DISTRICT RURAL DEVELOPMENT AGENCY
KANDHAMAL, PHULBANI

TENDER NOTICE NO. 7494 , DTD. 14-12-2011

# BID

# DOCUMENTS

BIJU GRAMA JYOTI YOJANA (BGJY)
RURAL ELECTRIFICATION PROGRAMME
FOR THE YEAR
2011-12

*Project Director,*
*DRDA, Kandhamal*

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# INFORMATION TO BIDDERS

# INFORMATION TO BIDDERS

00.0 The Collector & District Magistrate, Kandhamal invites sealed bids from eligible interested bidders on two part bidding system on Turnkey Basic for construction of new 11 KV line, reconductoring of LT line, construction of distribution transformer of different capacity, construction of LT line, Providing service connection to BPL household, energisation of pump sets and fixation of one No. BGJY Board in each and every villages/habitations.

01.0 **INTRODUCTIONS**

01.01 The State Govt. of Orissa has launched "BIJU GRAMA JYOTI YOJANA" Rural Electrification Programme of the state government for electrification of villages / habitation which are not scheduled to be covered under Rajiv Gandhi Grameen Vidyutkaran Yojana (RGGVY).

01.02 Electrification of un-electrified / villages / habitations having population below 100 as per the 2001 census will be covered under this programme.

01.03 The scheme envisages Construction of New Sub-Stations / of the distribution system in order to cope with additional load, which may include.
a) Construction of New Distribution Sub-station
b) Re-conductoring of LT AB cable
c) Provision of LT less Transformer.
d) Provision of DT metering for energy audit.
e) Provision of XLPE AB cable for LT line.
f) Electrical service connection to the BPL households on the pattern of "Kutir Jyoti". Energisation pump sets and fixation of one "BIJU GRAMA JYOTI YOJANA" board in each and every village/habitation

02.00 **DEFINATION OF TERMS**
In construing this contract and the scope of work, the following words will have same meaning herein assigned to them unless there is something in the subject or context in context in consistent with such construction.

02.01 **Owner / Purchaser:**
The Owner / Purchase shall mean the Collector & District Magistrate, Kandhamal and shall include its legal representative, successors and assignees.

02.02 **Contractor:**
The "Contractor" shall mean the firm whose tender has been accepted by the owner and shall include its legal representatives, successors and assigness.

02.03 **Engineer In Charge**
The "Engineer in Charge" shall mean the Electrical Engineer in Charge of the work for owner or his authorized representative.

02.04 **Consignee:**
The "Consignee" shall mean the person authorized by the Collector & District Magistrate, Kandhamal to receive the materials, supervise and take measurement of the work.

02.05 **Site:**
The "Site" shall mean, the actual place of the proposed project as detailed in the specification or other place where work has to be executed under this contract.

02.06 **Specification:**
The “Specification” shall mean collectively all terms stipulated in the contract known as General conditions of contract and technical field requirement, technical specification and such amendments as may be made in the agreement pertaining to the method and manner of performing the work with respect of quantities and qualities of materials and workmanship to be furnished under the contract.

02.07 **Contract:**
The “Contract” shall mean and include the following documents:

Invitation to Tender
Instruction to Tender
General terms of Contract and Technical field requirement
Technical specification
Contract Agreement
Contract tender proposal including clarification letter
Letter of intend
Work Order
Agreement

02.08 **Commissioning:**
The “Commissioning” shall mean the first authorized operation of the equipment / installation after complection of erection, testing, initial adjustment, statutory approvals etc.

02.09 **Approved:**
The “Approved” shall mean the written approval of the Consulting Engineer / Engineer-in –charge.

02.10 **Months:**
Months shall mean the calendar month.

02.11 **Performance test:**
The “Performance test” shall mean all the tests as prescribed in the specification / ISS to be carried out by the contractor before taking over the installation by the owner.

02.12 **Final Acceptance:**
The “Final Acceptance” shall mean the owner’s written acceptance of the works performed under the contract after successful completion of performance & Guarantee Test and Commissioning.

06.05 Request for Bid Document through post will not be entertained, however Bid can be received through post but owner will not be responsible for any postal delay.

06.06 The Bids will be opened in presence of Bidders / Bidder’s representatives as per Guideline.

06.07 Bids without E.M. Deposit will be rejected outright. No adjustment of any previous deposit will be entertained. The E.M. Deposit shall be forfeited in case of withdrawal of bids after the last date of submission and / or non-acceptance of order.

07.00 **SUBMISSION OF TENDER**

07.01 Sealed tenders in duplicate together with descriptive and illustrative literature super scribing tender Notice No. and date of opening are to be submitted / sent by post to Collector & District Magistrate, Kandhamal, Orissa. However, owner will not be hold responsible for postal delay, if any, for non-receipt of Bid documents in time.

07.02. The Bidders are required to prepare their bid documents on the following manner.

07.03 Envelope – A – Bid security (EMD) in the form of Bank Draft for the specified value drawn in favour of "Project Director, DRDA, Kandhamal", payable at Phulbani.

07.04 Envelope B- Pre-Qualification data in appropriate schedule, experience in similar type of work in turnkey basis supported by clients letter and data on financial turn over during last 3(three) financial year, bidders liquidity capacity or access to liquidity supported by letter issued by a schedule Bank which shall have been issued within 6(six) months from the date of bid opening.

07.05 Envelope-C- the price offer shall be furnished items as Per Price Bid after proper filed survey.

The Bank instrument and other data as described above under each Para shall be kept in different marked envelopes A, B, C duly sealed and appropriately marked with Envelope Bid specification number, name of work. All the three sealed envelopes i.e. A,B and C shall be kept in a big envelope marked Envelope – D super scribing the bid specification no. Name or work and date of opening.

On the stipulated date / time the envelopes marked 'D' containing bids received shall be opened before all the representative of bidders present. Thereafter the relevant envelopes of marked A and B of each bidder shall be opened in order, if on opening envelope 'A' the bid security is prima face in order then the corresponding envelope 'B' will be opened and the same will be read out as necessary.

The sealed envelope 'C' containing price bids shall be kept in safe custody which shall be opened on a date / time to be intimated to all the bidders whose bids will be found to be substantially responsive after due check and scrutiny. During evaluation to find the responsiveness of bidders, the owner will have the right to seek and clarification that might be necessary. The bidders are expected to respond to such quarries within a reasonable time. However quarries of owner and bidders response shall not affect the eligibility criteria in any manner.

08.00 **PERFORMANCE BANK GUARANTEE:**

The Bidder will submit performance Bank Guarantee along with acceptance from any Nationalised / Scheduled Bank, encashable at Phulbani amounting 10% of total Contract value valid for 18 months from the date of completion of the work. No. interest will be allowed for the Performance Bank Guarantee submitted by the bidder.

09.00 **TERMS OF PAYMENT:**

(i) 80% of cost of materials and services along with 100% taxes and duties shall be paid within 30 days of successful commissioning of works and made operational along with charging of service connection of all BPL consumers.

(ii) Balance 20% shall be released within 30 days of taking over of works by the Electrical Engineer in charge duly certifying the system to be free of defects.

10.00 **PAYING AUTHORITY:**
Collector & District Magistrate will be paying authority.

11.00 **GUARANTEE:**
In the event of any defect in the materials arising out of inferior quality or raw materials and bad workmanship within a period of 18 months of execution of work, the Bidder shall guarantee to repair to the satisfaction of the owner the defective materials at site free of any cost. However if the contractor fails to do so within a reasonable time the owner reserves the right to effect repair or replacement and recover charges for repair or replacement from the bidder by encashment of performance Bank Guarantee.

12.00 **INSURANCE:**

12.01 All the materials shall have appropriate insurance cover from the time the same are out of the manufactures premises till work is completed.

**13.02.** **THIRD PARTY INSURANCE:**
The Contractor shall. Prior to commencement of the jobs under this Work order, take out a comprehensive insurance policy against any damage or loss or injury which may occur to any property or to any person or any employee or representative of any outside agency / company engaged or not engaged for the performance of the Service and arising out of the execution of the work or temporary work in carrying out of jobs under this work order.

**13.03** **SUPERVISION AND VERIFICATION OF QUANTITY OF MATERIALS & WORKS:**

13.04 The work after due completion under the supervision of Divisional Engineer (Elect.) Phulbani shall be inspected by competent authority of Electrical Inspectorate Govt. of Orissa. All arrangement for this inspection including deposit of statutory fees shall be the responsibility of the Contractor.

14.00 **COMMENCEMENT AND COMPLETION OF WORK:**
The work shall have to be commenced within such period so that the total work under this contract shall have to be compacted within a specified time (Maximum 90 days) from the date of placement or order. The phase wise completion period shall be intimated by the suCCCSSrll1 bidder to the Controlling office in due course. The bidder has to mobilize the erection term adequately to maintain target period for the total completion of' the work as per programme.

14.01 **PENALTY CLAUSE:**
In case the work is not compacted with in 3 months i.e. 90 day's from the date of work order the controller has to pay a penalty of 0.5% or the total value or work order for each month of delay subject to maximum or 5% of the Contract value which is to be deducted from the bill of the concerned contractor.

15.00 **PROGRAMME & SEHEDULE TO BE FURNISHED:**

The successful Bidder has to submit to Collector & District Magistrate for approval within 15 days from the dale of issue of order a detailed scheduled of programme in the form of Bar chart / GNATT Chart indicting various activities involving drawing scheduled of material procurement, testing, reliability runs / delivery etc. the Collector & District Magistrate reserves the right to call for further necessary detailed programme during currency of the contract so that he may able to follow up adequately the progress of work.

16.00 **SERVICE GUARANTEE**

16.01 **Work Completion:**
In no case, the successful bidder shall abandon the scheme till completion of the work, for the same successful bidder shall have to give an undertaking improper forms otherwise risk Purchase clause shall be applicable.

16.02 **Nature of Price(s)**
The quoted price shall be firm throughout the contract period including the extension period (s) if any. .[he price schedule should be properly filled up and submitted along with other documents falling which the tender shall be rejected. Any increase in price, taxes and duties beyond the scheduled period of the order will not be borne owner, if the delay is due to any failure on the pa11 of the Bidder.

16.03 **Quantity:**
The quantities mentioned in tender schedules arc provisional. The Owner reserves the right to vary the quantities while placing the order with + or -20% of tender Quantities.

16.04 **Risk Purchases:**
The time of completion of work stipulated in the purchase order shall be deemed to be the essence of the contract and if the Bidder fails to complete the work within the period prescribed for such delay the purchase shall be entitled to complete the work be nearest other substitute on the account and at the risk of bidder and Bidder shall be liable to compensate for any loss or damage which the purchase may sustain by reason of such failure on the part of the Bidder.

17.00 **USE OF CONTRACT DOCUMENTS AND INFORMATION**

(a). The contractor shall not without the purchaser's Prior written consent, disclose the contract, or any provision thereof, or any specification, plan, information furnished by or on behalf of the purchaser in connection therewith, to any person.

(b). The manufacturer shall not without the Purchaser's prior written consent, make use of any document or information except for purpose of performing the Contract.

18.00 **STATUTORY OBLIGATION AGAINST THE CONTRACT**
The contractor shall be responsible to comply with all statutory obligations arising out of the Law of the Land. The contractor should be duly registered with PF, J~ST Authority and the liability, for such payment to the concerned authority shall be entirely borne by them. They should mention in the application submitted for purchase of tender document, their PF, ESI Code No. / registration No.

No service Tax shall be paid to the contractor against this contract. The Work Contract Tax, if applicable also shall be not being paid. If service Tax/ Work Contract .Tax is applicable during the period of execution of:' the job the same shall be borne by the contractor. Utility shall not accept any responsibility whatsoever on the taxes and duties as stated above, the bidder is expected to take these into account in his price bid indicating their break up.

19.00 **RESERVATION:**

The purchaser reserves the right to deviate any of the terms and conditions stated herein and to split up the orders as and when necessary and reject any or all tenders without assigning any reasons whatsoever and does not bind himself to accept the lowest tenders.

20.00 **LEGAL JURISDICTION:**

Material pertaining to this order including it's execution from the placement of the order and if any disputes thereby the necessary judicious affairs and court case shall be within jurisdiction of Kandhamal District only.

23.00 **FORCE MAJEURE:**

The manufacturer shall be under no liability if he is prevented from carrying out any of his obligations by reasons of war, invasion hostilities (whether war declared or not) riots, civil commotion, mutiny insurrection, rebellion, revolution, accident, earthquake fire, floods, Govt. orders and / or restrictions (except power supply restriction), delay or inability to obtain materials due to import or other statutory restrictions or other cause beyond the reasonable control of the bidder.

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However, such force majeure circul11stances are to be intimated immediately and to be established subsequently with proper documents proofs to the entire satisfaction of the purchaser.

22.00 **PRE -BID CLARIFICATION:**

The owner may also modify the stipulating in the bidding documents on Its own, Bidders needing clarification shall forward their quarries to the owner well in advance. Clarification / modification if any shall be issued by the purchaser I owner to all the bidders who have purchased the bidding document in the form of addendum which shall, for all practical purposes be pan of bidding document,

23.00 **ACCEPTANCE OF ORDER:**

The **Collector & District Magistrate, Kandhamal** will communicate acceptance of Bid to the successful Bidder or his Authorized agent by a letter of intent/formal order. The successful bidder shall communicate the acceptance of the order along with performance Bank Guardant so as to reach the purchaser within 15 days from the date of issued of the said letter of intent/order. If the acceptance or order and the performance Bank Guarantee is not received within the above period, then the earnest money against the Tender is liable 10 he forfeited.

24.00 **GENERAL:**

24.01 Earnest Money in shape of DD/Bank Guarantee in favours of "**Project Director, DRDA, Kandhamal"** Must be from any Nationalised / Scheduled Bank payable at Phulbani.

02 Cost of Bidding Scheduled Contract Document = Rs. 10,400/- including VAT.

03 Date or beginning of sale of Bidding documents = Dt.15.12.2011, During office hours.

04 Last date and time of receipt of Bids = Dt.20.12.2011 Upto 3.00PM hrs.

05 Date and time of opening of bid (Tech.) = Dt.20.12.2011, at.3.30PM Hrs. in office of the **Project Director, DRDA, Kandhamal.**

06 Date and time of opening of bid (Financial) will be intimated to all responsive bidders after evaluation of technical proposal. ,

Owner reserves the right to cancel / withdraw the invitation for bids without assigning any reasons and shall bear no liability whatsoever consequent upon such a decision.

