**SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LTD**

 **BIDDING DOCUMENT**

Invitation to Bidders


## **DISTRIBUTION COMPANY OF TELANGANA LTD**

**LIGHTING UP YOUR LIVES**

SOUTHERN

POWER

**Specification No. DE/ Master Plan/ WCGH Division/RR/**

 **T. Sp. No. 01/2024-25 (1st Extension)**

Erection of 33kV VCB along with twin feeder control panel and AB switches at 220/132/33kV Shapur nagar EHT SS for newly erected 33kV Ushamullapudi feeder with HTLS ACSS Dog conductor and single core 630Sq.mm. aluminum XLPE cable from 220/132/33kV Shapur Nagar SS up to 33/11kV Ushamullapudi Sub-Station in Operation Division Medchal of Master Plan Sub-Division - II (WCGH) in Master Plan Division (WCGH) of Master Plan RR circle - Under T&D 33kV VCB Erection works .

SCHEDULE COST: RS. 590/-

Date, Time, Place of opening of Tender is on: 05.03.2025 at 15:00 Hrs in Chambers of Divisional Engineer/ Master Plan/WCGH Division/ RR Circle

 Sold to: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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DD No. Rs. Date:

Bank: Branch:

Tenderer 1

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| WhatsApp Image 2024-05-22 at 14 | **SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LTD.**Master plan Kukatpally, Hyderabad |

**Proceeding No. DE/ Master Plan /WCGH Division /RR Circle / F.No.Spc No.01/2024-25(1st extn) / D.No. /2024-25, Dt: 02.2025 .**

Sealed Tenders are invited from the eligible contractors for the following work up to **05.03.2025** at **12:00** Hrs. The tenders will be opened on **05.03.2025** at **15:00** Hrs in the presence of the Divisional Engineer /Master Plan/WCGH Division/RR Circle and tenderer or their authorized representatives in the O/o Divisional Engineer /Master Plan/WCGH Division/RR Circle/Kukatpally, Hyderabad.

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| **S.No** | **Specification No.** | **Name of the work** | **Approx. Value of work Rs.**  | **EMD (2%) to be paid Rs.**  | **Period of completion** |
| 1 | Spec No. 01/2024-25 of DE/ Master Plan/WCGH Division/RR Circle | **E**rection of 33kV VCB along with twin feeder control panel and AB switches at 2**20/132/33kV Shapur nagar EHT SS for newly erected 33kV Ushamullapudi feeder** with HTLS ACSS Dog conductor an**d single core 630Sq.mm. alumin**um XLPE cable from 220/132/33kV Shapur Nagar SS upto 33/11kV Ushamullapudi Sub-Station in Operation Division Medchal of Master Plan Sub-Division - II (WCGH) in Master Plan Division (WCGH) of Master Plan RR circle |  1,58,306/- | 3737/- | 4 months |

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| 1 | Date of sale of bid | 19.02.2025 at 11:00 Hrs |
| 2 | Last Date for sales of tender schedule | 04.03.2025 at 15:00 Hrs |
| 3 | Last date of receipt of tenders | 05.03.2025 at 12:00 Hrs |
| 4 | Date & Time of opening of tenders | 05.03.2025 at 15:00 Hrs |
| 5 | Cost of tender specification | Rs. 590/- |
| 6 | The Cost of tender Specification and EMD shall be remitted by the way of Demand Draft drawn in favour of Accounts Officer, Master Plan, TGSPDCL, Hyderabad |

Any further information in this regard can be obtained from this office the Divisional Engineer/ Master Plan/WCGH Division/RR Circle, TGSPDCL. Hyderabad and from the website of [**www.tgsouthernpower.com**](http://www.tssouthernpower.com)

 **Divisional Engineer Electrical,**

 **Master Plan, WCGH,**

 **RR, Kukatpally,**

Phone/Fax : **9491045256 TGSPDCL, Hyderabad**

Tenderer

**Each bidder should submit the following documents in the bid.**

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| 7Tenderer 3  | **Eligibility Criteria** **Mandatory** |

