



**ORISSA POWER TRANSMISSION  
CORPORATION LIMITED.  
OFFICE OF THE SR. GENERAL MANAGER [C.P.C.]  
BHUBANESWAR.**

**TENDER SPECIFICATION  
SRGM.[CPC]-Telecom-OPGW Stringing- 48 / 2011**

**FOR  
Stringing of OPGW in the diverted portion of 132KV line  
Chandaka-Mancheswar ckt I**

**DATE OF OPENING OF TENDER: 16.05.2011**

**PRICE: RS. 6000 +4% VAT**



**ORISSA POWER TRANSMISSION CORPORATION LIMITED**  
**REGD. OFFICE, JANAPATH, BHUBANESWAR –751022**  
**ORISSA.**

**TENDER NOTICE NO. 39 /2011**

For and on behalf of ORISSA POWER TRANSMISSION CORPORATION Limited, Sr. G.M. (C.P.C.) invites Tenders from reputed firms having previous experience in the related field for supply of OPGW along with fittings & hardware; stringing of the line in the diverted route of 132KV Chandaka-Mancheswar ckt I (1.8 Km maxm) and commissioning of data connectivity on turn key basis. Tender papers shall be sold from 29.04.2011 to 16.05.2011. Interested firms may visit OPTCL's official website <http://www.OPTCL.co.in> for detail specifications.

SR. GENERAL MANAGER [C.P.C.]



**ORISSA POWER TRANSMISSION CORPORATION LIMITED,**  
**REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,**  
**ORISSA, INDIA.**  
**TENDER NOTICE NO. 39 / 2011**

For and on behalf of the ORISSA POWER TRANSMISSION CORPORATION LIMITED, the undersigned invites bids under single-part bidding system in double-sealed cover for the works as mentioned below, duly superscribed with tender specification number and date of opening, from experienced contractor for Supply of all materials & fittings, stringing and commissioning of Optical Ground Wire in the diverted route of 132KV Chandaka-Mancheswar Ckt I at Bhubaneswar on turn key basis.

<i>Sl . N.</i>	<i>Tender Specification No.</i>	<i>Description of works.</i>	<i>Quantity</i>	<i>Earnest Money Deposit (In Rs.)</i>	<i>Cost of Tender Paper Rs</i>	<i>Last date of receipt &amp; opening of tender</i>
1.	SrGM.CPC -Telecom- OPGW stringing- 48 /2011	Supply stringing, Testing and commissioning of OPGW in the diverted route (1.8 Km) of 132KV Chandaka-Mancheswar Ckt-I at BBSR	Necessary for 1.8Km Line Length	25000.00	6000.00 +4% VAT	16.05.2011

The tender specification documents can be had from the office of the undersigned on payment of non-refundable cost of tender specification documents in the shape of cash or D.D. from 10 A .M. to 2 P.M. on 29.04.2011 to 13.05.2011 (both days inclusive)

on any working day either in person or by remitting demand draft payable to Drawing & Disbursing Officer, ORISSA POWER TRANSMISSION CORPORATION LIMITED, Regd. Office: Janpath, Bhubaneswar- 751 022. No other mode of payment is acceptable. No tender documents will be sold on any other day except as indicated.

The specification can also be down loaded from OPTCL's official web site and the same may be submitted along with the cost of tender document by way of demand draft/ pay order payable to D.D.O ,OPTCL Ltd. Janpath, Bhubaneswar at the time of submission of tender document. In case any deviation is found in the tender document submitted by the Tenderer from the content mentioned in our web site and/ or non submission of cost of tender documents, the tender shall liable to be rejected at any stage of the contract. The Tenderer has to indemnify OPTCL for any loss accruing due to such alternation in the terms and conditions of the tender document & / or for such alternation, resulting in the cancellation of the contract.

The intending bidders, who want to get a copy of the tender specification document by post, are required to deposit an additional amount of Rs.200/- over and above the cost of the tender specification, mentioned under heading "Cost of tender specification". Complete bids will be received up to 11 A.M. only and the same will be opened at 3.30 P.M. on the date mentioned against above Tender Specification. In the event of any specified date for the sale, submission or opening of bids being declared a holiday for OPTCL, the bids will be sold/ received/ opened up to the appointed times on the next working day. Only one representative of the bidder will be allowed to participate in the bid opening. OPTCL also reserves the right to accept or reject the tender without assigning any reasons thereof, if the situation so warrants. OPTCL shall not be responsible for any postal delay at any stage.

**Minimum qualification criteria of bidders:**

The bidder should have previous experience in Supply, stringing, Testing and commissioning of OPGW on EHT transmission line (132KV or above) owned by any big Electrical organization/ utilities for which the firm has to produce both work order copy as well as the completion certificate from the competent authority.

Valid electrical/Contractor license for working on HT/EHT transmission lines

**SR. GENERAL MANAGER  
CENTRAL PROCUREMENT CELL**

FAX NO.: 0674 – 2542964  
TELEPHONE NO.: 0674 – 2541801

**ORISSA POWER TRANSMISSION CORPORATION LTD.  
OFFICE OF THE SR. GENERAL MANAGER  
CENTRAL PROCUREMENT CELL  
JANAPATH, BHUBANESWAR – 751022**

**TENDER SPECIFICATION**

**NO. SR.GM.-CPC –TENDER- TELECOM- OPGW STRINGING 48/2011  
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**

**PART – II PRICE BID.**

# SECTION – I

## INSTRUCTIONS TO BIDDERS:

1. Sealed Tenders in triplicate on two part basis (each complete with all details in the manner specified together with drawings, test reports, descriptive literature if any, and declaration form duly signed by tenderer are to be submitted in the office of the Sr. G.M. [CPC], ORISSA POWER TRANSMISSION CORPORATION LTD, Bhubaneswar in double sealed cover and superscribed the relevant tender specification number and due date of opening as indicated in the 'Notice Inviting Tenders'.
2. The specification is divided into two parts viz. **Part-I & Part-II**. Part I consists of four sections —
  - (i) Section – I – Instruction to Bidders.
  - (ii) Section – II – General Conditions of Contract.
  - (iii) Section – III – Schedules & Annexures.
  - (iv) Section – IV – Technical SpecificationPart II Consists of (i) Abstract of price components (ii) Schedule of prices

### **Tenders shall be in Two parts**

3. The purchaser reserves the right to alter the quantities with respect to materials/equipments/volume at the time of placing orders. Orders may also be split up among more than one bidder for any particular item/work.
4. Part I of the tender will be opened in the office of Sr. G.M. [CPC], OPTCL in presence of such of the Tenderer or their authorized representative (limited to one person only with a valid authorization from his employer). At the time of opening, the tech no-commercial bids and other relevant details will be read out. Price bid of successful Tech no-commercial bidders would be opened at a latter date with due information to the successful bidders.