24.02 The Bidders shall be required to keep their offers valid up to 90 days from the date of opening or bids.

a. Telex. Telegraphic or in-complete offers shall be rejected outright.

b. The correspondences with regard to the above shall be made at the following address.

**Project Director**
**District Rural Development Agency,**
**Kandhamal**
**At./Po. Phulbani, PIN: 762001**

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# INSTRUCTION TO BIDDERS

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01.00 **SCOPE**

The collector & District Magistrate, Kandhamal invites sealed bids from eligible interested bidders on two part biding system on Turnkey Basis for construction of new 11 KV line, reconductoring of LT line, construction of Distribution transformer Center of different capacity, construction of LT line, Providing service connection to BPL house hold in the district of Kandhamal.

02.00 **COST OF BIDDING:**

The bidder shall bear all costs associated with the survey, preparation and submission of the bid and. collector & District Magistrate, Kandhamal hereinafter referred to as the Purchaser / Owner shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the hiding process.

03.00 **CONTENT OF BIDDING DOCUMENTS:**

The goods required, bidding procedures and contract terms are prescribed in the"" bidding documents, in addition to the invitation for bids, the Bidding documents include.

(a) General Conditions of Contract
(b) Qualification Requirements.
(c) Schedule of requirements.
(d) Technical specifications:
(c) Price Schedules & schedule of Bids.
(/) Earnest Money.
(g) Performance security form.

The bidder is expected to examine all instructions, forms, terms and specification in the bidding documents. Failure to furnish all information required as per the bidding documents, the bid so submitted shall come under non-responsive category and liable for rejection.

04.00 **CLARIFICATION OF BIDDING DOCUMENTS:**

A prospective Bidder requiring any clarification of the Bidding documents may notify the Purchaser I Owner in writing or by fax at the Purchaser's mailing address Indicated in the invitation for Bids. The Purchaser / Owner shall respond in walling to any request for clarification of the Bidding documents which it receives not later than 10 days prior to the deadline for the submission of bids prescribed by the Purchaser. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) shall be sent to all prospective Bidders who have purchased the bidding document.

05.00 **AMENDMENT TO BIDDING DOCUMENTS:**

05.01 At any lime prior \0 the deadline of final submission of bids, the Purchaser / Owner May, for any reason whether at his own, initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding documents by amendment.

05.02 The amendment shall be notified in writing or by fax or by E-mail to all prospective Bidders who have received the Bidding Documents and shall be binding on them.

05.03 In order to afford prospective Bidders reasonable time in which to take the amendments into account in preparing their bids, the purchaser may, at his direction, extend the deadline for the submission of bids.

06.00 **PRELIMINARY EXAMINATION:**

06.01 The Purchaser / Owner shall 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.

06.02 Arithmetical errors shall be rectified on the following bases. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the bidder does not accept the correction of the errors, his bid shall be rejected. If there is a discrepancy between words and figures, the amount in words shall prevail.

06.00 Prior the detailed evaluation, the Purchaser / Owner shall determine the substantial responsiveness of each bid to the Bidding Documents. For purpose of these Clauses, Ii substantially responsive bid is one which conforms to all the terms and conditions of the Bidding Documents without material deviations. The Purchaser's determination of a bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

06.04 A bid determined as not substantially responsive shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non- conformity.

06.05 The Purchaser I Owner may waive any minor informality or non-informality or irregularity in a bid, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

07.00 **CONTACTING THE PURCHASER:**

07.01 No Bidder shall contact the Purchaser I Owner on any manner relating to its bid, from the time of the bid opening to the time the contract is awarded, unless requested by the purchaser for any clarification, if any.

07.02 Any effort by a Bidder to influence the .Purchaser in the Purchaser's Bid evaluation, bid comparison or contract award, decision may result in the rejection of the Bidder's bid.

08.00 **PURCHASER'S I OWNER'S RIGHT TO VARY QUANTITIES AT TIME OF AWARD:**

The purchaser reserve the right to increase or decrease by upto 20% the quantity of goods services specified in the schedule of requirement during execution of Contract without any change in price or other terms and conditions.

09.00 **PURCHASERS / OWNER'S RIGI-IT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS:**

The Purchaser reserves the right to accept or reject any Bid and reject all Bids at any .time prior to award of contract, without thereby incurring liability to affected Bidders or any obligation .to inform the affected Bidders of the grounds for the purchaser’s action.

10.00 **CONTRACTOR'S / FIRMS CONSTRUCTIN MANAGEMENT**

10.01 **CONTRACTOR'S / FIRMS REPRESENTATIVE:**
The Contractor's / Firm's shall, in addition to a project coordinator, employ one or more competent. representative to supervise the carrying out of the works on site. He shall he fluent tin the language for day to day communication. Their names shall be communicated in writing to the purchaser before works on Site begins.

Any instruction or notice which the Purchase gives to the Contractor's / firm's representatives shall be deemed to have been given to the Supplier.

At least one of the Contractor's competent representatives one ach site shall be fluent in speaking. Writing, reading and understanding Oriya / English / Hindi.

11.00 **OBJECTION TO CONTRACTOR'S I FIRM'S EMPLOYEES:**
The Contractor's / Firm's shall, upon the Purchaser's written instructions remove from the works any person employed by him in the execution of the Works, who misconduct himself or is incompetent or negligent.

12.00 **SAFETY PRECAUTIONS:**
The contractor's shall observe all applicable regulations regarding safety on the Site.

13.00 **ELECTRICITY AND WATER:**
The Supplier shall be entitled to use for the purpose of performing the Service such supplier of electricity and water as may be available on the Site and shall provide any apparatus necessary for such use. The Supplier shall pay the Purchaser at the applicable tariff plus the Purchaser's overheads, if any, for such use. Where such supplies are not available, the Supplier shall make his own arrangement for provision of any supplies he may require.

14.00 **CLEARANCE OF SITE:**

The Contractor's shall from time to time during the progress of the works clear away and remove all surplus materials and rubbish disposal in an approved manner. On completion of the work the Supplier shall remove all supplier's equipment and leave the whole of the site clean and in a workable condition, to the satisfaction of the purchaser. The supplier shall obtain prior approval of the purchaser to remove the surplus materials.

15.00 **OPPORTUNITIES OF OTHER CONTRACTORS:**
The suppliers shall in accordance with Purchaser's instructions, cooperate with and afford to other contractors engaged by the purchaser to work on the site and persons lawfully so engaged upon the site all reasonable opportunities for carrying out their work provided that the same shall not obstruct or disturb the progress of the work. The supplier shall also afford such opportunities to the employees of the purchaser.

16.00 **AUTHORITY FOR ACCESS:**
No persons other than the employees or the contractor and his sub-contractors shall allowed on the site except with the written consent of the Purchaser.

17.00 **OBLIGATINS OF THE PURCHASER:**

17,01 **Access to and Possession of the Site:**
The purchaser shall in reasonable time grant the supplier access to the possession of the site, which shall not be exclusive to the supplier.

17.02 **Assistance with Local Regulation:**
The purchaser shall assist to the extent possible the supplier in ascertaining the r1ature and extent of any laws. regulations order or bye-laws and tuS1-oms in India where the Goods are to be erected.' which may affect the Supplier in the performance of his obligations under the Contract, The Purchaser shall if so requested procure for the contractor copies thereof where available and information relating thereto at the supplier's cost,

18.00 **LABOUR:**

18.01 **Engagement of Labour:**
The contractor shall. unless otherwise provided in the Contract, make his own arrangements for the engagement of all labour and for their payment, housing feeding and transport.

The Contractor / Firm shall pay rates of wages and allowances according to the nature of the work and observe hours and working conditions of his employees, so as to be no less favorable to the employees than those generally prevailing in the region where the work is to be carried out. At the same time, the Supplier shall observe al regulations prescribed by the law of the Government and shall strictly comply with any agreement, custom, practice or award relating to the wages.

The Contractor / Firm is encouraged, to the extent practicable and reasonable, to employ staff and labour with the required qualifications and experience from source within the region of work.

18.02 **Return of Labour:**
The supplier shall submit detailed returns showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the supplier and his subcontractors on the site. The returns shall be submitted in such Form and at such intervals as the Purchaser may prescribe.

The Supplier shall within twenty-Four (24) hours or the occurrence of any accident at or about the site or in connection with the execution of the work, report such accident to the Purchaser. The supplier shall also report such accident to the competent authority whenever such report is required by the Law.
The Supplier shall keep proper wages books and time sheets showing the wages paid to and the time worked by all workmen employed by him in and for the performance or the Contract and shall produce such wages books and time sheets on demand for inspection by any persons duly authorized by the Purchaser and shall furnish to the Purchaser such information relating to the wages and conditions of employment of such workman as the Purchaser or his duly authorized representative may from tin to time require.

18.03 The Contractor shall take all steps, necessary to comply with the various applicable laws, rules, regulations I notifications, including but not limited to the provisions of Contact Labour (Regulation and Abolition Act)' 1970 as amended, Minimum Wages Act"1984. Workman Compensation Act'1923, Employee State Insurance Act' 1 948 (E.S.I), Public Provident Fund Act'1968, Payment of Bonus Act'1985 and all other applicable laws and rule framed there under including any statutory approval required from the Central / State Governments, Ministry of Labour in relation to the Contractor's employee / Labourer / Workmen deployed to perform the Service under this Work Order.

19.00 **WORKMAN COMPENSATION:**

19.01 The contractors shall take out a comprehensive insurance policy under the Workman compensation Act 1923, to cover such workers, who will be engaged to undertake the' jobs covered under this Work Order and a copy of this insurance policy will be given to company solely for its information, reference and records. The contractor shall ensure the such insurance policies are kept at all times.

19.02 The contractor shall keep the Company indemnified at all times, against all claims that may arise under this Work Order, including claims of compensation under the provisions of Workmen Compensation Act 1923, an as amended from time to time or any compensation payable under any other law for the time being in force by any workman engaged by the Contractor I sub-contractor / Sub-agent in carrying out the job involved under this Work Order and against costs and expenses, if any, incurred by. the Company in connection therewith and without prejudice to any of the Company's rights make recovery.

19.03 The Company shall be entitled to deduct from any money due to or to become dye to the Contractor under this Work Order or under any other contract, moneys paid or payable by way of compensation as aforesaid or cost or expenses in connection with any claims thereto. The Contractor shall abide by the decision of the Company as to the ~ums payable by the Contractor under the provisions of this Clause.

19.04 Nothing contained in this Work order, shall establish any relationship of any kind between the Company on the one hand and the employees, workmen and labourers, or any kind whatsoever of the Contractor on the other hand.

20.00 **RESTRJCTIONS ON WORKING HOURS:**

No work shall be carried out on the Site outside normal working hours or on the locally recognized days or rest, unless.

a) The contract so provides ,or
b) The work is unavoidable or necessary for the saving of life or property for the safety of the work, in which case the Supplier shall immediately advise the Purchaser, or
c) The Purchaser gives his consent.

20.01 The Contractor shall be expected to employ on the work only his. regular skilled .employees with experience of the particular type of work. No female labour shall be employed after dark. No person below the age of eighteen years shall be employed.

20.02 In case the Purchaser becomes liable to pay any wages or dues to the labour or any Government agency under any of the provisions of the Minimum wage Act, Workmen Compensation Act. Contact Labour Regulation Act or any other law due to act of omission or the Con1ractor, the Purchaser may make payments and shall recover the same from the Contractor's invoices.

20.03 **PERMISSION TO DELIVER:**

20.04 The Contractor shall apply in writing to the Purchaser for permission to deliver any Goods or Supplier's equipment to the Site.

20.05 The Supplier shall be responsible for the receipt at Site of all goods and Supplier's equipment, delivered for the purposes of the Contract and shall, upon arrival at Site advise the Purchase when and where it has arrived and/ or been stored.

21.00 **TAKING OVER:**

21 .01 The Goods and services shall be taken over by the Purchaser when they have been completed in accordance with the contract, except in minor respects that do not affect the use of the Goods and Services for their intended purpose, have passed the Test on completion and a Taking over Certificate has been issued.

22.00 **INDEMNITY BOND:**
For the Goods to be provided by the Supplier, it shall be the responsibility of the Supplier to take delivery, unload and store the Goods at Work Site and execute an Indemnity Bond, trust receipt and obtain authorization letter from the Purchaser in favour or the Supplier against loss, damage and any risks involved, for the full value of the Goods. This Indemnity Bond shall be furnished by the Supplier before commencement of the supplier and shall be initially valid till the scheduled date of ii testing, commissioning and handing over of the Goods to the Purchaser.

23.00 **NOTIFICATION OF A WARD:**

23.01 Prior to expiry or the bid validity, the Purchaser shall notify the successful. Bidder in writing or by Fax, that its bid has been accepted.

23.02 The notification of award shall constitute the formation of the Contract.

23.03 Upon the successful Bidder's furnishing of Security Bank guarantee, the purchaser shall promptly notify each unsuccessful Bidder and shall discharge their earnest Money.

24.00 **SIGNING OF CONTRACT:**

24.01 At the same time as the purchaser notifies the successful bidder that its bid has been accepted, the purchaser shall send the bidder a Contract Form to be executed between the bidder & purchaser.

24.02 WIthin 15 days of receipt for the contract form, the successful Bidder shall sign and date the Contract form and return it to the purchaser along with the Performance Bank Guarantee.

24.03 The Contract is to be executed on RS 100.00 Non- Judicial Stamp Paper.

25.00 **CONFIDENTIALITY**

The technical information, drawing and other related documents forming part of this work Order and the information obtained during the course of investigation under this Work order shall be the company's exclusive property and shall not be used for any other purpose except for this execution of this Work Order, the technical information drawing, records and other document shall not be coped, transferred, or divulged and I or disclosed to third party in full / part ,not misused in any form whatsoever except to the extent for the execution of this Work Order.

25.01 In the event of any breach of this provision, the Contractor shall indemnify the Company against any loss, cost or damage or claim by any party in respect of such breach.

25.02 The provisions of this Clause shall remain effective for a period of Two (2) years from the expiry or termination of this Work Order.

25.03 The Contractor shall not use the name of the Company in any manner either for credit arrangement or otherwise and it is agreed that the Company shall not in any way be responsible for the debts, liabilities or obligations of the Contractor and I or his employees.

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# QUALIFICATION REQUIREMENTS

# QUALIFICATION REQUIREMENTS

01.00
a) The Bidder must have valid HT Electrical Contractor license issued by ELBO
b) Bidder must have executed similar type of work earlier.
c) Bidder must declare its sub-contractors name, if any, who will execute the work, The contractor must be having labour license for at least 20 labours.

