control on slave RTUs using IEC 60870-5-104 protocol.

(K) RTU shall support archiving facility for reporting and analysis. The archived data shall be saved to user defined file duration at user defined interval-eg. Every 5 minutes for a period of 1 week. The computation of the archived data shall also be supported – eg. Maximum, Minimum and Average.

1.9.5 Communication ports

The RTUs shall support simultaneous communications with two independent master stations (SCADA system) over Ethernet ports. The RTU shall have Ethernet port for acquiring data from Sub-RTU. The RTUs shall require number (min 2) of RS 485 ports for polling MFMs using Mod bus / 103 Protocol in multi-drop mode. Maximum 16 nos of MFM shall be connected to each port. It shall be possible to increase the no of communications ports in the

RTU by addition of cards if required in future.

1.9.6 Local Configuration & Maintenance Interface

The RTUs shall include the interface to support the portable configuration and maintenance terminal (PCMT). The interface shall provide easy access to allow employer to use the maintenance terminal at the RTUs installed in the field using Ethernet, Local Configuration & Maintenance Interface

1.9.7 Communication interface between RTU & MFMs

The RTU shall acquire data from the MFMs. The MFMs will act as slave to the RTU. The RTU shall have the ability of issuing retry scan to acquire data from the MFMs in case of communication failure between RTU and MFMs. All data from the devices connected on a single port shall be acquired within 5 seconds.

1.9.8 Communication Protocol between RTU & IEDs

The RTU shall use the IEC 61850 protocol for communication with IEDs over Sub-station LAN. The RTU shall act as a Client and collect data from the IEDs.

1.9.9 Master Station Communication Protocol

The Contractor shall provide a communication protocol for communicating with SCADA master stations using IEC 60870-5-104 communication protocol standard. The communication protocol shall support all the requirements of this standard. The communication protocol shall be non-proprietary and the Contractor shall provide complete description and documentation of the protocol to Owner.

The RTU shall perform as a slave to SCADA master station when using the IEC 60870-5- protocol. All communication shall be initiated by the SCADA master stations. RTU must notify the master stations of unusual conditions at the RTU (such as a power fail/restoration or RTU malfunction), the transfer of changed data etc. All the notifications shall be accomplished within the framework of the periodic data acquisition exchanges.

1.9.10 Scan groups

Analog and digital input points (including points reported by exception) shall be assignable to scan groups using the IEC 60870-5-104 protocol profile communication protocol standard. A scan group shall be a specified set of data points within the RTU central database which will be communicated to a master station when requested by a specific (addressed) scan request. A scan group size shall only be limited by the communication protocol message length. Any RTU input point shall be assignable to any scan group. The RTUs shall support at least sixteen scan groups and all scan groups per communication port. The Contractor shall provide a convenient and flexible scheme for assigning points in the RTU to scan groups.

1.9.11 Reporting of status points

The RTU communication protocol shall be configured to report digital status changes by exception to master station using the IEC 60870-5-104 protocol profile communication protocol standard. Digital status data shall have higher priority than the Analog data. All the

digital status data shall also be assigned to scan groups for integrity check by Master stations at every 10 minutes.

1.9.12 Reporting of Analog points

The analog data shall be reported periodically to update all the values at the master station within 10 to 15 seconds using IEC /104 protocol profile. Analog data shall also be reported by exception if the analog value exceeds its previous value by more than **10%.**

1.9.13- Digital control commands

The RTU shall follow the select-and-execute sequence for operation of digital control commands from the master station using the IEC 60870-5-104 protocol profile communication protocol standard. The RTU shall reset its control logic upon any error in the sequence.

1.9.14 Data Concentrator Communication Protocol

The RTU shall act as a IEC 60870-5- and IEC 60870-5-104 protocol master and collect data and also perform supervisory control from/on the slave RTUs and communicate it to the Control Center. The Master protocol implementation shall be such that the data polling requirements mentioned at section 1.10 is at least accomplished.