5. The tenderer may deviate from the specification while quoting if in his opinion such deviation is in line with the erectors 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 separate sheet(s) under 'Deviations' title.
6. Only those who have purchased the copy of relevant "Specification No. Sr. GM-CPC-48/2011 can submit their tender. Tenderer may down load the details of the tender specification from the OPTCL web site [www.optcl.co.in](http://www.optcl.co.in) and may submit the tender along with the cost of tender paper for Rs 6,000/-+4 % VAT in shape of DD drawn in favour of DDO OPTCL HQ from any nationalized bank payable at Bhubaneswar.
7. The purchaser reserves the right to reject the lowest or any other tenders or all tenders without assigning any reason what so-ever if it is considered expedient in the overall interest of OPTCL.
8. The tender should be in one part consisting of for Tech no commercial details and prices. The tender shall be submitted in triplicate and should be enclosed in double sealed cover both addressed to the Sr. G.M.[CPC], ORISSA POWER TRANSMISSION CORPORATION Ltd., Finance Wing, Janpath, Bhubaneswar – 751 022. Both inner and outer cover should be sealed and superscribed with Tender Specification number and date of opening, (No.1 envelope should contain the original copies of technical parts of the specification with schedules and form including receipt of Earnest Money deposit and the No. 2 Envelope should contain original and copies of price bid as per the enclosed schedule). The tender should be submitted in person or by Registered Post with A.D. and any other means of delivery shall not be accepted.
9. Tenders received after due date and time shall be returned without being opened. Telegraphic or Fax Tenders shall not be accepted under any circumstance.
10. EARNEST MONEY DEPOSIT :

**The tender shall be accompanied by Earnest Money Deposit of Rs 25,000/-**

The Earnest Money Deposit shall be offered in one of the following forms subject to the conditions mentioned below —

Bank Draft/Pay Order to be drawn in favour of DDO(Hdqrs.), ORISSA POWER TRANSMISSION CORPORATION Limited, Bhubaneswar-751 022.

- (a) Bank Guarantee from any Nationalized Bank as per enclosed proforma.  
The validity of the above EMD BG shall be 180 days from the date of opening of the tenders failing which the tenders will be liable for rejection.
- (i) No interest shall be paid on Earnest Money Deposit. No adjustment towards Earnest Money Deposit shall be permitted against any outstanding amount with OPTCL.
- (ii) In the case of unsuccessful tenderer, the Earnest Money will be refunded after finalization of tender. In case of successful bidder Earnest Money will be refunded only after furnishing performance security.
- (iii) Earnest Money/Performance Security will be forfeited if the tenderer fails to accept the letter of intent and/or purchase orders issued in his favour.

Tenders not accompanied by Earnest Money shall be disqualified.

**11. Validity** — The tenders should be kept valid for a period of 120 days from the date of opening of the tenders as notified in the tender notice failing which the tenders will be rejected.

12. Tenderer are expected to be fully conversant with the meaning of all the clauses of the specifications before submitting their tenders. In case doubt regarding the meaning of any clause, the tenderer may ask for clarification in writing from the Sr. General Manager (CPC), OPTCL, Bhubaneswar which must reach at least 15 days before the scheduled date of opening of tender. This however, does not entitle the tenderer to ask for time beyond due date fixed for receipt of tender.



13. The tenderer should comply the following requirements along with the offer.
- (i) Adequate similar type Experience in Supply, Dismantling, Erection / Stringing, Testing and commissioning of OPGW on EHT transmission lines (132KV or above) and restoration of communication signal in the same.
  - (ii) The bidder should have Valid HT/EHT Electrical contractor license from the competent authority on the date of submission and opening of the tender.
  - (iii) The bidder should be financially stable and their status should meet the financial obligation pursuant to the scope of the works. Their P/L and balance sheet for the last two years may be submitted.
14. The successful bidder is required to furnish all designs, Drawings, Literatures in respect of the said work at his own cost within 15 days of placement of LOI/PO; otherwise the same is liable for rejection without notice.
15. Bidders are required to submit tenders in the following manner. All documents/information enclosed in schedule –IV and as described below shall be placed in a double sealed cover .
16. Other important terms and conditions.
- 16.1** The firm should include the work contract tax if any in the quoted price .
  - 16.2** The firm shall not include entry tax and service tax in the quoted price which shall be reimbursed to them as per prevailing rate subject to production of documentary evidence.

## **ENVELOPE – 1**

(i) Declaration Form **As per Annexure- II**

**(ii) Earnest Money AS per Annexure- XI**

**(iii) Guaranteed Technical Particulars** of supplied materials conforming to Purchaser specification along with drawing, literatures and all other required annexures duly filled in.

(iv) Abstract of Terms & conditions in prescribed proforma as per Annexure-III

(iv) General Terms & Conditions of supply offer as per section-II of the specification.

(iv) Data on past experience as per clause-13 of Section-I of the specifications

(v) Sales tax clearance certificate for the previous year. The permanent account number (PAN) of the firm is required under Income tax Act

(vi) Audited Balance sheet & profit loss accounts of the bidder, for past (2) two years.

## **ENVELOPE :2**

(i) Abstract of Price Component as per Annexure

(ii) Schedule of prices in the prescribed proforma as per Annexure-

**17. Conditional offer shall not be accepted.**

## **SECTION – II**

# **GENERAL CONDITIONS OF CONTRACT**

### **1. DEFINITION OF TERMS:**

In writing these General Conditions of Contract, the specification and bill of quantity, the following words shall have the meanings hereby indicated, unless there is something in the subject matter or content inconsistent with such construction.

“OPTCL” shall mean the ORISSA POWER TRANSMISSION CORPORATION Limited represented through the Sr. General Manager (CPC).

“The Engineer in charge” shall mean the Engineer or Engineers authorized by the Chief Engineer(TP) for the purpose of this contract.

“OPTCL Engineer” shall mean any Engineering person or personnel authorized by the OPTCL to supervise and inspect the dismantling, stringing testing and commissioning of OPGW on 132KV Chandaka-Mancheswar Line.

“The Contractor” shall mean the successful bidder awarded with the contract or their successors and permitted assigns.

“Contract Price” shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price.

“General Conditions” shall mean these General Conditions of Contract.

“Specification” shall mean the specification annexed to these General Conditions of contract and shall include the schedules and drawings attached thereto or issued to the contract as well as all samples and patterns, if any.

“Month” shall mean calendar month.

“Writing” shall include any manuscript, typewritten, printed or other statement reproduced in any visible form whether under seal or under hand.

### **2. CONTRACT DOCUMENT:**

The term “Contract” shall mean and include the General Conditions, specifications, schedules, drawings, work orders issued against the contract, schedule of price or the

final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian Contract Act falling that in the Orissa General Clauses Act.

**3. MANNER OF EXECUTION:**

- (i) Dismantling of OPGW from existing line on Chandaka-Mancheswar Ckt I for a line length of 1.25Km (approx) as per the direction of Engineer in charge.**
- (ii) Supply of OPGW with necessary hard wares & fittings for a line length of 1.8Km, Erection / stringing, testing and commissioning of the same on diverted route of Chandaka- Mancheswar 132KV line at Bhubaneswar.**
- (iii) Restoration of speech and data communication in the above link between Chandaka to Mancheswar which is to be certified by Engineer in charge.**

- 3.1 shall be carried out in an approved manner as described in the technical specification and , in accordance with relevant Indian / International Standard Specification, to the reasonable satisfaction of the Engineer.
- 3.2 The contractor shall within 10 days after the date of acceptance of letter submit to the engineer, a detail program for the execution of work for his consent. The contractors shall whenever required by the engineer also provide in writing for his information in general description of the arrangements and methods which the contractor proposes to adopt for the execution of the work.
- 3.3 If at any time it should appear to the engineer that the actual progress of works does not conform to the program to which consent has been given under sub-clause-3.1, the contractor shall produce at the request of the engineer a revised program showing the modification to such program necessary to ensure completion of the works within the time of completion.

