

# Uttar Gujarat Vij Company Limited

CIN - U40102GJ2003SGC042906  
(A subsidiary of Gujarat Urja Vikas Nigam Limited)

TENDER NOTICE No:- UGVCL/PROJECT/RDSS/ARVALLI/096

## Scope of Work

Bidders are requested to look after the Clause No. 1 Overview of the Scope of Works. However, for few of Turnkey Works detailed scope of work is as under:

The engraving of word "Developed under RDSS" in materials viz., Poles, Transformers (All types), Cables, Energy Meter etc is mandatory requirement. The Employer shall ensure strict compliance of this requirement. Also, while processing payments to the Contractor, suitable documentary evidence / photographs must be submitted to the Employer in support of the compliance (As per SBD Employer's Requirement Clause No: 1.6).

Major infrastructures like new primary substation, new Distribution Transformer , new lines etc developed under RDSS needs to be clearly denoted by a signboard that should represent As per SBD Employer's Requirement Clause No: 1.7 and further amendments if issued by MoP).

1. About the Work:
  2. Date of Commissioning:
  3. Estimated cost:
  4. Scheme
  5. Employer's details
1. **Electrification Work (Conversion from Over Head to Under Ground Power Distribution Network), Interlinking of Feeder (Reliability) & Crossing Removal (Safety) Work**
    - 1.1 Supply of all required material as per technical specification from approved vender of GUVNL & Subsidiary Company only.
    - 1.2 Supply and fixing of indoor / outdoor termination kit suitable for XLPE as per size of cable as per Technical Specifications and shown in schedule B.
    - 1.3 Supply and fixing of HDPE (DWC) pipe of 110 mm O.D. and 6.11 Kg/cm<sup>2</sup> (0.6 Mpa) class 4 Green Colour with thickness of 8.5 the same must be confirm to IS (4984-1987)(3<sup>rd</sup> version). The Pipe should be erected in such a way that 300 mm shall be below ground level and rest 2700 mm be supported on DP structure with polymer cleats.
    - 1.4 Laying of cable, testing and commissioning Cable trench up to the depth of 1200 mm is to be dug with width of 500 mm as mentioned in schedule B in any type of soil. Spreading of sand at the bottom of the trench up to 100mm. Laying of power cable in the Centre of the trench. Utmost care should be taken while loading / unloading and unwinding the cable drums. Covering the cable with 1"

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- thick, 6"dia., half round cement pipes. Back feeling the trench so as to make the surface smooth Erection of 11 KV XLPE cable on DP structure with fixing of polymer cleats, aluminum tags and with permanent identification of each cable at top and bottom (as per drawing ) with permanent identification.
- 1.5 Horizontal drilling without damage to surface road using Augur machine and putting of 6.11Kg/cm<sup>2</sup> HDPE (DWC) pipe 110 mm dia.& 8.5 mm thickness, class 4 green colour Confirms IS 4984-1987 (3<sup>rd</sup> revision) and laying of 11 KV XLPE cable of size 185mm<sup>2</sup>/240mm<sup>2</sup> as per site condition & instruction of Engineer in charge. The detail map and excel sheet (hard copy & soft copy) indicating the respective depth and distance from adjacent land mark for each segment for HDD is to be submitted as per instructions of Engineer in charge.
  - 1.6 Required civil work for Transformer, RMU plinth, Shade or required DP structure to be erect for Transformer etc.
  - 1.7 Approval for charging of the feeder erected by you from electrical inspector.
  - 1.8 Bids not covering the above entire scope of works shall be treated as incomplete and shall be rejected.
  - 1.9 Bids containing deviations form will be considered as non-responsive.
  - 1.10 Any other item not specifically mentioned in the specifications but which are required for Erection, Laying, Testing, Commissioning and satisfactory operation of the Distribution lines are deemed to be included in the scope of the specification unless specifically excluded.
  - 1.11 This specification covers the detailing, engineering, manufacturing, testing at works, packing, supply, storage, insurance and handling at site, erection, Cable laying testing, commissioning and handing over in ready to switch on condition to UGVCL of complete 11 KV equipment's/ accessories. However, if any item is left out, standard specification of Rural Electrification Corporation (REC) will be applicable for the same.
  - 1.12 The major activities involved in the project are as under:
    - Construction of 3 - Tire RCC Cable Trench.
    - HT Cabling and Termination
    - Supply & Erection of Distribution Transformer Center
    - Supply & Erection of Ring Main Unit (RMU)
    - LT Cabling and Termination
    - Supply & Erection of Mini Section Pillar (MSP)
    - Supply of all required material as per specification from approved vender of GUVNL & its Subsidiary Company only.
    - Required civil work for RMU plinth, Shade or required DP structure etc. to be done as per terms & conditions.
    - Dismantling of Overhead Distribution Network and crediting to store as per

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instruction of Project Manager / Engineer - in - Charge.

