TENDER DOCUMENTS

FOR

Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in 100% deposit work scheme.

CENTRAL ELECTRICITY SUPPLY UTILITY OF ODISHA

OFFICE OF THE SUPERINTENDING ENGINEER (ELECT), ELECTRICAL CIRCLE No.1
POWERHOUSE, UNIT-VIII, BHUBANESWAR – 751012
Phone: 2392742, 2395273, Fax: 0674-2392742, E-mail: sebbsr1@cescoOdisha.com

Tender Call Notice No. PUR./TEND/02/2020-21 Dated 21.05.2020 of S.E, E.C-I, Bhubaneswar.

Head Office: IDCO TOWERS, 2nd Floor, Janpath, Bhubaneswar-751022
TELEPHONE: (0674) - 2542895, 2545681, 2541727
FAX: 0674 – 2543125

Volume – I

COMMERCIAL BID

BIDDING DOCUMENTS

CONTENTS

TENDER CALL NOTICE NO.PUR/TEND/ 02/2020-21

Tender Notification No. **Dt:**

Central Electricity Supply Utility of Odisha (CESU) invites bids from reputed firms / Electrical Contractors with required HT license to be engaged as an executant on Partly turnkey basis in two-part bidding system for the following works.

Brief Description of Work	Estimated Cost (in Rs)	Earnest Money Deposit (in Rs)	Last date/time for submission of bids	Date and time of opening of bid	Non refundable Cost of Bid document in Rs
1	2	3	4	5	6
Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in partly turnkey basis.	**15,42,521.00**	**15,425.00**	**02.06.2020 3.00 PM**	**02.06.2020 4.00 PM**	**6000.00 + 12% GST**

Sale and downloading of tender documents starts from: **24.05.2020**

The EMD & cost of Bid document is to be deposited in shape of D.D only.

For details please visit our website: www. cescoodisha.com/ www.cesuodisha.com on or after **24.05.2020,** and **t**he prospective bidders are requested to follow the above CESU website time to time for any Clarification/ Corrigendum/ Addendum against the referred Tender.

The authority reserves the right to accept or reject any or whole of the offers without assigning any reason thereof.

-sd-

General Manager (Elect.)
Electrical Circle No-I, Bhubaneswar.

SECTION – I
INVITATION FOR BIDS (IFB)
Tender Notice No.PUR./TEND/02/2020-21 Dated 21.05.2020 of S.E, E.C-I, Bhubaneswar

1.0 CESU invites sealed tenders from reputed Electrical Contractors with required HT license, either in individual capacity or as part of a joint venture agreement / consortium for carrying out various Electrical Installation works on 'Partly Turnkey' basis in the jurisdiction of their respective licensed area under deposit work. The bidder must fulfill all the qualifying requirements as specified in clause 2.0 stated below. The sealed envelopes shall be duly super scribed with "**TENDER NOTICE No: 02/2020-21" dtd 21.05.2020 & the due date of opening is 02.06.2020 at 4.00 P.M.**

Brief Description of Work	Estimated Cost (in Rs)	Earnest Money Deposit (in Rs)	Last date/time for submission of bids	Date and time of opening of bid	Non refundable Cost of Bid document in Rs
1	2	3	4	5	6
Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in partly turnkey basis.	**15,42,521.00**	**15,425.00**	**02.06.2020 3.00 PM**	**02.06.2020 4.00 PM**	**6000.00 + 12% GST**

2.0 The eligible Bidders should meet the following qualifications;

a) Bidder must quote for a complete bid.

b) Bidder should have installed and commissioned **at least following quantum of works** as specified under the bid for which the bidder is submitting his bid during the last three financial years preceding to the year of tender notification**.** Bidder must enclose copies of the relevant Work Orders along with Client Certified copies of Final Invoices and/or Performance Certificates duly signed by the competent authority of the client and/or Final Inspection Certificate issued by Electrical Inspector in support of proof of having executed the desired quantum of works during the last three financial years.

i. Must have laid 11KV or higher 3Core 150/200/300mm^2 XLPE UG cable or higher size through cable trench = 200 mtr.

c) **Average Annual Turnover during the last three financial years preceding to the year of tender notification should be equal to or more than the estimated cost of the bid** for which the bidder has submitted his bid. The bidder shall furnish audited accounts for the last three years i.e. FY 2016-2017, FY 2017-2018, FY 2018-2019 evidencing their turnover requirement.

d) Bidder shall be financially sound and stable having liquid assets as stated in the enclosed format and/or access to credit facility of **not less than one fifth of the estimated cost of the Bid(s)** for which he has submitted the bid. Bidder shall furnish the documentary evidence to establish the financial soundness.

e) Two or more like minded contractor(s) and/or manufacturer(s) of electrical items, and /or firms having the experience as mentioned above in Para-2 and as per this tender specification, may form a joint venture/ consortium, may Tie up and make agreement amongst themselves and apply against this tender specification, provided they qualify the criteria. The sample format of joint venture / consortium agreement is enclosed at Section – IV of this tender specification as Annexure - VI.

f) If the bidder is a joint venture / consortium/ Tie-up, they shall comply the qualifying criteria as follows:

i. At least one partner shall have the stipulated previous works experience for similar quantity of completed works as stated in the qualifying criteria.

ii. If the work experience of one partner is not meeting the entire qualifying criteria, the item wise field experience of the other partner(s) specified in the scope of work shall be added for qualifying the bid in total. However item wise fractional work experience shall not be summed up for consideration for any single item of the scope.

iii. However, the annual turnover and liquidity figures of all partners shall be added together to determine, if the joint venture / consortium is meeting the Annual Average Turnover criteria as stated in the qualifying criteria. For tie-up cases the turnover shall be evaluated on the lead partner basis.

g) One of the partners shall be nominated as Lead Partner and the lead partner shall be authorized to incur liabilities and receive instructions for and on behalf of all partners of the joint venture / consortium and entire execution of the contract including receipt of payments shall be done exclusively through the lead partner. This authorization shall be evidenced by submitting by a Power of Attorney signed by legally authorized signatories of all partners.

h) All partners of joint venture / consortium shall be liable jointly and severally for the execution of contract in accordance with the contract terms and a copy of the agreement entered into by the joint venture / consortium partners having such a provision shall be submitted with the Bid. A statement to this effect shall be included in the authorization mentioned as above as well as in the Bid form and in Contract form (in case of a successful bid).

i) In addition to above the bidder should submit the following documents in part-I bid as qualifying terms.

- **i. Valid electrical (HT) license for electrical works.**
- **ii. EPF & ESI registration**
- **iii. PAN & TIN No.**
- **iv. GST Registration**
- **v. Labour License**

j) The bidders who have earlier failed to execute the work order(s) of the CESU shall not be eligible to participate in this tender.

k) CESU reserves the right to waive minor deviation, if they do not materially affect the capacity of the bidder to perform the contract.

3.0 Bids specification document can be obtained from the office of the undersigned on payment of Rs. 6000/- towards non-refundable cost of bid documents plus 12% GST (Total Rs.6720/-) through Bank DD drawn in favour of purchaser payable on Bhubaneswar, during office hours till 1.00 PM of 02.06.2020.

4.0 The tender documents can also be downloaded from CESU websites **www.cesuodisha.com_/ www.cescoOdishaa.com** In case tender papers are downloaded from these websites, then the bidder has to enclose a Demand Draft, (As mentioned in the above Para) drawn on any scheduled bank, payable at Bhubaneswar, covering the cost of bid documents as stated above in a separate envelope with suitable superscription **"Cost of Bid Documents : Short Tender Call Notice Ref : PUR/TEND/02/2020-21 "**. This envelope should accompany the Bid Documents.

5.0 The Bids shall be **submitted and received** in the office of the undersigned on all office working days **up to 3.00 PM of 02.06.2020.** In the event the date of opening is a holiday, the next working day shall be treated as the date of opening.

6.0 **Part-I of the bid (Technical Bid) will be opened on Dated 02.06.2020 at 4.00 P.M** as indicated above, in the presence of the bidder or authorized representatives of the Bidders. Bidders shall depute only one representative to attend pre bid meeting and tender opening if they wish to be represented. The undersigned reserves the right to reject any or all tenders if the situations so warrants.

7.0 All correspondence with regard to the above shall be made to the following address:

General Manager (Elect.)
Electrical Circle No-I,Bhubaneswar
POWERHOUSE, UNIT-VIII, BHUBANESWAR – 751012
Phone: 2392742, 2395273, Fax: 0674-2392742,
E-mail: sebbsr1@cescoOdisha.com

SECTION – II

GENERAL CONDITIONS OF CONTRACT (GCC)

Tender Call Notice No.PUR./TEND/02/2020-21 Dated 21.05.2020 of S.E, E.C-I, Bhubaneswar.

1.0 GENERAL: -

CESU hereinafter referred to as the "Purchaser" are desirous of taking up the work "Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole (for temporary arrangement) for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in partly turnkey basis.".

The above works including partly supply of Equipments/Materials, Erection, Testing and Commissioning as per the Scope detailed in the Bid Documents.

2.0 SCOPE OF WORK: -

The scope shall include supply and installation of all materials & equipments to complete the works.

a) Detailed survey of the proposed area and routes.
b) Complete manufacture, including shop testing & supply of all materials / equipments from the approved vendor or from his manufacturing units.
c) Providing Engineering drawing, data, operational manual, etc for the Purchaser's approval;
d) Receipt, storage, preservation and conservation of equipment at the site.
e) Reliability tests and performance and guarantee tests on completion of commissioning.
f) Loading, unloading and transportation as required.
g) Laying of 11KV 3 Core 300 mm^2 XLPE UG cable through cable trench with spare cable (2x350mts) = 700 Mtr
h) Supply of 11KV 3x300 mm^2 outdoor end jointing kit = 4 nos.
i) Supply of 11KV 3x300mm^2 straight through jointing kit = 4 nos.
j) Erection of LT 100x116 mm 9 mtr long RS Joist Pole with stud pole = 1 No.
k) Erection of 100 x 116 mm 9 mtr. Long RS Joist stud pole on 11 KV line = 2 No.
l) Construction of all civil works.
   a. Cable Loop chamber = 3 Nos.
   b. Earthing complete with supply of earthing device, GI flat, Charcoal, salt – 2 nos.
   c. Concreting, padding & cooping of all supports.
   d. Dismantling of 25KVA 11/0.4 KV S/s = 1No.
   e. Dismantling of LT line = 6 Span
   f. Dismantling of 11 KV line = 5 Span
m) **Getting the total work inspected by Electrical Inspector after its completion.**
n) **Transportation of all above required materials (OSM) from Purchaser's nearest store (Bhubaneswar, Choudwar) to site and all other required materials (to be supplied by bidder) from supplier's premises to work site, construction of new electrical / civil structures, dismantling of existing electrical structures / equipments and return of these dismantled items at the purchaser's stores, safe custody of the items and return of unused purchaser supplied materials to the purchaser's stores**.

Note: For details, the technical specification, price schedule & BOQ specified in separate Section may be referred to.

3.0 DEFINITION OF TERMS

i. The '**Contract** 'means the agreement entered into between the Purchaser and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices there to and all documents incorporated by reference therein.
ii. '**Purchaser**' shall mean CESU and shall include its legal representatives, successors and designated officers/Engineers.
iii. **"General Manager (Elect) / Superintending Engineer (Elect)** is the In-Charge of Circle No. I,

CESU BBSR ”

iv. ‘**Contracto**r’ shall mean the Bidder whose bid will be accepted by the Purchaser for the award of the Works and shall include such successful Bidder’s legal representatives, successors and permitted assigns.

v. ‘**Sub-Contractor**’ shall mean the person named in the Contract for any part of the works or any person to whom any part of the Contract has been sublet by the contractor with the consent in writing of the Engineer and will include the legal representatives, successors and permitted assigns of such person.

vi. ‘**Engineer in Charge**’ shall mean the officer appointed in writing by the Purchaser to act as Engineer from time to time for the purpose of the Contract.

vii. ‘S**pecifications**’ shall mean the specifications and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed upon.

viii. ‘**Site**’ shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Purchaser or Contractor in the performance of the Contract.

ix. ‘**Inspector**’ shall mean the Purchaser or any person nominated by the Purchaser from time to time, to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Purchaser.

x. ‘**Notice of Award of Contract**’/ ‘Letter of Award’ shall mean the official notice issued by the Purchaser notifying the Contractor that his bid has been accepted.

xi. ‘**Date of Contract**’ shall mean the date on which notice of Award of Contract/ Letter of Award has been issued.

xii. ‘**Performance and Guarantee Tests’**, shall mean all operational checks and tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the Contract Documents.

xiii. The term ‘**Final Acceptance’/ ‘Taking Over**’ shall mean the Purchaser’s written acceptance of the works performed under the Contract, after successful commissioning/ completion of Performance and Guarantee Tests, as specified in the accompanying Technical Specifications or otherwise agreed in the contract.

xiv. ‘**Commercial Operation**’ shall mean the condition of operation in which the complete equipment covered under the Contract is officially declared by the Purchaser to be available for continuous operation at different loads up to and including rated capacity. Such declaration by the Purchaser, however, shall not relieve or prejudice the Contractor of any of his obligations under the Contract.

xv. Words imparting ‘**Person**’ shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

xvi. Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.

xvii. In addition to the above the following definition shall also apply

a) ‘All equipment and materials’ to be supplied shall also mean ‘Goods’
b) ‘Constructed’ shall also mean erected and installed.
c) ‘Contract Performance Guarantee’ shall also mean ‘Contract Performance Security’.
d) **OSM** shall mean CESU/ Owner’s supplied materials.

4.0 SUBMISSION OF TENDER: -

4.01 Sealed tenders in Two parts each in duplicate, each complete in all respects in the manner hereinafter specified are to be submitted to **General Manager (Elect.), Electrical Circle No-I, Power**

House, Unit-8, Bhubaneswar-751012 on or before the date and time specified in the notice inviting the tenders. Bids shall be submitted as per format provided in Section – III & IV. Each copy of the bids (original and duplicate) shall be submitted in separate double sealed envelopes superscripted on each of the covers the tender specification number and the due date of opening of the bids on the right hand top side of the envelope.

4.02 The tenders are required to be submitted in Two Parts each in separate double sealed covers**.**

a) Part - I : Superscribed as "Technical and commercial bid " shall contain EMD (for each bid separately) Proof of payment of Bid Documents cost and Techno commercial documents.

b) Part - II, Superscribed as "Price Bid". The Part - II should contain only Price bid in duplicate in separate envelope.

4.03 Fax and Telegraphic tenders shall not be accepted.

4.04 Receipt of bids/ revised bids after the cut off time and date as specified in the Tender specification shall not be permitted and such bids shall be rejected outright. The Purchaser shall not be responsible for any delay in transit in post / courier etc. in this regard.

5.0 VALIDITY :-

The offer shall be valid for a period not less than **180 days from the date of bid opening**.

6.0 PRICE: -

Bidders are required to quote firm price as per the prescribed format enclosed in **Volume-III**, **Part-B** Bid Proposal Sheets. The quoted price shall be firm and inclusive of all taxes, duties, freight & insurance and other levies, if any. CESU shall not be liable to pay anything extra over and above the quoted price.

7.0 RECEIPT AND OPENING OF THE BID: -

7.01 Bids in duplicate as described under clause 4.0 shall be received in the office of the Purchaser and shall be opened on the scheduled date and time. The Purchaser's authorized representatives shall open bids in the presence of Bidders' representatives on the date and time for opening of bids as specified in the Invitation to Bid or in case any extension has been given thereto, on the extended bid opening date and time notified.

7.02 Maximum one representative for each bidder shall be allowed to witness the opening of bids. The representative must produce suitable authorization in this regard to be eligible to witness the bid opening on behalf of the bidder. Bidders' representatives who are present shall sign in a register evidencing their attendance.

7.03 The Bidders' names, bid prices, modifications, bid withdrawals and the presence or absence of the requisite bid guarantee and such other details as the Purchaser, at its discretion, may consider appropriate will be announced at the opening. No electronic recording devices will be permitted during bid opening.

7.04 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

8.0 EVALUATION OF BIDS & AWARD OF CONTRACT:

8.01 To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

8.02 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

8.03 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

8.04 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

8.05 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

a) Work Schedule

b) Deviations from Bidding Documents

8.06 The Purchaser will award the Contract to the successful Bidder whose Bid has been determined to be the lowest - evaluated responsive Bid based on the price quoted in the price bid in their offered BOQ and services. When the lowest bidders is not ready and/or capable to undertake the entire work envisaged, then the Purchaser may explore the possibility of the execution of works through other bidders if they are willing to execute at **L_1 rate**. Such exploration shall be carried out in a sequential order starting with **L_2** bidder then with **L_3** bidder and so on.

9.0 EARNEST MONEY DEPOSIT (EMD):-

9.01 The Tender must be accompanied by Earnest Money Deposit for the quoted price in shape of account payee Bank Draft drawn on any scheduled bank in favour of **CESU, Electrical Circle No-1, Bhubaneswar payable at Bhubaneswar**. EMD shall be, as mentioned in the tender notice of the bid for which the bidder has submitted the bid. Bids without EM deposit will be rejected out rightly.

9.02 No adjustment of any previous deposit or any amount payable from Purchaser shall be entertained for EMD. EMD amount so submitted shall not carry any interest payable to the bidder.