02.00 The Bidder should furnish the information on all past works and satisfactory performance.

03.00 **All bids submitted shall also include the following information:**

i) Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the Company or Firm or Partnership etc.
ii) The Bidder should furnish a brief write up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required materials within the specified time of completion after meeting all his current commitment.
iii) The Bidder should clearly confirm that all the facilities exist in the factory from the where materials to be procured for inspection and testing and these will be made available to the Purchaser or his representative for inspection before any material dispatch to work site.

04.00 The Bidder shall furnish Type Test Reports for materials required at site. The Bids received without type test reports may be treated as Non-responsive.

05.00 Even though the Bidder meets the 'above qualifying criteria, he is subject to be disqualified if he has (I) made misleading or false representation in the Statements and attachments submitted in proof of qualification requirements and / or (II) record of poor performance such as not properly completing The contract, inordinate delays in supply completion, litigation history or financial failure etc.

06.00 Not withstanding anything stated above, the purchaser reserves the right to access bidder's capability and capacity to perform the contract.

07.00 Bidder participating, if not have facility to manufacture materials required for the work, must submit their vendors list from where they will procure the material with their credential and annual turn over. While choosing vendors the bidder must ensure that vendor must have supplied the equivalent .quantity of material in anyone year during last three years.

# 4

# GENERAL CONDITION OF CONTRACT & TECHNICAL FIELD REQUIREMENT

## GENERAL CONDITION OF CONTRACT & TECHNICAL FIELD REQUIREMENT

01.00 **SCOPE OF WORKS**

The scope of works include execution on ***Turnkey Basis*** with complete system design, procurement/manufacture, manufacturer's quality assurance, shop testing (including type testing where specified/required), transportation, storage, erection, including all civil/structural works, site testing, commissioning of all items & materials as elaborated below including all associated activities that through not exclusively specified here in but are required for the completion of the entire works under this
package.

01.01 This specification intends to cover but not restrict to the following activities, services and works.

i) Complete design and engineering of all the systems, sub-systems, equipment, material and services.
ii) Providing engineering data, drawings and O&M manuals for Owner's review, approval and records.
iii) Manufacturing, supply, testing, packing, transportation and insurance from the manufacturer's work to the site.
iv) Receipt, storage, insurance, preservation and conservation of equipment at the site,
v) All civil and structural works as required.
vi) Fabrication, pre-assembly (if any), erection, testing and putting into, satisfactory operation of all the equipment / material including successful commissioning.
vii) In addition to, the requirements indicated in this section (Technical Specifications), all the requirements as stated in other sections shall also be considered as a part of this specification as if completely bound herewith.
viii) The Bidder shall be responsible for providing all material, equipment and services specified or otherwise which are required to ensure operability, maintainability and the reliability of the complete work covered under this specification.
ix) All services & activities required to be given contractually, by the bidder, during warranty period.

01.02 The package envisages following works at different locations in Kandhamal district in the State of Orissa.

i) Survey, Pole Spotting for all HT & LT lines and Finalisation of DT Location.
ii) Construction of 11 KV & LT Lines
iii) Reconductoring of LT Lines.
iv) Construction of Distribution Transformer Centers (DTC) with DT meter.
v) Service Connections to all BPL (Below Poverty Line) Consumers including inside wiring of two points & supply of 2 nos. CFL's as per work order. The contractor will collect service connection applications from the BPL consumers & summit the same to the local junior engineer electrical for giving service connections.

02.00 **DETAILED SCOPE**

02.01 **Survey:**

The scope covers detailed route survey for all existing and proposed 11KV & LT lines, location of tap-off on existing feeders, pole spotting, optimization of pole location, crossing of roads, rail track, rivers, distribution transformer station location etc. The survey shall, as a minimum, identify/cover the following:

02.02 ULB wise maps shall be prepared on the background of Survey of India (SOI) map of 1:25000 scales indicating the following.

i. Village boundaries and their respective census codes
ii. Existing and. proposed 33/11 KV substations
iii. Existing and proposed 11 KV lines and Distribution transformer Stations.

02.03 Village level map shall be created from the map with a scale of 1:5000 or better indicating the following:

i) Village geographical features and landmarks with clear depiction and label
ii) All the habitations that exist in the village
iii) Existing & proposed HT & L T lines, DTs
iv) List of individual consumer fed from each pole
v) Estimated loading. .
vi) All distance and locations of electrical system from key reference points.

03.00 **Village / Hamlet Electrification**

03.01 The list of villages / Habitation where the population is minimum 100 Nos. and whit are to be electrified under the scheme alongwith their census code, electrical scope will be provided separately. However the bidders shall verify the scope at site during field survey.

04.00 **Construction of Line & Sub-station**

04.01 **New 11 KV line for village/habitation electrification:**

Construction of 11 KV spur line from the existing or to be constructed lines of electrification of villages/habitations with a span length of 70 meters.

These lines shall emanate from existing lines and shall have provision of AB Switches of 400Amp. rating at T-off points only where the spur line length exceeds 2Km.

05.07 **Construction of Distribution Transformer Centers**

Construction of Distribution Transformer Centers (DTC) using the type of transformers & configurations as given in the table below.

| Sl. No. | Type of DT | Voltage ratio (KV) | Rating (KVA) | Arrangement | No. of earthing |
|---|---|---|---|---|---|
| 1 | 1 Phase | 11/0.230 | 16 | 9Mtr. 300Kg. 3 Nos. single pole structure with 2pole AB switch & DO fuse. | 3 Nos. |
| 2 | 3 Phase | 11/0.400 | 25 | 9Mtr.300 KV P5C5 Nos. Double pole structure with AB switch & HG fuse. | 5 Nos. |

05.07 **The scope includes supply, installation, testing and commissioning the following:**

i) 3 Phase 25KVA, Distribution Transformers & 1-Phase 16 KVA D.T shall be fitted with L.A 11KV line.

ii) All structures, cables, earthing and all other items, not specifically mentioned but necessary for safe operation of the distribution transformer is included in scope. The cable from DT to DB and from DB to Overhead lines shall be run properly, duly clamped with poles for protection of cable.

iii) L T Distribution Box with MCCB & Energy Meter on L T side of DT. The Distribution box shall have proper locking arrangement.

05.02 The contractor shall survey the area, fix the location of DT keeping in view that DT is as close as practically possible to the load centre of the area to be fed.

05.03 Contractor shall obtain the approval for final DT location from engineer in the field.

05.04 The no. of LT feeders / service connections to be connected to a particular DT shall be decided during detailed engineering.

05.05 For three phase DTs, Gang operated AB switches shall be mounted between 11 KV line dropper & HG fuse.

06.00 Construction of LT Lines

**The LT lines shall be of following configurations.**

| Sl No. | Type of line | Conductor | Support | Average span in mtr. |
|---|---|---|---|---|
| 1 | 3-Phase 4-Wire | AB cable of size 3 X 35mm$^2$ + 1x25mm$^2$ XLPE insulation | 8Mtr. 200KG PSC | 35 |
| 2 | 1-Phase 2-Wire | Aerial Bunched Cable (ABC) of size 1x351x25 | 8Mtr. 200KG PSC | 35 |

06.01 LT Lines using AB Cable shall be constructed on 8 mtr 200KG PSC Pole complete with eye hook, suspension/dead end clamp including belting of clamps etc or by using cross arm and shackle insulator complete as required for supporting LT AB conductor, earthing arrangement, anti climbing device, danger board, stay sets as required, bolts, nuts & washers and any other hardware required to complete the work, as finalized during detailed engineering.

07.00 **Service Connections to BPL:**

07.01 The scope includes providing service connections to the consumers Below Poverty line (BPL consumers) including 2 points wiring and coil earthing to the installation. The service cable shall travel from service pole to the premises of the consumer with the provision of

i) PVC insulated double core with outer sheath 2.5 sq. mm single strand Aluminum cable.
ii) UDC (Universal Distribution Connector) ABC cable with piercing type connector and distribution box at DT
iii) Supporting GI wire 10 SWG
iv) GI pipe 20 mm, bend etc.
v) Electro Static Energy meter at the consumer premises.
vi) Providing 2Nos. CFL Bulb (18W+11W -1 No. each) lamp in the consumer premise

07.02 **L.T. consumer connection from service pole**
The contractor shall provide the service connections to the identified households. The service connection shall be complete with energy meters with TP Box in consumer's premises. Service Connection shall be provided with 'PVC' insulated 650/1100 V grade, twin core Aluminum solid Conductors of size 2.5 sq.mm (3/22 cu equivalent) these wires shall be supported by a bearer GI wire (3.15 mrn) as per REC Spec. No. 45/1986. Cable shall be tied to bearer wire with an insulated (Porcelain or bakelite) ring of adequate size and strength. The bidder shall provide his own arrangements for anchoring the bearer wire at the premises of customers in case of BPL households.

07.03 **Pole Top Distribution Box**
Locations, whe,re the numbers of consumers are in excess of 2 (say 3 to 5), a pole top LT distribution box shall be provided. If the number of consumers exceeds 5, then the connection has to be provided from adjacent pole having separate distribution box.

07.04 **Piercing Connector**
Wherever, the consumers for a particular pole are 1 or 2 piercing type connectors, having provision for main conductor and service conductor of appropriate size for ABC & UDC for bare conductor, shall be used For LT main lines with bare conductors, service connection shall be provided using UDC or wedge type connectors of suitable
dimension / size as per REC specification Cost of all items/material required to complete the service connections shall be Included in the quoted price. The installation of all the material is in the scope of contractor.:

As far possible the service connection shall be given from the DT/pole of the LT line, which is nearest to the consumer's premise.

The service cable shall enter to the meter of the consumer premises through GI pipe of 20mm dia up to the meter board. GI pipe will be fixed to the wail with suitable clamps. The supporting GI wire will be suitably tied to the GI pipe. Coil earthing is to be done with GI lead wire to main switch.

07.05 **House Wiring**

For all the identified BPL households, the contractor shall carry out & complete works of house wiring with installation of energy meters.

ISI marked Double Pole 16Amp main switch shall be used.
ISI marked PVC conduit with single core 2.5 sq mm. aluminum wire shall be used for house wiring.

Two point wiring for lighting points shall include two piano type ISI marked 5A switch, Bakelite/plastic holder, 2Nos. CFL Lamp (18W & 11W).

The wooden box shall be fixed in the consumer premises at a suitable height and shall house.

i) 16Amp. DP Main Switch
ii) Earthing terminal
iii) One 5 Amp. Switch
iv) One 18W CLF bulb with holder

Another wooden distribution board shall be fixed in the consumer premises at a suitable height and shall house

i) 5 Amp switch
ii) 11 Watt CFL lamp with holder

The internal wiring shall be done using PVC conduits.

The Electrostatic meter with TP Box will be fixed separately.

08.00 **GENERAL REQUIREMENT & INSTRUCTIONS**

08.01 Sub-stations installed or PSC poles installed and BPL households electrified under this scheme will be inscribed with the name of the scheme i.e. **"Biju Gram Jyoti Yojana"** and year of electrification in white paint in the back ground of deep green paint.

08.02 For HT & L T line the scope covers detailed survey,- proposal for feeder bifurcation, pole spotting, optimization of pole location, pole design, testing, fabrication and supply. of all type of transmission line poles including cross arms, angles, channels, braces, top brackets, stay sets, bolts, nuts and washers, D-shackle, all types of insulators, and all type of pole accessories like, phase plate, number plate, danger plate. anti-climbing device, stay sets. Guarding arrangements, etc.; design, selection of type of foundation for different poles and casting of foundation for pole footing; and erection of poles, supply and application of zinc rich paint, pole earthing, fixing of insulators, supply of conductors & accessories; stringing of conductors along with all necessary line accessories and testing and commissioning of

08.03 Bidder is required to follow statutory regulations stipulated in Electricity Act 2003, Indian telegraph act 1889, I.E. Act 1910, Electricity (Supply) Ac\ 1948, Indian Electricity Rules 1956 with all amendments till date and other local rules and regulations referred in this specifications.

08.04 Bidder shall obtain approvals & clearances and right of way from all agencies involved. All lines shall generally be routed through public land I along the road.

08.05 The bidder shall be responsible for transportation to site of all the materials to be provided by the Contractor as well as proper storage and preservation of the same at his own cost, till such time the erected line is taken over by the Owner.

08.06 Failure of any equipment to meet the specified requirements of tests carried out at works or at site shall be sufficient cause for rejection of the equipment. Rejection of any equipment will not be held.

08.07 As a valid reason for delay in the completion of the works as per schedule. Contractor shall be responsible, for removing all deficiencies, and supplying the equipment that meet the requirement.

**ROUTE SURVEY**

Successful bidder shall carry out detailed survey and prepare the detailed route of 11 KV & L T lines, location of Distribution Transformer on topographical sheets / mouza maps available from government agencies. The bidder shall make his own arrangements for obtaining the topographical maps/mouzas maps from the concerned agencies. The final route map for 11 KV & L T lines, shall be prepared and submitted by the bidder, showing the proposed pole position, ground clearance, conductor sag and various crossings i.e. communication lines, rivers, road and stream crossings on the map to a scale of 1 :25000. All L T lines along with pole locations are to be marked on village / mouza maps / patwari maps to a scale 1:5000.

**GENERAL CONSTRUCTIONAL PRACTICES (11 KV)**

The following types of poles shall be used at respective locations given below.

a) SP (Single Pole support) $0_0$ -$10_0$ deviation.
b) DP (Double Pole support) $0_0$ -$60_0$ deviation.

**POLE SPOTTING**

**a) Span**
Average span of HT & L T lines with proposed conductors is given in the table below.

| Sl. No. | Line Class | Support (Height in mtrs / KG class) | Conductor Type | Nominal Conductor size in sq. | Max. span in mtrs. |
|---|---|---|---|---|---|
| 1 | 11KV 3Ph (for new line & spur line) | PSC (8/200) | AAAC | 34 | 70 |
| 2 | LT 3Ph 4W | PSC (8/200) | ABC | 3X35+1X25 | 35 |
| 3 | LT 1Ph 2W | PSC (8/200) | ABC | 1X35+1X25 | 35 |

**(b) Road Crossing**
At all major road crossings, the poles shall be fitted with strain type insulators but the ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken in adjacent span, ground clearance of the conductor from the road surfaces shall not be less than 6.1 meters.