- Any kind of the restoration work to be done by the Contractor during execution of the work. Any other item not specifically mentioned in the specifications but which are required for Erection, Laying, Testing, Commissioning and satisfactory operation of the Distribution lines are deemed to be included in the scope of the specification unless specifically excluded.
- In case the Distribution Transformer or any other component likes RMU etc. is burnt or damaged due to negligence of the Contractor or due to faulty operation it shall be sole responsibility of the Contractor to get it rewound / replaced / repaired, as per standards of the equipment/component, free of cost.

**The major maintenance activities involved in the project are as under:**

- Routine & special maintenance of all electrical equipment such as Distribution Substations, Ring Main Units etc. will be carried by the contractor free of cost during the guarantee period at least once in Six months. Maintenance will also include required skilled man power, material & consumables items for routine, special & periodic maintenance & day to day operation.
- The contractor shall submit and get approved maintenance schedule from the Engineer-in-charge at the time of taking over the asset.
- All routine preventive maintenance including break down repairs are to be carried out by Contractor as per manufactures recommendations.
- The turnkey contractor shall monitor/check SF6 Gas leakage in the RMU and rectify the damages.
- The contractor is required to take appropriate action for minimizing disruption to traffic in the event of carry out some major breakdown/ faults affecting the safety and use of the roads by providing a rapid and effective response and maintaining liaison with emergency services of the competent authority
- The Contractor's responsibility for repairing metalled portion of the road during maintenance and shall include prompt removal of debris or any other obstruction, which may endanger or interrupt the smooth flow of traffic and provision of medical first aid to victims of the accidents or other incidents.
- Any special repairs due to damages during heavy rain, as per the instructions received from engineer in-charge, shall also be part of contractor' scope of work.
- Providing Operation & Maintenance manual which shall have separate sections for operations and maintenance.
- Maintenance of Earth Pits: Routine maintenance of the pits shall include checking to see if any debris or garbage has accumulated.
- Throughout the maintenance Period, the Contractor should keep record for

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works carried out and other changes made to the Project Equipments & Network.

- The Contractor shall provide list of all tools and tackles which will be required for proper operation and maintenance of equipments. He shall include the cost of these in his offer and shall hand over to Engineer-in-Charge the tools and tackles in good working condition after expiry of operation and maintenance period. If any tool, other than those specified by Contractor is required during the O& M period the same shall be supplied free of cost.

## 2. Pipe in Cage Earthing

- 2.1 The Scope of the proposal shall include Survey, design, engineering, manufacture, testing, supply to destination site basis, including transportation & insurance, storage, erection, testing, commissioning and operating of the all equipment's/items with all due safety measures , & all necessary clamp lugs, watering of sufficient quantity of water etc. as per requirement as per the technical specifications complete in all respects. The Scope of the proposal shall be on the basis of a single Bidder's responsibility, completely covering all the equipment's/Material and installation services specified under the accompanying Technical Specifications.

It will include among others as specified therein the following: -

- Detailed Engineering.
  - Complete manufacture including shop testing.
  - Providing engineering drawings, data, operation manual, etc for the Owner's approval.
  - Packing and transportation from the manufacturer's works to the Site.
  - Receipt storage, preservation and conservation of equipment & at the Site.
  - Pre-assembly, if any, insurance, erection, laying, testing and commissioning of all the equipment's/accessories/material/cable etc.
  - The successful bidder has to remain in contact with concern Engineer - in - Charge for selected feeder for smooth operation & implementation of research project.
- 2.2 Bids not covering the above cited entire scope of works may be treated as incomplete and hence rejected.
- 2.3 Bids containing deviations form will be considered as non-responsive.
- 2.4 The Bidder shall complete all the schedules & annexure in the Bid Proposal Sheets, Technical Data Sheets and specified elsewhere.
- 2.5 This specification covers the detailing, engineering, manufacturing, testing at

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- works, packing, supply, storage, insurance and handling at site, erection, testing, commissioning and handing over in ready to switch on condition to concern Engineer - in - Charge for the selected feeder.
- 2.6 Any other item not specifically mentioned in the specifications but which are required for Erection, Laying, Testing, Commissioning and satisfactory operation of the Distribution lines are deemed to be included in the scope of the specification unless specifically excluded.
- 2.7 This specification covers the detailing, engineering, manufacturing, testing at works, packing, supply, storage, insurance and handling at site, erection, Wire laying, testing, commissioning. However, if any item is left out, standard specification of Rural Electrification Corporation (REC) will be applicable for the same.