**4. Taxes and duties:**

4.1 All duties , taxes and other levies payable by the bidder in respect of the transaction between the bidders and their vendors while preparing any components sub assembly ,raw materials ,erection cost shall be included in the bid price and no claim on this behalf shall be entertained by the owner.

However, any entry tax as applicable for destination site on all items of supply shall not be included in the bid price. The applicable entry tax in respect of the said items of supply would be reimbursed to the contractor separately subject to furnishing of documentary evidence.

VAT , Sale tax , Entry tax, any other levies should be clearly mentioned on the price schedule.

#### **5. VARIATION, ADDITIONS & OMISSIONS:**

The OPTCL shall have the right to alter, amend, omit or otherwise vary the quantum of Supply and erection work by notice in writing to the contractor/Firm. The contractor/ Firm shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available, those will be mutually agreed between the OPTCL and the Contractor.

#### **6. INSPECTION & TESTING:**

The Engineer in charge or his authorized representative (s) shall be entitled at all reasonable times to inspect all materials including hardwares covered under this contract at site upon receipt of call from the contractor. The contractor is to provide technical datas and measuring instrument for physical verification and testing of the materials. Dismantling and stringing of OPGW on the transmission line shall also be supervised by OPTCL engineer. However Such inspection will not release the contractor from their obligations under this

contract, to perform as per specification and standard. Advance intimation must be given to Engineer –in-charge whenever it is needed prior to execution of work.

After completion of the work in every respect the new OPGW link in the diverted route shall be tested for restoration of the speech and data which shall be witnessed by Engineer-in-charge. On successful completion and operation of the system he shall issue one performance certificate on the quality of the work completed by the contractor. this certificate shall be issued within three days from commissioning and restoration of the new OPGW link.

### **7.COMPLETION OF WORK:**

Time being the essence of contract, all supplies, stringing and commissioning and verification of the works by OPTCL Engineer shall be completed within the period specified i.e **within Three months** from the date of placement of the LOI/ work order which ever is earlier.

### **8.CONTRACTORS DEFAULT LIABILITY:**

OPTCL may upon written notice of default to the Contractor/Firm terminate the contract in circumstances detailed hereunder.

8.1(i) (a) if, in the judgment of the OPTCL, the contractor/Firms fails the complete the scope of work within the time specified in the contract agreement or within the period for which the OPTCL has granted extension to the contractor.

(b) If, in the judgment of the OPTCL, the contractor fails to comply with any of the provisions of this contract.

8.1(ii) In the event OPTCL terminates the contract in whole or in part as provided in paragraph

(i) above, OPTCL reserves the right to engage another contractor or agency upon such terms and in such a manner as it deem appropriate and the contractor will be liable to OPTCL for any additional costs as may be required for the completion of the line and/or

for penalty for delay as defined under this contract until such reasonable time as may be required for the final completion of the line.7.1(iii) In the event OPTCL does not terminate the contract as provided in paragraph (i) the contractor/Firm shall continue the performance of the contract in which case he shall be liable to the OPTCL for penalty for delay as set out in this contract until the lines are completed.

### **9.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 public enemy, acts of Government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that the contractor shall within 10(ten) days from the beginning of such delay notify the OPTCL in writing of the cause of delay. The OPTCL shall verify the facts and grant such extension as facts justify.

### **10.REJECTION OF WORKS:**

In the event of any of the material supplied/work done by the contractor is found defective in material or workmanship or otherwise not in conformity with the requirement of this contract specification, OPTCL shall either reject the material and/or work and request the contractor to rectify the same. The contractor on receipt of such notices rectify or replace the defective material and rectifies the work, free of cost. If the contractor fails to do so the OPTCL may,

- (a) at its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the contractor plus fifteen per cent of the extra cost from the contractor and/or
- (b) Terminate the contract for balance work/supplies with enforcement of penalty as per contract.

- (c) Defective materials/workmanship will not be accepted under any condition and shall be rejected outright without compensation. The contractor shall be liable for any loss/damage sustained by OPTCL.

**11. EXTENSION OF TIME:**

If the completion of work is delayed due to reason beyond the control of the contractor, the contractor shall without delay give notice to the OPTCL in writing of his claim for an extension of time. The OPTCL on receipt of such notice may agree to extend the contract completion date of the line as may be reasonable but without prejudice to other terms and conditions of the contract.

**12. GUARANTEE PERIOD:**

The work done/material supplied by the contractor as per the contract specification should be guaranteed for satisfactory operation and against any defect in material and workmanship for a period of 18 (eighteen) months from the date of taking over of the system by OPTCL or 12(twelve) months from the date on which the system have been put to service whichever is earlier. 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 OPTCL upon written notice provided such defects are due to bad workmanship or bad materials used. The date of delivery of system as read in this clause shall mean the date taking over the system by OPTCL

The contractor shall furnish contract performance guarantee for the proper fulfillment of the contract within 30 days of Award of contract .

**13. PERFORMANCE GUARANTEE:**

Before issue of final taking over certificate (TOC) by the Engineer in charge the contractor shall provide OPTCL a Performance Bank Guarantee from a Nationalized/Scheduled Bank for an amount of 10% of the contract price in the approved



proforma of the OPTCL. This Bank guarantee shall be executed in a stamp paper worth Rs.50/- or any other amount as per the Odisha Stamp Duty Act and shall be kept valid till completion of the guarantee period mentioned in the foregoing clause.

OPTCL shall pay no interest for the aforesaid bank guarantee. In case of non-performance of the line work as per the contract specification, the performance bank guarantee shall be en cashed by OPTCL. .

#### **14. TERMS OF PAYMENT:**

1. The contractor shall present a bill for the works completed, inspected, duly checked and measured & certified by OPTCL Engineer-in-charge, as per OPTCL norm at the charges/rates accepted along with materials utilization certificate of OPTCL's supply materials issued. 100% value of the consignment with 100% Excise duty, Entry tax if any and Sales tax in full as applicable along with freight & Insurance charges will be paid subject to furnishing and approval of performance Bank Guarantee @ 10% (Ten percent of the cost of the project along with guarantee Certificate and Test Certificate by the Purchaser.

#### **15. PENALTY**

If the contractor fails to complete the erection, testing and commissioning etc. within the phased delivery schedule specified in the work order or any extension granted thereto, the OPTCL shall recover from the contractor as penalty a sum of half of one per cent (0.5%) of the contract price of the uncompleted portion of the system for each calendar week of delay. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed 5% (five per cent) of the contract price of the uncompleted portion of work.

**16.1 INSURANCE:**The contractor shall arrange insurance coverage for the OPTCL materials at his custody and system works under execution by him as per the condition laid down in the relevant clause of the technical specification.

**16.2** The contractor shall take up Group Insurance or such other measures for his work force as well as OPTCL supervising staff and officials covering the claim for damage to personnel during supervision of work and other applicable State/Central laws. OPTCL shall not bear any responsibility on this account.