**(c) Details Enroute.**
All topographical details, permanent features, such as trees, telecommunication lines, building etc. 5.5 meter on either side of the alignment shall be detailed on the route plan.

**(d) Clearance from Ground, Building, Trees etc.**
Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the Indian Electricity Rules, 1956 as amended upto date. The bidder shall select the height of the poles such that all electrical clearances are maintained.

(e) The minimum planting depth of poles shall be governed by IS : 1678. However, if due to the ground conditions, e.g. water logged area etc. depth of. planting of poles shall be suitably increased the bidder will supply the poles of suitable height in order to maintain the required clearances, the vendor will submit the details of the same on case to case basis.

(f) Guarding mesh shall be used in all electric line / telecom line / road / drain / canal crossing and at all points as per statutory requirements. The bidder shall provide & install anti climbing devices and danger plates on all poles and DT stations.

**DESIGN PARAMETERS**

a) Factor of safety 2.0 in Normal condition for 33 kV & 2.5 for 11 kV line & L T line PSG supports. ...
b) Wind Pressure on Pole & conductor- As per IS 802
c) In addition to wind load on cross-arms, insulators guy-wire etc. shall be considered.
d) Wind load on full projected area of conductors and pole is to be considered for design.
e) Ground clearance shall be minimum 4.6 m for 11 KV line & L T line for bare conductor at locations other than road crossings.
f) Ground clearance shall be minimum 4m for 11 kV ABC line & LT ABC line.

Pole accessories like danger plates, phase plates and number plates shall be provided.

**POLES**

**Erection of Pole, PSC footing and compaction of soil**

Pits are to excavated to a size of 0.6 meter x 1.2 meter with its longer axis in the direction of the line. In case bidder employs Earth augers, the Pit size can be considered 0.6 meter dia with 1.5 meter depth.

For hard rock locations, 1 meter deep hole of diameter 20% in excess of the longest dimension of the bottom most portion of pole shall be excavated. The pole shall be grouted in the pit with 1:2:4 nominal concrete mix at the time of pole erection.

The planting depth of pole over the, base precast concrete slab shall be 1500 mm in the ground except in wet soil and black cotton soil where depth shall be increased by 0.2 mtr. to 0.3 mtr. with reduced wind span.

**Earthing of Poles**
In 11 kV & L T line, each pole shall be earthed with coil type earthing as per REC Construction Standard J-1.

**Extension Pole**
PSC pole with pole extension arrangement up to two meters shall be used at low ground level locations for maintaining ground clearance and for road crossings for HT & L T lines. Extension of poles shall be by use of *100x50x6mm galvanise channel* up to three meters. A overlap of one meter shall be maintained with the pole.

Wherever such extended poles will be used the span on both sides of the extension pole shall be suitably reduced to take care of loading on the pole.

**PROVIDING OF GUYS/STRUT POLES TO SUPPORTS**

Strut poles/flying guys wherever required shall be installed on various pole locations as per REC construction standards. For selection of guing locations REC guidelines & construction practices shall be followed.
The stay rod should be placed in a position so that the angle of rod with the vertical face of the pit is 300/450 as the case may be.

G.I. stay wires of size 7/3 15 mm (10 SWG) with GI turn buckle rod of 16 mm dia & 16 mm dla GI stay rods, shall be used for 11 KV & LT line.

For double pole structure (DP), four stays along the line, two in each direction and two stays along the bisection of the angle of deviation (or more) as required depending on the angle of deviation are to be provided. Hot dip galvanised stay sets are to be used.

The anchor plate shall be fixed to 200mm x 200mm MS plate of 6mm thickness. M.S. rod with a bolt arrangement at one end and other end is given shape of 40mm dia circle to bind one end of the stay wire.

**CROSS ARMS**

Cross Arms For 11 KV Overhead Power Lines shall be made out of 75 x 40 x 6 mm M.S. channel. Cross Arms made out of M.S. angle shall not be used. Cross arms shall conform to specification given under the head miscellaneous items in this specifications.

**Crossings**

All crossings shall be at right angles.

Guarding shall be provided at major crossings. The Guardings shall consists of GI guard cross arm of length 2.5 mtrs made out of 75 x 40 x 6 mm channel & shall be hot dipped galvanized generally conforming to IS:2633/72. The clamps shall also be hot dipped galvanized generally conforming to IS:2633/72. Guardings shall be erected with ground & line clearances as per the I.E. rules. The guarding shall be provided with GI wire 8 SWG for 11 KV & LT line. Binding wire & suitable I bolt & nut bolts for cross arm to cross arm. Guard wire shall be separately earthed at both ends. Crossings the roads / canals or any other lines shall be as per the REC construction standard.

**Anti-climbing Devices**

Anti Climbing Devices shall be provided with G.I. Barbed wire, they shall be provided and installed by the Contractor for all poles. The barbed wire shall conform to IS:278 (Grade A 1). The barbed wires shall be given chromating dip as per procedure laid down in IS: 1340.

**Painting Materials**
All the metal parts except G.I. parts are to be painted with one coat of red oxide and one coat of alluminium paint.

**STRINGING OF CONDUCTOR**

The works include spreading of conductors or HT/L T AB Cables without any damage and stringing with proper tension without any kinks/damage including binding of conductor at pin points, jumpering at cut points etc. The ground & line clearances at road crossings along, roads, L.T. crossings & other crossings shall be as per the relevant I.E. rules.
All the joints or splices shall be made at least 15 meters away from the pole. No joint or splices shall be made in spans crossing over main roads, railways and small river spans. Not more than one joint per sub-conductor per span shall be allowed. The compression type fittings shall be of the self centering type. After compressing the joint, the alluminium sleeve shall have all corners rounded; burrs and sharp edge: removed and smoothened.

While Re-conductoring of 11 KV line, disconnection/connection of existing Distribution Transformer shall be in the scope of the contractor/bidder. The supply and erection 0 line material for achieving the DT disconnection and connection shall be in the scope of the contractor.

The empty conductor drums, available after laying of conductor, shall be disposed 0 by the contractor at his cost. These drums may be used for rewinding of Conductor removed from the line at the later stage of Re-conductoring work.

**Survey of existing lines**
Survey shall have to be carried out by the contractor of existing lines.

**Span**

Since the work shall be done on the existing line, the existing span shall be maintained. However, if any new pole is required to be erected along the route 0 existing line, the span should be as near as possible to the basic design spar indicated below.

11 KV line: 70 meter

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# TECHNICAL SPECIFICATION

# TECHNICAL SPECIFICATION FOR 11KV LINE MATERIALS SUPPORT POLES, CROSSARMS AND NUTS & BOLTS

01.00 **SCOPE**

This Specification covers Design, Engineering, Manufacture, testing, inspection before despatch, forwarding, packing, transportation to site, Insurance (both during transit & storage), Storage, Erection, Supervision, testing and commissioning of 11 KV) support. Poles, Cross Arms and Bolts & Nuts for use in the networks of PED (SOUTHCO) (discoms) Orissa.

02.00 **DESIGN REQUIREMENT**

- The wind pressures to be applied to the conductors, poles and cross arms are specified in IS 5613 (Part 1/ Section 1): 1995 and as stipulated in the Service Conditions.

03.00 **PSC POLES**

PSC Poles shall be of solid rectangular type with an overall length of 8.0 M & 9.0 M suitable for use in 11 KV overhead power lines and double pole & four pole structures associated with the lines and for 11/04 KV substations.

04.00 **APPLICABLE STANDARDS**

Except when they conflict with specific requirements in this Specification, the PSG poles shall comply with the relevant provisions made in the following Indian Standards or the latest versions thereof.

a) IS: 1678, Specification for prestressed concrete poles for overhead power, traction and telecommunication lines
b) IS: 2905, Method of test for concrete poles for overhead power and telecommunications lines.
c) IS: 732.1, Code of Practice for selection, handling and erection of concrete poles for overhead power and telecommunication lines

05.00 **Application**

06.00 **8.0 M Poles (200 Kg)**

These poles shall be used at tangent locations for 11 kv and L.T. lines in wind pressure zones of 1 00kg/M2 in accordance with REC Construction Standards No.A-5.

06.01 **9.0 M Poles (300 Kg)**

These poles shall be used for double pole structures of distribution transformer centers as per REC Construction Standards F-2 to F-4 and for special locations in 11 KV and L.T. Lines, such as road crossing etc.

07.00 **Material**

07.01 **Cement**

The cement used in the manufacture of prestressed concrete poles shall be ordinary or rapid hardening Portland cement conforming to IS:269-1976 (Specification for ordinary and low heat Portland cement) or IS: 8041 E-1978(Specification for rapid hardening Portland cement).

07.02 **Aggregates**

Aggregates used for the manufacture of pre-stressed concrete poles shall confirm to IS:383 (Specification for coarse and fine aggregates from natural sources for concrete). The nominal maximum size of aggregates shall in no case exceed 12mm.

07.03 **Water**

Water should be free from chlorides, sulphates, other salts and organic matter. Potable water will be generally suitable.

07.04 **Cover**

The cover of concrete measured from outside of pre-stressing tendon shall be normally 20mm. '

07.05 **Earthing**

07.06 Earthing shall be provided by having length of 8 SWG GI wire embedded in concrete during manufacture and the ends of the wires left projecting from the pole to a length of 100mm at 250mm from top and 150mm below ground level.

# TECHNICAL SPECIFICATION FOR STEEL MATERIALS

100X50 MM MS CHANNEL
50X50X6 MM MS ANGLE

01.00 **Scope:**

This specification covers the manufacturing, testing before dispatch and delivery at destination at site stores in Phulbani and G.Udayagiri Town.

100X50 MM MS CHANNEL
75X40 MM MS CHANNEL
50X50X6 MM MS ANGLE

As per I.S:2062 and its lates amendments for grade A

**Standards:**

The steel materials shall comply with the requirements of latest issue of IS -2062 Gr -A except where specified otherwise.

## TECHNICAL SPECIFICATION FOR 11 KV INSULATORS

01.00 **SCOPE**

This Specification covers Design, Engineering, Manufacture, testing, inspection before dispatch, forwarding, packing, transportation to site, Insurance (both during transit & storage), Storage, Erection, Supervision, testing and commissioning of 11 KV Insulators for use in the networks of CESU, Orissa.

02.00 **PIN INSULATORS**

| **Nominal Voltage** | **11 KV** |
|---|---|
| ViSible discharge voltage | 9 KV rms. |
| Wet power frequency one minute withstand voltage | 35 KV rms. |
| Power frequency puncture voltage | 105 KV rms. |
| Impulse withstand voltage peak | 75 KV peak |
| Creepage distance | 320 mm |
| Protected creepage distance | |
| Minimum failing load up to conductor slze 100 $mm^2$ | |

**Performance Characteristics**

The insulators shall be suitable for use on the CESU distribution system with conditions as shown in the sections on Service Conditions and System Conditions.
They shall conform to IEC 720 or IS 731 and shall meet. the following performance criteria.

06.00 **DISC INSULATOR**

**Performance Characteristics**

| **Nominal Voltage** | **11KV** |
|---|---|
| Minimum number of discs is string | 1 |
| Visible discharge volgate | 9 KV rms. |
| Wet power frequency one minute withstand voltage | 35 KV rms. |
| Power frequency puncture voltage | 1.3 times the actual dry flashover voltage of the unit |
| Impulse withstand voltage peak | 75 KV |
| Minimum creepage distance | 320 mm |
| Minimum protected creepage distance | -- |
| Minimum mechanical failing load for conductor sizes of 232 $MM^2$ AAAC | 120 KN |
| 80 & 100 mm2 | 90 |
| 55 mm2 | 70 |

05.00 **Tests**

Type, acceptance and routine tests shall be carried out and results given alongwith certification as appropriate in the Technical Data Schedule and Test Certificates Schedule of this specification.

06.00 **Type tests**

The following type tests are required:

- Visible discharge test;
- Impulse voltage withstand test;
- Wet power frequency voltage withstand test
- Electro-mechanical failing load test for string insulator units (porcelain type)
- 24 hour mechanical strength test;

06.01 **Acceptance Tests**

The test samples having withstood the routine tests shall be subjected to the following tests according to the sampling procedure of IEC 383 clause 23:

- Verification of dimensions
- 24 hour mechanical strength test;
- Electro-mechanical failing load test for string insulator units (porcelain type)
- Puncture test;
- Porosity test (porcelain only);
- Test for galvanization of ferrous parts

06.02 **Routine Tests**

The following routine tests shall be conducted on each set and results are to be furnished for consideration:

- Visual examination;
- Tensile load test;
- Power frequency voltage test:

06.03 **POST INSULATOR FOR PRIMARY SUBSTATIONS**

06.04 **Post Insulator (clamp top type)**

Bidders may offer substation designs using post insulators of the clamp top type. The insulators shall be suitable for use in CESU primary substations with conditions as shown in the sections on Service Conditions and System Conditions.

They shall conform to IEC 273 or IS 2544 and shall meet the following performance criteria:

| **Normal Voltage** | **11KV** |
|---|---|
| Visible discharge voltage | 11KV |
| Wet and dry power frequency one minute withstands voltage. | 9 KV rms. |
| Power frequency puncture withstand voltage | 1.3 times the actual dry flashover voltage |
| Impulse withstand voltage peak | 75 KV peak |
| Minimum creep age distance | 380 mm |

| | |
|---|---|
| Minimum protected creep age distance | |
| Minimum failing load (bending) | 12.5 KN |
| Minimum failing load (torsion) | 1200 Nm* |

07.00 **STAY INSULATORS (11 KV)**

The Insulators shall be suitable for use on the **PED SOUTHCO** distribution system with conditions as shown in the sections on Service Conditions and System Conditions' 11 KV Stay insulators shall be used on L.V stays.

07.01 **Performance Characteristic shall be strictly as per relevant IS.**

07.02 **Materials**

The insulators shall be brown glazed porcelain:

07.03 **Design**

The bidder shall guarantee than the dimensions and tolerance of the insulators offered are in accordance with the drawing which shall accompany the bid documents.

The insulators shall be used with 7/8 SWG (7/4.00 mm ) steel stay wire, having an overall diameter of 12.2 mm and tensile strength of 70 kgf/sq. mm. The insulators shall be suitable for use having a minimum stay wire, hole diameter of 22 mm and be such that a straight stay wire can be passed through it.