9.03 The Earnest Money so deposited shall be forfeited:

a) if the Bidder:

i) Withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form;

or

(a) The successful Bidder, Fails:

i. to sign the Contract, or

ii. to furnish the required Contract Performance Bank Guarantee.

9.04 The EMD of unsuccessful bidders shall be returned within 30 days from the date of finalization of the order.

10.0 PURCHASER'S RIGHT TO VARY QUANTITIES AT TIME OF AWARD:

While placing orders and / or during execution of contract, Purchaser reserve the right to increase or decrease the quantity of goods and services specified in the Schedule of Requirement upto 20% of the tender quantity without any change in price or other terms and conditions.

11.0 INSPECTION AND TESTING :-

The Engineer-in-charge shall be entitled at all reasonable times during manufacture / installation to inspect examine and test the materials at the contractor's premises / erection site about workmanship of the materials to be supplied under this contract. If the said materials are being manufactured in other premises, the contractor shall provide unhindered clearance, giving full rights

to the purchaser to inspect, examine and test as if the materials were being manufactured in his premises. Such inspection / examination and testing shall not relieve the contractor of his obligations to execute the contract by letter and spirit. The contractor shall give the purchaser advance notice in writing of the Date and the Place at which the materials will be ready for testing. The inspecting officer for the entire work shall be the (Respective Purchaser Authority) of the concerned site.

12.0 COMPLETION AND COMPLETENESS OF THE EQUIPMENT :-

12.01 Time being the essence of the contract; the work shall be completed within 60 **(Sixty) days from the date of issue of work order** including supply of all the materials, erection, Testing & commissioning.

12.02 The work shall be treated as complete item wise when one item shall be complete in all respects with all mountings, fixtures and standard accessories which are normally supplied even though not specifically detailed in the specification. No extra payment shall be payable for such mounting, fittings, fixtures and accessories which are needed for safe operations of the equipment as required by applicable code of the country though this might not have included in the contract.

12.03 All similar components and/or parts of similar equipment supplied shall be inter-changeable with one another. Various equipments supplied under this contract shall be subject to Purchaser's approval.

12.04 The Superintending Engineer (Elect), Electrical Circle No-I, CESU, BBSR however reserves the right to re-schedule the completion period, if required.

13.0 REJECTION OF MATERIALS : -

In the event of the materials supplied by the contractor and/or the installation works are found to be defective in quality and the workmanship is poor or otherwise not in conformity with the requirements of the contract specification as per **section-IV** (Technical specification), Purchaser shall reject such materials / services and ask the contractor in writing to replace / rectify the defects. The contractor on receipt of such notification shall either rectify or replace the defective materials and/or re-install the work already executed, free of cost to the Purchaser. If the contactor fails to do so the Purchaser may at his option take the following actions which could be on concurrent basis.

a) *Replace or rectify such defective materials and recover the extra cost so involved plus 25% from the Contractor.*
b) *Terminate the contract for balance supply and erection with enforcement of penalty as per contract.*
c) *Acquire the defective materials at reduced price considered acceptable under the circumstances.*
d) *Forfeit the Contract Performance Bank Guarantee.*

14.0 EXPERIENCE OF BIDDERS : -

The bidders are required to furnish information regarding their experience on the following aspects as per format provided in **Section – IV, Annexure VII (A) & (B) :**

a) Description of similar type of work executed during the last three years with the name(s) of the party(s) to whom / where supplies / erection were made.
b) Testing facilities available at manufacturer's works site along with the list of testing equipments.
c) Purchase / work orders details (P.O / W.O No. and date only) executed (construction work) during the last three years along with Electrical inspection report copies and copies of user's performance certificates.

Bids may not be considered if the past performance is found to be un-satisfactory.

15.0 DEVIATION FROM SPECIFICATION: -

The bidders are requested to study the specification and the attached drawings thoroughly before tendering so that if they make any deviations, the same are prominently brought on a separate sheet under the headings "Deviations" as per formats provided under **Section IV, Annexure – VIII & IX**. All such deviations to the technical & commercial terms of the specification shall be indicated in a separate list as indicated above. In absence of such deviation schedule, it will be presumed that the bidder has accepted all the conditions stipulated in the tender specification, not withstanding any deviations mentioned elsewhere in the Bid. However the acceptance of deviation is not binding on the Purchaser.

16.0 CONTRACTOR TO INFORM HIMSELF FULLY: -

The contractor shall examine the instructions, general conditions of the contract, specifications and the schedule of quantity and delivery to satisfy himself as to all the terms and conditions and circumstances affecting the contract price. He shall quote prices according to his own judgment and shall understand that no additional cost except as quoted shall only be considered.

17.0 PATENT RIGHT: -

The contractor shall indemnify the purchaser against all claims, actions, suits and proceedings for the alleged infringement of any patent design or copy right protected either in country of origin or in India by the use of any equipment supplied by the contractor but such indemnity shall not cover any use of the equipment other than for the purpose indicated by or reasonable to be informed from the specification.

18.0 GUARANTEE PERIOD: -

18.01 The materials to be supplied by the contractor shall be guaranteed for satisfactory operation against defects in design and workmanship for a period of **24 months** from the date of handing over the completed installations.

18.02 The above guarantee certificate shall be furnished in triplicate to the Purchaser for his approval. Any defects noticed during the above period should be rectified by the Contractor free of cost to the Utility provided such defects are due to faulty design, bad workmanship or bad materials used on receipt of written notice from the Purchaser.

19.0 PENALTY FOR DELAY IN COMPLETION OF CONTRACT: -

19.01 If the contractor fails to complete the works by the scheduled period or any extension granted thereby, the contractor shall be liable for payment of penalty amounting to **0.5% (half percent)** of the contract price per week of un-finished works subject to the maximum of 5% (five percent) of the total contract price and subject to force majeure conditions.

19.02 Penalty amount can be realized from the proceeds of the Contract Performance Bank Guarantee, if the situation so warrants.

19.03 Extension of delivery period / completion of the work could be with / without levy of penalty with the discretion of S.E, E.C-I, CESU, BBSR.

20.0 CONTRACTOR'S DEFAULT :

20.01 If the Contractor neglects to execute the works with due diligence and expedition or refuses or neglects to comply with any reasonable order given to him, in writing by the Engineer in connection with the works or contravenes the provisions or the contract, the Purchaser may give notice in writing to the Contractor to make good the failure, neglect or contravention complained

of. Should the Contractor fail to comply with the notice within thirty (30) days from the date of serving of the notice, the Purchaser shall be at liberty to employ other workmen and forthwith execute such part of the works as the contractor may have neglected to do or if the Purchaser thinks fit, without prejudice to any other right, he may have under the Contract to take the work wholly or in part out of the Contractor's hands and re-contract with any other person or persons to complete the works or any part thereof and in that event the Purchaser shall have free use of all Contractor's equipment that may have been at the time on the Site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same, and the Purchaser shall be entitled to retain any balance which may otherwise be due on the Contract by him to the Contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of works or of completing the works as the case may be. If the cost of completing of works or executing part thereof as aforesaid shall exceed the balance due to the Contractor, the Contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the Contractor shall have to pay if the completion of works is delayed.

20.02 In addition, such action by the Purchaser as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of works.

20.03 Such action by the Purchaser as aforesaid the termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the Contract Performance Guarantee nor the time thereof. The Contract Performance Guarantee shall be valid for the full value and for the full period of the Contract including guarantee.

21.0 TERMINATION OF CONTRACT ON PURCHASER'S INITIATIVE :

21.01 Purchaser reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled 'Contractor's Default'. The Purchaser shall in such an event give fifteen (7) days notice in writing to the Contractor of his decision to do so.

21.02 The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the extent they related to the work terminated and terms satisfactory or the Purchaser, stop all further sub-contracting or purchasing activity related to the work terminated, and assist Purchaser in maintenance, protection, and disposition of the works acquired under the Contract by the Purchaser. In the event of such a termination the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstance prevalent at the time of termination.

21.03 If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the partners dies then unless the Purchaser is satisfied that the legal representatives of the individual Contractor or of the proprietor of the propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract the Purchaser shall be entitled to cancel the Contract as to its in completed part without being in any way liable to payment of any compensation to the estate of deceased Contractor and /or to the surviving partners of the Contractor's firm on account of the cancellation of the contract. The decision of the Purchaser that the legal representatives of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the contract shall be final and binding on the parties. In the event of such cancellation the Purchaser shall not hold the estate of the deceased Contractor and/ or the surviving partners of the Contractor's firm liable to damages for not completing the Contract.

22.0 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, Flood, Epidemics, Quarantine restrictions, Strikes, Freight Embargos and provided that the Contractor shall within ten (10) days from the beginning of such delay notify the Purchaser in writing of the cause of delay. The Purchaser shall verify the facts and grant extension as facts justify.

23.0 EXTENSION OF TIME: -

If the delivery of the equipments / materials or execution of the work is delayed due to reasons beyond the control of the Contractor, the Contractor shall immediately inform the S.E. E.C-I, CESU, BBSR in writing of his claim for an extension of time. The S.E, E.C-I on receipt of such notice may agree to extend the contract period as may be reasonable but without prejudice to other terms & conditions of the contract.

24.0 SAFETY PRECAUTIONS:-

The agency shall observe all applicable regulations regarding safety at the Site. Any compensation due on account of accident at site shall be to the contractor's account. The contractor should follows various safety provisions as provided under Regulation-3, Regulation-4 & Regulation-7 of CEA (Measures relating to safety & electric supply) Regulation- 2010 and Regulation-7 of CEA (Safety requirements for construction, operation and maintenance of electrical plants and electrical lines) Regulation-2011. The detail is annexed at Annexure- XVII.

25.0 STORE :-

Storing of materials from supply to erection shall be arranged by the contractor at his own cost. No compensation shall be made by the Purchaser for any damage or loss of materials during storing, transit transportation and at the time of erection.

26.0 INSURANCE: -

a) Contractor shall arrange adequate Transit-cum-storage-cum-erection policy and shall submit the copy of the same to the Purchaser. The policy shall initially remain valid for a period of sixty days over & above the contractual guarantee period and shall be extended as required till handing over. Contractor shall be responsible for lodging of claim with the insurer as well as for all required follow up with the insurer for settlement of claim in case of loss/damage/theft of material during transit/storage/erection till the completed works is handed over to the Purchaser and is accepted by the authorized representative of the Purchaser in writing.

b) Contractor shall also arrange adequate cover for his employees / labourers engaged in the works as well as arrange third party insurance cover to indemnify any possible damages to public at large not connected with the works process. Any claim(s) pertaining to this shall be the responsibility of the Contractor.

c) The contractor shall undertake free replacement of the materials damaged or lost during transit, which will be intimated by the Consignee within 30 days of receipt of the materials at purchaser's stores.

27.0 ENGINEER IN CHARGE :-

Concerned Divisional Head of Electrical division **BED, Bhubaneswar shall be the Engineer in charge for the work.**

28.0 CONTRACT PERFORMANCE BANK GUARANTEE:-

28.01 Within 7 days of issue of the Work Order, the Contractor shall submit Contract Performance Bank Guarantee issued by a scheduled Bank, in favour of the Purchaser, covering 10% of the total value of the work order.

28.02 In case of Joint Venture/ Consortium, performance bank guarantee shall be in the name of lead partner @ of 10% of the contract price and additional @ 1% each by the Joint venture partner(s) separately (or) single Bank Guarantee for (Lead partner @ 10 % and each JV partner @ 1%) mentioning the name and address of the Lead & JV partner, to be submitted by lead partner.

28.03 The said Bank Guarantee shall be prepared in the prescribed proforma as attached in Section IV, Annexure - III. The Bank Guarantee furnished shall be executed on Non-judicial Stamp paper worth of Rs 100/- (Rupees Hundred only), purchased in the name of the issuing bank, as per the prevalent rules. The Bank Guarantee so provided shall be en-cashable on the Bhubaneswar branch of the issuing Bank.

28.04 The Contract Performance Bank Guarantee shall remain valid for a period not less than 90 days over and above the guarantee period, basing on stipulated completion period in the W.O. towards security i.e. 28 months from the date of issue of the work order and acceptance thereof, failing which the work orders (W.O) will be liable for cancellation without any further notice with forfeiture of E.M.D.

28.05 No interest shall be allowed by the Purchaser on the above Performance Security Deposit submitted by the Bidder.

28.06 The Contract Performance Bank Guarantee may be extended for the delay period of completion of work, if any.

29.0 TERMS OF PAYMENT:

29.1 An advance of 10% (ten percent) of total lump sum contract price shall be paid as Mobilization Advance, subject to the following.

a) Submission of Invoice for payment of advance.

b) Receipt and acceptance of unconditional irrevocable Contract Performance Bank Guarantee in favour of Purchaser as mentioned in clause 28.00.

c) Receipt and acceptance of unconditional and irrevocable Advance Payment Bank Guarantee in favour of Purchaser for an amount equivalent to the amount of advance as per the prescribed format as provided in Section IV, Annexure - IV. The Bank Guarantee so provided should be en-cashable on the Bhubaneswar branch of the issuing Bank. Advance bank guarantee shall be submitted for a period of 90 days over and above the schedule date of completion **i.e.** total for 4 (Four) months from date of issue of WO. The advance bank guarantee may be extended further for a period of 3 months each occasion, if the advance amount is not recovered fully.

d) Establishment of contractor site office and certification by the engineer that satisfactory mobilization for erection exists (at least single/ part of the completed item of work).

e) All advance payment shall be interest bearing and recovery of advance along with the interest component on the advance amount shall be as under:

(i) The said mobilization Advance will be recovered/ adjusted towards payment of first running bill while releasing 80% (Eighty percent) payment.

(ii) If any amount payable under the first running bill is not sufficient to cover the 10% mobilization advance, the balance outstanding shall be recovered from the next payment immediately falling due.

(iii) The amount of interest to be recovered from a particular bill shall be calculated @10% per annum on the value of advance corresponding to the percentage of total progressive payment being released. The period for which the interest is to be calculated shall be reckoned from the date of release of the advance payment to the actual date of release of the said progressive payment or the expiry of the stipulated time frame for release of such progressive payment. If any amount payable under any interim bill is not sufficient to cover all deduction to be made for

interest on the advance payment and other sums deductible there from, the balance outstanding shall be recovered from the next payments immediately falling due.

29.2 80% (Eighty percent) of contract price on pro-rata basis along with taxes and duties shall be paid progressively for each portion of proportionally completed items (Supply and erection at site only) of work as per the agreed Bill of Materials within 30 days of submission of claim subject to certification by Purchaser's Engineer-in-charge on the basis of check points involved in such items of work. **However, contractor shall raise R/A bill with a copy of the comprehensive insurance policy as per the Clause-26 on completion of at least 20 % of the total contract value failing which bill shall not be processed subject to maximum of 3 nos. of R/A bills.**

29.3 Balance 20% (twenty percent) of contract price shall be paid after completion of all works, envisaged under this package including any additions and alterations, testing & commissioning, return of dismantled materials/ un-used free supply material, taking over certificate and entire stretch is fully ready for commercial operation. The payments shall be subjected to clearance from electrical inspectorate.

Note : In case of joint venture/consortium all BG.s shall be in the name of joint venture/ consortium covering all the partners including the Lead Partner. The amount shall be 10% for lead partner and additional 1% for each of the J.V partners separately or single BG (Lead partner @ 10 % and JV partner @ 1%) mentioning the name and address of lead and JV partner to be submitted by lead partner.

30 PAYING-CUM-NODAL OFFICER:

"General Manager (Elect), Electrical Circle No.1, CESU, BBSR shall be the paying officer for the work.

31 PURCHASER'S RIGHTS: -

The Purchaser reserves the right to accept any bid or reject any or all bids or cancel / withdraw invitation of bid or to vary the quantity for placement of order without assigning any reason to such decision. Such decision by the Purchaser shall bear no liability.

32 DISPUTE RESOLUTION AND JURISDICTION : -

a) Any Disputes arising out of this contract shall be referred to the **CEO, CESU** who shall decide the case as "**sole Arbitrator"**.

b) For the purpose of dispute resolution, this agreement shall be governed by the provision of Arbitration and Conciliation Act,1996.

c) All disputes shall be subjected to exclusive jurisdiction of the Courts at Bhubaneswar and the writ jurisdiction of Hon'ble High Court of Odisha at Cuttack.

33 TRANSFER AND SUB-LETTING:-

The Contractor shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

34 FREE ISSUE OF MATERIALS:-

No free issues.

35 SUBMITTALS REQUIRED AFTER AWARD OF CONTRACT:-

35.01 Within 7 days of the effective date of contract the contractor shall provide three copies of an outline program of production, inspection, testing, delivery, survey, erection, pre-commissioning and commissioning in chart form. Included in the program will be the detailed schedule of drawing to be submitted.

35.02 The bar chart & pert chart for each item of the work so as to complete both the work in scheduled period of, 6 months shall be furnished by the contractor/Successful Bidder.

35.03 The periodic progress report as required by the purchaser shall be submitted by the contractor as per the format prescribed by the Engineer in Charge.