**17. PAYMENT DUE FROM THE CONTRACTOR:**

All costs of damages for which the contractor is liable to the purchaser will be deducted by the purchaser from any money due to the contractor under the contract.

**18. 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 the High Court of Orissa extends.

**19. CONTRACTORS/Firms RESPONSIBILITY:**

**19.1** Notwithstanding anything mentioned in the specification or subsequent approval or acceptance of the line by OPTCL, the ultimate responsibility for satisfactory performance of the line shall rest with the contractor.

**19.2 RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE:**

If any loss or damage happens to the work or any part thereof or materials/plant/equipments for installation therein during the period of execution and till final handing over; the contractor is responsible for the same and shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the engineer. The contractor shall also be liable for any loss or damage to the work/equipment caused by him in course of any operation carried out by him during performing the contract.

**20. NON-ASSIGNMENTS:**

The contractor shall not assign or transfer the work orders issued as per this contract or any part thereof to anyone else without the prior approval of OPTCL.

**21. CERTIFICATES NOT TO AFFECT RIGHTS OF OPTCL:**

The issuance of any certificate by OPTCL or any extension of time granted by OPTCL shall not prejudice the rights of OPTCL in terms of the contract nor shall this relieve the contractor of his obligations for due performance of the contract.

**22. SETTLEMENT OF DISPUTES:**

22.1 Except as otherwise specifically provided in the contract, all disputes concerning question of fact arising under the contract shall be decided by OPTCL provided a written appeal by the contractor is made to OPTCL. The decision of OPTCL shall be final to the parties hereto.

22.2 Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible be settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled by Arbitration as provided in this contract.

**23. ARBITRATION:**

23.1 If at any time any question, dispute or difference whatsoever arises between the OPTCL and the contractor, upon or in relation to or in connection with this contract, either party may forthwith give to the other a notice in writing of the existence of such question, disputes or difference and the same shall be referred to the adjudication of three arbitrators, one to be nominated by OPTCL, the other by the contractor and the third by the President of the Institution of Engineers, India. If either of the parties fail to appoint its arbitrator, within sixty (60) days after receipt of notice for the appointment of its arbitrator then the President of the Institution of Engineers, India shall have the power at the request of either of the parties to appoint an Arbitrator. A certified copy of the "President" making such an appointment shall be furnished to both parties.

23.2 The arbitration shall be conducted in accordance with the provisions of Indian Arbitration Act, 1940 or any statutory modification thereof and shall be held at Bhubaneswar in the state of Odisha . The decision of the majority of Arbitrators shall be final and binding upon the parties hereto and the expenses of the arbitration shall be paid as may be determined by the Arbitrators.

23.3 Performance under the contract shall if reasonably possible continue during the arbitration proceedings and payments due to the contractor by OPTCL shall not be withheld unless they are the subject matter of the arbitration proceedings.

**24 LAWS GOVERNING CONTRACT:**

The contract shall be governed according to and subject to the Laws of India and jurisdiction of the Courts of Odisha.

**25 LANGUAGE AND MEASURES:**

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

**26 CORRESPONDENCE:**

26.1 Any notice to the contractor under the terms of the contract shall be served by registered mail or by hand to the authorized local representative of the contractor and copy by post to the contractor's principal place of business.

26.2 Any notice to OPTCL shall be served to the Sr. General Manager (CPC), ORISSA POWER TRANSMISSION CORPORATION Limited, Bhubaneswar-751 022 (Odisha) in the same manner through the concerned Engineer-in-charge.

27 **SECURITY:** The contractor shall treat the details of the specification and other documents as private confidential and those shall not be reproduced without written authorization from OPTCL.

**28 AGREEMENT:**

The successful contractor shall have to enter into an agreement with OPTCL in the approved contract agreement form within 30 days of the issue of the individual work order on non-judicial stamp paper worth of rs 500/-(Rupees five hundred only)

**29. Test certificate:**

Type test certificate for the following items shall be furnished .

OPGW type -DWSM(8 fibers)

Type test certificate shall be furnished for test carried out on similar type/design of material.

**Routine test certificate-:**

This certificate for all the materials and accessories to be used in the turn key contract shall be furnished which shall be collected at the time of inspection.

**30. Submission of drawings:**

The list of drawings and the program shall be submitted within 15 days from the issued of the order.

**31. Outright Rejection of Tenders**

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

- [i] The Tenderer should have purchased/obtained the Bid specification document from the office of the OPTCL or downloaded the same from

website of OPTCL, but shall deposit the tender cost, while submitting the tender.

- [ii] The Tender shall be submitted in person or by Registered Post with A.D.
- [iii] The Tender shall not be submitted telegraphically or by FAX.
- [iv] The Tender shall be accompanied by the prescribed Earnest Money deposit. whenever the EMD is furnished in shape of BG,it should be kept valid for 180 days from the date of opening of tender.
- [v] The Tender shall be kept valid for a minimum period of 120 days from the date of opening of tender.
- [vi] The Tenders shall be accompanied by a list of major works executed prior to the date of opening of tender. Data of at least 2 (two) years shall be furnished.
- [vii] The schedule of prices should be filled up fully to indicate the break-up of the prices including taxes and duties. Incomplete submission of this schedule will make the tender liable for rejection.  
Vide Clause-4(ii) of Part-II..
- [vii] The Tenderer should quote 'FIRM' price only and the price should be kept valid for a minimum period of 120 days from the date of opening of the tender.
- (viii) Tender shall be accompanied by legibly written user's certificate to prove the satisfactory operation of the offered works/materials for a minimum period of 2 years from the date of commissioning/use as per the tender specification. User's certificate shall include the detailed address of the user with Work/Material, Name and type as per this specification, number of years of satisfactory use/operation & date of issue of this user's certificate with official seal written in English only & clearly visible must be furnished.
- (ix) Guaranteed Technical particulars and Abstract of terms and Conditions. should be filled in completely.

### 32. **Scheme/ Projects.**

The work covered in this specification shall come under “ BDA deposit scheme to be supervised by OPTCL”

## **SECTION III**

### **SCHEDULES AND ANNEXURES**

(i)	General Information -	Annexure – I
(ii)	Declaration Form -	Annexure – II
(iii)	Abstract of Terms & Conditions -	Annexure – III
(iv)	Personal capability -	Annexure – IV
(v)	Equipment capability	Annexure – V
(vi)	Financial capability	Annexure – VI
(vii)	Experience Record	Annexure – VII
(viii)	Departure from Specification (Technical ) - Departure from the condition of contract (commercial)	Annexure – VIII
(ix)	Litigation History -	Annexure – IX
(x)	Composite Bank Guarantee Form	Annexure – X
(xi)	Bank Guarantee Form for Earnest Money	Annexure – XI
(xii)	Abstract of price component	Annexure – XII
(xiii)	Schedule of prices	Annexure-XIII

## **ANNEXURE – I**

### ***GENERAL INFORMATION***

The bidder shall furnish general information in the following format.

1. Name of the Firm:

2. Head office address:

3. Contact persons:

Telephone No.

Office:

Residence:

4. Fax No.

Telex:

5. Place of incorporation/ Regn.

Year of incorporation/Regn.