## TECHNICAL SPECIFICATION FOR 11 KV LINE FITTINGS

01.00 **SCOPE**

This Specification covers Design, Engineering, Manufacture, testing, inspection before despatch, forwarding, packing, transportation to site, Insurance (both during transit & storage), Storage, Erection, Supervision, testing and commissioning of 11 KV Line Fittings for use in the networks of SOUTHCO, Orissa.

02.00 **Measurements and Tests for Stay Wire**

| Description | Required Value (Grade-4) |
|---|---|
| Nominal size of stay wire: | 7/4.00 mm |
| Nominal Diameter of Individual Wires: | 4.00 mm |
| Minimum Diameter of Individual Wires: | 3.90 mm |
| Maximum Diameter of Individual Wires: | 4.10 mm |
| Minimum ultimate tensile streng1h of individual wires: | 700 N |
| Minimum percent elongation at rupture before stranding: | 5% |
| Minimum percent elongation at rupture after stranding: | 4.25% |
| Wrapping test for ductility:<br>Turns on and off its own diameter | 8 |
| Lay ratio of finished strand | 19 to 21 |
| Minimum weight of zinc coating before stranding: | 490 g / $mm^2$ |
| Minimum weight of zinc coating after stranding: | 475 g/ mm |
| Chemical test: Sulphur and phosphorus content: | Less than or equal to 0.060 % each |

## TECHNICAL SPECIFICATION FOR ALL ALUMINIUM ALLOY CONDUCTOR (AAAC)

01.00 **SCOPE**

This specification covers design, Engineering, Manufacture, Testing, Inspection before despath, forwarding, packing, transportation to sites, Insurance (both during transit & storage ), storage, erection, supervision testing & commissioning of all sizes of All Alluminium Alloy Conductors of the alluminium –magnesium-silicon type for use in the distribution overhead power lines of SOUTHCO of Orissa.

02.00 **STANDARDS**

Except where modified by the specification, the Alluminium Alloy Conductor shall be designed, manufactured and tested in accordance with latest editions of the following standards.

| IES/ISO/ International Standard | Other is | Subject |
|---|---|---|
| IEC:1089 | | Round wire concentric lay overhead electrical standard conductors |
| | IS 398 | Alluminium Alloy Stranded Conductors |
| | IS 9997 | Alluminium Alloy redraw rods for electrical purposes |
| IEC 502 : 1994 | | Extruded solid dielectric insulated power cables for rated voltages 1.0 KV up to 30KV. |
| IEC 104 | | Alluminium Magnesium Silicon alloy wire for overhead line conductors |
| | IS 1778 | Reels and drums of bare conductor. |
| BS : 6485-1971 | | PVC covered conductors for overhead power lines. |

03.00 **SPARE PARTS AND SPECIAL TOOLS**

The Bidder shall provide a list of recommended spare parts, special erection and installation tools/ equipment together with their individual prices. This list shall identify all essential spares items for any recommended maintenance for a period of five years after commissioning.

The Project Manager may order all or any of the spare parts/erection/ installation tools listed at the time of contract award and the parts so ordered shall be supplied as part of the definite works. The Project Manager may order additional spares at any time during the contract period at the rates stated in the Contract Document.

A spare parts catalogue with price list shall be provided and this shall form part of the drawings and literature to be supplied.

The Bidder shall give an assurance that spare parts and consumable items will continue to be available through the life of the equipment, which shall be 25 years minimum. However, the Contractor shall give a minimum of 12 months notice in the event that the Contractor or any sub-contractors plan to discontinue manufacture of any component used in this equipment.

Any spare apparatus, parts or tools shall be subject to the same specification, tests and conditions as similar material supplied under the Contract. They shall be strictly interchangeable and suitable for use in place of the corresponding parts supplied with the plant and must be suitably marked and numbered for identification.

Spare parts shall be delivered suitably packed and treated for long periods in storage. Each pack shall be clearly and indelibly marked with its contents, including a designation number corresponding to the spate parts list in the operation and maintenance instructions.

## TECHNICAL SPCIFICATION FOR 11 KV 400 AMPS 3 POLE AS SWITCH

01.00 **SCOPE**:-

This specification covers manufacturing testing and supply of 11 KV 400 AMPS 50 Hz Air Break switches for out door installation in horizontal configuration. The switches are suitable for operation under off load conditions only and are intended for use on Distribution Sub- stations and tapping sectionalising points of 11 KV lines.

02.00 **DESCRIPTION OF THE MATERIALS:-**

The 11 KV A.B. Switch sets shall confirm to the following parameters:-

| | |
|---|---|
| i) Number of poles | 3 |
| ii) Number of Post insulator per pole | 2 nos. 12 KV post insulator |
| iii) Nominal system voltage | 11 KV |
| iv)Highest System Voltage | 12 KV |
| v) Rated frequency | 50 Hz . |
| vi) System earthing | effectively earthed. |
| vii) Rated nominal current | 400 amps |
| viii) Altitude of instal)ation. | Not exceeding 1000 M |

03.00 **STANDARDS**:- The AB Switch Set shall conform to the following standards:-

a) IS-9920 (Part-I to V.)
b) IS-2544'/1973 (for porcelain post insulators)
c) Is-2633, (for galvanisation of ferrous parts.) or its latest amendments if any.

04.00 **INSULATOR MAKE:-**

1. 12 KV post Insulators complete with post and cap duly cemented to be used in the AB Switch Set conforming to IS-2544/1973.

The tenderer shall furnish the type test certificate of the post insulators from their manufacturer for reference and scrutiny. The tenderers shall mention make, type of insulation materials, metal fittings, Creepage distance, protected Creepage distance, tensile strength, compression strength, torsion strength and cantilever strength.

05.00 **TECHNICAL DETAILS:-**

**6.1 General**:- The 11 KV A.B. Switch Set shall be the gang operated rotating single air break type having 2 post insulator per phase.. The operating mechanism shall be suitable for manual operation from the ground level and shall be so designed that all the three phases shall open or close simultaneously. The Switches shall be robust in construction, easy in operation and shall be protected against over travel or straining that might adversely effect any of its parts. The required base M.S. Channel (hot dip galvanised) phase coupling rod, operating rod with intermediate guide braided with flexible electrolytic copper, tail piece of required current carrying capacity and operating mechanism with 'ON' & 'OFF' positions shall be provided. The operating rod shall be medium gage of 32mm diameter nominal bore G.I. pipe single length 6 meters. The phase coupling rod for gang operation shall be of medium gauge 25mm dia nominal bore G.I. Pipe. The Rotating post insulators shall be provided with suitable bearing mounted on a base channel with 8 mm dia thrust coller and 6mm split pin made out of stainless steel. The operating down rod shall be coupled to the spindle ( minimum dia - 32mm) for gang operation through another suitable bearing by two numbers 10mm dia stainless steel bolts with double nuts. All the bearings shall be provided with grease nipples. All metal (ferrous) parts shall be galvanised and polished. The pipe shall be galvanised in accordance with IS-4736/1968. The post insulators should be fixed with the base channel using Galvanised Nuts and Bolts.

O6.00 **Sample, Drawing & Literatures:-**

Samples of each item 11 KV 400 amps. A.B. Switch shall be furnished and three copies of drawings item similar to the sample shall be furnished alongwith the tender.

The details of construction and materials of different parts of the A.B. Switch shall clearly be indicated in the tender and illustrative pamphlet literature for the same shall be submitted alongwith the tender.

07.00 **TESTS & TEST CERTIFICATE**

**Type Test**:- Certificates for the following type tests conducted within five years proceeding to the date of opening of tender) on a prototype set of A.B Switch in a Govt. Approved Testing Laboratory preferably at CPRI Bangalore shall have to be submitted for reference.

Dielectric Test (impulse and one minute wer5 power frequency withstand voltage test.)

- Temperature rise test (for contracts and terminals)
- Short Time current and peak withstand current test,
- Mainly active load breaking capacity test.
- Transformer off-load breaking capacity test

- Line charging breaking capacity test
- Cable charging breaking test
- Operation and mechanical endurance test
- Mechanic I strength test for post insulator, as per Is-2544/1973 shall be
- furnish.
- Test for galvanisation of metal ( ferrous) parts.

**Routine Tests:-** The following routine tests shall have to be conducted on each sets and results are to be furnished for consideration of deputing inspecting officer for inspection and conducting testing of the materials.

1. Power frequency voltage dry test.
2. Measurement of resistance of main circuit
3. Tests to prove satisfactory operation.
4. Dimension check
5. Galvanisation test.

08.00 **GURANTEED TECHNICAL PARTICULARS:-**

The tenderer shall furnish the guaranteed technical particulars duly filled in the proforma along with the tender.

09.00 **OMPLETENESS OF EQUIPMENT:-**

All fittings, accessories or apparatus which may not have been specifically mentioned in this specification but which are usual or necessary in equipment of similar plant shall be deemed to be included in the specification and shall be supplied by the Tender without extra charge. All plant and equipment shall be completed in all details whether such details are mentioned in the specification or not.

10.00 **INSPECTION:-**

Routine tests shall be conducted at the place of manufacturer. The tenderers are requested to furnish details of equipment which will be used for testing alongwith tender. The tenderers of those manufacturers who do not have adequate testing facilities for conducting routine and acceptance test are liable for cancellation. The successful bidder has to furnish routine test certificate and guaranteed certificate for approval prior to offer of materials for inspection for each consignment of offer.

## TECHNICAL SPECIFICATION FOR 11 KV 200 AMP THREE POLE H.G. FUSE SETS.

01.00 **SCOPE:** -This specification covers the manufacture, testing and supply of 11 KV, 200 Amps 3 pole, H.G. Fuse Sets.

02.00 (a) The 11 KV H.G. Fuses shall be suitable for out door operation in horizontal configuration under the climatic conditions specified. It shall be of the following ratings:-

| | |
|---|---|
| 1. Number of Poles | 3 |
| 2. No. of insulator per pole | 2 nos. 12 KV post insulators |
| 3. Nominal system voltage | 11 KV |
| 4. Highest system voltage | 12KV |
| 5. Rated frequency | 50 Hz |
| 6. System Earthing. | Effectively earthed |
| 7. Rated normal current | 200 Amps |
| 8. Altitude of installation | Not exceeding 1000 M. |

03.00 **STANDARDS:-**
The H.G. Fuse set shall conform to the following standards.

IS-9385-1980 (for high voltage expulsion fuses and similar fuses)
IS-2544-1973 (for porcelain post insulators or its latest amendments if any
IS-2633-1979 (for Galvanisation of ferrous parts)

04.00 **INSULATOR MAKE:-** 12 KV post insulator complete with pedestal cap duly cemented to be used in 11 KV H.G. Fuse sets confirming to IS-2544/1973.

05.00 **TECHNICAL DETAILS:-** The H.G. Fuses shall have adjustable arcing horns made of solid copper rod having '1.62 mm dia. The horns shall be fitted with screwing devices with flynuts for fixing and tightening the fuse wire. It shall have robust terminal connector 5s of size 80mm x50 mm x 6 mm made of copper casting ( 95% minimum copper composition) duly silver plated with two numbers of 12mm dia brass bolts and double nuts with flat brass washers. The connector should be capable of connecting crimpable conductor up to 80 Sq.mm. size (ACSR/Alloy) with bimetallic solderless sockets. The H.G. Fuse Set shall suitable for horizontal mounting on sub-station structures. The minimum clearance between the adjacent phases of the fuse set shall be 760 mm and the centre to centre (distance between two post insulators of the same phase) shall be 410 mm. All metal (ferrous) parts shall be galvanized and polished. Only 12 KV post insulator (original cemented and not pin insulators shall be used for the H.G. Fuse Set.

06.00 **TESTS & TEST CERTIFICATE:-**
Certificate for the following type test conducted (within 5 years preceding to the date of opening of Tender) on a prototype set of H.G. Fuse set in a Govt. approved Testing Laboratory preferably at CPRI, Bangalore shall have to be submitted for reference and Scrutiny

1. Dielectric test (impulse & one minute wet power frequency withstand voltage test.)
2. Temperature rise test (for terminals).
3. Mechanical strength test for the post insulator as per IS-2544/1973.
4. Test for galvanization of metal (ferrous1 parts.

## TECHNICAL SPECIFICATION FOR 33 KV & 11 KV SURGE ARRESTOR

01.00 **SCOPE**

This Specification covers Design, Engineering, Manufacture, testing, inspection before despatch forwarding, packing, transportation to site, Insurance (both during transit & storage), Storage. Erection, Supervision, testing and commissioning of 11 KV Surge Arrestor (L.A.) for use in the networks of CESU, Orissa.

02.00 **TECHNICAL**

The Station Class Surge Arrestor shall be heavy duty, metal oxide, gapless type generally for installation on the 11 KV sides of 11 KV Primary substations and 11/0.4 KV Distribution Substation-

The performance requirements are as follows:

**Performance Characteristics of Surge Arresters**

| **Nominal System Voltage** | **11 KV** |
|---|---|
| **Class** | **Station Class** |
| • Arrestor voltage rating | 12 KV |
| • Rated frequency | 50 Hz |
| • Continuous operating voltage, rms | 9.6 KV |
| • Leakage current through arrestor at Less than 1operating voltage | Less than 1 mA |
| • Long duration discharge class | Class 2 |
| • Nominal 8/20us discharge current--peak. | 10 kA |
| | |
| • Maximum Lightning impulse residual voltage with 8/20us discharge current peak | 32KV(31 KV*) |
| • Maximum switching impusse residual voltage peak | 28 KV (24 KV*) |
| • Maximum residual voltage with steep current peak | 38 KV (34 KV*) |
| • High current impulse test value (4/10us wave) | 100 KA |
| • Insulator housing impulse withstand voltage. 1.250us wave-peak | 41.6 KV |
| • Insulator housing power frequency voltage withstand capability for one minute (wet) – peak. | 29.68 KV |
| • Minimum creepage distance of insulator | 380 mm |
| • Minimum protected creepage distance | Not Applicable |

Figures shown in bracket are preferred ratings. Insulation withstand voltage of arrester housing shall be related to the residual voltages in accordance with clause 5.1 of lEC : 99.4.