36 TAKING OVER

36.1 Upon successful completion of all the tests to be performed at site on equipment / materials supplied and erected by the contractor, the supply engineer shall issue to the contractor a taking over certificate as a proof of the final acceptance of the equipment / materials. Such certificate shall not be un-reasonably withheld nor will the engineer delay the issuance thereof on account of minor omission or defects, which do not affect the commercial operation and / or cause any serious to the equipment/material. Such certificate shall, however, not relieve the contractor of any of his obligations which otherwise survive by the terms & conditions of the contract after issuance of such certificate.

36.2 For the satisfaction of purchaser about quality, the purchaser shall have unreserved right for arrangement of testing of equipment/ materials and the complete system independently by self or any other agency chosen by the purchaser. The contractor is expected to agree and extend necessary help during such test if necessary.

37 LATENT DEFECT WARRANTY

The period of latent defect warranty in terms of this bidding documents, shall be limited to five (05) years from the date of completion of Guarantee period.

38.0 Any other terms not covered in this specification shall be dealt with relevant OPWD / CPWD / CVC codes / guide lines.

SECTION - III

ANNEXURE – I

BID PROPOSAL LETTER

Electrical Installation of Works under CENTRAL ELECTRICITY SUPPLY UTILITY OF ODISHA

Bidder's Name and Address:

Bid Proposal Reference:

Person to be contacted:

Designation:

Telephone No. : E-mail : Fax No. :

To, Fax No:-

Name & Address of the Purchaser's designated Officer

Dear Sir,

We the undersigned bidder have read and examined the detailed specification and bidding documents for execution of various electrical installation works and do herewith submit our bid for the following package:

Sl. No.	Name of the Purchaser	Name of the Division	Package Code Reference

We declare the following:

1.0 PRICES AND VALIDITY :

1.01 All the prices and price components stated in our bid proposal are firm and not subject to any price adjustment, in line with the bidding documents. All the prices and other terms and conditions of this proposal will remain valid during the period **till 180 days** effective from the date of opening of the bids. We further declare that prices stated in our proposal are in accordance with "Instructions to Bidders" of bidding documents.

1.02 We do hereby confirm that our bid prices as quoted in attached Schedules include all import duties and levies including license fees lawfully payable by us on imported items and other taxes, duties and levies applicable on bought – out components, materials, equipment and other items and confirm that any such taxes, duties and levies additionally payable shall be to our account.

1.03 We confirm that the Sales tax on Works Contract, Turnover Tax or any other similar taxes under the Sales Tax Act, as applicable, are included in our quoted bid price and there shall not be any liability on this account to the Purchasers. We understand that

Purchasers shall, deduct such taxes at source as per the rules and issue TDS Certificate to us.

1.04 We confirm that, in our Bid Price, we have considered service tax in line with lawful prevalent practice.

1.05 Price components of various items are indicated in the B.O.Q. for the respective works.

1.06 We further declare that while quoting the price, the due credit under MODVAT scheme, re-christened as CENVAT scheme, as per relevant Government policies wherever applicable, have been taken into account.

1.07 We, having studied the bidding document in three volumes relating to taxes & duties and hereby, declare that if any income tax, charge on income tax or any other corporate tax is attracted under the law, we agree to pay the same.

1.08 We are aware that the Price schedules do not generally give a full description of the supplies to be made and work to be performed under each item and we shall be deemed to have read the Technical Specifications and other bidding documents and drawings to ascertain the full scope of work included in each item while filling in the related and prices. We agree that the entered rates and prices shall be deemed to include the full scope as aforesaid, including overheads and profits.

1.09 We understand that in the price schedule, if there is discrepancy between the unit price and total price, the same shall be corrected as per relevant provisions.

1.10 We declare that prices for items left blank in the schedules will be deemed to have been included in other items. The TOTAL for each schedule and the TOTAL of Grand summary shall be deemed to be the total price for executing the facilities and sections thereof in complete accordance with the contract, whether or not each item has been priced

2.0 CONSTRUCTION OF THE CONTRACT

2.01 We declare that we are making the offer on the basis of indivisible Supply-cum- Erection contract on a single source responsibility basis.

3.0 BID SECURITY(EMD)

We are enclosing DD no. dtd. Amounting to Rs. (Rupees only) issued by bank branch, payable at Bhubaneswar towards Bid Security against our above Bid. The Bid Security amount has been computed by adding the Estimated Cost for which we are submitting our bid.

4.0 EQUIPMENT PERFORMANCE GURANTEE

We declare that the ratings and performance figures of the equipment to be furnished and erected by us are guaranteed. The Guaranteed particulars of different equipments are enclosed along with our bid.

5.0 BID PRICING

We further declare that the prices stated in our proposal are in accordance with your 'Instruction to Bidders of Conditions of Contract, Volume-1 of the bid documents.

6.0 PRICE ADJUSTMENT

We declare that all the prices and price components stated in our offer are on FIRM price basis.

7.0 QUALIFICATION

We confirm having submitted the Qualification Data in original plus one copy, as required by you under clause 2.0 'Invitation for Bids'. Further we have filled in the information for qualification requirements. In case you require any further information in this regard, we agree to furnished the same in time

8.0 DEVIATIONS

8.01 We declare that the contract shall be executed strictly in a accordance with the specifications and documents except for the variations and deviations all of which have been detailed out exhaustively in the following schedules, irrespective of whatever has been stated to be contrary anywhere else in our proposal.

a) Commercial Deviations Schedule
b) Cost of withdrawal of Deviations on Critical
c) Technical Deviation Schedule

8.02 We confirm that specified stipulation of following critical clauses are acceptable to us and no deviations/exceptions are taken on any account whatsoever in the following clauses :

(a) Payment Terms :

(b) Bid Guarantee :

(c) Contract Performance Guarantee:

(d) Liquidated Damages for delay :

(e) Prices and Price Adjustment :

(f) Guarantee / Warrantees :

8.03 Further, we agree that the additional conditions, deviations, if any, found in our bid proposal documents other than those stated in attached Deviation Schedules, save that pertaining to any rebates offered, shall not be given effect to.

9.0 ADDITIONAL INFORMATION

We have included with this proposal additional information listed. We further confirm that such additional information does not imply any additional deviation beyond those covered in appropriate schedules and in case of any contradiction between these additional information and other provisions of Bid, the latter prevail.

10.0 GURANTEE DECLARATION

We guarantee that the equipment offered shall meet the rating and performance requirements stipulated in this specification. The Guarantee Declaration which shall attract levy of liquidated damages for non-performance are indicated in the relevant schedule.

11.0 BOUGHT-OUT AND SUB-CONTRACTED ITEM

We are furnishing herewith at appropriate Schedule, the detail of all major item of supply amounting to more than 10% of our Bid Price, which we propose subletting giving detail of the name of sub-contractor/sub-vendor and quantity for each item.

12.0 WORK SCHEDULE

If this proposal is accepted by you, we agree to submit engineering data, provide services and complete the entire work from time to time, in accordance with schedule indicated in the proposal. We fully understand that the time schedule stipulated in this proposal is the essence of the contract, if awarded. The completion schedule of the various major key phases of the work is indicated in the designated schedule.

13.0 CONTRACT PERFORMANCE GUARANTEE

We further agree that if our Bid is accepted we shall provide an irrevocable Bank guarantee towards Contract Performance Guarantee, of value equivalent to ten percent (10%) of the Contract Price initially valid up to the end of ninety (90) days after the end of the contract warranty period in the form of Bank Guarantee in your favour within 15 (fifteen) days from the date of 'Notice of Award of Contract' and enter into a formal agreement with you immediately thereafter.

14.0 CHECK LIST

We have included a check list duly filled in Schedule. We understand that only this checklist, commercial and technical deviation will be read out during the part-I bid opening before the bidders present.

ANNEXURE – I (A)

U N D E R T A K I N G

Under the scope of the tender specification No_____, We M/s _____ do hereby undertake to execute the Project covered under the above specification on Complete turnkey basis (Supply and Erection) excluding some Owner supply materials and there shall be no deviation in any manner both for commercial & technical requirement as stipulated in bid documents. We understand that our price offer shall not be considered if we are found unsuitable in the minimum qualifying criteria.

,
(To be made in the company letter head)

Authorized Signatory and seal of the company

ANNEXURE – II

DECLARATION FORM

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Sir,

Having examined the above specifications together with the Tender terms and conditions referred to therein

1 – I / We the undersigned do hereby offer to supply the materials covered there on in complete shape in all respects as per the rules entered in the attached contract schedule of prices in the tender.

2 – I / We do hereby under take to have the materials delivered within the time specified in the tender.

3 – I / We do hereby guarantee the technical particulars given in the tender supported with necessary reports from concerned authorities.

4 – I / We do hereby certify to have purchased a copy of the tender specifications by remitting Cash / Demand draft & this has been duly acknowledged by you in your letter No……Dt……

5 – I / We do hereby agree to furnish the composite Bank Guarantee in the manner specified / acceptable CESU& for the sum as applicable to me / us as per clause No.29 of Section -II of this specification within fifteen days of issue of Letter of intent / Purchase Order , in the event of purchase order being decided in my / us favour , failing which I / We clearly understand that the said LOI / P.O. shall be liable to be withdrawn by the purchaser

Signed this…….Day of……20…

Yours faithfully

(Signature of Bidder with Seal of Company)

(This form should be duly filled up by the Bidder & submitted along with the original copy of the Tender)

ANNEXURE – III

PROFORMA FOR CONTRACT PERFORMANCE BANK GUARANTEE

(To be executed on Rs. 100/- Non-judicial Stamp Paper purchased in the name of the BG Issuing Bank)

This Guarantee Bond is executed this ____ day of _____ by us,

_____ Bank at _____

P.O._____ P.S. _____Dist _____ State _____

Whereas the **G.M (Elect), E.C-I, BBSR , Power House Unit-8, Bhubaneswar-12 a** Body corporate/ Company (CESU), constituted under the Electricity Act, 2003. (here in after called "Purchaser") has placed Work Order No._____ Dt._____ (hereinafter called "Agreement") with M/s_____(Lead partner) and M/s _____(JV Partner(s)) (hereinafter called "the Contractor") for supply and installation of _____ (description of the works) and whereas CESU has agreed (1) to exempt the Contractor from making payment of security deposit, (2) to release 100% payment of the cost of materials as per the said agreement and (3) to exempt from performance guarantee on furnishing by the Contractor to the CESU a composite Bank Guarantee of the value of 10% (ten percent) of the Contract price of the said Agreement.

1. Now, therefore, in consideration of the Purchaser having agreed (1) to exempt the Contractor for making payment of security deposit, (2) to release 100% payment to the Contractor and (3) to exempt from furnishing performance guarantee in terms of the said Agreement as aforesaid, we the _____ Bank, Address _____ (code No. _____) (hereinafter referred to as "the Bank") do hereby undertake to pay to the Purchaser an amount not exceeding Rs._____ (Rupees _____) only against any loss or damage caused to or suffered by the Purchaser 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 _____ Bank do hereby undertake to pay the amounts due and payable under the guarantee without any demur, merely on a demand from the Purchaser stating that the amount claimed is due by way of loss or damage caused to or suffered by Purchaser by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by the reason of any breach by the said 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 an amount not exceeding Rs._____ (Rupees _____) only.

3. We, the _____ Bank also undertake to pay to the Purchaser any money so demanded not withstanding any dispute or dispute raised by the Contractor(s) in any suit or proceeding instituted/ pending before any court or Tribunal relating thereto our liability under this Agreement being

absolute and irrevocable. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.

We, the _____ Bank further agree that the guarantee herein contain shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and it shall continue to remain in force endorsable till all the dues of the Purchaser under by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till Purchaser certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharge this guarantee and will not be revoked by us during the validity of the guarantee period.

Unless a demand or claim under this guarantee is made on us or with our Bhubaneswar branch at _____ (Name, address of the Bhubaneswar branch and code No.) in writing on or before _____ (date) we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ Bank further agree that the Purchaser 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 variation or extension being granted to the said Contractor(s) or for any forbearance act or omission on part of the Purchaser or any indulgence by the Purchaser to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provisions have effect of so relieving us.

6. The Guarantee will not be discharged due to change in the name, style and constitution of the Bank and or Contractor(s).

7. We, the _____ Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Purchaser in writing.

Dated _____ the _____ day of Two thousand _____ .

Not withstanding anything contained herein above.

Our liability under this Bank Guarantee shall not exceed Rs._____ (Rupees _____ _____) only.

The Bank Guarantee shall be valid up to _____ only.

Our …….. branch at Bhubaneswar (Name & Address of the Bhubaneswar branch) is liable to pay the guaranteed amount depending on the filing of claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our Bhubaneswar branch a written claim or demand and received by us at our Bhubaneswar branch on or before Dt._____ otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

For _____

(indicate the name of the Bank)

N.B.:

(1) Name of the Contractor:

(Mention the name of JV partner(s), if any)

(2) No. & date of the purchase order/ agreement:

(3) Amount of P.O. :

(4) Name of Materials:

(5) Name of the Bank:

(6) Amount of the Bank Guarantee:

(7) Name, Address and Code No. of the Bhubaneswar Branch of the Issuing Bank:

(8) Validity period or date up to which the agreement is valid:

(9) Signature of the Constituent Authority of the Bank with seal:

(10) Name & addresses of the Witnesses with signature:

(11) The Bank Guarantee shall be accepted only after getting confirmation from the respective Banks.

ANNEXURE – VII (A)

LETTER OF COMPLIANCE OF QUALIFYING REQUIREMENT
(In case of Bidder being a Single Firm)

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8
Bhubaneswar-12

Dear Sir,

I/We ……. (Name of Bidder) are submitting the bid as a single firm. In support of our meeting the Qualifying requirements (QR) for bidders, stipulated in this tender specification, we furnish herewith the details/documents etc. as follows.

Table – A : Previous Works Experience :

Package Quoted for	Description of Proposed Works	Tender Qty	Qty Installed & Commissioned					
			Sl. No.	FY	Name of Client	WO Ref	Qty Installed	Documents provided in proof of having executed the works during the relevant FY.

Table – B : Average Annual Turnover :

Package Quoted for	Estimated Cost of the Package (Rs. in Lakh)	Annual Turnover Data (Rs. in Lakh)	
		Financial Year	Turnover (Rs. in Lakh)
		2016-17	
		2017-18	
		2018-19	
Total Estimated Cost of the packages quoted for		**Average Turnover**	

Table – C : Access to Credit Facility :

Package Quoted for	Estimated Cost of the Package (Rs. in Lakh)	Liquid Assets as on 30.04.2020		Credit Facility	
		Description	(Rs. in Lakh)	Description	(Rs. in Lakh)
		Cash in Hand		Un Utilized Cash Credit Balance	
		Cash at Bank		LC	
Total Estimated Cost of the packages quoted for		Short term Fixed Deposits		Others (Pl Specify)	
One fifth of the total Estimated Cost as above.		Total Liquid Assets		Total Credit Facility	

Note-1 : Continuation sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.

Note- 2 : Bidder are required to furnish all the above data against their liquid assets from their concerned Bank as on 30.04.2020.

I/We declare that we are fulfilling the qualifying requirements as per clause no. 2.0 of Section – I, Invitation for Bids (IFB).

For & on behalf of …… (Name of the Bidder).

ANNEXURE – VII (B)

LETTER OF COMPLIANCE OF QUALIFYING REQUIREMENT
(In case of Bidder being a Joint Venture / Consortium Firm)

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8
Bhubaneswar-12

Dear Sir,

I/We ……. (Name of Bidder) are submitting the bid as a single firm. In support of our meeting the Qualifying requirements (QR) for bidders, stipulated in this tender specification, we furnish herewith the details/documents etc. as follows.

Name of the members of the JV / Consortium

1.

2.

3.

Table – A : Previous Works Experience : Name of the Member (any one member only)

Package Quoted for	Description of Proposed Works	Tender Qty	Qty Installed & Commissioned					
			Sl. No.	FY	Name of Client	WO Ref	Qty Installed	Documents provided in proof of having executed the works during the relevant FY.

Table – B : Average Annual Turnover : (All the members of JV/Consortium taken together)

Package Quoted for	Estimated Cost of the Package (Rs. in Lakh)	Annual Turnover (Rs. in Lakh)		Annual Turnover (Rs. in Lakh)		Total Annual Turnover (Rs. in Lakh)	
		Name of Member	1	Name of Member	2	Name of Member	2
		Financial Year	Turnover (Rs. in Lakh)	Financial Year	Turnover (Rs. in Lakh)	Financial Year	Turnover (Rs. in Lakh)
		FY 2016 – 17		FY 2016 – 17		FY 2016 – 17	
		FY 2017 – 18		FY 2017 – 18		FY 2017 – 18	
		FY 2018 - 19		FY 2018 - 19		FY 2018 - 19	
		Total		**Total**		**Total**	
Total Estimated Cost of the packages quoted for						**Average Turnover**	

Table – C : Access to Credit Facility : (All the members of JV/Consortium taken together)

Package Quoted for	Estimated Cost of the Package (Rs. in Lakh)	Liquid Assets as on 30.04.2020		Credit Facility	
		Member	**1**	**Member**	**1**
		Description	**(Rs. In Lakh)**	**Description**	**(Rs. in Lakh)**
		Cash in Hand		**Un Utilized Cash Credit Balance**	
		Cash at Bank		**LC**	
		Short term Fixed Deposits		**Others (Pl Specify)**	
		Total Liquid Assets		**Total Credit Facility**	
		Liquid Assets as on 30.04.2020		**Credit Facility**	
		Member	**2**	**Member**	**2**
		Description	**(Rs. In Lakh)**	**Description**	**(Rs. in Lakh)**
		Cash in Hand		**Un Utilized Cash Credit Balance**	
		Cash at Bank		**LC**	

		Short term Fixed Deposits		**Others (Pl Specify)**	
		Total Liquid Assets		**Total Credit Facility**	
		Liquid Assets as on 30.04.2020		**Credit Facility**	
		Total for JV	**3**	**Total for JV**	**3**
		Description	**(Rs. In Lakh)**	**Description**	**(Rs. in Lakh)**
		Cash in Hand		**Un Utilized Cash Credit Balance**	
		Cash at Bank		**LC**	
Total Estimated Cost of the packages quoted for		**Short term Fixed Deposits**		**Others (Pl Specify)**	
One fifth of the total Estimated Cost as above.		**Total Liquid Assets**		**Total Credit Facility**	

Note-1: Continuation sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.