## GUIDELINE FOR PROCEDURE OF INSTALLING EARTH ELECTRODE & RESISTANCE MEASUREMENT:

- a) The packing of the Earth capsule should be done in such a manner that no any material leakages should happen even in worst transport & handling condition. These packing shall be marked with the name of the manufacturer or trade name, quantity, date of manufacture, etc.
- b) Before installation, surface of the earth electrode shall be cleaned properly; all resistive material shall be removed from the surface.
- c) The earth pits should be dug with the help of an auger (not more than 10”dia.). The manual excavation of pit shall not be entertained. The earthing electrode shall be installed at proper depth and put vertically in the center of the pit and then the pit is filled with local soil and water. At the time of installation, sufficient watering is required to mix up the soil uniformly surrounding to the electrode. The care shall be taken that there should be tight bonding between electrode and mother soil. So proper dumping is required at the time of installation, otherwise the porous (gap) between electrode and mother earth will not allow quick dissipation of fault current.
- d) To validate the quality of capsule as per specification, necessary tests/inspection (Proto inspection, lot inspection, Resistance/ Resistivity, Material validation testing, etc.) shall be carried out on the ready capsule.
- e) **Connection to Non-electrical part:** Scope of work shall cover supply, installation and Connection of 8 meter long GI Strip of 25mm wide, 3mm thick, having hot dip- galvanized-zinc coating of 80-100 microns without any joints or welding. The one end of the GI strip shall be connected with Earth electrode by Nut bolts, While, the other end of strip shall be connected by GI Nut bolts and required fabrication work for giving separate earthing connections to
- (1) Neutral of the transformer
  - (2) MS structures of the transformer center
  - (3) Lightning Arrestor

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For this, 3 separate earth Pits are required for three separate earthing for each transformer centre. GI strip shall be covered with rigid, UV protected PVC pipe minimum up to 2.5 meter from the ground level supported with pole by 5 nos of standard make cable ties as per instructions of Engineer-In-Charge.

Dimensions of Rigid PVC Pipe :-

Outside Diameter : 40 mm (tolerance:- -0.4 mm)  
Inside Diameter : 34.4 mm (Min.) (Heavy Duty)

- f) The resistance of the pit & soil resistivity at each earthing location shall be measured after completion of the earthing at each location in presence of the DISCOM representative and duly signed record of the same shall be submitted to sub division. The testing of the same shall be in scope of successful bidder. The soil resistivity and earth resistance shall be measured measuring with the digital test instrument of standard make such as megger, Chauvin Arnoux, Fluke, etc. of professional model having good accuracy and reliability with all accessories including wires and cables (company provided) shall have following minimum qualification.
- Earth Resistivity Kit (Company provided) : comprising of 4T shaped rods, 4 Reels of Cable( 50m Red, 50m Blue, 30m Green, 30m Black),Cable Winder(10m Green), Mallet, etc.
  - 2P,3P & 4P measuring method : Range 0.001 to 99.99 kΩ
  - Resolution : 0.001 to 10 Ω
  - Test method : Wenner and Schlumberger with automatic calculation
  - Accuracy : ± 2 %
  - The bidder has to submit technical catalogue of the earth resistivity measurement instrument to be used in tender for measurement. The bidder who are using low profile meter than stated technical spec. shall be liable to rejection.
- g) The resistance of the pit & soil resistivity at each earthing location shall be measured after completion of the earthing at each location in presence of the DISCOM representative and duly signed record of the same shall be maintained.
- h) Earthing Display board made up of FRP material having size of at least 200 mm x 150 mm x 3 mm with following details. The display board should be bound with pole as per the instruction of engineer in-charge with minimum four corner holes provided for fastening with poles.
- (1) Name of Manufacturer/ Trade Name / Supplier
  - (2) PO NO:
  - (3) Feeder Name:
  - (4) Consumer Name:
  - (5) Consumer Number:
  - (6) Earth Pit No:
  - (7) Drawing No \_\_\_\_\_

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- (8) Length of Electrode in mm
- (9) Date of Installation
- (10) Resistance value in Ohm on Installation date
- (11) Soil Resistivity in Ohm-Meter

### 3. Augmentation of Distribution Transformer (100 to 200 kVA) and Replacement of Overage Distribution Transformer having various capacity.

3.1 The Scope of the proposal shall include Survey, design, engineering, manufacture, testing, supply to destination site basis, including transportation & insurance, storage, erection, testing, commissioning and operating of the all equipment's/items with all due safety measures , & all necessary clamp lugs, watering of sufficient quantity of water etc. as per requirement as per the technical specifications complete in all respects. The Scope of the proposal shall be on the basis of a single Bidder's responsibility, completely covering all the equipment's/Material and installation services specified under the accompanying Technical Specifications.

3.2 Supply and Replacement / Augmentation of Distribution Transformer having capacity from 5 kVA to 500 kVA and crediting to old transformer to concern Division Office Store.

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