**GUARANTEED TECHNICAL PARTICULARS OF 11 KV 400 AMPS A.B. SWITCHES**

| Sl.No. | Particulars | 11\ ~ KV 400 Amps A. B. Switches (desired value) | particulars as offered by the tender. |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1. | Maker's name and country or origin. | To be specified by the By the tenderer. ,; | - |
| 2. | Type of Switch | Rotating type only | - |
| 3. | Suitable for mounting | Horizontal only | - |
| 4. | Number of supporting post insulator per phase | 2 nos.12 KV Post Insulator per phase as per ISS-2544/1973. | - |
| 5. | Post Insulator. | | |
| (a) | Maker's name & country of origin | To be specified By the tenderer | - |

| | | | |
|---|---|---|---|
| (b) | Type of cemeting | To be quoted original cemented only. | |
| (c) | One minute power fre-Quency withstand voltage Dry | 35 KV RMS. | - |
| (d) | One minute power fre-Quency withstand voltage Wet. | 35 KV RMS. | - |
| (e) | Visible discharge voltage | 9 KV RMS. | - |
| (f) | Dry Flashover Voltage | To be specified by the tenderer | - |
| (g) | Power frequency puncture withstand voltas | 1.3 times of actual dry flash over volage. | |
| (h) | Creepage distance | 230 mm minimum. (actual creepage distance for which type test have been conducted is to be specified by the tenderer. | - |
| 6. | Impulse withstand voltage for positive and negative polarity ( 1.2/50) mircro second wave). | | - |
| a) | Across the isolating distance | 85 KV (peak) | - |
| b) | To earth & between poles | 75 KV (peak) | - |
| 7. | One minute power frequency Withstand voltage. | | |
| (a) | Across the isolating distance | 32 KV (RMS) | |
| (b) | To earth and between poles | 28 KV (RMS) | |
| 8. | Rated normal current and rated frequency | 400 amps. 50 Hz | |
| 9. | Rated short circuit making capacity. | 25 KA (peak) | |
| 10. | Rated short time current. | 16 KA (RMS) | |
| 11. | Rated peak withstand current | 40 KA (RMS) | |
| 12. | Rated mainly active load breaking capacity | 10 A | |
| 13 | Rated Transformer off load breaking capacity | 6.3 A( rms) | |
| 14. | Rated line charging breaking capacity | 2.5 A (RMS) | |

| | | |
|---|---|---|
| 15. | Rated cable charging breaking capacity | 10 A ( rms) |
| 16. | Minimum clearance between adjacent phases | |
| (a) | Switch Closed. ( centre to centre) | 760 mm |
| (b) | Switch opened. (centre/edge of blade) | 380 mm |
| 17. | **Temperature rise:** | |
| (a) | Temperature rise should not exceed to maximum limit as specified below at an ambient temperature not exceeding in 40 $^0$ C | 65$^0$ C |
| | Copper contacts silver Terminal of switch intended to be connected to external conductor by bolts or screw at an ambient temperature at 40 $^0$ C should not exceed. | 50 $^0$ C |
| 18. | Vertical Clearance from top of insulator cap to mounting channel | 254 mm (minimum) |

19. **Type of contact**

a) Self aligned. high pressure jaw type 0'.I fixed contacts of electrolytic copper of size 80 x 50 x 8 mm duly silver I plated. Each contact should be revetted with three nos. Copper rivets with a . bunch (minimum 3 mm thick) consisting of copper foils, each 111ay vary - from 0.15 mm to 0.25 mm. These total thickness of copper foils per jaw should be 6 mm. Jaw assemblings are to be bolted through stainless steel bolts and nuts with stainless steel flat and spring washer.

b) Solid rect Cuttack at blade type moving contact of electrolytic copper size 220 mm x 50 mm x 8 mm duly silver plated.

c) Pressurespring to be used in jaw contacts shall be phosphorous bronze having 8 nos or turn x 28 mm hight x 14.4 mm diameter with 14 SWG wire (minimum six nos springs shall be used.)

20. **Connectors**

. Terminal connectors for both movable and fixed should be of copper casting (minimum 95 % copper composition. The fixed connector shall of size 80 x 50 x 8 mm and the size of movable connector shall be si/:e 80 .X 50 x 8 mm with machine finishing duly silver plated with 2 nos. 12 mm dia holes provided with suitable brass bolts and double nuts with brass nat washers and 2 nos solderless biometallic shockets for each connector suitable up to 80 Sq.mm conductor.

21. **Moving Contact** — Movable contact is to be supported by galvanised angle or 50 x 50 x 5 mm in each phase and the moving contact are to be bolted through 2 nos. stainless steel bolts and nuts with stainless steel nut and spring washers, suitable.

22. **Galvanisation** — a) Iron parts shall be not deep galvanised as per IS-2633/197
b) The pipe shall be galvanised as per IS-473.6/1968.

23. **Details of phase :-**

(a) **Coupling Rod** — 25 mm nominal bore G.I. pipe medium guage.

(b) **Operating Rod** — 32 mm nominal bore G.I. pipe medium guage single length 6 mtrs. 1-he detailed dimension of the G. I. pipe as per IS-1239 (Pt.I) arc mentioned below:-

| Nominal Base | Outside diameter Max. | Outside diameter Min. | Thickness |
|---|---|---|---|
| 25 mm | 34.2 mm | 33.3 mm | 3.25 mm |
| 32 mm | 42.9 mm | 42 mm | 3.25 mm |

c) **Arcing Horn** — 10 mm dia G.I. Rod with spring assisted operation.

d) **Force of fixcd** — contact spring 0100 be specified by the tenderer

e) **Copper braided flexible topes** — 320 mm length 01' flexible electrolytic copper tape or braided chord (with tin coated) having minimum weight 450 gms. Per meter and both ends shall be crimped with copper shockets through brass bolts and nuts with brass flat washers two nos. of suitable copper shockets shall be used with both ends. The minimum no. of flexible wires should be 1536 of 36 SWG for each flexible chord.

f) Quick break device — Lever mechanism

g) Brdrings — 4 nos. self lubricant bearing to be provided with grease nipple : including 4 the bearing being a thrust bearing.

h) Locking arrangement:- — Pad Locker & Key arrangement at both 'ON' & 'OFF' position.

i) Earth Terminal :- — To be provided at base channels.

24. Supporting Channels — 75 mm x 40 mm M.S. Channel hot deep galvanized.

25. Weight of each pole complete:- — To be specified by the tender

N.B. i) Ferrous parts shall be duly galvanised as per IS-2633/1972 & Non-ferrous parts shall be silver plated.

ii) Certificate from a Govt. Approved Laboratory regarding composition of copper in electrolytic copper casting of materials should be submitted during inspection of materials at the cost of tender.

## GUARANTEED TECHNICAL PARTICULARS FOR H.G. FUSE SET 11 KV 200 AMPS, 3 POLE

| Sl. No. | particulars | (Desired Value) | Values offered By the tender. |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1. | Name of the manufacturer and country of origin. | To be specified by the By the tenderer. | - |
| 2. | Operating voltage | 11 K V | - |
| 3. | Number of insulators per phase | 2 nos.12 KV Post Insulator per phase | - |
| 4. | Rated normal current and normal frequency. | 200 Amps.50 Hz | - |
| 5. | Vertical clearance from top of insulator cap to mounting Channel. | 254 mm (minimum) | - |
| 6. | Height of the riser for carrying the horns. | 150 mm from the cap (top) of insulator. | - |
| 7. | Post Insulator. | | |
| (a) | Name of the manufacturer & country of origin | To be specified By the tenderer | - |
| (b) | Type of cemeting cemented only. | To be quoted original | |
| (c) | One minute power fre-Quency withstand voltage Dry | 35 KV RMS. | - |
| (d) | One minute power fre-Quency withstand voltage Wet. | 35 KV RMS. | - |
| (e) | Visible discharge voltage | 9 KV (RMS) | |
| (f) | Dry Flashover Voltage | To be specified by the tenderer | - |
| (g) | Power frequency puncture withstand voltas | 1.3 times of actual dry flash over voltage. | |
| (h) | Creepage distance | 230 mm minimum. (actual creepage distance for which type test have been conducted is to be , specified by the tenderer. | |

| | | |
|---|---|---|
| 8. | Impulse withstand voltage (1.2/50 micro second wave positive & negative polarity. | |
| (a) | Across the isolating distance. | 85 KV (peak) |
| (b) | To earth & betwcen poles | 75 KV (peak) |
| 9. | One minute power frequency withstand voltage | |
| (a) | Across the isolating distance | 32 KV (RMS) - |
| (b) | To each and between poles | 28 KV (RMS) - |
| 10. | Details of Arcing Hourns | Solid Copper rod having 7.62 mm dia silver plated provided with screwing arrangement on the fuse carrier made of copper casting for fixing fuse wire. ( Total length 63 5mm ). All the bolts, nuts and washers should be made out of brass. |
| 11. | Riser unit ( 150 mm total height). | a) Riser cum connector made out or copper Casting (with minimum 95% copper composition) having riser size 50 mm height x 30mm width x 8 mm thickness and connector size 80x 50x 6 mm duly silver plated and machine finishing provided with 2 nos. 12 mm dia brass bolts & brass double nuts with flat brass washer and 2 nos. solder less bimetallic shockets per each connector suitable up to 80 mm sq. conductor.<br><br>b) 100 mm height G.!. riser made of 19 mm nominal bore medium gauge G.I. pipe welded with 2 nos. G.I. flat of 30 x 5 mm at both ends fixed with 10 mm dia stainless steel, bolts and nuts with flat stainless steel spring washers. |
| 12. | Supporting Channels | 75 x 40 x 6 mm M.S. Channel ( galvanized) |
| 13. | Galvanisation | All ferrous parts should be galvanized as per IS-2633/1972 & all non-ferrous parts should be duly electroplated with silver. |
| 14. | Weight of each pole complete). | To be specified by the tenderer. |

N.B. :- Certificate from a Govt. Approved Laboratory regarding composition of copper in electrolytic copper casting and galvanization as per ISS may be furnished during inspection of materials at the cost of tender. .

## SINGLE PHASE AND THREE PHASE DISTRIBUTION TRANSFORMER

01.00 **SCOPE OF WORK**

This specification covers design, engineering, manufacture, inspection, testing at manufacturers works including type testing before dispatch, supply delivery at destination, storage at site, erection & commissioning distribution transformer of double wound, oil filled, naturally cooled, 50 Hz, outdoor type for use in rural electrification system.

01.01 **APPLICABLE STANDARDS**

Distribution transformers shall comply with the latest version of following standards along with the amendments. All the parameters and description of 10 KVA transformers shall be complying to this specification requirement. Standard to be referred for 10 KVA rating DTs shall be generally same as those, applicable for 16 KVA DTs, indicated in the standards.

i) IS 1180 : Part-1- Outdoor type distribution transformers up to and including 100 KVA 11 KV: Part 1 Non-sealed.
ii) IS 3347 : Dimensions for porcelain Transformer Bushings.
iii) IS 335 : New insulating oils.
iv) IS 2099 : Bushings for alternating voltages above 1000 Volts-
v) IS 9335 : Cellulosic papers for electrical purposes.
vi) IS 1576 : Solid pressboard for electrical purposes -specification.
vii) REC Specification 2/1971. (Revised 1997).
viii) IS / REC of update years for the above type transformers.

02.00 **RATINGS AND TYPE**

The KVA ratings and types of distribution transformer shall be as follows:

| KVA Ratings | No. of Phases | Nominal System Voltage (Ph-Ph) | No Load Voltage Ration |
|---|---|---|---|
| 10 | Single Phase | 11 KV | 11 / 0.250 KV (Ph.E) |
| 16 | Single Phase | 11 KV | 11 / 0.250 KV (Ph.E) |
| 25/63 | Three Phase | 11 KV | 11 / 0.433 KV (Ph.Ph) |

03.00 **MAKE OF TRANSFORMERS**

The detailed make i.e. the manufacturer of the transformer including details of company / firm should be mentioned for taking up the pre delivery inspection of the transformers as per work order making all type tests.

04.00 **SINGLE PHASE AND THREE PHASE ENERGY METERS.**

**SCOPE**

This specification covers design, engineering, manufacture, type testing inspection, testing, supply and delivery of single phase 2 wire fully static energy meter for single phase distribution transformer 'LT' side metering. The energy meter shall be operated through an external CT housed in LTDB as specified.



**APPLICABLE STANDARDS**

IS: 14697, IEC 61000-4-5 &6, IEC 62052-11 & IEC 62053-22, ANSI / IPC -A -610 are applicable for all purposes. Standard testing of various type test for procurement of Energy meters are to be taken up by 0.4 MR DISCOMS IS:14697 so also for acceptance and routine.

Accuracy test shall be performed first
and at the end the acceptance test is specified for procurement of energy meters.

# 6

# BID PROPOSAL SHEETS (ANNEXURE)

## SCHEDULE OF BIDS FOR TECHNICAL

1. Name of tenderer with Office and factory address, Tel. No./Telex No./Fax No. ' 2. Specification No.:
2. Address of Local Office and Tel. No./Telex/Fax No.
3. Tenderer's Reference No.
4. Last date and time of submission of Tender
5. Date and time for opening of Tender
6. Category of organization '7
7. Particulars of Earnest Money submitted
8. Whether SOUTHCO delivery clause accepted
9. Whether agreed to
   a) Inspection Clause
   b) Packing Clause
   c) Retesting Clause
10. Whether the material/equipment offered conformed to the relevant ISS specification and drawing.
11. Whether executed orders previously for the items tendered now. Please give full details of supplies made.
12. Whether the materials bears ISI mark
13. Offer valid up to
14. Delivery Schedule
    a) Commence with minimum quantity
    b) Rate of delivery per month/quarter and completion time.
15. If any deviation, please mention in deviation sheet enclosed.
16. Technical literature/catalogue of the materials offered enclosed.
17. Bidders work experience including user's certificate furnished or not.
18. Whether Guaranteed Technical Data Sheet Particulars submitted.

**Signature of Bidder**
**With Name and Seal of Firm**

(This form is to be duly filled up and duly signed by the Bidder & submitted along with the tender.)

## ABSTRACT OF GENERAL TERMS AND CONDITIONS

1. Earnest Money Furnished

2. Contractor / Firm's work experience including user's certificate furnished or not.

3. Deviation to the specification, if any (list enclosed or not).

4. Guaranteed Technical Particulars

5. Delivery / Execution
   Date of commencement / Execution

6. Guarantee: Whether agreeable to SOUTHCO Terms.

7. Whether agreeable to furnish security deposit in shape of Bank Guarantee in case his tender is successful.

8. Terms of payment: Whether agreeable to SOUTHCO standard terms of payment or not.

9. Sub-Contractor / Authorized representative

10. Turnover Certificate furnished from Chartered Accountant.

11. Valid ITCC & STCC submitted

**Signature of the Bidder**
**Name & With Seal of Firm**

[This form is to be duly filled up and duly signed by the Bidder & submitted along with the tender.]