RTU as a Data concentrator shall be provided with at least ten (10) IEC input ports/ cards and shall have capability to report to two master stations on IEC 104 interface. Data concentrator shall support at least 1,500 (fifteen hundred) data points. The RTU as a Data Concentrator shall be supplied with GPS receiver system with antenna, cable etc. for time stamping of Data concentrator which in turn shall synchronize the IEC protocol
Connected RTU/device. The RTU as a Data Concentrator shall come complete with built in monitoring mechanism to avoid loss of any data, especially the one reported by exception. The data concentrator shall have dual CPU and dual Power supply unit. The overall data update requirement from any Sub-RTU to Control center should not affect the functionality defined elsewhere in the specification.

The Data concentrator shall have the provision for remote login from Control centre. The SLDC computer system shall be able to configure and poll health of Data concentrator from remote on 104 connected interface after due authentication of the users.
It shall support diagnostic & maintenance activities remotely. Individual RTU configuration shall be possible from Data Concentrator including accommodating devices from heterogeneous suppliers. The RTU as a Data Concentrator shall have following communication ports & support for protocols:

i. IEC104 for SCADA control centers.
ii. IEC 104 for local SCADA

The other requirements given for RTU elsewhere in the specification shall be applicable to RTU as a Data concentrator also

1.9.15 Analog Inputs

The RTU shall accommodate analog inputs which are unipolar or bipolar, 2-wire ungrounded differential signals. RTU shall be capable of accepting other standard analog input ranges (0 to 5V, 0 to 10mA, +/- 10 mA, 4-20 mA).

The RTU shall make all appropriate signal level conversion and conditioning to allow full utilization of analog inputs and meaningful reasonability checking. The analog-to-digital

converter shall have a minimum resolution of 2048 counts (sign plus 11 data bits). Each type of analog input shall be converted with full resolution. The RTU shall monitor the drift in characteristics of its ADC and mark the analog points with a drift quality code if a drift is detected. This drift quality code shall be sent to the master station also.

The RTU accuracy, for analog input measurement, shall be 99.8% or better at 25 degree C ambient temperature. Mean accuracy shall drift no more than 0.002% per degree C within the temperature range of –5 to +55 degree C. Determination of accuracy shall be made while the analog multiplexer is operating at rated speed.

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 total input impedance offered by the RTU shall not be greater than 250Ω (for +4 to +20 mA range).

All analog inputs shall be scanned by the RTU from the field at least at 1 second periodicity.

1.9.16 Status Inputs

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 48 Vdc. The sensing voltage source shall be isolated from that of the RTUs logic power so that any noise or a short circuit across the sensing supply of a digital status input terminals would not disrupt the RTU operation other than the shorted digital status input.

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.

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.

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.

1.9.17 Contact Multiplying Relay

Contact multiplying relays (CMRs) are required to multiply the auxiliary contacts of breaker/isolators etc. The contacts of these relays shall be used to provide status input to the RTUs. The relays shall be of self-reset type. The relay shall have a minimum of two changeover contacts each with minimum current carrying capacity of 5 A at 110V/220 V DC. The CMRs shall be generally mounted in existing control & Relay panel but in case of non-availability of space, it shall be accommodated in the System Interface Cabinets (being supplied by the Contractor).

1.9.18 Sequence of Events (SOE) feature

SOE is the time-stamped digital status data. SOEs will enable Employer's personnel to determine the sequential operation of digital status input devices for their state changes. The RTU shall time-stamp the digital status data with a time resolution of one millisecond.

Initially, all breakers & protection contacts digital status input points in the RTU shall be configured as SOE points. However it shall be possible to assign any digital status input data point in the RTU as SOE point.
Each time a SOE status input point changes state, the RTU shall time-tag the change and send it to the Master station. The RTU shall maintain a SOE buffer within the RTU for communication delays and communication failure. SOE buffer shall be sized to store, as a minimum, of 1024 events. The RTU shall transmit the SOE data stored in its buffer to master station. An acknowledgement of receipt by the master station shall be made prior to the loss of any data in the RTU SOE buffer. Data not received at the master station shall be retransmitted. The RTU shall send a message to the master station to indicate the RTU SOE data buffer overflow condition.

1.9.19 Control Outputs

The RTU shall provide the capability for a master station to select and change the state of digital output points. Device control will be used by employer to control power system devices including:

(a) Two-state Devices: Circuit breakers, motor-operated switches, auto/manual switches, relay disable/enable, and other two-state devices

(b) Variable Output Devices: Raise/lower control of generators, transformer load-tap-changers (LTC), and other variable output devices.