Signature with designation &  
Seal of Tenderer



# ANNEXURE – II

## DECLARATION FORM

Tender Specification No. \_\_\_\_\_/

To  
Sir,

1. Having examined the above specification together with tender conditions referred to therein, I/We undersigned hereby offer to execute the work contract covered there complete in all respect as per the specification and general conditions, at the rates entered in the attached contract schedule of prices in the tender. Our offer is valid up to 180 days from the date of tender opening .
- 2 I/We hereby undertake to have the works completed within the time specified in the tender.
3. I/We certify to have purchased a copy of the specification by remitting cash demand draft and this has been acknowledged by you in your letter No                    dated
4. In the event of work order being decided in my/our favour, I/We agree to furnish the Bank Guarantee in the manner acceptable to ORISSA POWER TRANSMISSION CORPORATION Limited and for the sum as applicable to me/us as provided in the general conditions of contract (Section-II) of this specification within 30 days of issue of work order, failing which I/We clearly understand that the said work order will be liable to be withdrawn by OPTCL.

Signed this ..... day of .....2008.

Yours faithfully,

Signature with designation &  
Seal of Tenderer.

(This form should be duly filled in by the tenderer and submitted along with the original copy of tender)

# ANNEXURE – III

## ABSTRACT OF TERMS AND CONDITIONS

1. Earnest Money furnished
  - (a) Cash
  - (b) Bank Guarantee
  - (c) Bank Draft
  - (d) Proof of support of EPM  
Regn /DGS&D/NSIC
  
2. Validity-180 days
  
3. Price-FIRM
4. Rate of CST/VAT
5. Rate of other taxes/levies/duties
6. Nature of price: Firm
7. Testing charges, if any.
8. Supervision charges per day for  
Engineer/Supervisor:
9. Terms of payment :                      Whether agree to OPTCL's terms      Yes/No  
or not?
10. Schedule date of completion      Whether agree to OPTCL's terms.      Yes/No  
of work:
11. Guarantee:                              Whether agree to OPTCL's terms.      Yes/No
  
12. Penalty:                                  Whether agree to OPTCL's terms.      Yes/No
  
13. Whether agreed to furnish 10% composite bank guarantee (in case      Yes/No  
of outside state firms [@ 8.5% of contract value in case of State  
SSI units] in case his tender becomes successful:
14. Whether agreed to Technical Specifications and drawings:                      Yes/No
15. Contractor's name & address:

SIGNATURE OF TENDERER  
NAME: & DESIGNATION:

# ANNEXURE – IV

## PERSONNEL CAPABILITIES

**Name of Applicant:**

Details of persons available with necessary qualifications and experience in Supply, Erection/Stringing and commissioning of OPGW on EHT transmission line both managerial supervisory & workmen with necessary license/workman permit issued by the competent authority if any shall be furnished in the following formats.

**A) PERSONNEL IN MANAGERIAL POSITION:**

Sl. No.	Name of person with designation	Educational/ Tech. Qualification	Year of experience	Details of License if any
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**B) PERSONNEL IN SUPERVISORY POSITION:**

Sl. No.	Name of person with designation	Educational/ Tech. Qualification	Year of experience	Details of License if any
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**C) PERSONNEL IN WORKMEN CATEGORY:**

Sl. No.	Name of person with designation	Educational/ Tech. Qualification	Year of experience	Details of License if any
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# ANNEXURE – V

## EQUIPMENT CAPABILITIES

**Name of the Applicant:**

The bidder shall provide as the capability to meet the requirements for each and all items of equipment in their possession, for supply, erection/Stringing, testing and commissioning in the following format:

**(A) Erection/ Stringing**

Sl. No	Description of equipment	Model/ Power rating	Capacity	Year of manufacture
.				

**(B) Testing:**

Sl. No	Description of equipment	Model/ Power rating	Capacity	Year of manufacture
.				

Signature of Tenderer  
with seal of company

# ANNEXURE – VI

## FINANCIAL CAPABILITY

(A) ANNUAL TURNOVER:

**Name of the bidder:**

(The bidder is requested to complete the information in this Annexure. The information supplied should be the annual turnover duly audited by the Chartered Accountant for preceding three years for work in progress or completed).

ANNUAL TURNOVER DATA:

YEAR	TURNOVER	INDIAN RUPEES

(B) The bidder shall also furnish the following information:

1. Name of Banker:
2. Address of Banker:
3. Telephone:
4. Contact Name and Title:
5. Fax No-

Financial information In Rupees	Actual previous three years			Projected: Next two Years:	
	1.	2.	3.	4.	5.

1. Total assets:
2. Current assets:
3. Total liabilities:
4. Current liabilities
5. Profit before taxes

## ANNEXURE – VII

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### **EXPERIENCE RECORD**

The bidder shall furnish details of work orders for similar nature of erection work received during the last three years and already completed and under execution.

Sl. No.	Work order/ No. & Date	Name & address of the owner	Value of contract	Scheduled date of delivery/completion of work	Slippage with	Remarks
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## ANNEXURE – VIII

### DEPARTURE FROM SPECIFICATION

- (A) **Tenderer shall enter below particulars of his alternative proposals for deviation from the specification, if any.**

Sl. No.	Clause No. of Specification	Particulars of deviation	Price
---------	-----------------------------	--------------------------	-------

Date:

Place:

SIGNATURE OF TENDERER

NAME:

DESIGNATION:

(SEAL)

- (B) **Departure from the condition of contract (commercial)**

The tenderer shall enter below, departure if any, from the conditions of contract as herein.

Date:

Place:

SIGNATURE OF TENDERER

NAME:

DESIGNATION:

(SEAL)

# ANNEXURE –IX

## COMPOSITE BANK GUARANTEE

This Guarantee Bond is executed this ..... day of .....  
2011 by us the .....  
.... (Bank) At ..... PO-.....  
PS-..... Dist-..... State .....

1. WHEREAS the ORISSA POWER TRANSMISSION CORPORATION Ltd. A body corporate constituted under the Orissa Electricity Reform Act, 95 (hereinafter called “OPTCL”) has placed work orders No. .... Dated..... (hereinafter called “the agreement”) on M/s ..... (hereinafter called “the Contractor”) for dismantling, stringing, testing and commissioning of OPGW on the diverted route of 132KV Chandaka-Mancheswar Ckt I.

WHEREAS the contractor has agreed to execute the work for OPTCL in terms of the said agreement AND WHEREAS OPTCL has agreed (1) to exempt the contractor from making payment of security, (2) to release 100% payment on the completion of work as per the said agreement and (3) to exempt from performance guarantee on furnishing by the Contractor to OPTCL a Composite Bank Guarantee of the value of 10% (ten per cent) of the said agreement.

NOW THEREFORE in consideration of OPTCL having agreed (1) to exempt the contractor from making payment of security, (2) to release 100% payment to the contractor and (3) to exempt from furnishing performance guaranteed in terms of the said agreement as aforesaid, we the ..... (Bank) (hereinafter referred to as “the bank”) do hereby undertake to pay to OPTCL an amount not exceeding Rs.....  
.... (Rupees .....



.....) only against any loss or damage caused to or suffered by or would be caused to or suffered by OPTCL by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said agreement.