Note- 2 : Bidder are required to furnish all the above data against their liquid assets from their concerned Bank as on 30.04.2020.

I/We declare that we are fulfilling the qualifying requirements as per clause no. 2.0 of Section – I, Invitation for Bids (IFB).

For & on behalf of …… (Name of the Bidder).

(All members of JV / Consortium should sign).

Details of qualification and experience of key personnel proposed for carrying out the works

Sl. No	**Name of Personnel**	**Degree/ Diploma**	**Branch**	**Year of Passing**	**Past Experience**				
					From	**To**	**Name of Employer**	**Position Held**	**Responsibilities/ Relevant experience**

Date: (Signature) ……..

Place: (Printed Name) …….

(Designation) ……..

(Common Seal) ……

Note: 1**.** Continuation sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.
2. In case of Joint Venture, separate sheet for each partner of Joint Venture should be used.

Details for sub-contracting elements amounting to more than 10% of bid price

Sl. No	Item Description	Qty. proposed to be bought-out/ Sub-contracted	Source of Supply
1.			
2.			
3.			
4.			
5.			

Date:
Place:

(Signature) ……..
(Printed Name) …….
(Designation) ……..
(Common Seal) ……

ANNEXURE – VIII

DETAILS OF COMMERCIAL DEVIATIONS

Bidder's Name & Address

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Sub: **Commercial Deviation for "Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in partly turnkey basis".**

Dear Sir,

The following are the Commercial Deviations and variations from and exceptions to the specifications and documents for the subject Project. These deviations and variations are exhaustive. Except for these deviations, the entire work shall be performed as per your specifications and documents

Volume/Clause	Ref./Page No.	As specified in the Specification	Commercial deviation and variation to the specification

Date: (Signature) ……..

Place: (Printed Name) …….

(Designation) ……..

(Common Seal) ……

Note: 1. **Continuation** sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.

2. This will be read out opening of Part-I Bid.

ANNEXURE – IX

DETAILS TECHNICAL DEVIATIONS

Bidder's Name & Address

To

The Dy. General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Sub: **Technical Deviation for** "Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswar under OT-I section in 100% deposit scheme**".**

Dear Sir,

The following are the Technical Deviations and variations from and exceptions to the specifications and documents for the subject package. These deviations and variations are exhaustive. Except for these deviations, the entire work shall be performed as per your specifications and documents

Volume/Clause	Ref./Page No.	As specified in the Specification / Relevant ISS	Technical deviation and variation to the specification

Date: (Signature) ……..

Place: (Printed Name) …….

(Designation) ……..

(Common Seal) ……

Note: 1. Continuation sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.

2. The deviations and variations, if any, shall be brought out separately for each of the equipment.

3. This will be read out during opening of Part – I bid.

ANNEXURE – X

ADDITIONAL INFORMATION

Bidder's Name & Address

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Dear Sirs,

We have enclosed with our proposal the following additional information for the subject, package.

Sl. No	Brief description of Information	Ref.& Page No.

Date: (Signature) ……..

Place: (Printed Name) …….

(Designation) ……..

(Common Seal) ……

Note: Continuation sheets, of like size and format, may be used as per Bidder's requirements and annexed to this Schedule.

ANNEXURE – XI

BOUGHT OUT & SUB CONTRACTED ITEMS

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Dear Sir,

We hereby furnish the details of the items/sub-assemblies amounting to more than 10% of our bid price, we propose to buy for the purpose of subject package

Sl No	Item Description	Quantity	Source of supply
1			
2			
3			
4			
5			
6			
7			

Date: (Signature of Bidder)

Place:

ANNEXURE – XII

WORK COMPLETION SCHEDULE

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Dear Sir,

We hereby declare that, the work shall **be completed within 60 days from date of award of contract** as per the following Work Completion Schedule and shall be followed by us

Sl. No	Description of Work	Period in Months(from the date of WO)
1	Completion of detailed engineering	
2	Procurement of raw materials	
3	Establishment of site office	
4	Erection (a) Commencement (b) Completion	
5	Testing & Pre-commissioning (a) Commencement (b) Completion	
6	Commissioning	

Date: (Signature of bidder) ……..

Place:

ANNEXURE – XIII

CHECK LIST

To

The General Manager (Elect.)
Electrical Circle No-I,
Power House, Unit-8, Bhubaneswar-12

Dear Sir,

Sl. No.	Item Description	Status of the Submission of data	Remarks
1	2	3	4
1.	Bid Guarantee	Yes /No	If yes please give details No, amount, validity & date of issue.
2.	Qualifying Data	Yes /No	
3.	Commercial Deviation	Yes /No	
4.	Technical Deviation	Yes /No	
5.	Cost of withdrawn of deviations	Yes /No	
6.	Bid validity	Yes /No	If yes state here the period.
7.	Period of completion	Yes/No	If, yes please state here the period of completion.
8.	Additional information offered by bidder		State here briefly

N.B.:- The contents of this schedule will be read out during opening of Part-I Bid.

……
Signature of Bidder
Date & Seal:

N.B :-

1. The bid guarantee one original and one copy shall be furnished in two separate sealed envelope appropriately super scribed thereon.
2. All Schedules pertaining to prices (originals) shall be furnished in a sealed envelope duly super scribed thereon. Similarly one set of copies of such schedules shall be given in a separate sealed envelope (these are not to be opened during opening of Part –I).
3. All other schedules, one set original and another copy shall be submitted in two separate sealed envelope (these are to be opened during Part –I bid opening)

Date: (Signature) ……..

Place:

ANNEXURE – XIV

PROFORMA OF INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE EQUIPMENT HANDED OVER BY <PURCHASER> FOR PERFORMANCE OF ITS CONTRACT

(Entire Equipment consignment in one lot)

(On non-Judicial stamp paper of appropriate Value)

INDEMNITY BOND

THIS INDEMNITY BOND is made this ..... day of .....20 ..... by ..... a Company registered under the Companies Act, 1956/ Partnership Firm / Proprietary Concern having its Registered Office at .....(hereinafter called as 'Contractor' or "Obligor" which expression shall include its successors and permitted assigns) in favour of <Purchaser>, a <Company/ Body Corporate> incorporated under the <Companies Act, 1956 / Electricity Act-2003> having its <Registered Office/ Head Office> at < Address> and its project at .... (hereinafter called "<Purchaser>"Which expression shall include its successors and assigns) :

WHEREAS <Purchaser> has awarded to the Contractor a Contract for ..... vide its Letter of Award / Contract No..... dated ..... and its Amendment No. ..... and Amendment No..... (Applicable when amendments have been issued) hereinafter called the "Contract") in terms of which <Purchaser> is required to handover various equipment to the Contractor for execution of the Contract.

And WHERAS by virtue of Clause No..... of the said Contract, the Contractor is required to executive an Indemnity Bond in favour of <Purchaser> for the Equipment handed over to it by <Purchaser> for the purpose of performance of the Contract / Erection portion of the Contract (hereinafter called the "Equipment")

NOW THEREFORE, This Indemnity Bond witness as follows :

1. That in consideration of various equipment as mentioned in the Contract, valued at Rs... ... (Rupees ……..) handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep <Purchaser> indemnified, for the full value of the Equipment. The Contractor hereby acknowledges receipt of the Equipment as per dispatch title documents handed over to the Contractor duly endorsed in their favour and detailed in the Schedule appended hereto. It is expressly understood by the Contractor that handing over of the dispatch title documents in respect of the said Equipment duly endorsed by <Purchaser> in favour of the Contractor shall be construed as handing over of the Equipment purported to be covered by such title documents and the Contractor shall hold such Equipment is trust as a Trustee for and on behalf of <PURCHASER> .

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit / protection and custody of the Equipment at <PURCHASER> project Site against all risks, whatsoever, till the Equipment are duly used / erected in accordance with the terms of the Contract and the Plant / Package duly erected and commissioned in accordance with the terms of the Contract, is taken over

by <PURCHASER> . The Contractor undertakes to keep <Purchaser> harmless against any loss or damage that may be caused to the Equipment.

3. The Contractor undertakes that the Equipment shall be used exclusively for the performance/ execution of the Contract strictly in accordance with its terms and conditions and no part of the equipment shall be utilized for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal / penal consequences .

4. That <PURCHASER> is and shall remain the exclusive Owner of the Equipment free from all encumbrances, charges or liens of any kind, whatsoever. The Equipment shall at all the times be open to inspection and checking by Engineer0in Charge / Engineer or other employees/agents authorized by him in this regard. Further, <Purchaser> shall always be free at all times to take possession of the Equipment in whatever form the Equipment may be, if in its opinion the Equipment are likely to be endangered, mis-utilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor binds himself and undertakes to comply with the direction of demand of <Purchaser> to return the Equipment without any demur or reservation.

5. That this indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Equipment or the same or any part thereof is misutilized in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in-Charge/Engineer of <Purchaser> as to assessment of loss or damage to the Equipment shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Equipment at its own cost and/or shall pay the amount of loss of <Purchaser> without demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to <Purchaser> against the Contractor under the Contract and under this Indemnity Bond.

6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with terms and conditions of this Bond to the satisfaction of <Purchaser>, THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorized representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE

Particulars of the Equipment handed over	**Quantity**	**Particulars of Dispatch Title Documents**		**Value of the Equipment**	**Signature of Attorney (authorized representative as a token of receipt**
		RR / GR / No. / Date of Bill of Landing	**Carrier**		

For an on behalf of

M/s.....

WITNESS

1. 1. Signature ..... Signature .....

2. Name ..... Name .....

3. Address..... Designation .....

Authorised representative *

2. 1. Signature .....

2. Name ..... (Common Seal in case of Company)

3. Address .....

---

* Indemnity Bonds are to be executed by the authorised person and (i) in case of Contracting Company under common seal of the Company or (ii) having the Power of Attorney issued under common seal of the company with authority to execute Indemnity Bonds, (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a Photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to Indemnity Bond.

ANNEXURE – XV

PROFORMA OF INDEMNITY BOND TO BE EXECUTED BY THE CONTRACTOR FOR THE EQUIPMENT HANDED OVER IN INSTALMENTS BY <PURCHASER> FOR PERFORMANCE OF ITS CONTRACT

(On non-Judicial stamp paper of appropriate Value)

INDEMNITY BOND

THIS INDEMNITY BOND is made this ..... day of .....20 ..... by ..... a Company registered under the Companies Act, 1956/ Partnership Firm / Proprietary Concern having its Registered Office at .....(hereinafter called as 'Contractor' or "Obligor" which expression shall include its successors and permitted assigns) in favour of <Purchaser>, a <Company/ Body Corporate> incorporated under the <Companies Act, 1956/ Electricity Act-2003> having its <Registered Office/ Head Office> at <Address> and its project at .... (hereinafter called "<PURCHASER> "Which expression shall include its successors and assigns) :

WHEREAS <PURCHASER> has awarded to the Contractor a Contract for ..... vide its Letter of Award / Contract No..... dated ..... and its Amendment No. ..... and Amendment No..... (applicable when amendments have been issued) hereinafter called the "Contract") in terms of which <PURCHASER> is required to handover various equipment to the Contractor for execution of the Contract.

And WHERAS by virtue of Clause No..... of the said Contract, the Contractor is required to executive an Indemnity Bond in favour of <PURCHASER> for the Equipment handed over to it by <PURCHASER> for the purpose of performance of the Contract / Erection portion of the Contract (hereinafter called the "Equipment")

NOW THEREFORE, This Indemnity Bond witness as follows :

1. That in consideration of various equipments as mentioned in the Contract, valued at Rs... ..... (Rupees .....) handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep <PURCHASER> indemnified, for the full value of the Equipment. The Contractor hereby acknowledges receipt of the Equipment as per dispatch title documents handed over to the Contractor duly endorsed in their favour and detailed in the Schedule appended hereto. It is expressly understood by the Contractor that handing over of the dispatch title documents in respect of the said Equipment duly endorsed by <PURCHASER> in favour of the Contractor shall be construed as handing over of the Equipment purported to be covered by such title documents and the Contractor shall hold such Equipment is trust as a Trustee for and on behalf of <PURCHASER> .
2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit / protection and custody of the Equipment at <PURCHASER> project Site against all risks, whatsoever, till the Plant / Package duly erected and commissioned in accordance with the terms of the Contract, is taken over by <PURCHASER> . The Contractor undertakes to keep <PURCHASER> harmless against any loss or damage that may be caused to the Equipment.
3. The Contractor undertakes that the Equipment shall be used exclusively for the performance / execution of the Contract strictly in accordance with its terms and conditions and no part of the equipment shall be utilised for any other work or purpose, whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal / penal consequences.
4. That <PURCHASER> is and shall remain the exclusive Owner of the Equipment free from all encumbrances, charges or liens of any kind, whatsoever. The Equipment shall at all time be open to inspection and checking by Engineer-in-Charge / Engineer or other employees / agents authorized by him in this regard. Further , <PURCHASER> shall always be free at all times to take possession of the Equipment in whatever from the Equipment may be, if in its opinion the Equipment are likely to be endangered, mis-utilised or converted to use other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any

reason, whatsoever, and the Contractor binds himself and undertakes to comply with the directions of demand of <PURCHASER> to return the equipment without any demur or reservation.

5. That this Indemnity Bond in irrevocable. If at any time any loss or damage occurs to the Equipment or the same or any part thereof is mis-utilized in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-in-Charge / Engineer of <PURCHASER> as to assessment of loss or damage to the Equipment shall be final and binding on the contractor. The Contractor binds itself and undertakes to replace the lost and / or damaged Equipment as its own cost and / or shall pay the amount of loss to <PURCHASER> without any demur, reservation or protest. This is without prejudice to any other right to remedy that may be available to <PURCHASER> against the Contractor under the Contract and under this Indemnity Bond.
6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of <PURCHASER> , then above Bond shall be void, but otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorized representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE No. 1

Particulars of the Equipment handed over	Quantity	Particulars of Dispatch Title Documents		Value of the Equipment	Signature of Attorney (authorized representative as a token of receipt
		RR / GR / No. / Date of Bill of Lading	Carrier		
(Please	number	subsequent	schedules)		

For an on behalf of M/s.....

WITNESS

1. 1. Signature ..... Signature .....

.

2. Name ..... Name .....
3. Address..... Designation .....

ANNEXURE – XVI

SELF DECLARATION FORM

Name Of The Purchaser :……

Tender No :…….

Sir,

1. I/We the undersigned do hereby declare that, I/We have never been blacklisted and/or there were no debarring actions against us for any default in supply of material/ equipments or in the performance of the contract entrusted to us in any of the electricity utilities of India.

2. In the event of any such information pertaining to the aforesaid matter found at any given point of time either during the course of the contract or at the bidding stage, false/ incorrect bid/ contract shall be liable for truncation/ cancellation /termination without any notice at the sole discretion of the purchaser.

Place :

Date :

Yours faithfully,

Signature of the bidder with seal.
(This form shall be duly filled-up and signed by the bidder and submitted along with the original copy of the bid).

ANNEXURE – XVII

CENTRAL ELECTRICITY AUTHORITY

F.NoCEA/TETD/MP/R/02/2011:- In exercise of the powers conferred by section 177 read with clause (C) of Section 73 of the Electricity Act,2003 (36 of 2003), the Central Electricity Authority hereby makes the following regulations, namely:-

1 Short title and commencement:- (1) These regulations may be called the Central Electricity Authority (Safety Requirements for Construction, Operation and Maintenance of Electrical Plants and Electric Lines) Regulations,2010

(2) They shall come into force on the date of their publication in the Official Gazette

Definition:- (1) In these regulations, unless the context otherwise requires:-

(a) " Act" means the Electricity Act,2003:

(b) " Contractor" means a person or an agency who undertake to produce a given result, not merely supply of goods or articles of manufacture but including civil works or erection of equipment or testing and commissioning of equipment or operation and maintenance of equipment and includes a sub-contractor:

(c) Owner" means a company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, which owns or operates or maintains electrical plants or electric lines and includes:-

(i) "Occupier" as defined in the Factories Act, 1948 (63 of 1948; Provided that where number of employees, including contract workers is two hundred and fifty or less, the safety committee shall be constituted by the Owner for a group of electrical plants or electric lines, as the case may be.