The RTUs shall have the capability for control outputs as described in the following sections

Desired Technical particulars :

The desired technical particulars of some of the main equipment are specified below. The contractors are required to furnish the guaranteed technical particulars of all the offered equipment along with the name of the manufacturer for scrutiny and approval.

1. DESIRED TECHNICAL PARTICULARS OF OPGW CABLE

Sl.No.	Description.	Technical Particulars
1.	Make & Model	
2.	No. of Fibres in OPGW	24
3.	Mode	DW-SM
4.	Buffer type	Loose
5.	Buffer tube diameter	2.2mm
6.	Buffer tube material	PBT
7.	No. of buffer tubes	4
8.	No. of fibres per tube	6
9.	Identification/numbering of individual tubes	Red, green blue and natural.
10.	No.of empty tubes (if any)	1
11.	Filling material	Moisture proof & Hydrogen adherent jelly.

12.	Strength members	1
13.	Binding yarn/tape	Tapes
14.	(i)10% Aluminium clad steel wire (ii)20.3% IACS	(i) 2.25mm (Dia) & 12 Nos. (ii) 2.6 mm (Dia) & 11 Nos. (iii) Other design meeting to the electrical & mechanical parameters as per detail technical specification.
15.	Aluminium alloy wires (Diameter & Number)	2.25mm & 3 Nos.
16.	Aluminium tube inner diameter	Design dimensional parameters of OPGW should meet the SAG-Tension criteria as enclosed at **Appendix-A**
17.	Aluminium tube outside diameter (Approx.)	
18.	Cable diameter	
19.	Cable cross section area	
20.	Maximum Breaking load/ Ultimate Tensile Strength	82.10kN
21.	Fibre Strain margin	0.6%
22.	Weight Kgs/Km	488 kgs/km
23	Crush strength	1000kg with a $10cm^2$ piste
24.	Equivalent Modulus of Elasticity	$135.8kN/mm^2$
25.	Minimum bending radius	300mm
26.	Maximum bending radius	Short term 300mm Long term 400mm
27.	Maximum permissible tensile stress	-
28.	Permissible CTS Tensile stress	$0.669kN/- mm^2$
29.	Coefficient of linear expansion	$15.3 X 10^{-6}$ per ^0C
30	Coefficient expansion Cladding Core	 $6.3 X 10^{-6}$ per ^0C
31	Nominal operating temperature range	-10 ^0C to 70 ^0C
32	SC current transient peak temperature	41 KA
33	Maximum allowable temperature for lightning strike	200
34	Available length of cable per drum: Min Max	 2500 mtrs 3500 mtrs or as per site requirement.
35	Splice loss (Min. & Max. Allowable)	0.05 dB. 0.01 dB
36	Operating Temperature range-	-10 ^0C to 70 ^0C
37	Expected Cable Life	25 years.
38.	Fibre production method	-
39.	Core diameter.	9.2 +/-0.5 µm
40	Core non circularity	-
41.	Cladding diameter	125+/-0.5 µm
42	Core Clad Concentricity Error	< 1 µm
43	Cladding non circularity	< 2%
44	Protective coating type & material Primary Secondary.	 Acrylate PBT
45	Protective coating Diameter	-
46	Coating concentricity	>70%
47	Colour Coding scheme compliant with EIA 395/IEC3047	
48	Attenuation Coefficient	

	@ 1310nm – @1559nm-	.36 dB/km .22 dB/km
50	Mode field non Circularity	< 2%
51	Chromatic Dispersion 1310 nm 1550 nm	 2.8 ps/ (nm.km) 17 s/(nm.km)