2. WE (the ..... ) do hereby undertaken to pay the amounts due and payable under this guarantee without any demour, merely on a demand from OPTCL stating that the amount claimed is due by way of loss or damage caused to or suffered by OPTCL by reason of any breach by the said contractor(s) of any of the terms or conditions contained in the said agreement or by reason of the contractor (s) failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to all amount not exceeding Rs..... (Rupees .....).

3. WE the (.....) Bank also undertake to pay to OPTCL any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding instituted/pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

4. WE (.....) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to 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 Chairman and Managing Director, Gird Corporation of Orissa Ltd. Certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) and

accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the (.....) we shall be discharged from all liability under this guarantee thereafter.

5. WE, (.....) further agree 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 agreement or to extend time of performance by the said contractor(s) and we shall not be relieved from our liability by reason of any such variations or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the OPTCL or any indulgence by OPTCL to the said contractor(s) by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

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

7. We (.....) lastly undertake not to revoke this guarantee during its currency except with the previous consent of OPTCL in writing.

8. we the \_\_\_\_\_ The Bank further agree that this guarantee shall also be invokable at our place of business at Bhubaneswar in the state of Orissa .

Dated at ..... the ..... day of 2011

For.....  
(indicate the name of the Bank)

Witness: (Signature with name & address)

1.

2.

# ANNEXURE – XI

## PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY

Ref—

Date—

Bank Guarantee No

In according with invitation to Bid No..... of ORISSA POWER TRANSMISSION CORPORATION Limited (hereinafter referred to as the OPTCL) for the purpose of .....

..... Ms. or Mr.....  
..... Address .....

Director(s)

.....  
Wish/wishes to participate in the said tender and as a Bank Guarantee for the sum of Rs.....  
..... valid for a period of ..... days .....) is required to be submitted by the tenderer, we the \_\_\_\_\_ )

[indicate the name of the bank]

(hereinafter referred to as “Bank”) at the request of Ms/ Shri.....  
(hereinafter referred to as “Contractor(s)”) do hereby unequivocally and unconditionally guarantee and undertake to pay during the above said period on written request by the \_\_\_\_\_ ORISSA POWER TRANSMISSION CORPORATION Ltd.

[indicate the designation of purchaser]

an amount not exceeding Rs..... To the said OPTCL without any reservation. The guarantee would remain valid upto 04.00 PM of \_\_\_\_\_ (date) and if any further extension to this is required, the same will be extended on receiving instruction from the \_\_\_\_\_ on whose behalf this guarantee has been issued.

*Note for tenderers :* [Not to be typed in Bank Guarantee]  
To be furnished in non-judicial stamp paper of Rs.50/-  
Applicable as per Orissa Stamp Duty Act, from any  
Nationalised/Scheduled Bank.

2. We, the \_\_\_\_\_ do hereby further undertake to pay the  
[indicate the name of the Bank]  
amounts due and payable under this guarantee without any demur, merely on demand from  
OPTCL stating that the amount claimed is due by way of loss or damage caused to or would  
caused to or suffered by reason of any breach by the said contractor(s) or any of the terms or  
conditions and failure to perform said Bid. Any such demand made on the Bank shall be  
conclusive as regards the amount due and payable by the Bank under this guarantee. However,  
our liability under this guarantee shall be restricted to an amount not exceeding Rs.....  
.....

3. We undertake to pay to OPTCL any money so demanded notwithstanding any dispute or  
disputes raised by the contractor(s) in any suit or proceeding instituted/pending before any court  
or tribunal relating thereto, our liability under this present being absolute and unequivocal. The  
payment so made by us under this bond shall be a valid discharge or our liability for payment  
there under and the contractor(s) shall have no claim against us for making such payment.

4. We, the \_\_\_\_\_ further agree that the guarantee herein  
[indicate the name of the Bank]  
contained shall remain in full force and effect during the aforesaid period of \_\_\_\_\_ days  
\_\_\_\_\_m days and it shall continue to be so enforceable till all the dues of the Grtidco  
under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or  
till Chairman and Managing Director, ORISSA POWER TRANSMISSION  
CORPORATION Ltd. Certifies that the terms and conditions of the said Bid have been fully and  
properly carried out by the said contractor(s) and accordingly discharge this guarantee. Unless a  
demand or claim under this guarantee is made on us in writing on or before \_\_\_\_\_ we shall  
be discharged from all liability under this guarantee thereafter.

6. We the \_\_\_\_\_ further agree with the OPTCL that  
OPTCL  
[indicate the name of the Bank]  
shall have be 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 contractor(s) from time to time or to postpone for any time or from time  
to time only 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 or any such variation postponement or extension granted to the 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 effect of so relieving us.

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

8. We \_\_\_\_\_ lastly undertake not to revoke this guarantee  
[indicate the name of Bank]

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

Dated, the \_\_\_\_\_ day of \_\_\_\_\_

Witness: [Signature with Name and address)

1.

2.

For \_\_\_\_\_  
[Indicate name of Bank]

**ANNEXURE - XII**  
**ABSTRACT OF PRICE COMPONENT [TO ACCOMPANY PRICEBID]**

1	Price basis	F.O.R. Purchaser's destination Stores/site.
2	Packing & forwarding	
3	Rate of Insurance charges	
4	Rate of Freight charges	
5	Rate of excise duty	
6	Rate of sales Tax	
7	Rate of other taxes/levies /duties etc.	
8	Rate of entry tax.	
9.	Rate of Service Tax on supervision of erection testing and commissioning	
10.	Nature of price.	

**Place**

Date:

**Signature of Tenderer**  
**With seal of company**

## **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-XIII. The Tenderer has to certify in the price bid that MODVAT benefit if any, has been fully passed on to the Purchaser, while quoting the tender prices.

**2. INSURANCE :**

Insurance of materials/equipments, 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/equipments 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 equipments/materials damaged or lost which will be reported by the Consignee within 30 days of receipt of the equipments/materials at Destination without awaiting for the settlement of their claims with the carriers and underwriters.

**3. CERTIFICATE FOR EXEMPTION FROM EXCISE DUTY/SALES TAX:**

Offers with exemption from excise Duty/ Sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean Photostat copy of exemption certificates, attested by Gazetted Officers of State or Central Government.

**4. PROPER FILLING UP OF THE PRICE SCHEDULE:**

(i) In case where Freight & Insurance charges are not furnished, 5% of the Ex-works price shall be considered as the freight & Insurance charges.

(ii) The tenderer should fill up the price schedule (Annexure-V of Section-III) properly and in full. The tender may be rejected if the schedule of price is submitted in incomplete form as per clause-34 (ix) of Section-II of the Specification.

**5. NATURE OF PRICE INDICATED IN SPECIFICATION SHALL BE FINAL. The nature of price indicated in the Clause-13, Section – I of PART –I of the Specification shall be final & binding.**



## **SECTION -IV**

### **Technical Specification for stringing of OPGW in the new diverted 132KV Ckt-I between Chandaka – Mancheswar Grid Substation under BDA Deposit Scheme**

#### **1.0 SCOPE OF WORK:**

This specification covers the general requirement of OPGW Cable and associated Hardware for stringing of OPGW in Ckt-I of Chandaka – Mancheswar 132KV DC line including installation and commissioning on **live line** (without taking shutdown for the purpose) between EHT Tower Location 14A to 17C as per the enclosed drawing. The existing OPGW between the above two tower locations are to be dismantled initially and then new OPGW is to be provided in the diverted route as per the enclosed drawing.