# SCHEDULE FOR PRICE BID (1)

Dear Sir,

We hereby furnish the detailed price of supply, erection & testing of the equipment & materials covered under the entire scope of Rural Electrification Work in 9 Blocks excepting Khajuripada, Phiringia & Kotgarh Block of Kandhamal district of Orissa under “Biju Gram Jyoti Yojana” Scheme of GOO. (All Price in Rs.)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 1 | **Supply, erection & testing of 11 KV 3Phase HT Lines with 34sqmm AAA Conductor (span = 70-mtr.), complete work as per REC standard specification comprising of**<br><br>i) Supply & erection of PSC Single Pole along with 75mm padding with concrete, fixing of 'V' cross arm, pole top bracket, back clamp for 'V' cross arm, earthing, anti climbing device with fasteners, danger plate, nuts, bolts & washers, preformed insulator bindings, cables conductors and required hardware, complete in all respect inscribing in each pole **"BGJY"**and the year of electrification in white paint in the background of deep green paint.<br>With 8mtr long 200Kg PSC Pole<br>9mtr long 300Kg PSC pole!<br>11 mtr long 330Kg PSC Pole<br>(whichever is applicable)<br>ii) Supply & stringing of AAAC 34 sq. mm conductor including installation of insulators along with installation of hardware fittings & conductor accessories, jumpering arrangement at cut points & stringing of guard wire wherever required, supply & installation of PG clamp & . connector, pin binding, completion of work in all respect<br>iii) Supply & erection of 11 KV Stay set complete,<br>iv) Supply & erection of 11 KV, 400 Amp, 3-pole AB switch with all associated items at the T - off points.<br>v) Supply & erection of strut pole & pair of Clamps with Nut & Bolt<br>vi) Supply & erection of 2no DP structure for 1 Km span with power channel, clamp & DP Cross Bracing & Clamp with strain insulators, accessories etc. | Km. | 1 | | |

N.B.- Prices should be quoted covering all the materials, erection, testing, commissioning & earthing under one unit instead of quoting prices for the items separately.

## SCHEDULE FOR PRICE BID (2)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 2 | **Supply, Erection & Testing of 11KV 3 phase HT Lines with 34sqmm (7/2.5) AAA Conductor equivalent to Weasel conductor (span =70mtr.), complete work, comprising of**<br><br>i) Supply & erection of PSC Single Pole along with 75mm padding with concrete, fixing of 'V' cross arm, pole top bracket, back clamp for 'V' cross arm, earthing, anti climbing device with fasteners, danger plate, nuts, bolts & washers, preformed insulator bindings, cables/ conductors and required hardware, complete i~ilJ1Jespect inscribing in each pole **"BGJY"** and the year of electrification in white paint in the background of deep green paint.<br><br>With 8mtr long 200Kg PSC Pole/<br>9mtr long 300Kg PSC Pole/<br>11 mtr long 330Kg PSC Pole<br>(whichever is applicable)<br>ii) Supply & stringing of AAAC 34 sq. mm (7/2.5) conductor including installation of insulators along with installation of hardware fittings & conductor accessories, jumpering arrangement at cut points & stringing of guard wire wherever required, supply & installation of PG clamp & connector, pin binding, completion of work in all respect-<br>iii) Supply & erection of 11 KV Stay set complete.<br>iv) Supply & erection of 11 KV, 400 Amp, 3-pole AB switch with all associated items at the T - off points.<br>v) Supply & erection of strut pole & pair of Clamps with Nut & Bolt<br>vi) Supply & erection of 2no DP structure for 1 Km span with power channel, clamp & DP Cross Bracing & Clamp with strain insulators, accessories etc. | Km. | 1 | | |

N.B.- Prices should be quoted covering all the materials, erection, testing, commission earthing under one unit instead of quoting prices for the items separately.

## SCHEDULE FOR PRICE BID (3)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 3 | **Supply, Erection & Testing of 11 KV 2phase HT Lines with 34sqmm (7/2.5) AAA Conductor equivalent to Weasel conductor (span = 70mtr.), complete work, comprising of**<br><br>vii) Supply & erection of PSC Single Pole along with 75mm padding with concrete, fixing of 'V' cross arm, pole top bracket, back clamp for 'V' cross arm, earthing, anti climbing device with fasteners, danger plate, nuts, bolts & washers, preformed insulator bindings, cables! conductors and required hardware, complete in all respect inscribing in each pole **"BGJY"** and the year of electrification In white paint in the background of deep green paint.<br>With 8mtr long 200Kg PSC Pole/<br>9mtr long 300Kg PSC Pole/<br>11 mtr long 330Kg PSC Pole<br>(whichever is applicable)<br><br>viii) Supply & stringing of AAAC 34 sq. mm (7/2.5) conductor including installation of insulators along with installation of hardware fittings & conductor accessories, jumpering arrangement .at cut points & stringing of guard wire wherever required, supply & installation of PG clamp & connector, pin binding, completion of work in all respect.<br><br>ix) Supply & erection of 11 KV Stay set completet.<br><br>x) Supply & erection of.11K'J, 400 Amp, 3-pole AB switch with all associated items at the T -off points.<br>xi) Supply & erection of strut pole & pair of Clamps with Nut & Bolt<br>xii) Supply & erection of 2no DP structure for 1 Km span with power channel, clamp & DP Cross Bracing & Clamp with strain insulators, accessories etc. | Km. | 1 | | |

N.B.- Pricesshouidbe commissioning & earthing under one unit instead of quoting prices for the items separately

**SCHEDULE FOR PRICE BID (4)**

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 4 | **Construction of 16 KVA, 11/0.23KV, 1-Phase Distribution Sub-station complete comprising :-**<br>**i)** Supply& erection 9mtr. 300 kg PSC Single Pole structure along with pole concreting, padding & couping 0.45xO.35x1.8 transformer mounting bracket, Channel and angle for supporting DO Fuse unit, Channel for supporting AB Switch, anti climbing device with fasteners, danger plate, nuts, bolts & washers, preformed insulator binding and required hardware, 3 nos. of earthing arrangement with electrodes, cable for connection of transformer to LTDB, GI pipe & clamps for routing of cable & all other sundry items complete as per specification, inscribing in each pole and transformer "**BGJY**" and the year of electrification in white paint in the background of deep green paint<br>With MS guy set (20x1800mm) and stay clamp pair, N&B, 11 KV Stay Insulator, turn buckle, strut pole & pair of clamp, N&B<br>**ii)** Supply& erection of 16KVA, 11/0.23KV, 1-Phase Distribution Transformer with all accessories such as 11 KV 2-pole AB switch, DO Fuse Unit, LA & L T Distribution box and energy meter, complete as per specification | No. | 1 | | |

N.B.- Prices commissioning & earthing under one unit instead of quoting prices for the items separately.

## SCHEDULE FOR PRICE BID (5)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 5 | **Construction of 25 KVA, 11/0..4~KV, 3-Phase Distribution Sub-station complete comprising :-**<br><br>1. 9mtr- 300 kg PSC Double Pole structure along with Channel for supporting transformer, Channel and angle for supporting AB Switch, HG Fuse unit, Channel for supporting insulators, anti climbing device with fastners, belting and belting support for transformer, danger plate, nuts, bolts & washers, preformed insulator binding, and required hardware, 5 nos- of earthing arrangement with electrodes. cable for connection of transformer to L TDB,GI pipe & . lamps for routing of cable & all other sundry items complete as per specification inscribing in each pole and transformer **"BGJY"** and the year of electrification in white paint in the background of deep green paint.<br><br>With MS guy set (20x1800mm) and stay clamp pair, : N&B, 11 KV Stay Insulator, turn buckle strut pole & pair of clamp, N&B<br><br>2. Supply & erection of 25KVA, 11/0400KV, 3-Phase Distribution Transformer with all acessories such as 11 KV, 3-pole AB Switch, 11 KV HG fuse set & LA, LT Distribution box and energy meter complete as per specification | No. | 1 | | |

N.B.- Prices should be quoted covering all the materials, erection, testing, commissioning & earthing under one unit instead of quoting prices for the items separately.

## SCHEDULE FOR PRICE BID (6)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 7 | Construction of Single Phase ABC LT OH Lines (Span = 35m.), complete work as per specification comprising.<br><br>1. Supply & erection of 8 mtr 200KG PSC Pole along with pole concreting, earthing arrangement, eye hook, suspension / dead end clamp including belting of clamps, etc. complete as required for supporting LT XLPE insulated AB conductor, anti climbing device, with fastners, danger plate, nuts, bolts & washers and required hardware, LT Stay set, complete/Strut complete as per specification . .inscribing in each pole **"BGJY"** and the year of electrification in white paint in the background of deep green paint.<br><br>2. Supply & stringing of XLPE Insulated 1-phase ABC (1X35+1x25) sq.mm as per specification. | Km. | 1 | | |

N.B.- Prices testing, commissioning & earthing under one unit instead of quoting prices for the items separately.

## SCHEME FOR PRICE BID (7)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 2 | **Construction of 3-Phase XLPE insulated ABC LT OH Lines (Span =35m) complete work, as per specification comprising :-**<br><br>1. Supply & erection of 8 mtr 200KG PSC Pole along with earthing arrangement, cross arm insulator, fittings, hardware & accessories etc, complete as required for supporting conductor, anti climbing device, danger plate, nuts, bolts & washers and required hardware & LT stay set complete in all respect inscribing in ' each pole **"BGJY"** and the year of electrification white paint in the background of deep green paint,<br><br>2. Supply & stringing of XLPE Insulated, 3-Phase ABC (3X35+1X25)sq.mm as per specification. | Km. | 1 | | |

N.B.- Prices should be quoted covering all the materials, erection, testing, commissioning & earthing under one unit instead of quoting prices for the items separately,

## SCHEDULE FOR PRICE BID (8)

| Sl. No. | Description of Work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 11 | **Installation of Service Connections complete work for BPL consumer as specified below.**<br><br>1. Supply & fixing of 2-Core 2.5 sq mm PVC cable for service connection.<br><br>2. Supply & fixing of CESU approved Electronic type Energy Meter<br><br>3. Supply & fixing of Piercing type Connector for ABC Cable Universal Distribution Connector for bare conductor of ABC.<br><br>4. Supply & fixing of Meter Board with 16 amp DP main switch with earthing terminal, Coil earthing, Wooden distribution board with two nos. of flush type 5 A Switch, two nos. of holders with one no. 18W & one no. 11W CFL Lamp, house wiring & electrification of BPL houses including all other sundry items such as GI Pipe & bends with clamps, PVC Conduit, 10SWG GI Wire & reel insulator & all other sundry items etc., complete works as per specification. | No. | 1 | | |

N. B.- Prices should be quoted covering all :the materials, erection, testing, commissioning & earthing under one unit instead of quoting prices for the items separately.

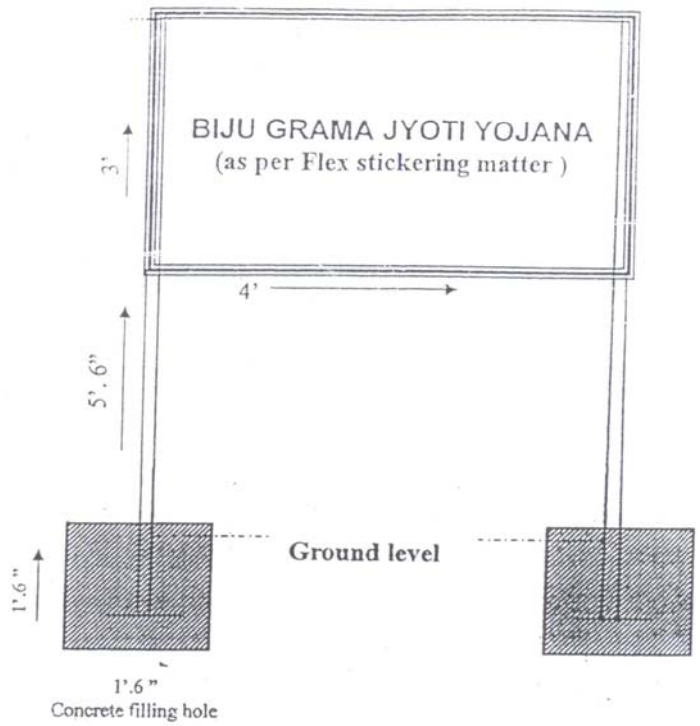
# SCHEDULE FOR PRICE BID (9/12)

| Sl No | Description of work | Unit | Qnty. | Unit Rate | Total Price |
|---|---|---|---|---|---|
| 12 | **Energisation of pump sets for small/marginal farmers under BGJY for 2009-10** | | | | |
| | 1. Supply & fixing of TP Box with CESU approved electronic type single phase two wire (10 – 20 A) energy meter. | No. | 1 | | |
| | 2. Supply & fixing of TP Box with CESU approved electronic type 3 phase 4 wire (20 – 30 A) energy meter. | No. | 1 | | |
| | 3. Supply & fixing of 2-C 2.5 sq mm PVC cable for service connection of permissible limit of 30 meter including all the accessories materials. Such as GI pipe and supporting GI wire of permissible SWG. | Mtr. | 1 | | |
| | 4. Supply & fixing of 4-C 6 sq mm PVC cable for service connection of permissible limit of 30 metre including all the accessories materials. Such as GI pipe and supporting GI wire of permissible SWG. | Mtr. | 1 | | |

N.B.- Prices should be quoted for each item separately.

Rates quoted for 11KV 3 Phase/2 Phase line, 11/0.23KV, 16KVA S/S, 11/0.433KV 25,63,100 KVA S/S, 3 Phase 4-W LT line with AB Cables/1 Phase 2-W LT line with AB Cables will be considered for energisation of pump sets.

(10)




# Cost Estimation

1- Display board of 4'x 3' steel frame (in 40 mm x 40mm x 5mm steel angle), total length of 29 ft=26.52 Kg. @ Rs.44.00 per Kg, 26.52 x 44.00= Rs.1166.80 = Rs. 1167.00

2- CR. Sheet of size 4'x3' =12Sq ft @ Rs.35.00 per Sq ft =Rs. 420.00

3- Fabrication charges with two coat anti oxide color Panting per board = Rs. 200.00

4- Base concreting with metal ingredients =Rs. 200.00

5- Sticker pasting labour charges @ Rs.24 per board =Rs. 24.00

6- Transportation (Loading & Un loading of steel frame) Rs.30 per board = Rs. 30.00

Total Rs.2041.00

(Rupees Two thousand Forty One) only

Note: Above cost is excluding any taxes applicable

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## PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

Bank Guarantee No.....