2. DESIRED TECHNICAL PARTICULARS OF DTPC

	TECHNICAL PARAMETERS	Value
1.	Make &Model	
2.	Power supply : supply voltage range	48V DC , +10%, -10%
3.	Power Supply redundancy	Yes
4.	Number of Commands	Up to 4 independent commands for analog communication channels. 8 independent commands in digital/ optical channels on Ethernet/ IP circuits
5.	i. Digital communication interface with existing OLTE [G.703(E1) transported over 75Ω co-axial cable terminated in BNC]	G703(E1)
	ii. Optional Ethernet line interface.	Yes/no
6	Rated Command voltage	220 V DC
7	Protection interface(Contact type)	Hard wired
8	*Protection interface(GOOSE type)IEC 61850*	Yes/ No
9	Type of Command Input Interfacing a) Voltage b) maximum current	250V DC, 5 mA
10	Type of Command Output Interfacing a) Voltage b) maximum current	250V DC, 5 A DC
11	Trip counters (event registers) with LCD display	Yes
12	Relay Operating time	< 4 ms
13	Local monitoring/Management of digital Tele-protection coupler (availability)	Yes

3 .Desired Technical particulars of FOTE

	Particular	Unit	Required
1	2	3	4
1	**General**		

a	Type of multiplexer		SDH+PDH
b	Complying to ITU-T rec.		Yes
c	Transmission Capacity	Mbit/s	STM-4: 620 Mbps
d	Upgradable Capacity	Gbps	STM16
e	Redundant central processor (SDH/PDH)		Shall be available
f	PDH cross connect capacity		**Minimum 32x2Mbit/s**
g	The equipment is type tested		Yes
h	Minimum no of protected (MSP) direction	Nos	Three (expandable up to four MSP directions of which at least two directions support STM-16)
2	**Available SDH ports:**		
a	SDH based on SFP technology		Yes
b	Optical line interface card (to support up to 160 Kms)		Yes
c	Electrical SDH interfaces		E1, Electrical interface
d	Optical SDH interfaces		5 ports minimum
3	**Teleprotection Interfaces**		External Teleprotection interface via G.703.6(2mbps,E1). There shall be option for the interface of future integration of protection coupler.
4	**User Interfaces**		
4.1	**Voice Interfaces for trunk lines:**		
a	Minimum number of channels per card	Nos.	8
b	Analogue, 4wire with E&M: Input level Output level	dBr	+9.5 to -16/+7.0 to -16.5
c	Analogue, 2wire with E&M: Input level Output level	dBr	+9.5 to -12.5-1.0 to -20
4.2	**Voice Interfaces for remote subscriber**:		
a	2wire, subscriber side	dBr	-5to+4 / -7.5to-1
b	Minimum number of subscriber	Nos.	10
5	**Data module**		
a	V.24/V.28 (RS-232) minimum ports/interface	Nos.	4
b	V-35 minimum ports/interface	Nos.	4
c	Integrated LAN port available of DATA Interface		Yes
d	Software programmable board available to assign different types of data interface to each port		Yes
6	**Ethernet interface**		
a	Ethernet: ports (Optical/Electrical)	No.	Ethernet-4 ports(Electrical) Required and there shall be option for Ethernet port (optical) for future interface of optical signal
b	Ethernet: Router functionality		

	Routing protocols		Ethernet interface unit with layer-2 switching functionality.
7	**Integrated alarm gathering module:**		
a	Number of external alarms per module	No.	8
8	**Configuration Management :**		
	Type/Name of configuration tool		
a	For local/remote operation		Yes/Yes
b	Data communication network (DCN)		Ethernet /IP
c	Integrated management for SDH/PDH		Yes
9	**Network Management System :**		
	Type/Name of configuration tool		
a	For local/remote operation		Yes/Yes
b	Data communication network (DCN)		TCP/IP
c	Integrated management of SDH/PDH		Yes
10	**Power Supply :**		
a	Operation	VDC	48
b	Fully redundant power supply (for SDH/PDH)		Yes
c	Dual power feeder		Yes
d	AC power supply	VAC	230

4. Desired Technical Particulars of RTU

Sl No	Item Description	Value
01	Data transmission rate	10/100 Mbps for Ethernet Port (Configurable)
02	Communication Ports	: Two Ethernet ports for connectivity to master station on IEC 60870-5-104 and IEDs/Numerical relays on IEC 61850 : One port for RTU Configuration & maintenance tool. : One port for LDMS : Four RS 485 ports for polling MFMs / Energy Meters
03	Communication protocol with Master stations	IEC 60870-5-104
04	Communication protocol with LDMS	IEC 60870-5-104
05	Communication protocol with MFMs	MODBUS/103
06	Status data transfer to Master station	By exception
07	Analog data transfer to Master station	Normally Periodic