(b) The safety committee shall promote co-operation between the workers and the management for maintaining proper safety and health at our place

(c) The safety committee shall meet at least once in a month during construction stage and once in three months during operation and maintenance of electrical plants and electric lines and the decisions and recommendations of the safety committee shall be complied with by the Owner within the time limit as decided by the safety committee

7 Safety provisions relating to contractor :-

(1) The Owner shall incorporate the safety provisions in the contract document which are required to be complied by the contractor's employees during execution of the contract to facilitate safe working during execution of the work.

(2) The Contractor shall observe safety requirements as laid down in the contract and in case of sub-contract, it shall be the responsibility of main contractor that all safety requirements are followed by the employees and staff of the sub-contractor.

(3) The contractor employing tow hundred employees or more, including contract worker, shall have a safety co-ordination in order to ensure the implementation of safety requirements of the contract and a contractor with lesser number of employees to act as safety co-ordinator, who shall liaise with the safety officer on matters relating to safety and his name shall be displayed on the notice board at a prominent place at the work site.

(4) The contractor shall be responsible for non-compliance of the safety measures, implications, injuries, fatalities and compensation arising out of such situations or incidents.

(5) In case of any accident, the contractor shall immediately submit a statement of the same to the Owner and the safety officer, containing the details of the accident, any injury or casualties ,

extent of property damage and remedial action taken to prevent recurrence and a addition, the contractor shall submit a monthly statement of the accidents to the Owner at the end of each month.

CENTRAL ELECTRICITY AUTHORITY

NOTIFICATION

New Delhi, the 20th September,2010

No.CEI/1/59/CEA/El.:- In exercise of the powers conferred by section 177 of the Electricity Act,2003 (36 of 2003); the Central Electricity Authority hereby makes the following regulations for measures relating to Safety and Electric Supply namely:-

Chapter-I

(1) Short title and Commencement:- (1) These regulations may be called the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations,2010

(2) They shall come into force on the date of their final publication in the official Gazette

(2) Definitions:- (1) In these regulations, unless the context otherwise requires,

(a) "Act" means the Electricity Act,2003

(b) "accessible" means within physical reach without the use of any appliance or special effort;

(c) "Ampere" means a unit of electric current and is a constant current which flowing in two parallel straight conductors of infinite length of negligible cross section and placed at a distance of one meter apart in a vacuum will produce a force of 2×10^{-7} . Newton per meter length between the conductors;

(d) "apparatus" means electrical apparatus and includes all machines, fittings, accessories and appliances in which conductors are used;

(e) "bare" means not covered with insulating materials;

(f) " cable" means a length of insulated single conductor (solid or standard) or of two or more such conductors each provided with its own insulation, which are laid up together. Such insulated conductor or conductors may or may not be provided with an overall mechanical protective covering;

(g) " circuit" means an arrangement of conductor or conductors for the purpose of conveying electricity and forming a system or a branch of a system;

(h) "circuit breaker" means a device, capable of making and breaking the circuit under all conditions, and unless otherwise specified, so designed as to break the current automatically under abnormal conditions;

(i) " concentric cable" means a composite cable comprising an inner conductor which is insulated and one or more outer conductors which are

Chapter-II

(3) Designating person(s) to operate and carry out the work on electrical lines and apparatus:- (1) A supplier or a consumer, or the owner, agent or manager of a name, or the agent of any company operating I an oil-field or the owner of a drilled well in an oil field or a contractor who has entered into a contract with a supplier or a consumer to carry out duties incidental to the generation, transformation, transmission, conversion, distribution or use of electricity shall designate persons for the purpose operation and maintenance of Electrical lines and apparatus.

(2) The Supplier or consumer or the owner, agent or manager of a mine or the agent of any company operating in an oil-field or the owner of a drilled well in an oil field or a contractor referred to on sub-regulation(1) shall maintain a register where in the names of the designated persons and the purpose for which they are engaged shall be entered.

(3) No person shall be designated under sub-regulation(1) unless:-

(i) He possesses a certificate of competency or electrical work permit, issued by the Appropriate Government.

(ii) His name is entered in the register referred to in sub-regulation(2)

(4) Inspection of designated officers and other safety measures:-

(1) The register maintained under sub-regulation(2) of regulation 3 shall be produced before the Electrical Inspector when required by him.

(2) of If on inspection, the Electrical Inspector finds that the designated person does not fulfill the required qualification, he shall recommend the removal of the name of such persons from the register.

(5) Electrical Safety Officer:- (1) All suppliers of electricity including generating companied, transmission companies and distribution companies shall designate an Electrical Safety Officer for ensuring observation of safety measures specified under these regulation in their organization for construction, operation and maintenance of power stations, sub-stations, transmission and distribution lines.

(2) The electrical Safety Officer shall be an Electrical Engineering degree holder with at least ten years of experience in operation and maintenance of electricity plants or an Electrical Engineering Diploma holder with at least fifteen years of experience in operation and maintenance of electric plant.

(3) The Electrical Safety Officer designated under sub-regulation(1) shall ensure periodic inspection of such installations, get them tested and keep a record thereof and such records shall be made available to the Electrical Inspector if and when required.

(4) For every factory registered under Factory Act,1948, where more than 63 KW of electrical load is connected, the management of the factory shall designate a person having qualification specified in sub-regulation(2) for ensuring the person having qualification specified in sub-regulation(2) for ensuring the observation of the safety provisions laid under the Act and the regulations made there under, who shall periodically inspect such installation, get them tested and keep a record thereof and such records shall be made available to the Electrical Inspector if and when required.

6 Safety measures for operation and maintenance of electric plants:-

(1) Engineers and supervisions appointed to operate aor undertake maintenance of any part or whole of a thermal power generating station and a hydro power plant together with the associated sub-station shall hold diploma in Engineering from a recognized institute, or a degree in Engineering from a university.

(2) The Technicians to assist engineers or supervisors shall possess a certificate in appropriate trade, preferably with a tow years course from a Industrial Training Institute recognized by the Central Government or the State Government.

(3) Engineers, supervisors and Technicians engaged for operator and maintenance of electric plants should have successfully undergone the type of training as specified in Schedule-I

Provided that the existing employees shall have to undergo the training mentioned in sub-regulation(3) within three years from the date of coming into force of these regulations.

(4) The owner of every thermal power generating station and hydro power plant together with their associated sub-station shall arrange for training of personnel engaged in the operation and maintenance of his generating station along with associated sub-station in his own institute or any other institute recognized by the Central Government or the State Government.

Provided that separate training shall be given to the person engaged in operation and maintenance of thermal power stations and hydro power stations including associated sub-stations.

7 Safety measures for operation and maintenance of transmission, distribution systems:-

(1) Engineers or supervisors engaged in operation and maintenance of transmission and distribution systems shall hold diploma in electrical, mechanical, electronics and instrumentation Engineering from a recognized institute or university.

(2) The Technician to assist engineers or supervisors shall posses a certificate in appropriate trade, preferably with a two year course from a Industrial Training Institute recognized by the Central Government or State Government.

(3) Engineers, supervisors and Technicians engaged for operation and maintenance of transmission and distribution systems electric plants should have successfully undergone the type of training as specified in Schedule-II.

Provided that the existing employees shall have no undergo the training mentioned in sub-regulation(3) within three years from the date of coming into force of these regulations.

(4) Owner of every transmission or distribution system shall arrange for training of their personnel engaged in the operation and maintenance of transmission and distribution system in his institute or any other institute recognized by the Central Government or State Government.

8 Keeping of records and inspection thereof:-

(1) The generating company or licensee shall maintain records of the maps, plans and sections relating to supply of transmission of electricity and submit the same to the Electrical Inspector fir inspection as and when required by him.

(2) The Electrical Inspector shall supply a copy of report of Inspection referred to in Sub-regulation (1) to the generating company or Licensee as the case may be.

9 Deposit of Maps

When Licensee has been granted two set of maps showing as regards such Licensee the particulars specified in application for Licensee shall be signed and dated to correspond with date of notification of grant of the Licensee by an officer designated by the appropriate commission in this behalf, one set of such map shall be retained by the said officer and the other one shall be furnished to Licensee.

10 Deposit of printed copies:-

(1) Every person who granted a Licensee shall within 30 days of the grant thereof, have copies of the Licensee and maps showing the areas of supply as specified in the Licensee to exhibit I same for public inspection at all reasonable times at his head office, his local office, if any, and at the office of the every local authorities within the area of supply.

(2) Every such licensee shall, within the aforesaid period of third days, supply free of charge one copy of the license along with the relevant maps to every local authority within the area of supply and shall also make necessary arrangement for sale of printed copied of the licensee and map to all persons applying for same, at a price to be notified by the appropriate Govt. from time to time.

11 Plan for area of supply to be made and kept open for inspection

(1) The licensee shall after commencing to supply electricity forthwith cause a plan to be made in electronic form, of the area of supply and shall cause to be mart thereon the alignment and the case of underground works the approximate depth below the surface of all the existing electric supply lines street distributing boxes and other was and shall once in every year cause that plan to be duly corrected so as to show the electric supply lines street distributing boxes and other works further time is being in position and shall also if so required by an Electrical Inspector caused to be made section showing the approximate level of all his existing underground works other than service lines.

(2) Every plan shall be drawn to such horizontal and vertical scale as the Appropriate Commission may enquire.

Provided that no scale shall be required unless maps of the locality on that scale are for the time being available to the public.

(3) Every plan and section so made or corrected, or a copy thereof, marked with the date when it was made or corrected, shall be kept by the licensee at his

Volume – II

Technical Bid

Tender Specification No PUR/TEND/02/2020-21 Dated 21.05.2020 of S.E, E.C-I, Bhubaneswar

CENTRAL ELECTRICITY SUPPLY UTILITY OF ODISHA

OFFICE OF THE DY. GENERAL MANAGER (ELECT), ELECTRICAL CIRCLE No.1
POWERHOUSE, UNIT-VIII, BHUBANESWAR – 751012
Phone: 2392742, 2395273, Fax: 0674-2392742, E-mail: **sebbsr1@cescoOdisha.com**

Section-I
General

1.0. INTRODUCTION:

The **CENTRAL ELECTRICITY SUPPLY UTILITY OF ODISHA, hereinafter called CESU/OWNER** is inviting Bids in respect of partly Turnkey **Package "Laying of 3core 300mm² 11KV XLPE UG Cable through cable trench and erection of RS Joist pole (for temporary arrangement) for power supply to Maha Sibaratri of lord Lingaraj at Old Town, Bhubaneswra under OT-I section in partly turnkey basis ".** Testing and Commissioning as per the Scope detailed in the Bid Documents.

2.0. NATURE OF WORK:

The work covered by this Specification as specified herein and in the attached Schedules. The total work will form a part of the CESU's distribution System.

3.0. **SCOPE OF WORK: -**

The scope shall include supply and installation of all materials & equipments to complete the works.

a) Detailed survey of the proposed area and routes.
b) Complete manufacture, including shop testing & supply of all materials / equipments from the approved vendor or from his manufacturing units.
c) Providing Engineering drawing, data, operational manual, etc for the Purchaser's approval;
d) Receipt, storage, preservation and conservation of equipment at the site.
e) Reliability tests and performance and guarantee tests on completion of commissioning.
f) Loading, unloading and transportation as required.
g) Laying of 11KV 3 Core 300 mm^2 XLPE UG cable through cable trench with spare cable (2x350mts) = 700 Mtr
h) Supply of 11KV 3x300 mm^2 outdoor end jointing kit = 4 nos.
i) Supply of 11KV 3x300mm^2 straight through jointing kit = 4 nos.
j) Erection of LT 100x116 mm 9 mtr long RS Joist Pole with stud pole = 1 No.
k) Erection of 100 x 116 mm 9 mtr. Long RS Joist stud pole on 11 KV line = 2 No.
l) Construction of all civil works.
    a. Cable Loop chamber = 3 Nos.
    b. Earthing complete with supply of earthing device, GI flat, Charcoal, salt – 2 nos.
    c. Concreting, padding & cooping of all supports.
    d. Dismantling of 25KVA 11/0.4 KV S/s = 1No.
    e. Dismantling of LT line = 6 Span
    f. Dismantling of 11 KV line = 5 Span

Getting the total work inspected by Electrical Inspector after its completion.

a) **Transportation of all above required materials (OSM) from Purchaser's nearest store (Bhubaneswar, Choudwar) to site and all other required materials (to be supplied by bidder) from supplier's premises to work site, construction of new electrical / civil structures, dismantling of existing electrical structures / equipments and return of these dismantled items at the purchaser's stores, safe custody of the items and return of unused purchaser supplied materials to the purchaser's stores**.

Note: For details, the technical specification, price schedule & BOQ specified in separate Section may be referred to.

3.1 Bill of Quantities (BOQ):

A. Materials to be supplied by the firm / contractor			
SL No.	**Description of materials**	**Unit**	**Qty**
1	11KV 3x 300mm2 XLPE insulated armored UG cable with Spare	Mtr	700
2	Outdoor terminating kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core	Set	4
3	G.I pipe	Mtr	40
4	Straight Through Jointing kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core	Set	4
5	Earthing device 40mm dia 3mtr	No	2
6	40x6mm GI Flat	Kg	40
7	100x116mm 9 Mtr. long RS Joist pole	No	3
8	100x50x6mm MS Chanel	Kg	60
9	11 KV GI Pin (Polymer type)	No	3
10	11 KV Pin insulator 90 KN (Polymer type)	No	3
11	11 K.V.Disc Insulator (Polymer type)	No	6
12	11 K.V.Hardware Fitting (Polymer type)	No	6

4.0. Technical specifications for supply of materials:

The supply partly required materials on TURN KEY is in the scope of the contractor. The technical specifications for the major materials are mentioned in different sections of this volume and the other required materials as per the scope of work should be of appropriate standard and update IS specification.

5.0 GENERAL CONDITIONS OF CONTRACT

- **Responsibility of the Contractor**

  The Contractor shall be responsible for the complete design and engineering, overall co-ordination with internal and external agencies, project management, training of Employer's manpower, loading, unloading, storage at site, inventory management including OSM materials at site during construction, dismantling, re-erection of installations as per Engineer. in charge (Divisional Engineer.)'s advice, handling, moving to final destination, obtaining statutory clearances for successful erection, testing and commissioning of the substation.

- **Limit of contract**

  The scope of work shall also include all work incidentals for successful operation and commissioning and handing over of works whether specifically mentioned or not. In general, works are to be carried out by the Contractor in accordance with the stipulations in Conditions of Contract.

- **Quantity variation**

  The Employer reserves the right to order and delete such works which may be necessary for him within the quantity variation option laid down in the conditions of the contract. This shall include but not limited to the manufacture, supply, testing, and delivery to site, erection and commissioning as may be required in accordance with the Conditions of Contract at the prices stated in the Schedules.

  The Employer shall also be at liberty to delete **Any Items** from the Contractor's scope of supply at any time before commencement of supply of works under the detailed scope of work.

6.0 Guarantees Technical particulars

The Contract Works shall comply with the guaranteed technical particulars specified or quoted in the bid. All plant and apparatus supplied under this Contract shall be to the approval of the Engg In-charge (Divisional Engr.).

All plant and equipment supplied under this contract must have been type tested and have been on satisfactory service at identical ratings for at least preceding three years. The bidder shall furnish in his bid the necessary supporting data in this regard in specified formats for consideration during bid evaluation. If during evaluation non compliance is identified, the successful Contractor shall be bound to supply the equipment from manufacturers complying with the stipulated requirements under CESU"s approval

The Contractor shall be responsible for any discrepancies, errors or omissions in the particulars and guarantees.

The Bidder for his own interest, shall establish the technical responsiveness of his bid, shall provide all data in appropriate technical data sheets, general/ technical information, literature, and leaflets etc. along with the bid.

6.1 Compliance with Specification

All apparatus should comply with this Specification. Any departures from the requirements of this Specification shall be stated with reasons in the relevant Bid Proposal Schedules Bid will be considered for evaluation if reasons shown are apparently justified. Unless brought out clearly in the technical schedules, it will be presumed that the equipment is deemed to comply with the technical specification.

In the event of there being any inconsistency between the provisions of the conditions of contract and the provisions of this Specification, in respect of commercial requirements, the provisions of the conditions of contract shall take precedence for commercial matters and the provisions of this Specification shall take precedence in respect of technical matters.

In case of inconsistency between technical specification (TS) & bid proposal sheet, (BPS) quantities of various items as specified in the bid proposal sheet shall be considered for quoting. However the work shall be executed as specified in the technical specification. Only brief description is given in the BPS & the work shall be executed in line with the requirement given in the TS.

The manufacturer and places of manufacture, testing and inspection of the various portions of the Contract Works shall be stated in the relevant Bid Proposal Schedules.

7.0 Methodology:

Cable Laying Methodology & Civil Works

1. CABLE LAYING

1.0. Notwithstanding anything stated in these specifications, CESU reserves the right to assess the bidder's capability to fulfill the scope of the bid, should the circumstances warrant such assessment.

2.0. DESIGN – WORKMANSHIP AND INTERPRETATION OF CLAUSES :

2.1 The design and quality of goods supplied and the workmanship shall be in accordance with the best engineering practice to ensure satisfactory performance of the system throughout the service life.

2.2 The goods and accessories offered shall be complete in all respects. Any material and / or component thought not specifically stated in this specification but is necessary for trouble free and successful operation shall be deemed to be included. All such components, accessories, etc., shall be supplied at no extra cost.