#### **2.0 APPLICATION:**

The purpose of diversion is to facilitate BDA for construction of an ultra modern shopping complex between the EHT Tower location No.14A to17C between Chandaka and Mancheswar 132KV S/S covering distance of 1.8KM. Since the ULDC data from different Sub-LDCs are routed to SLDC through the above OPGW link, immediate restoration of the data link through the diverted route is to be insured within minimum time allowed by the authority.

#### **3.0 TECHNICAL DATA OF OPGW:**

DWSM type Optical Fibre Ground wire ( 8 core) should be used for stringing between the Tower location 14A to 17C. The detailed technical particulars of the

existing OPGW and hardware are enclosed herewith at Annexure-A for due reference. The new OPGW to be supplied by the firm should match to the existing OPGW in the above link so as to avoid excess attenuation of signal. The required OPGW and hardware fittings for the above purpose are as listed below :

- 1) OPGW type DWSM (8 fibers) – 1.8 Kms.
- 2) Tension Assembly (with joint box) – 2 sets
- 3) Tension Assembly set ( without joint box) – 6 sets
- 4) Vibration Damper – 28 nos.
- 5) Reinforcing Rod for vibration Damper - 14 nos.
- 6) Clamp for down lead – 22 nos.
- 7) Joint Box (8F) - 2 nos.

#### **4.0 EXECUTION OF THE WORK:**

The contractor shall supply all the materials (stated above) complete stringing of OPGW, test and commission the link between Chandka Grid S/S to SLDC at Bhubaneswar on turn-key basis. Apart from the above mentioned materials, any other item if required shall be supplied by the contractor and the existing data link shall be restored immediately.

#### **5.0 GENERAL REQUIREMENT:**

- i) All the hardware should be of very good quality and reputed make.
- ii) The dismantled cable and hardware are to be returned to OPTCL.

There should not be appreciable attenuation of signal in the joint box, so that uninterrupted and noise free data will flow through the new OPGW link.

**6.0 SAFETY REQUIREMENT:** Dismantling of the existing OPGW cable from tower location No.14A to 17C and further re-stringing in the new diverted link as shown in the

diagram shall be carried out on **live line** i.e. without taking shutdown in the concerned EHT line. However, in case of exigency, the firm may give requisition for necessary shutdown for a minimum period , well in advance.

#### 7.0 SERVICE SUPPORT:

Satisfactory performance of the work along with materials should be guaranteed for a period of 1 year from the date of commissioning. If any fault occurs during the above period, free service support should be extended by the firm to OPTCL for immediate restoration of the link.

#### 8.0 GENERAL CONDITION OF CONTRACT:

- Ø The contractor shall be responsible for the complete engineering, overall coordination, management of the work, transportation of all the materials to the site during dismantling of existing OPGW Cable and stringing of new cable as per Engineer In-charge's advice as and when required.
- Ø The Employer reserves the right to order and delete such works which maybe found necessary within the quantity variation option laid down in the condition of the contract.
- Ø All hardware materials to be supplied under this contract shall comply with this specification(Annexure-A). Any deviation from this specification shall be stated in the relevant Bid proposal schedules and will be considered during Bid evaluation.
- Ø The contractor shall provide at his own cost and expense all labour, material and machineries necessary for the above contract job and shall be entirely responsible for its efficient and correct operation.

- Ø All materials supplied and all work carried out shall comply in every respect with the Regulations and Acts in force as are applicable to the contract works and with any other applicable regulations.
- Ø The contractor shall fully inform himself of the requirement of the local laws, Regulations and rules in force in the state of Orissa especially with respect to licensing requirement, electrical safety rules and regulations and planning procedures.
- Ø The contractor shall provide comprehensive General Liabilities Insurance. The Insurance shall protect the contractor against all claims arising from injuries, disabilities, death of members or public or damage to property of others due to any act or omission on the part of the contractor, its agents, employees, representatives or from riots, strikes etc.
- Ø The contractor shall ensure safety of all the workmen, plant and machineries belonging to him or to others working at the site. The contractor shall also provide all safety measures and safety equipment required by the relevant work as per the contract.

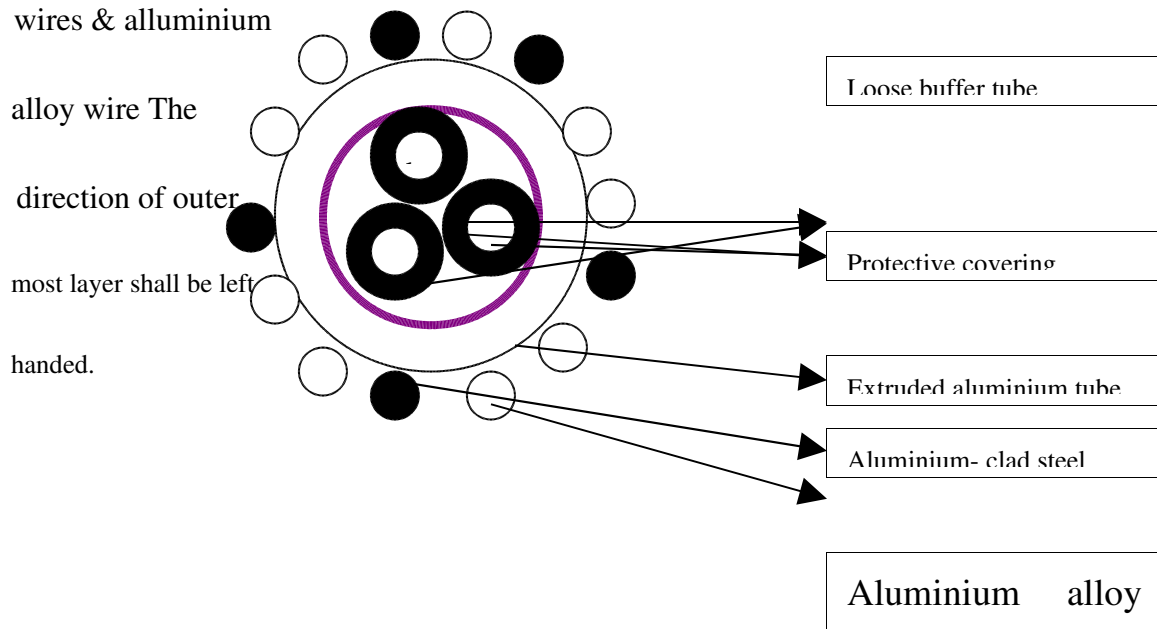
## **GURANTED TECHNICAL PARTICULARS FOR OPGW**

### **OPGW**

1. OPGW shall be of dual Window Single mode (DW-SM) fiber optic overhead ground wire (OPGW) for Telecommunication department of OPTCL.
  - 1.1 Each Optical fiber shall consist of a core made of fused silica and cladding surrounding the core shall be also of fused silica.
  - 1.2 Fiber coating  
The clad fiber core shall be coated with UV cured urethane acrylate resin.
  - 1.3 Optical fiber unit.  
Loose buffer tubes filled with a suitable compound that prevent long term permeation of water, shall be used to protect the optical fiber from the lateral and axial forces. The filling compound shall not drip, flow or leak at 80°C temperature. All loose buffer tubes within a cable shall be stranded around the central strength member. The covering tape shall be a fully dielectric material to form good core configuration and to provide temperature barrier, seamless extruded aluminum tube shall be surrounded over optical fiber unit as heat barrier and for preventing water penetration. .