		For major change -by exception
08	No. of Scan Groups supported	16
09	Separate Logical Database for each Master Station	
10	RTU shall be able to capture contact operations	Of 20 ms or more duration
11	SOE buffer size	At least 1024 events
12	Time stamping accuracy for SOE	1 ms
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
17	Compliance to cl. 1.29.1 – Transducer Protection	

Appendix-I

Quantity and delivery schedule

Sl.No	Item Description	Quantity	UOM	Desired period of Supply & Commissioning
1(i)	24Fibre(DWSM)OPGW fibre Optic Cable	7.7	km	04 Months from the date of LOA
1(ii)	Hardware set like suspension Assembly, Tension Assembly(Dead end assembly, Pass through assembly) ,Vibration Damper, Down Lead Clamp Assemblies & Joint Box for 24F OPGW.	7.7	km	-do-
2	24 Fibre Optic Approach cable along with installation hardware including HDPE Pipes	0.8	km	-do-
3	FODP(Fibre Optic Distribution Panel)48 F: Indoor type, rack mounted with FCPC coupling and pig tails(DWSM Fibre)	2	Set	-do-
4	Optical line Terminal Equipment(OLTE) - STM4 type SDH equipment with cabinet, each configured with Cross-Connect & Timing Card (Minium 4 ports STM-4) -2nos , Ethernet Interface Card (8 Port)-2 nos , 63xE1 2Mbit/s Interface Card (120Ω 16 Ports Minium)-1 nos, Optical Fibre Patch Cords Single Mode Simplex (LC-LC) 10 Mtrs- 2nos, Optical Fibre Patch Cords Single Mode Simplex (LC-FC) 5 Mtrs-4nos, STM-4 SFP Module (S-4.1)- 4nos, Voice Gateway 2w(FXS)- 2 nos . Power cable(2.5 sq. mm 2 core DC supply) =25mtr, cable for AC supply(2.5 sq. mm 3 core) = 25 mtr.	2	Set	-do-
5	DTPC-Digital Tele-protection Coupler with cabinet compatible for interfacing with SDH MUX ,2.5SQMM 10Core flexible control cable = 1960mtr	4	No's	-do-
6	Remote Terminal Unit (RTU) with AI cards - 2nos, DI card-3 nos, MFM-5 nos, OLTC Xducer-3nos, CMR-30 Nos . Laptop-1 no cat-6 cable = 100 mtr ,Media converter-2 pair, 4 core 2.5 SQMM for OLTC= 100mtr 2.5 sq.mm single core flexible control cable(MFT PT supply)= 350mtr 4 sq. mm single core flexible control cable(MFT CT supply)= 500mtr 1.5 sq. mm 10 core control cable(Digital Input)= 1200 mtr. , 2 pair 0.5	1	Set	-do-

	sqmm screned armoured twisted pair data cable for MFM O/P = 150 mtr. 2.5 sq. mm 3 core control cable AC supply=60 mtr, 2.5 sq. mm 2 core control cable DC supply=40 mtr., 2.5 sqmm 2 core cable for 48V DC supply=300mtr. 12F OFC including duct pipe=500 mtr.			
7	48 V, 300 AH, maintenance free VRLA Battery set. ,16 sq.mm multi strand Black & red copper wire = 80 mtr. each	2	Set	-do-
8	SMPS based battery charger of 75A suitable for 48V VRLA battery. 4 core 4 sq.mm copper cable = 80 mtr, 6 sqmm multi strand Black & red copper wire = 80 mtr.	2	Set	-do-
9	Earth Flat, Cable Tray, Telephone cable, ACDB(1 -set), DCDB(1-set), Foundation rail, Junction Box, etc.	1	Ls	-do-

SECTION- V

TENDER SPECIFICATION
NO. CGM (Tel)_ e-TENDER_IOCL_03/2025-26

SPECIFICATION FOR COMPREHENSIVE AMC

Sl	ITEM DESCRIPTION	UNIT	Total Qty.
1	**Comprehensive AMC** of all the equipment after completion of 01 (One) year warranty period. 1. SDH(STM-4) -**2** No.s, 2. SFP module (L.4.2) -**4** no.s 3. Voice gateway -**2** no.s 4. DTPC-**4** no.s 5. RTU-1no 6. 48V,300AH VRLA Battery-2 set 7. SMPS charger-2 set	**Year**	**03**

SCOPE OF AMC (Comprehensive) for above mentioned equipments.