2.3 The goods supplied shall be such that components, accessories of the same type shall be interchangeable. Likewise similar or corresponding parts, components / accessories shall also be interchangeable.

2.4 Wherever and whenever a material or article is specified or described by the name of a particular brand, manufacturer, vendor, the specific item mentioned shall be understood as establishing type, function, quality and not as limiting competition. However bidders may offer other similar components / accessories provided they meet with the required standards, design, duties and performance.

2.5 Goods and accessories so offered shall conform to type test and shall also be subjected to acceptance and routine tests in accordance with the requirements stipulated in this specification. The CESU reserves the right for repeating any or all of the type tests to be conducted on the goods supplied.

3.0. STANDARDS

3.1. Except as modified by this specification all materials to be supplied shall conform to the requirements of the latest editions of the following standards:

a) IS 1255 Code of practice for Installation and maintenance of power cables up to and including 33 KV rating
b) IS 7098 (Part 2) Cross – linked Polyethylene PVC sheathed cables.
c) IEC 332 Tests on erected cables
d) IEC 1329 Allied steel, tubes, tubular and other rough iron fittings.
e) IEC 2629 Recommended practice for hot dip galvanizing of iron & steel.
f) ASTM-D : 2671 Standard method of testing heat shrinkable or push on Tapex or cold type tubing for electrical use.
g) ASTM-D 3111 Flexibility determination of hot melt adhesives by mandrel bend test method.
h) IEC 60 High Voltage test
i) IS 3043 Code of practice for Earthing
j) IS 8309 Compression type tubular terminals for aluminum conductors of insulated cable.

4.0. DEVIATION IN SPECIFICATION:

4.1. All deviations in specification shall be brought out by the bidder and detailed clause by clause in appropriate annexure form.

4.2. Deviations brought out elsewhere or in any other format will not be considered and are liable for rejection. The CESU in such an event shall also deem that the bidder has conformed to the clauses in this specification scrupulously.

4.3. Deviation in specification shall if possible be quoted with reference to standards. The bidder shall then furnish an authentic English version of such standards.

5.0. LOCAL CONDITIONS :

5.1. It will be imperative on each bidder to fully inform himself of the local conditions and factors which may have any effect on the execution of the supply and services covered under these documents and specification.

5.2. It shall be understood and agreed that such factors will have been properly investigated and considered in any bid that is submitted. The purchaser will entertain no claim for financial adjustment to the contract awarded under these specifications and documents. No change in the time schedule of the contract, or any financial adjustment arising thereof that are based on incorrect information, or its effect on the cost of the contract to the bidder shall be permitted by the Purchaser.

5.3. Bidders are advised to visit the various areas where the U.G. cables are access, road /drain / footpath crossings to enable them to make proper costing and then quote accordingly.

6.0. DETAILS OF WORK :

i) The scope of work involves Supply and laying, testing and commissioning of 3 Core 11KV 300 mm², XLPE UG cable.

ii) **Laying of 11KV 3 Core 300 mm^2 XLPE UG Cables shall be laid in open trench & Brick masonry work with slab in usual conventional methods, on bedding free from large stones, pieces of rocks, etc. Cable trench should be 0.5 meter width x 1meter depth, with RCC cover & sand filling for the protection of cable as per IS 1255-1983. And cable should be drawn in pipes of ducts wherever necessary.** The top of the cable trench should be RCC to hold the RCC covers. Cable loop chamber of size 4 meter dia & the chamber should be filled with sand and RCC slab arrangement for cable protection. Cable trenches and pre-cast removable RCC covers (with lifting arrangement) shall be constructed using RCC of M15 grade. Plastering in proportion 1:4 (12 mm thickness) has to be done on both side of the wall of the trench.

Special colour code should be given to each cable for ease of identification.

c) The cable trenches shall be designed for Dead load of 155 kg/ m length of cable support plus 75 kg on one tier at the end. Cable trench covers shall be designed for (i) self weight of top slab plus concentrated load of 200 kg at centre of span on each panel and a surcharge load of 2 tons per sq. meter.

d) The top of trenches shall be kept at least 300 mm above the finished ground level (FGL). The FGL means the finish level of the soil but not the top of metalling surface. The top of cable trench shall be such that the surface rain water does not enter the trench.

e) All metal parts inside the trench shall be connected to the earthing system.

f) The covers of the slab are also of RCC with ratio mixing1:2:4.The thickness of the slab shall be 75 mm (MS Rods to be used 8mm), The MS rods to be used shall be placed at 100 mm centre to centre both way and properly bided .The cover slab shall have provision of lifting hooks at two points for easy lifting of the slabs.

g) Cables are to be laid in neat lines and at suitable levels. Their depth below ground level will depend upon the voltage associated with the cables but in all cases the excavation must provide a clear trench. Sand filling below, around and above the cables will always be required and protection covers or tiles /bricks will be placed in position over the sand filling before final backfilling to the ground level.

h) All foundations shall be designed in accordance with the provisions of the relevant parts of latest revisions of IS 2911 and IS 456. Type of foundation system i.e. isolated footing, raft or piling shall be decided based on the load intensity and soil strata.

6.1. The contract will be on the turnkey basis and all the required materials as per specifications are to be procured by the contractor himself. The specifications for the major equipment to be procured are as follows :

a) XLPE Cables of above size as per specifications enclosed.

b) Cable jointing termination and straight through kits as per specifications enclosed.

6.2. All the other materials like coarse and fine aggregate sand, joint markers, sealing, route markers, cable support clamps, terminals and inline connectors, sealing compounds etc., whether specifically mentioned or not in these specifications are deemed to have been included in the scope of supply and installation. Similarly, the contractor has to arrange for all the tools and plants required for the works at his own cost.

7.0. SERVICE CONDITIONS :

7.1. The cables are being laid in Bhubaneswar of Khurda district, Odisha, where temperature, humidity effect is heavily experienced.

7.2. The climatic conditions are prone to wide variations in ambient temperature, humidity etc., and the accessories offered shall be suitable for installation under the above tropical conditions, where moderately hot and humid conditions conducive to dust, rust and fungi growth, prevail at site.

8.0. CLIMATIC CONDITIONS

Climatic conditions		
Sl No	**Particulars**	**Details**
1	Location	Bhubaneswar in Odisha
2	Altitute	Not exceed 100 M above MSL- Almost at the Sea level
3	Max. Ambient air temperature :	45º C
4	Max. Daily average air temp :	38 º C
5	Minimum ambient air temp :	10 º C (Max) 5 º C (Min)
6	Ground temperature at depth of laying assumed :	35 º C (Max)
7	Isoceraunic level :	45
8	Avg. annual rainfall :	1450 mm
9	Avg. number of rainy days per annum	60
10	Climate :	The climate in the coastal city of Bhubaneswar is Tropical moderately hot and humid. sub- soil water at certain location at depth of burial of cables may be anticipated .
11	Soil :	Normally dry

9.0. COMPLIANCE WITH REGULATIONS :

9.1. All services carried out by the bidder / sub contractor shall be as per the requirements of the I.E.Act-2003 & Indian electricity Rules – 1956, OERC and all other applicable statutory laws governing the services in the state of Orissa

9.2. Particular attention is drawn to the necessity of consulting the local authorities and the administrative heads concerned with the operation and maintenance of roads, railways, telegraph and telephone services, water supply and sewerage and other public utilities.

10.0. INSPECTION BY ELECTRICAL INSPECTOR

10.1. All Electrical installations and equipments are to be inspected and approved by the Chief Electrical Inspector to the Government of Orissa, before commissioning.

10.2. The Contractor will arrange for the payment of the necessary fees for inspection.

10.3. Any defects pointed out by the Electrical Inspector, shall be corrected or attended by the bidder /subcontractor at his own cost and he shall pay, for subsequent inspection charges to the Electrical Inspector, for obtaining approval.

11.0. INSTALLATION OF U.G. CABLES

11.1. Method Of UG Cable Laying :

Laying of 11KV 3 Core 400 mm^2 XLPE UG Cables shall be laid in open trench & Brick masonry work with slab in usual conventional methods, on bedding free from large stones, pieces of rocks, etc., **Cable trench should be 0.5 meter width x 1meter depth, with RCC cover & sand filling for the protection of cable as per IS 1255-1983**. And cable should drawn in pipes of ducts wherever necessary. Cable loop chamber of size 4 meter dia & the chamber should filled with sand and RCC slab arrangement for cable protection.

11.2. ROUTE PLANS: Tentative cable route plans will be furnished to the contractors, indicating the roads road crossings, findings by excavating trial holes by the contractor. The work should be taken upon only after CESU Engineers approve the final route. The CESU reserves the right to change, alter deviate the route on technical reasons.

11.3. TRIAL PITS : The bidder shall excavate trial pits, for alignment purpose at appropriate distance apart as warranted by the local conditions, keep a record of the findings and close the trial holes properly to avoid hindrance / accidents to pedestrian traffic. The final route / alignment of the cables shall be decided based on the finding of the trial holes.

11.4. It is the responsibility of the bidder to maintain as far as possible the required statutory clearances from other utility services.

11.5. Any damage caused, inadvertently to any utility services shall be the sole responsibility of the contractor.

12. LAYINGOUT THE CABLE :

12.2. 11KV 3 Core 400 mm^2 XLPE UG Cables:

The cable shall be laid smoothly in the Open trench as per the standard specifications. The excavated cable trench shall be drained of all water and bed surface shall be smooth, uniform and fairly hard before laying out the cable. The cable shall be laid in the trench only on cable rollers spaced out at uniform intervals to prevent damage to cable. The laying out process shall be smooth and steady, without subjecting the cable abnormal tension. The cable laid out shall be smoothly and evenly transferred to the ground after providing sand cushion and shall never be dropped. All the snake bends in the cable shall be straightened out.

12.3. Loop Cable: One complete loop of the cable has to be kept at each jointing point and termination point.

13. FLAKING

Wherever it is not possible to lay of the entire cable drum length, the cable should be cut and properly sealed and if it is necessary to remove the cable from the drum, it should be properly flaked. Such cable lengths should be properly stored at site.

14. CABLES AND OVER BRIDGES :

14.2. Wherever the cable route crosses bridges the cable shall be laid in the ducts, if provided, by removing and replacing the R.C.C. covers and filled with sand cushion.

14.3. In the absence of the cable ducts over bridges, the cable shall be laid in suitable size steel/G.I. pipes or as directed by the engineer-In-charge and the pipe covered by cement concrete if necessary to protect from direct sunrays.

15. CABLE CROSSING OPEN DRAINS WITH LONG SPAN :

15.2. Wherever the cable to cross open drains with a long span, the cable shall be laid in suitable size G.I. pipe, properly jointed with suitable collars. The GI pipe shall be firmly supported on pillars, columns, or suitable support of R.C.C. foundation with stone masonry in cement mortar 1:4

15.3. Wherever the U.G. cable has to cross the sewerage or water supply line the U.G. cable has to be taken below them maintaining adequate clearance. Further wherever the U.G. cable runs parallel to the telephone cable a separation distance of at least 300-mm shall be maintained.

15.4. The cables shall be laid in stoneware pipe wherever the cable and trench crosses private roads, gates, etc. In order to avoid inconvenience the stoneware pipe should be laid first after excavation and excavated trench shall be back filled, compacted and surface properly redone to restore that original condition.

16. CABLE AND JOINT MARKERS

16.2. Permanent means of indicating the positions of joints on site should be provided. During the course of permanent reinstatement cable and joint markers, should be laid directly above the route of the cable and the position of the joint respectively.

16.3. Wherever it is not possible to place the marker directly over the cable route or joint the marker should be suitably placed near the cable route or joint on which the distance of the cable route or joint at right angles to and parallel to the marker should be clearly indicated.

16.4. The position of fixing the markers will be at the discretion of the Engineer-In-charge.

17. JOINTING OF CABLES

17.2. **GENERAL**: It shall be noted that the U.G. cables are of XLPE insulation and needs special care in jointing. The cable jointer and his assistant shall have experience in making joints / terminations. Jointing work should commence as soon as two or three lengths of cables have been laid. All care

should be taken to protect the factory-plumbed cap/seal by laying the end solid in bitumen until such time as the jointing is commenced.

17.3. Jointing of cables in carriage ways, drives, under costly paving, under concrete or asphalt surfaces and in proximity to telephone cables and water mains, should be avoided whenever possible.

17.4. JOINT PITS: The joint pits should be sufficient dimensions as to allow jointers to work with as much freedom of movement and comfort as cables proposed to be jointed. The sides of the pit should be draped with tarpaulin sheet to prevent loose earth from falling on the joint during the course of making. The pit should be well shored with timber, if necessary. An overlap of about 1.0 mtr of the cables to be jointed may be kept, for allowance to adjust the position of the joint. When two or more cables are laid together the joints shall be arranged to be staggered by 2 to 2.5 mtr.

17.5. SUMP PITS: When jointing cables in water logged ground or under monsoon conditions, a sump pit should be excavated at one end of the joint pit in such a position so that the accumulating water can be pumped or bailed out by buckets without causing interference to the jointing operation.

17.6. TENTS: A tent should be used in all circumstances wherever jointing work is carried out in the open irrespective of the weather conditions. The tent should be so covered as to have only one entrance and the back facing the direction of the wind. The tent cover should be properly weighted or tied down on the sides.

17.7. MEASUREMENT OF INSULATION RESISTANCE: Before jointing is commenced the insulation resistance of both sections of the cable to be jointed should be checked by insulation resistance testing instrument. An insulation resistance – testing instrument of 2.5/5 kV shall be used. The Insulation Resistance values, between phases and phase to earth shall be recorded. The actual jointing operation shall start only after the approval of the engineer in charge of works.

17.8. PRECAUTIONS BEFORE MAKING A JOINT OR CUTTING A CABLE.

The cable end seals should not be opened until all necessary precautions have been taken to prevent circumstances arising out of rainy/inclement weather conditions, which might become uncontrollable. The cable seals should be examined to ascertain if they are intact and also that the cable ends are not damaged, if the seals are found broken or the lead sheath punctured, the cable ends should not be jointed until after due examination and testing by the engineer-in-charge of the works.

17.9. PRECAUTIONS TO BE TAKEN ON LIVE CABLES IN SERVICE

Sometimes it becomes necessary that a H.V. cable, which is in service, be cut for making a straight joint with a new cable. In such cases work on joint should start only after the in service cable is properly identified, isolated, discharged, tested and effectively earthed. Search coils interrupters or cable-identifying instruments should be used for this purpose.

17.10. IDENTIFICATION NUMBERS / COLOURS AND PHASING : The cables should be laid and jointed number to number or colour to colour shown on the core identifying marks and prevent cross jointing. In all cases, the cables should be tested and phased out, and more particularly so when the cable terminates at Ring Main Unit / Sub-station.

17.11. **MAKING A JOINT:** The Heat shrinkable joints used shall be confirm to the specification vide Sec-viii. Alternatively push-on or Tapex or cold shrinkable type can be used with the approval of CESU. The contractor should furnish all the technical particulars of these joints and obtain approval only in case they are found superior to the heat shrinkable joints. Epoxy based joints are not permitted. Comprehensive jointing instructions obtained from the manufacturer of joint kits shall be meticulously followed. The connection of the earth wires should be done using flexible bonds connected to cable sheath using clips or soldering. Aluminum conductor strands shall be joined be joined by mechanical compression method, using suitable die and sleeve with a good quality tool. The joints shall conform to specification as per IS 13573-1992.

17.12. **TRANSITION JOINTS:** Wherever straight through joints will have to be made with existing cables under the following conditions, the contractor shall arrange such type of joints and execute them with skilled jointers.

(1) Between cables having two different types of insulation viz., paper and XLPE
(2) Between cables having two different types of conductor material, viz. copper and aluminum.
(3) Or a combination of the above

The transition joints shall conform to IS 13705 – Transition joints for cables for working voltages from 1.1 KV upto and including 33 KV – performance requirements and type tests.

17.13. **CABLE TERMINATIONS:** Cable terminations required are both indoor and outdoor type and invariably be of heat shrinkable type conforming to the specifications vide Sec-viii. Alternatively push-on or Tapex or cold shrinkable type can be used with the approval of CESU with appropriate sheds for rainwater in case of outdoor terminations. All the technical particulars to establish the superiority in the performance of these joints shall be furnished while seeking approval. The terminations shall conform to specifications as per IS 13573 – 1992. The instructions furnished by the manufacturer of termination boxes/kits should strictly be followed.

17.14. Whenever a cable raised from the trench to end in termination, to be finally connected to an overhead line or transformer, the following instructions should be complied with –

(i) One coil to made and left in the ground for future needs

(ii) The rise of cable, immediately from the ground level should be enclosed in suitable diameter GI pipe to height of 2 mt.

(iii) The balance portion of the cable should be neatly curved, in ‘S’ shape.

(iv) The cable and pipe should be properly fastened by using appropriate clamps /support. The hardware of clamps shall be painted with red oxide and enamel paint or galvanized.

(v) The lugs on the termination shall be compressed with a suitable compression tool.

18. EARTHING AND BONDING

18.1. The metal sheath and Armour should be efficiently bonded and earthed at all terminals to earth electrodes provided. The cross sectional area of the bond shall be such that the resistance of each bond connection shall not exceed the combined resistance of an equal length of the metal sheath and Armour of the cable.