### 2.4. COMPLETED OPGW

The optical fiber unit shall be surrounded with a number of strands of aluminium clad steel



2.5OPGW SPECIFICATION

Sl No.	Parameter	Unit	Particulars
1	Type of cable	-	Dual window single mode
2	Number of fiber	No	8
3	Structure – Aluminum clad steel wire	No/Dia	5/2.27
	Aluminum alloy wire	No/Dia	9/2.27
	Aluminum Tube	No/Dia	1/8.1
4	Lay direction of outer layer	-	Left hand
5	Ratio of length of lay of a layer to Nominal outside diameter of that layer	Times	10-16

6	Outer diameter	mm	12.54±0.2	
7	Cross section – Aluminum clad steel Wire	Mm <sup>2</sup>	20.24	
	Aluminum wire	Mm <sup>2</sup>	36.42	
	Aluminum tube	Mm <sup>2</sup>	29.47	
8	Approximate weight	Kg/Km	330	
9	Rated Tensile strength	Kg	3940	
	Ultimate Tensile strength	Kg	4049	
10	Modulus of elasticity	Kg/mm <sup>2</sup>	3617	
11	Coefficient of linear expansion	/ deg C	13.3 X10 <sup>6</sup>	
12	DC resistance at 20 deg C(Max)	Ohm/Km	0.45	
13	Short circuit current capacity for 1 second.	KA	6.64	
14	Assumed maximum temperature under short circuit current	Deg C	200	
15	Type of individual wire		Aluminum alloy Cladded Steel wire	
16	Applicable standard		ASTM B 415	IEC- 104
17	Standard diameter	mm	2.27	2.27
18	Tolerance of diameter	mm	±0.04	±0.04
19	Minimum Tensile strength	Kg/ mm <sup>2</sup>	135	33.15
20	Minimum elongation in 250mm	%	1.5	3.0
21	Minimum conductivity	%/ACS	20.3	52.5
22	Minimum number of twisting (100Xdia)	No	20	N/A
23	Minimum thickness of aluminum	mm	0.12	N/A

## 2.6 OPTICAL PARAMETER

Sl No.	Parameter	Unit	Particulars
1	Attenuation coefficient @1310nm	dB/Km	≤ 0.35
	@1550nm	dB/Km	≤ 0.23
2	Attenuation variation with wave length (±25nm)	dB/Km	≤ 0.05 @1310 & 550nm
	Temperature dependence (-60°C ~ +85°C)	dB/Km	≤ <u>0.05@1550</u> nm
3	Nominal mode field diameter @1310nm	µm	9.3
	@1550 nm	µm	10.5

4	Mode field diameter deviation @1310 nm @1550 nm	$\mu\text{m}$ $\mu\text{m}$	$\pm 0.5$ $\pm 1.0$
5	Mode field non-circularity	%	$\leq 6.0$
6	Chromatic dispersion coefficient @1285 nm ~ 1330 nm @1270 nm ~ 1340 nm @1550 nm	Ps/(nm.Km)	$\leq 3.5$ $\leq 6$ 20
7	Zero dispersion wave length	nm	1295 ~ 1325
8	Zero dispersion slope	Ps/(nm <sup>2</sup> .Km)	$\leq 0.093$
9	Cutoff wave length for cabled fiber	nm	$\leq 1280$
10	Refractive index	-	1.4675 @ 1310 nm 1.4683 @1550 nm
11	Refractive index profile		0.34
12	Cladding design	-	Matched cladding
13	Numerical aperture	-	Typical 0.13
14	Bandwidth distance product	MHz. Km	Not applicable
15	Bend performance 37.5mm radius, 100 turns 16.0mm radius, 1 turn	 dB dB	 $\leq 0.05$ @ 1310 nm $\leq 0.10$ @ 1550 nm $\leq 0.50$ @ 1550 nm

## 2.7 PHYSICAL & MECHANICAL PROPERTIES.

SI No.	Parameter	Unit	Particulars
1	Core diameter (nominal $\pm$ deviation)	$\mu\text{m}$	Typical 8.3
2	Core non-circularity	%	$\leq 6.0$
3	Cladding diameter (nominal $\pm$ deviation)	$\mu\text{m}$	$125 \pm 1$
4	Core clad concentricity error	$\mu\text{m}$	$\leq 1.0$
5	Cladding non-circularity	%	$\leq 1.0$



6	Protective coating type & material Primary Secondary Protective coating diameter (nominal ± Deviation)	µm	UV cured acrylate UV cured acrylate 245±
7	Protective coating removal method	-	Using Mechanical fiber stripper
8	Coating concentricity error	µm	≤ 12.0
9	Colour coating scheme compliant with	-	EIA 395A/IEC 304
10	Attenuation at water peak	dB/Km	≤1.5dB/Km @1383 ±3nm
11	Proof Test Level	KPSI	≥ 100
12	Point discontinuity of attenuation	dB	≤ 0.10 dB @ 1310& 1550 nm

## OPGW fittings and hardware

Sl.	Item	Description
1	Dead end assembly( Single dead end, Double dead passing or splicing or tension tower)	Shackle with screw, Extension link, Thimble, Protection splice, dead end, Single Tower clamp
2	Splicing tension- assembly (In suspension tower)	Shackle with screw, twisted chain link, yoke plate, Extension link, Thimble, dead end, Single Tower clamp
3	Suspension assembly with chain link	Shackle with screw, chain link, AGS clamp, neoprene insert, clamp rods, Single Tower clamp, parallel clamp
4	Vibration damper assembly(Stock bridge type)	Body clamp, Hexagonal bolt, forged mass, messenger cable, damper protection armor rods

5	Armor grid suspension clamp	Body clamp, suspension clamp, Armor for suspension clamp, Neoprene insert
6	Preformed elements of dead end set	Preformed dead end set, reinforcing rod set, tension dead end.
7	Down lead clamp, Grounding clamp	Down lead clamp, Grounding clamp for EHT towers.
8	Splicing enclosure(Joint Box)	Weather proof enclosure suitable for OPGW and dielectric Optical Fibre cable entry, including all accessories and tower fixing brackets

## QUANTITY OF REQUIREMENT OF HARDWARE FITTINGS

### INCLUDING THE OPGW CABLE

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- 1) DWSM (8 fibers) type OPGW – 1.8 Km.
- 2) Tension Assembly (with joint box) – 2 sets
- 3) Tension Assembly set ( without joint box) – 6 sets
- 4) Vibration Damper – 28 nos.
- 5) Reinforcing Rod for vibration Damper - 14 nos.
- 6) Clamp for down lead – 22 nos.
- 7) Joint Box (8F) - 2 nos

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