(I) **Annual Maintenance Contract (Comprehensive**) of equipment (SDH (2 No.s), SFP (4 no.s) and Voice gateway (2 no.s), DTPC(4 no.s), RTU (1 no.), Battery (2 set**), Charger (2 Set)** after completion of 1 (One) year warranty period for a period **of 3 (Three) years** from the date of expiry of the guarantee period shall have following scope:-

SCOPE OF AMC (Comprehensive) for above equipment.

(I) **Annual Maintenance Contract (Comprehensive**) for all the above equipment to be supplied and commissioned at the sites IOCL, Paradeep and 220/132/33KV Grid S/S of OPTCL, for a period **of 3 (Three) years** beyond the Guarantee period and shall have following scope:-

(a) **Preventive Maintenance** [Half yearly (every six months)]: Contractor to check the equipment properly to ascertain the performance to the satisfaction of OPTCL in every six months. 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 all the above equipment 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 Price reduction 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 price reduction 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 CAMC Contract of all the above equipment).
The terms of payments under this contract shall be governed as per the following:
1. Your unconditional acceptance of the order.
2. A performance Bank Guarantee as per the proforma enclosed for 10% of the total Maintenance Contract price (for 03 years) , which will remain valid for more than two months from the expiry of the contract period i.e, 38 months from the last date of the guarantee period. ~~Initially, the BG shall 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 above equipment 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 all the above equipment 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 all the above equipment 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 Goods and Service Tax shall be payable at applicable rate.
* 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 03 years**) , which will remain valid for more than two months from the expiry of the contract period i.e, **38 months** from the last date of the guarantee 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 Chief General Manager, (Telecom), 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 **38 (Thirty Eight)** 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 en-cashed without intimation to you.

(IV) CONSIGNEE AND PAYING OFFICER:

For the purpose of this **NOA** of AMC Contract, **DGM, Telecommunication Division, OPTCL**, Cuttack shall be the consignee verifying and **DDO, Telecommunication Circle, OPTCL, Bhubaneswar** Paying Officer.

(V) <u>PRICE REDUCTION SCHEDULE:</u>

(a) In the event of failure on your part to comply with the provisions of the contract regarding attending to the **Break down** of all the above equipment at IOCL, Paradeep & 220/132/33KV Grid S/S Paradeep of OPTCL , a penalty @0.5% of the total taxable value for each day of delay, or part thereof, for such delay, subject to upper limit of price reduction of 10% of the total taxable 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 all the above equipment at IOCL, Paradeep & 220/132/33KV Grid S/S Paradeep, a price reduction @30% of the total AMC taxable value for the period shall be imposed for that quarter.

<u>(VI) CONTRACTOR'S RESPONSIBILITY</u>:

It will be contractor's responsibility to maintain all the above equipment at IOCL, Paradeep & 220/132/33KV Grid S/S Paradeep of OPTCL 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 Price reduction 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 contractors scope. Any equipment/spare removed from the above mentioned equipments 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 above mentioned equipment then the BG furnished towards the AMC shall be encashed without any intimation to you.

(VII) 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.

(VIII) DURATION OF CONTRACT:

This AMC shall be in force for a period of 03 (Three) Years, beyond the Guarantee period as stipulated in the Specification.

Information to be furnished by the contractor:

The following information is to be provided by the contractor for attending to the faulty equipment for rectification during the guarantee period.

Persons to be contacted for the service purpose:
Names: (1)
Designation:
Mobile No.
Alternate Mobile No.
E-mail address:
Alternate e-mail address:

Name: (2)
Designation:
Mobile No.
Alternate Mobile No.
E-mail address:
Alternate e-mail address:

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 Bidders has to certify in the price bid that any implication of lower Tax and Input Tax Credit benefit as per anti-profiteering and other provisions under GST Laws, have 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 GOODS AND SERVICES TAX:

Offers with exemption from Goods and Services 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:

The Bidders 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.