Date …….

1. In accordance with invitation to Bid No…….... Dated……..... of Collector & District Magistrate ……..., (herein after referred to as Collector) for the purpose of M/s…….. Address……..... …….. wish / wishes to participate in the said tender and as the Bank Guarantee for the sum of Rs (Rupees only) valid for a period of days (in words) is required to be submitted by the tenderer. We the Bank (herein after referred to as the bank) at the request of Mis……..., hereby unequivocally and unconditionally guarantee and undertake to pay during the above said period or written request by the Collector, an amount not exceeding Rs (Rupees ..... only) to Collector without any reservation. The guarantee will remain valid up to ,. of date (date) and if any further extension is required the same will be extended on receiving instruction from M/s……. on whose behalf this guarantee has been issued.
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 Collector stating that the amount claimed is due by war of loss or damage caused to or suffered by Collector 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 contractors failure to perform the said Bid. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs…….. (in words).
3. We undertake to pay to the Collector any money so demanded not withstanding any dispute or dispute raised by the contractor(s) I Supplier(s) in any suit or proceeding instituted I pending before any Court or Tribunal relating thereto our liability under this agreement being absolute and univocal. The payment made under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) I supplier(s) shall have no claim against us for making such payment.
4. We, the……. Bank our local Branch at ……..(detail address & Code No. of local branch to be specified) ful1her agree that the guarantee herein contain shall remain in full force and effect during eh period 240 days (two hundred and forty days) and it shall continue to do so enforceable till all the dues of the Collector under by the virtue of the said Bid have been fully paid and its claims satisfied or discharged or till Collector certifies: that the terms and conditions of the said Bid have been fully and properly carried out by the said contractor(s) and accordingly discharge this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the ……., we shall be discharged from all liabilities under this guarantee thereafter.
5. We, the …….. Bank our local Branch at ……. further agree that Collector shall have the fullest liberty without our consent and without affecting any manner our obligations hereunder to very and or terms and conditions of the said Bid or to extend time or performance by the said contractor(s) from time to time to postpone for any time or from time to time any of the powers exercisable by Collector against the said contractor(s) and to forebear or enforce any of terms and conditions relating to the said Bid and we shall not be relived from our liability by reason of any such variation postponement or extension being granted by .the contractor(s) or for any forbearance act or omission on part or Collector to the said contractor(s) or by any such matter or thing whatsoever which under the .law relating to sureties should but for this provisions have effect of so relieving us.

6. The guarantee will not discharged due to change in the name. style and constitution or the Bank and contractor(s).

7. We, the……..Bank our local Branch at …… lastly undertake not to revoke this guarantee during its currency except with the previous consent or Collector in writing.

Dated……....Day of ……200.....

Witness :-

1. ……..

2. ……..

For…….
(indicating name other Bank with seal)

**PROFORMA OF BANK GUARANTEE FOR PERFORMANCE GUARANTEE**

(To be stamped in accordance with Stamp Act.)

.Bank Guarantee No……..

Date……

This Guarantee Bond is executed this……Day ……200 by us the…… Bank at ……..

P.O…… P.S……. Dist…….

State……

Where as the Collector & District Magistrate,…… (hereinafter called "Collector") has placed Order

No……. Dt…….. (herein after called "the,: Agreement") with M/s…….. (herein after called "Contractor") for Electrification of villages/ habitations under Biju Gram Jyoti Scheme on Turnkey basis and whereas Collector has agreed to exempt from depositing of performance guarantee amount on furnishing by the Contractor to the Collector a Bank Guarantee of the value of 10% (Ten percent) of the Contract price valid for 18 months from the date of completion of work of the said Agreement.

1. Now, therefore. in consideration of the Collector having agreed to exempt from deposit of performance guarantee amount in terms of the said Agreement as aforesaid, we the…….. Bank,

Address…….. (code No……)

(herein after referred to as "the Bank") do hereby undertake to pay to the Collector an amount not exceeding Rs……

(Rupees..... ……)

only against any loss or damage caused to or suffered by the Collector 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 Collector stating that the amount calmed is due by way of loss or damage caused to or suffered by Collector 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 Collector any money so demanded not withstanding any dispute or dispute raised by the Contractor (s) in any suit or proceeding instituted I pending before any court or Tribunal! relating thereto our liability under ! this Agreement being absolute and unrecoverable.

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

4. We, the…… Bank further agree that the guarantee herein contain shall remain in full force and affect during the period that would be taken for the performance of this said Agreement and it shall continue to remain in force endorsable till all the dues of the Collector under by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till Collector 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 …….(local Bank. Name, Address 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, Collector shall have the fullest libel1y 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, reason of Co any such variation or extension being granted to the said contractor or for any forbearance act or omission on part of the Collector or any indulgence by the Collector 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 Collector in writing.

Dated……. The……. Days of Two thousand……
Not withstanding anything contained herein above.
Our liability under this Bank Guarantee shall not exceed Rs. ……..
(Rupees ……only)

ii) The Bank Guarantee shall be valid up to…….only.

iii) We or our Bank at ……..(Name & Address of the Local Bank……..) arc I liable to pay the guaranteed amount depending on the filling of claim and any pan there or under this Bank Guarantee only if you serve upon us or our local Bank at…… a written claim or demand and received by us or by Local Branch at 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 or the Contractor:
2) No. & date or the purchaser order / agreement:
3) Name of the Bank
4) Amount of the Bank Guarantee
5) Name, Address and Code No. of the Local Branch:
6) Validity period or date upto which the agreement is valid:
7) Signature of the Constituent Authority of the Bank with sea/:
8) Name & address or the Witnesses with signature:
9) The Bank Guarantee shall be accepted only ar.ter getting confirmation from the respective Bank

## Scope of Works – Chakapad, Tikabali & Raikia Blocks

**1. Chakapad- 18 Nos(Village/ Habitation) 2. Tikabali- 11Nos(Village/ Habitation), 3. Raikia- 7 Nos( Village/ Habitation): Total 36 Nos.**

| Sl. No. | Description of Items. | Details of Block-wise quantity | Unit | Qty. | Unit rate Quoted | | Total Price |
|---|---|---|---|---|---|---|---|
| | | | | | In figure | In word | |
| 1 | Construction of 11 KV line 2 phase 2 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin point supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr) | Chakapad 9.2 KM<br>Tikabali 3.05 KM<br>Raikia 3.56 KM<br>**TOTAL15.81 KM** | KM | 15.81 | | | |
| 2 | Construction of 11 KV line 3 phase 3 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin points supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr). | Chakapd NIL<br>Tikabali NIL<br>Raikia NIL | KM | -- | | | |
| 3 | Construction of 25 KVA 11/0.4 KV 3 phase distribution sub station with double pole mounted alongwith 9 mtr long 300 Kg PSC poles. | Chakapd NIL<br>Tikabali NIL<br>Raikia NIL | No. | -- | | | |
| 4 | Construction of 16 KVA 11/0.23 KV single phase distribution sub station with single pole mounted alongwith 9 mtr long 300 Kg PSC pole. | Chakapad 18Nos<br>Tikabali 12 Nos<br>Raikia 07 Nos<br>**TOTAL 37 Nos** | No. | 37 | | | |
| 5 | Construction of 1 phase- 2 wire L T line with (1 x 35 + 1 x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC pole (Average span length 35 mtr) | Chakapad 4.5 KM<br>Tikabali 3.45 KM<br>Raikia 4.35 KM<br>**TOTAL 12.3 KM** | KM | 12.3 | | | |
| 6 | Construction of 3 phase- 4 wire L T line with (3 x 35 + 1x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC I pole (Average span length 35 mtr) | Chakapd NIL<br>Tikabali NIL<br>Raikia NIL | KM | -- | | | |
| 7 | Installation of 11 KV AB switch 2 pole ( 200 A, V- Type) | Chakapad 01Nos<br>Tikabali 01 Nos<br>Raikia 01 Nos<br>**TOTAL 03 Nos** | No. | 3 | | | |
| 8 | Provision of road cross guarding for 11 KV line. | Chakapad 09Nos<br>Tikabali ---<br>Raikia ---<br>**TOTAL 09 Nos** | No. | 9 | | | |
| | | **TOTAL** | | | | | |

**Executive Engineer (Electrical)**
**Phulbani Electrical Division, SOUTHCO**
**Phulbani & Nodal Officer BGJY Scheme**

## Scope of Works – Balliguda, K.Nuagaon & Daringbadi Blocks

**1. Balliguda- 23 Nos(Village/ Habitation) 2. K.Nuagaon- 03 Nos(Village/ Habitation), 3. Daringbadi- 5 Nos( Village/ Habitation): Total 31 Nos.**

| Sl. No. | Description of Items. | Details of Block-wise quantity | Unit | Qty. | Unit rate Quoted | | Total Price |
|---|---|---|---|---|---|---|---|
| | | | | | In figure | In word | |
| 1 | Construction of 11 KV line 2 phase 2 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin point supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr) | Balliguda 16.26 KM<br>K.Nuagaon 1.5 KM<br>Daringbadi 7.2 KM<br>**TOTAL24.96 KM** | KM | 24.96 | | | |
| 2 | Construction of 11 KV line 3 phase 3 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin points supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr). | Balliguda 1.2 KM<br>K.Nuagaon 0.14 KM<br>Daringbadi -KM<br>**TOTAL1.34 KM** | KM | 1.34 | | | |
| 3 | Construction of 25 KVA 11/0.4 KV 3 phase distribution sub station with double pole mounted alongwith 9 mtr long 300 Kg PSC poles. | Balliguda 2 Nos<br>K.Nuagaon 1 no.<br>Daringbadi NIL<br>**TOTAL 3 Nos.** | No. | 3 | | | |
| 4 | Construction of 16 KVA 11/0.23 KV single phase distribution sub station with single pole mounted alongwith 9 mtr long 300 Kg PSC pole. | Balliguda 21 Nos<br>K.Nuagaon 2 no.<br>Daringbadi 5<br>**TOTAL 28 Nos.** | No. | 28 | | | |
| 5 | Construction of 1 phase- 2 wire L T line with (1 x 35 + 1 x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC pole (Average span length 35 mtr) | Balliguda 15.48 KM<br>K.Nuagaon 0.45 KM<br>Daringbadi 3.4<br>**TOTAL19.33 KM** | KM | 19.33 | | | |
| 6 | Construction of 3 phase- 4 wire L T line with (3 x 35 + 1x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC I pole (Average span length 35 mtr) | Balliguda 1.55 KM<br>K.Nuagaon 1.8 KM<br>Daringbadi -<br>**TOTAL 3.35 KM** | KM | 3.35 | | | |
| 7 | Installation of 11 KV AB switch 2 pole ( 200 A, V- Type) | Balliguda 01 Nos<br>K.Nuagaon 01 no.<br>Daringbadi 01<br>**TOTAL 3 Nos.** | No. | 3 | | | |
| 8 | Provision of road cross guarding for 11 KV line. | Balliguda --<br>K.Nuagaon --<br>Daringbadi --<br>**TOTAL --** | No. | -- | | | |
| | | **TOTAL** | | | | | |

**Executive Engineer (Electrical)**
**Phulbani Electrical Division, SOUTHCO**
**Phulbani & Nodal Officer BGJY Scheme**

## Scope of Works – Tumudibandha, Phulbani and G.Udayagiri.

**1. Tumudibandh- 15 Nos(Village/ Habitation) 2. Phulbani- 03Nos (Village/ Habitation), 3. G.Udayagiri- 14 Nos( Village/ Habitation): Total 32 Nos.**

| Sl. No. | Description of Items. | Details of Block-wise quantity | Unit | Qty. | Unit rate Quoted | | Total Price |
|---|---|---|---|---|---|---|---|
| | | | | | In figure | In word | |
| 1 | Construction of 11 KV line 2 phase 2 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin point supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr) | Tumudibandha 18 KM<br>Phulbani 0.24 KM<br>G.Udayagiri 10.78 KM<br>**TOTAL 29.02 KM** | KM | 29.02 | | | |
| 2 | Construction of 11 KV line 3 phase 3 wire with 34 mm2 AAA conductor on 8 mtrs long 200 Kg PSC pole for pin points supports and 9 mtr long 300 Kg PSC pole for 2 numbers of cut points per KM. (Average span length 70mtr). | Tumudibandha -- Nil<br>Phulbani -- Nil<br>G.Udayagiri -- Nil<br>**TOTAL -- Nil** | KM | -- | | | |
| 3 | Construction of 25 KVA 11/0.4 KV 3 phase distribution sub station with double pole mounted alongwith 9 mtr long 300 Kg PSC poles. | Tumudibandha --<br>Phulbani --<br>G.Udayagiri -- | No. | -- | | | |
| 4 | Construction of 16 KVA 11/0.23 KV single phase distribution sub station with single pole mounted alongwith 9 mtr long 300 Kg PSC pole. | Tumudibandha – 15 Nos.<br>Phulbani 3 Nos<br>G.Udayagiri 20 Nos.<br>**TOTAL 38 Nos.** | No. | 38 | | | |
| 5 | Construction of 1 phase- 2 wire L T line with (1 x 35 + 1 x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC pole (Average span length 35 mtr) | Tumudibandha 7.2 KM<br>Phulbani 2.4 KM<br>G.Udayagiri 3.21 KM<br>**TOTAL 12.81 KM** | KM | 12.81 | | | |
| 6 | Construction of 3 phase- 4 wire L T line with (3 x 35 + 1x 25) mm2 XLPE AB cable using 8 mtr long 200 Kg PSC I pole (Average span length 35 mtr) | Tumudibandha -- Nil<br>Phulbani -- Nil<br>G.Udayagiri -- Nil<br>**TOTAL -- Nil** | KM | -- | | | |
| 7 | Installation of 11 KV AB switch 2 pole ( 200 A, V- Type) | Tumudibandha – 1 Nos.<br>Phulbani 1 Nos<br>G.Udayagiri 1 Nos.<br>**TOTAL 3 Nos.** | No. | 3 | | | |
| 8 | Provision of road cross guarding for 11 KV line. | Tumudibandha –<br>Phulbani --<br>G.Udayagiri 6 Nos.<br>**TOTAL6 Nos.** | No. | 6 | | | |
| | | **TOTAL** | | | | | |

**Executive Engineer (Electrical)**
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