19. TESTING AFTER LAYING AND JOINTING

19.1. All cables after laying and jointing works are completed should be tested systematically and insulation and pressure tests should be made on all underground cables.

19.2. All test results should be recorded in tabular form in logbooks kept for the purpose

19.3. The cable cores should be tested for :-

(i) Continuity
(ii) Absence of cross phasing
(iii) Insulation resistance to earth; insulation resistance between conductors.

20. H.V. TESTS

20.1. After the laying and jointing work is completed, a high voltage test should be applied to the cable to ensure that the cable has not been damaged during or after the laying operations and there is not defect in the joining

20.2. The high voltage tests should be as per IS 1255 or as per international standards. The H.V. testing instruments shall be brought by the turn key contractor.

21. TESTING AND RECORD OF CABLE CONSTANTS :

21.1. When the cable is ready, just before commissioning, the cable constants viz, the resistance, capacitance and inductance of each conductor should be determined and recorded, along with frequency at which the values of capacitance and inductance are determined.

22. GUARANTEE

22.1. All the cable joints / termination done by the contractor shall be guaranteed for 24 months from the date of energisation of the complete cable. In the event of failure during the guarantee period, the restoration work shall be done free of cost by the contractor within 24 hours of giving notice or else the expenditure incurred by CESU to re-do the joint / termination will be recovered from the performance guarantee amount held with the CESU.

23. CABLE RECORDS

23.1. Accurate neat plans / sketches, drawn to suitable scale (1 cm = 10M) should be prepared and furnished by the contractor after the completion of each work.

23.2. All relevant information should be collected at site, during the progress of work and preserved for preparation of drawings.

23.3. The following essential data should be incorporated on all drawings

a) Size, type of cable or cables.
b) Location of the cable in relation to prominent land mark property, Kerb-line etc., with depths.
c) The cross section showing where cables are laid in piper or ducts, giving their sizes, type and depths.
d) Position and type of all joints
e) Location of other cables which run alongside or across the cable route.
f) Position and depths of all pipers, ducts, etc., which are met as obstruction to the cable route.
g) Accurate lengths from joint to joint
h) Manufacturers name and drum number of the cable, between sections / joint to joint.

Two transparencies and six blue print copies of the cable records prepared as above shall be given to the CESU's engineer as a part of the contract as soon as the cable is charged.

SECTION –II

Technical Specification of Major materials

1. TECHNICAL SPECIFICATIONS FOR 11KV, 300mm2 XLPE INSULATED UG CABLE

❖ SCOPE :

- The scope of this specification covers the design, manufacture, stage inspection at works, inspection and testing the finished cables **6.35 /11KV aluminum conductor. Three Core, 300 mm², XLPE insulated screened, underground ISI marked power cables (Extruded type) (H4 grade) at manufacturer's works.**

❖ RATED VOLTAGE

- The rated voltage of the cable shall be 11000 Volts AC with the highest system voltage of 12000 Volts between phases of the effectively earthed three phase-distribution system.

❖ APPLICABLE STANDARDS:

- Unless otherwise stipulated in the specifications, the latest version of the following Standards shall be applicable.
  a. IS 8130/ 84 – Conductors for Insulated electrical cables and flexible cords
  b. IS 10810 (series) – Methods of tests for cables
  c. IS 10418 – Drums for electrical cables.
  d. IS 7098 (Part 2), 2011 – Cross – linked Polyethylene Insulation for Cables.
  e. IS 3975 – Specification for mild steel wires, strips and tapes for armoring of cables.
  f. IS 5831 – Specification for PVC insulation sheath for electric cables.
  Dimensions of protective coverings of cables
  Part 1 – Elastomeric and thermoplastic insulated cables.
- The Cables manufactured to any other Internal Standards like BSS, IEC or equivalent standards not less stringent than Indian Standards are also acceptable. In such cases, the Bidders shall enclose a copy of the equivalent international standard, in English language, along with the bid.

❖ CONSTRUCTION:

- Conductor :- The conductor shall be composed of compacted circular aluminum wires complying with IS 8130/84.
- Insulation : - The insulation shall be cross linked polyethylene conforming to the following requirements.

Sl. No.	Properties	Requirements
1.	Tensile Strength	12.5N/mm2, Min.
2.	Elongation to break	200 percent, Min
3.	Aging in air oven : Treatment : Temperature Duration	135 ± 3^0 C 7 Days
	Tensile Strength variation :	+ 25 percent, Max
	Elongation variation:	+ 25 percent, Max

4.	Hot set : a) Treatment : Temperature: Time under load Mechanical stress	$200 + 3^0$ C 15 min 20N/cm2
	b) Elongation under load	175 percent, Max
	c) Permanent elongation (set) after cooling	15 percent, Max
5.	Shrinkage: a) Treatment : Temperature Duration	$130 + 3^0$ C 1 hour
	b) Shrinkage	4 percent, Max
6.	Water absorption (Gavin metric) : a) Treatment : Temperature Duration	$85 + 2^0$ C 14 days
	b) Water absorbed	1 mg / cm2, Max
7.	Volume Resistivity a) at 27^0 C b) at 90^0 C	 1 x 10 14 ohm-cm, Min 1 x 10 12 ohm-cm, Min

- The screening shall consist of non-metallic semi conducting compound and copper tape, shielded cores laid up with fillers, inner sheath of extruded PVC, Galvanized steel strip Amour and PVC ST-2 overall sheath.
- The cables should be suitable for use in solidly earthed system.
- The 6.35/11KV underground cables shall be manufactured to the highest quality, best workmanship with scientific material management and quality control. The bidder shall furnish the quality plan, giving in detail the quality control procedure / management system.
- The successful Bidder shall give sufficient advance notice to the purchaser of not less than fifteen days to arrange for stage inspection and inspection of quality assurance program during manufacture, at the works.

❖ SYSTEM DETAILS

General Technical particulars

General Technical particulars		
Sl No	Particulars	Values
1	Nominal system voltage (rms) (U)	11KV
2	Highest system voltage (rms) ($U_{m)}$	12KV
3	Phase to Earth voltage (rms) (U_0)	6.35 KV
4	Number of Phase	3
5	Frequency	50Hz
6	Variation in Frequency	+ / - 3%
7	Type of Earthing	Solidly Earthed
8	Basic impulse insulation level (1.2/50 µS wave)	75 KV
9	Total relay & circuit breaker Operating time	15-20 cycles
10	One Minutes power frequency withstand voltage	28 KV rms

❖ INSTALLATION CONDITIONS :

- The cables are laid directly buried in ground, in the bores formed by horizontal boring method. The Nominal depth of laying is up to 2000 mm (from top, of ground to centre of cable).However, in trenchless horizontal bore method, the bore can go up to a depth of a maximum of 2 meter. Nature of soil is heterogeneous, sandy, Soil resistivity varies between 18 to 100 ohmmeter and the Thermal resistivity is around 1200 to 1500 C/ Cm/w.

❖ CLIMATIC CONDITIONS :

- The climatic conditions where these 11KV cables will be installed are as under :

Climatic conditions		
Sl No	Particulars	Details
1	Location:	Cuttack, Orissa
2	Altitude	As is coastal area, altitude will Not exceed 100 M above MSL.
3	Max Daily average air temp :	$45\ ^0C$
4	Minimum ambient air temp :	$10\ ^0C$
5	Ground temperature at depth of laying assumed :	$350\ ^0C$ (Max) $50\ ^0C$ (Min)
6	Iso ceraunic level	45
7	Avg. annual rainfall :	2500 mm
8	Avg. number of rainy days per annum:	90
9	Climate:	Tropical moderately hot and humid. Likely hood of subsoil water at certain location at the depth of burial of cables..
10	Soil :	Normally wet

❖ DESIGN CRITERIA :

- The cables that are covered in these specifications are intended for use in the Coastal belt of state of Orissa for Power distribution purposes, under the climatic conditions and installation conditions described in the technical specification.
- Any technical features, not specifically mentioned here, but is necessary, for the good performance of the product, shall be incorporated in the design. Such features shall be clearly brought out under Technical deviations schedules only, in the offer made by the bidder, giving technical reasons, and justifying the need to incorporate these features.'
- For continuous operation of the cables, at specified rating, the maximum conductor temperature shall be limited to the permissible value as per the relevant standard, generally not exceeding 90°C under normal operation and 250°C under short-circuit conditions.
- The cables in service will be subject to daily load cycles, of two peaks during a day; morning peak and evening peak, with around 50% loading during the nights.
- The materials used for outer sheaths shall be resistant to oils, acids and alkalis.
- The cables shall have the mechanical strength required, during handling and laying.
- The cables shall be designed to withstand the thermo-mechanical forces and electrical stresses during normal operation and transient conditions.
- The cables shall be designed to have a minimum useful life span of Thirty years.

- ❖ **MANUFACTURE PROCESS:**
  - Cross-linking of the insulation materials (pre compounded polyethylene) shall be conforming to IS :7098 (Part-II),2011
  - The conductor screen shall be extruded semi conducting compound. The insulation screen shall consist of the nonmetallic part, extrude semi conducting compound with non-magnetic metallic part. The XLPE insulation and the shield for conductor and insulation shall be extruded in one operation.
- ❖ **MATERIALS**
  - Conductor: - The conductor shall be of standard construction. The material for conductor shall consist of the plain aluminum of H4 grade as per clause – 3 of IS 8130 / 1984.
  - The Number of wires in the conductor, shall be not less than the appropriate minimum number given in table– 2 of IS 8130 / 1984.
- ❖ **SCREENING** :
  - The conductor screening shall be provided over the conductor by applying water swellable tape followed by non-metallic semi-conducting compound. The metallic screen shall withstand the operating temperature of the cable and shall be compatible with the insulating material.
  - The insulation screen shall be applied over the insulation. The insulation screening shall consist of two parts; namely metallic and non-metallic. The non-metallic part shall be applied directly over the insulation of each core and shall consist of a extruded semi conducting compound with a semi conducting coating. The metallic part of the insulation screen shall consist of either tape, or braid, or concentric serving of wires or a sheath; shall be non-magnetic and shall be applied over the non-metallic part.
- ❖ **CORE IDENTIFICATION:**
  - The core identification for 3 core cables shall be provided, by suitable means, like, by application of colored stripes, or by numerals or by printing on the cores as per clause 13 of IS : 7098 – Part 2,2011
  - For identification of different coloring of XLPE insulation, or by using colored strips, red, yellow and blue colors respectively shall be used to identify the phase conductors.
- ❖ **LAYING UP OF CORES:**
  - For multi core cables, the cores shall be laid together with a suitable right hand lay. The interstices at the center shall be filled with a non-hygroscopic material.
- ❖ **INNER SHEATH (COMMON COVERING)**
  - The laid up cores shall be provided with inner sheath applied either by extrusion. It shall be ensured that the shape is as circular as possible. The inner sheath shall be so applied that it fits closely on the laid up cores and it shall be possible to remove it without damage to the insulation.

  - The thickness of the inner sheath (common covering) shall be given as follows:

Calculated diameter over laid up cores in accordance With 15.3 of IS 10462 (Part 1) – (mm)		Thickness of inner sheath (mm)
Over	Up to and including	
-	25	0.3
25	35	0.4
35	45	0.5
45	55	0.6
55	-	0.7

When one or more layers of binder tapes are applied over the laid up cores, the thickness

of such tapes shall not be construed as a part of inner sheath.

- For multi core cables, the interstices at the center shall be filled with a non-hygroscopic material. The interstices around the laid up cores shall be covered with PVC compound type ST-2. This will form the Inner sheath for multi core-single core cables.

❖ ARMOURING:

- Armoring shall be applied over the inner sheath as closely as practicable.The Armour shall be galvanized steel strip complying with the requirements of IS 3975. A binder tape may be applied on the Armour. The direction of the lay of the amour shall be left hand. For double armored cables, this requirement applies to the inner layer. The outer layer shall be applied in the reverse direction to the inner layer, and there should be a separator of the non hygroscopic material; such as plastic tape, bituminized cotton tape, rubber tape, proofed tape between inner and outer layers of Armour.
- The dimensions of galvanized steel strips shall be as below:

Calculated diameter over Amour [IS 10462 Part 1] (mm)		Nominal thickness of Steel Strip(mm)
Over	Upto and including	
-	13	-
13	25	0.8
25	40	0.8
40	55	1.4
55	70	1.4
70	-	1.4

- The joints in the strips shall be made by brazing or welding and the surface irregularities removed. A joint in the strips shall not be less than 300 mm away from the nearest joint in any other strip in the completed cable.
- Bidders shall furnish the calculation / data sheet for the short circuit carrying capability of the Armour.

❖ OUTER SHEATH :

- The outer sheath over the Armoring shall consist of FRLS poly vinyl chloride (PVC) compound, conforming to the requirements of type ST-2 of IS 5831.Suitable additives shall be added to give anti termite protection.
- The minimum thickness of the PVC outer sheath shall not fall below the following value by more than 0.2 mm + 0.2 ts

Calculated diameter under the outer sheath [IS 10462 Part 1] - mm		Nominal thickness of the Outer sheath (ts) - mm
Over	Upto and including	
-	15	1.8
15	25	2
25	35	2.2
35	40	2,4
40	45	2.6
45	50	2.8
50	55	3
55	60	3.2
60	65	3.4
65	70	3.6
70	75	3.8
75	-	4

IDENTIFICATION :

- The outer sheath shall have the following information embossed or indented on it; the manufacturer's name or trade mark, the voltage grade, confirming to IS:7098 part-2/2011,the year of manufacture and the letters "CESU". The identification shall repeat every 01 meter along the length of the cable.
- **Note:** The outer sheath of the cable should be embossed with "CESU".

❖ INSPECTION AND QUALITY CONTROL :

- The Bidder shall furnish a complete and detailed quality plan for the manufacturing process of the cable. All raw materials shall conform to relevant applicable standards and tested for compliance to quality and requirement. During the manufacturing process, at all stages, inspections shall be made to check the physical and dimensional parameters, for verification to compliance to the standards. The bidder shall arrange, for inspection by the purchaser, during manufacture, if so desired by the purchaser, to verify the quality control process of the Bidder.

❖ TYPE TESTS :

- The offered cables with same designs shall have been type tested and Test certificates shall not be later than 5 years on the date of bid opening. Otherwise the supplier / Turnkey contractor shall arrange for type testing at his own cost.. The supplier /Turn Key contractor shall conduct all type tests as per IS : 7098 part-II 1985, with up to date amendments or equivalent International standard, and supplies made only after approval of test reports from the purchaser. The type test report should be from Recognized NABL Accredited Laboratory shall be accepted for this tender. Any Test Report / Certificate from any non NABL Accredited Laboratory / organization shall not be accepted.
- **The following type tests report should be consist of following data**
  (a) Test on conductor.
  (b) Test on Amour.
  (c) Test for thickness of XLPE insulation and inner and outer sheaths
  (d) Physical test on XLPE insulation.
  (e) Physical test for outer sheath
  (f) Bleeding and blooming test for outer sheath
  (g) Partial discharge test.
  (h) Bending test
  (i) Di-electric power factor test
    i. As a function of voltage
    As a function of temperature
  (j) Insulation resistance (volume resistivity) test
  (k) Heating cycle test
  (l) Impulse withstand test
  (m) High voltage test
  (n) Flammability test

- The following test shall be performed successfully on the same test sample of completed cable, not less than 10 M in length between the test accessories:
  I. Partial discharge test
  II. Bending test followed by partial discharge test
  III. Dielectric power factor as a function of voltage.

IV. Dielectric power factor as a function of temperature
V. Heating cycle test, followed by dielectric power factor as a function of voltage and partial discharge tests.
VI. Impulse withstand test
VII. High voltage test.

❖ ACCEPTANCE TEST:

- The sampling plan for acceptance test shall be as per IS 7098 part-II, Appendix 'A'
- The following shall constitute the acceptance test.
  a) Tensile test for aluminum
  b) Wrapping test for aluminum
  c) Conductor resistance test
  d) Test for thickness of insulation
  e) Test for thickness of inner and other sheath
  f) Hot-set test for insulation
  g) Tensile strength and elongation at break test for insulation and outer sheath.
  h) Partial discharge test (on full drum length).
  i) High voltage test.
  j) Insulation resistance (volume resistivity test).

❖ ROUTINE TEST :

- The following shall constitute routine tests :
  a) The following shall constitute routine tests:
  b) Conductor resistance test
  c) Partial discharge test on full drum length
  d) High voltage test.

❖ PACKING :

- The cables, as per specified delivery lengths, shall be securely wound /packed in non-returnable, well seasoned sturdy wooden drums, with strong reinforcement so as so to withstand rough handling during transport by rail, Roads etc., The packing should withstand storage conditional in open yards. The cable drums shall conform to IS 10418 1982 or equivalent standard.
- The drawings of the cable drums with full detail shall be furnished, and got approved before dispatch.

❖ SEALING OF CABLE ENDS ON DRUMS :

- The cable ends shall be sealed properly so that Ingress of moisture is completely prevented. The individual core endings shall be sealed effectively with water resistant compound applied over the core ad provided with a heat shrinkable or push-on or Tapex or cold shrinkable type cap of sufficient length with adequate cushion space so that the conductor does not puncture the cap in case of movement of the core during unwinding or laying. Before sealing, the semi conducting layer on the cores may be removed for about 2 mm at each end, to facilitate checking the insulation resistance from one end, without removing the sealing cap at the other end.
- The three cores should have an overall heat shrinkable or push-on or Tapex or cold shrinkable type cap with adequate end clearance, and sufficient cushioning to prevent puncturing of the overall sealing cap due to stretching of the cores. The sealing cap shall have sufficient mechanical strength and shall prevent ingress of moisture into the cable. The ends of single core cable shall also be sealed on the same lines to prevent entry of moisture.

❖ **CABLE LENGTHS** :

- The cables shall be supplied in continuous lengths of 250M in case of 3 core cable with tolerance of + or – 5% of drum length.
  It is preferable to manufacture the cable to required lengths as required by the field conditions to have minimum joints. The turn key contractor will furnish the required drum lengths in advance

❖ **QUANTITY TOLERANCE**

A +3% tolerance shall be allowed on the ordered quantity.

❖ **MARKING:**

- The packed cable drum shall carry the following information, clearly painted or stenciled
  a) The letters **CESU , Odisha**
  b) **Reference to Standard and ISI mark**
  c) Manufacturer's Name or trade mark.
  d) Type of cable & voltage grade
  e) Number of cores
  f) Nominal cross-sectional area of conductor.
  g) Cable code
  h) Length of cable on the drum
  i) Direction of rotation
  j) Gross weight
  k) Country of Manufacture
  l) Year of Manufacture
  m) Purchase order and date

❖ **QUANTITY**

Tenderer may quote the quantity that they can offer immediately within a month of the issue of purchase order and the minimum time required to supply the full quantity.

- **ISI CERTIFICATION:** Manufacture having ISI certification marking will only be considered.
- **DRAWING & LITERATURE:** The following shall be furnished along with the tender
  - ✓ Cross sectional drawings of the cables, giving dimensional details for each size of cable.
  - ✓ An illustrated literature on the cable, giving technical information, on current ratings, cable constants, short circuit ratings, de-rating factors, for different types of installation, packing date, weights and other relevant information.

2.Technical Specification of HT cable joints and terminals

1. GENERAL:

The term heat shrink refers to extruded or molded polymeric materials which are cross linked to develop elastic memory and supplied in expanded or deformed size or shape. The manufacturer of kits besides stating the properties of each component of the kit as indicated below and as per the detailed specifications should also state the source of origin of each component viz; whether locally manufactured or imported in raw material form and processed.

The manufacturing activity carried out on each component should be stated. Also, in case the kit is assembled with components imported from two or more foreign suppliers, the manufacturers should give documentary proof supported by the foreign manufacturers confirming that the kit assembled utilizing components of different suppliers are guaranteed by them.

2. QUALIFYING EXPERIENCE:

The kits should have satisfactory performance record in India in excess of 5 years supported with proof of customers having had satisfactory use of these kits in excess of 5 years.

1.* HEAT SHRINKABLE MATERIAL:*

3.1. The heat shrinkable material component used in the joint shall have been produced in a systematic procedure as follows:

a) The required materials shall be mixed and extruded into the required shape and then cross- linked by irradiation or any other appropriate chemical process. The components are then warmed and stretched by a predetermined amount and allowed to cool in the extruded shape. The cross-linking shall create a memory and when heated again, the same shall come back to its original shape at which it was cross-linked. Heat shrinkable tubes can be reduced to 30% of its expanded dimension by heating.

b) The volume resistivity of the sleeves shall be 10^8 ohm-cm and the dielectric constant of

around 15 to 30. The limiting temperature shall not be less than 100℃ for longer duration and 250℃ for one minute.

4.0 TYPE TEST REPORTS:

The Joints and terminations should have been subjected to all the type tests and type test reports not later than 5 years on the day of Bid opening shall be furnished for verification.

5.0 ELECTRICAL CLEARANCES:

The electrical clearances required for a Indoor/Outdoor termination and a straight through joint is shall be as per standards

6.0 COMPRESSION TYPE TUBULAR TERMINAL ENDS:

The materials used in the terminals shall be Aluminum of grade 19501 conforming to IS 5082 - Specifications for wrought aluminum and aluminum alloys bars, rods, tubes and sections for electrical purposes. The finish inside the barrel shall either be suitably roughened throughout the crimping length of terminal end or provided with suitable grease based compound with abrasive action. Edges and corners shall be free from burrs and sharp edges. The terminals shall meet the requirements of IS 8309 - Specification for Compression type tubular terminal ends for aluminum conductors of insulated cables.

7.1 JOINT KITS*:*

The requirements contained in a typical joint Kit are as follows:

a) Heat shrinkable or push-on or Tapex or cold shrinkable type clear insulating tubes
b) Stress control tubing where necessary
c) Ferrule insulating tubing for joints.

d) Conductive cable break outs for terminations, non tracking, erosion and
e) Weather resistant tubing both outer / inner
f) Non tracking erosions and weather resistant outdoor sheds in case of terminations
g) High permittivity mastic wedge Insulating mastic.
h) Aluminum crimping lugs of ISI specification.
i) Tinned copper braids
j) Wrap around mechanical protection for joints.
k) Cleaning solvents, abrasive strips.
l) Plumbing metal.
m) Binding wire etc. adequate in quantity and dimensions to meet the service and test conditions.
n) The kit shall contain a leaflet consisting of detailed installation instructions and shall be properly packed with shelf life of over 3 years.

SPECIFICATIONS FOR MATERIAL PROPERTIES AND OTHER TECHNICAL REQUIREMENTS FOR HEAT SHRINKABLE CABLE TERMINATIONS AND JOINTS SUITABLE FOR 11 kV SCREENED CABLES/XLPE CABLES

1.0 GENERAL:

The term heat shrink refers to extruded or molded polymeric materials which are cross linked to develop elastic memory and supplied in expanded or deformed size or shape. The subsequent heating results in shrinking down to original size and shape. The manufacturer of kits besides stating the properties of each component of the kit as indicated below and as per the detailed specifications given in **Enclosures-I(A), I(B) & I(C)** should also state the source of origin of each component viz; whether locally manufactured or imported in raw material form and processed. The manufacturing activity carried out on each component should be stated. Also, in case the kit is assembled with components imported from two or more foreign suppliers, the manufacturers should give documentary proof supported by the foreign manufacturers confirming that the kit assembled utilizing components of different suppliers are guaranteed by them.

2.0 QUALIFYING EXPERIENCE:

The kits should have satisfactory performance record in India in excess of 5 years supported with proof of customers having had satisfactory use of these kits in excess of 5 years.

3.0 PERFORMANCE TESTING AT CPRI, BANGALORE:

The successful contractor/bidder should undertake the testing of termination and jointing kits at CPRI in the presence of CESU Engineers as per the performance type test sequence given below. For this purpose, the kit shall be selected by CESU Engineers in the manufacturer's premises and sealed by the Engineer before taking it to CPRI, Bangalore.

Typical atmospheric conditions during the tests		
Sl No	Particulars	Details
1	Amb. Temperature	Maximum 45^0 C
		Minimum 10^0 C
2	Atmospheric pressure	963 to 987 m. bar
3	Relative Humidity	50 – 90 %

GUARANTEED TECHNICAL PARTICULARS

1. GURANTEED TECHNICAL PARTICULARS 11KV, XLPE INSULATED UG CABLE

1. **CABLES**
   a) Manufacturer: (**Havells/Polycab/ Gupta Cables / Universal / KEI**)
   b) Trade Name
2. Type of Cable
3. Applicable specification & Standards
4. Voltage Class
5. Whether suitable for extrusion technique is employed in the manufacture of conductor screen
6. Whether triple extrusion technique is employed in the manufacture of conductor screen
7. Permissible voltage and frequency variation for satisfactory operation
8. Continuous Current Rating for standard conditions indicated in specifications:
   c) Air (45^0 C Ambient)
   d) In Ground (35^0 C)
   e) In Duct
   f) In Trench
9. De-rating factors for various laying conditions
10. Conductor
    a) Material
    b) Shape of conductor
    c) Nominal area of cross section
    d) Number of strands per core
    e) Diameter of Wire (before compacting and stranding)
    f) Diameter and size of conductor
11. Conductor Screening
    a) Type
    b) Material
    c) Nominal thickness
    d) Continuos working temperature
    e) Maximum allowable temperature at the termination of short circuit
12. Insulation
    a) Material
    b) Thickness of Insulation
    c) Thickness of Insulation between cores
    d) Thickness of Insulation between cores and inner sheath
    e) Tolerance of thickness in insulation
    f) Diameter of core over insulation

13. Specific Insulation Resistance at 90^0C
14. Process of curing
15. Whether XLPE Insulation filled or unfilled
16. Insulation Screening:
    a) Material Thickness
    b) Thickness of semi conducting part
    c) Thickness of metallic part
    d) Size of copper tape
    e) Whether overlapping provided
    f) Current carrying capacity for continuous rating
    g) Current carrying capacity for short circuit rating for 1 minutes
    h) Diameter of cable over screening
    i) Whether insulation screen is removable without the application of heat
17. Inner Sheath
    a) Material
    b) Extruded
    c) Minimum thickness
    d) Diameter of cable over inner sheath
18. Armoring:
    a) Material
    b) Type of Armoring
    c) Diameter of wire
    d) Whether galvanized
    e) Diameter of cable over Armoring
    f) Current carrying capacity of Armor
19. Outer Sheath:
    a) Material
    b) Minimum thickness of sheath
    c) Tolerance over thickness of sheath
    d) Overall diameter of cable
20. Scheme for identification of cable
21. Allowable/attainable maximum conductor temperature when carrying rated current continuously
22. Cable constants:
    a) DC Resistance per core 20^0 C
    b) AC Resistance per core at operating temperature
    c) Reactance
    d) Capacitance
    e) Insulation Resistance at 27^0C
    f) Loss tangent
    g) Dielectric constant – Maximum cable charging current at normal operating voltage
23. Factory Tests (Enumerate in detail for each type of cable)
24. Is the offered cable guaranteed to safely withstand continuous conductor temperature at 90^0C and also safely withstand temperature upto 130^0C for a duration of one hundred hours per year.
25. Are the offered Three core cable guaranteed to perform satisfactorily under installation conditions specified? If 'Yes' furnish relevant calculations in support including the following data:
    a) Induced voltage in the Amour when a 500 mtr long cable is carrying current
    b) Induced voltage and the circulating current in the copper tape

GTP-3: GTP FOR OUT DOOR TYPE 11 KV END TERMINATION KIT (HEAT SHRINKABLE TYPE)

Sl. No.	Description	Technical Particulars
1	Trade Brand / Name : Reychem	
2	Name & Address of Manufacturer	
3	Kits Fully Imported / Indigenous	
4	Kits Content Imported	
5	List of Imported Components	
6	Name & Address of Firm from whom components Imported	
7	Type Approval / Routine Test Reports on Imported Components	
8	No. of Years the Design is in Successful Commercial Operation	
9	Self Life of Kits in Indian Conditions	
10	Type Test Reports As per IS 13573-1992	
11	AC Voltage Withstand for 4 Hours(KV)	
12	Partial Discharge at 2 U0 (12.7 KV) pC	
13	Impulse Withstand Voltage in KV	
14	Tests on Components	

GTP NO 4	GTP OF 11 KV H/W Fittings		
Sl No	Description	Specified	Bidders Offer
1	Manufacturer Name & Address	To be specified by Bidder	
2	Standard Specification to which Hard ware Fittings shall confirm.	IS: 2486 (Part-I,II &II)	
3	Ultimate strength	4500 Kg (min.)	
4	Dimensions in accordance with	IS: 2486(Part-II)	
5	Type of washer thickness		
6	a) Spring	G.I as per IS:1570	
7	b) Flat		
8	Type of Clamp size		
9	Galvanized conform to		
10	Weight of Fittings		
11	Tolerance in dimension if any		
12	Manufacturer trade mark to be embossed on the sets		
13	Specific drawing to be enclosed.		

Volume – III

BID PROPOSAL SHEETS

Tender Notice No.PUR./TEND/02/2020-21 Dated 21.05.2020 of S.E, E.C-I, Bhubaneswar.

CENTRAL ELECTRICITY SUPPLY UTILITY OF ODISHA

OFFICE OF THE DY. GENERAL MANAGER (ELECT), ELECTRICAL CIRCLE No.1
POWERHOUSE, UNIT-VIII, BHUBANESWAR – 751012
Phone: 2392742, 2395273, Fax: 0674-2392742, E-mail: **sebbsr1@cescoOdisha.com**

VOLUME- III

PART-A

BID PROPOSAL SHEET (PRICE BID)

SlNo	Description of Materials	Unit	Quantity	Supply		Erection		Total
Part-A	1) Laying of 11 KV, 3Core, 300 mm², XLPE insulation armored UG cable through cable trench with spare cable (350 Mtr. x 2) = 700 Mtr. (2)Erection of LT 100x116mm 9 mtr. long RS Joist pole with stud pole = 1 No. (3) Erection of 100x116mm 9 mtr. long Rs Joist stud pole on 11KV pole = 2 No.			Unit Rate (Rs)	Amount	Rate (Rs)	Amount	
1	11KV 3x 300mm2 XLPE insulated armored UG cable with Spare i.e (350mtr x 2) Make: Havells/Polycab/ Gupta Cables / Universal / KEI	Mtr	700					
2	Straight through jointing kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core (Set)	Set	4					
3	Outdoor terminating kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core (Set)	Set	4					
4	Cable loop chamber Specification:- Diameter – 1.5 Mtr River sand filling – 100mm (FLG) On top of river sand PCC (1:3:6) = 100mm RCC Slab Cover (1:2:4) = 4 inch thickness Circumference brick wall = 10 inch thickness	No.	3	Inclusive				
5	G.I pipe	Mtr.	40					
6	Earthing device 40mm dia 3mtr	No	2					
7	Erection of earthing, Charcoal, Salt etc.	No	2					
8	40x6mm GI Flat	Kg	40					
9	100x116mm 9 Mtr. long RS Joist pole (support for LT line - 1 No. and Stud - 2 Nos)	No.	3					
10	100x50x6mm MS Chanel	Kg.	60					
11	11 KV GI Pin (Polymer type)	No.	3					
12	11 KV Pin insulator (Polymer type)	No	3					
13	11 K.V.Disc Insulator 90KN (Polymer type)	No	6					
14	11 K.V Hardware Fitting (Polymer type)	No	6					
15	Concreting of support	No	1					
16	Cooping of support	No	1					
17	Sundries	LS						
Part -B	DISMANTLING OF THE MATERIALS							
1	Dismantling of 25KVA ,11/04KV S/s with DP	No	1					
2	Dismantling of LT line	Span	6					
3	Dismantling of 11KV line	Span	5					
Part-C	Inspection	Inclusive						
	Total							

(Rupees……) only

- **NB: Any other items which are not mentioned in the above price bid may be referred at the scope of work of General Condition of Contract (GCC), Technical BID and BOQ.**

- **Bidders are required to enter their item wise rates in individual sheet for which he wants to submit their total bid.**
- **Bidders will be permitted to only enter the item wise rates. No other modification shall be permitted. Bidders are required to sign each and every page and enclose the same in the Price Bid in Sealed Condition.**
- **The rate is inclusive of GST & other taxes and duties.**
- **The above tender cost is inclusive of all works & charges towards Electrical Inspection of the total work by Electrical Inspector, Govt. Getting the whole work inspected and certified by Electrical Inspection after completion of work is the responsibility of the bidder / contractor.**
- **Regarding less quoting of price bid w.r.t tender estimated cost as per amendment of OPWD code**:

Additional Performance Security shall be obtained from the successful bidder who has quoted less bid price/ rate than the estimated cost put to the tender. In such an event only the successful bidder who has quoted less bid price shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security in shape of Demand draft / Term Deposit Receipt pledged in favour of CESU with validity same as the validity of CPBG for this tender within 7 (Seven) days from issuance of letter on L1 bidder before placement of work order, otherwise the bid shall be cancelled and security deposit (EMD) shall be forfeited and other consequential action may be taken against the bidder.

This security amount shall be released only after expire of validity of CPBG as mentioned in Clause 29.04 of GCC. The aforesaid amount shall not carry any interest payable to the bidder.

(Signature of the Bidder with date & seal)

Note :

a) **Any column left bank shall be treated as nil/inclusive of.**
b) **In the event of multiple prices quoted for the same item the lowest quoted rate for the item shall be considered for evaluation.**

Part-B

A. Materials to be supplied by the firm / contractor			
SL No.	**Description of materials**	**Unit**	**Qty**
1	11KV 3x 300mm2 XLPE insulated armored UG cable with Spare	Mtr	700
2	Outdoor terminating kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core	Set	4
3	G.I pipe	Mtr	40
4	Straight Through Jointing kit Heat shrinkable type suitable for 11 kV class, 3Core, 300 mm², HT UG Cable kits for 3-core	Set	4
5	Earthing device 40mm dia 3mtr	No	2
6	40x6mm GI Flat	Kg	40
7	100x116mm 9 Mtr. long RS Joist pole	No	3
8	100x50x6mm MS Chanel	Kg	60
9	11 KV GI Pin (Polymer type)	No	3
10	11 KV Pin insulator 90 KN (Polymer type)	No	3
11	11 K.V.Disc Insulator (Polymer type)	No	6
12	11 K.V.Hardware Fitting (Polymer type)	No	6