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| **S. No.** | **Description** |
| 1 | **Financial Turnover:**As part of financial eligibility, the bidder should have achieved a minimum turnover of 50% of Bid value during any one financial year in the preceding **Seven** financial years i.e., **FY2016-17 to FY:2022-23** certified by Chartered Accountant. |
| 2 | **Technical Experience:** To qualify for award of the contract, each Bidder in his name should submit certificate issued by an Engineer not below the cadre of Divisional Engineer for the works executed in a consecutive period of 24 months during the last 7 financial years. The date of work commencement, completion along with Agreement No. should be invariably furnished in the performance certificates issued by the concerned Engineer.  |
| a | UG Cable | 33kV | 25% of the route length must be executed in any consecutive 24 months period during preceding Seven financial years. |
| 11kV |
| b | OH Line | 33kV | 25% of the route length must be executed in any consecutive 24 months period during preceding Seven financial years. |
| 11kV |
| c | Towers | M-Type | If OH line is having 20 or less than 20 Towers, OH line experience will be considered. If OH line is having more than 20 Towers, 25% of No. of Towers experience is required. |
| 3 | The Contractor shall have valid ‘A’ Grade Electrical Contractor’s license from CEIG, Government of Telangana up to 33 kV or above voltage grade. |
| 4 | Valid bid security @ 2 percent of ECV in the form of DD only drawn in favour of Accounts Officer/ Master Plan/ TSSPDCL/ Hyderabad from any Scheduled Bank or Nationalized Bank only.**Note:** **Exemption of EMD for SC/ST Category Reserved tenders, as per T.O.O. (CE/Civil) Ms. No. 511, Dt. 03-01-2020 & Sp.O.O. (Projects) Ms.No.521, Dt.24-06-2020** |
| 5 |  Copy of Liquid Assets/ Solvency Certificate for not less than 20% of Bid value and should have been issued by any Scheduled bank or Nationalized bank not earlier than Twelve Months prior to the date of bid opening. The TGSPDCL reserves the right wherever necessary to make queries with the bidders bankers |
| 6 | Bidder should submit a Copy of TGSPDCL Registration of the Vendor |
| 7 | The bidder has to submit the Goods and Services Tax (GST) and EPF & ESI Registration Certificates. |
| 8 | The bidder should upload the information of Litigation History on letter head. |
| 9 | Self declaration by the Bidder in token of having gone through carefully and thoroughly all the terms and conditions mentioned in the Bid document and abide by all the terms and conditions clearly mentioning the Name of the work or Specification no. of the bid.  |
| 10 | Declaration certificate shall be given on Firm’s letter head duly certifying the availability of critical equipment either owned or leased (i.e. Owned equipments and leased equipments should specifically be mentioned) shall be mentioned separately such as Rollers, Tractors, JCBs, Cranes, Ropes and Pullies, safety equipment with first aid kit, Meggar, Tong tester, UG Cable length measuring equipment, Chain pulley blocks, Welding machines, Drilling machines, Gas cutters, Concrete millers, Pin vibrators, Slab vibrators, RCC centering Equipment, Transport vehicles etc, as the case may be. **Bidders without giving declaration for Cable Rollers & Pulling machines will be summarily rejected as the cable work must be carried out using rollers only.**  |
| 11 | Bidder should submit declaration of Qualification of key person/Site in charge with B.Tech/ Diploma in Electrical Engineering from Recognized Universities |
| **S.No.** | **Description** |
| 1 | Pan Card |
| 2 | Firm Registration/ Registered Partnership deed in case of firm  |
| 3 | EPF Registration Certificate |
| 4 | The bidder is requested to furnish Email address for correspondence |
| 5 | The Bidder should submit the hard copy of all uploaded mandatory documents for verification |
| 6 | The Bidder shall submit a copy of financial turnover, Profit & Loss statements, Balance sheets and Income tax return statements supporting the Financial Turnover in the preceding Seven financial years certified by Chartered Accountant. |

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| **Optional** |
| 88 | All tenders must be accompanied by the bid security shall be delivered to the following address the Divisional Engineer /Master Plan/WCGH Division/RR Circle/Kukatpally, Hyderabad. |
| 99 | The under signed reserves the right to reject any or all tenders without assigns any reasons thereof. |
| 10 | Procedure for Bid Submission | 1. The bidders are requested to submit all the Mandatory Documents duly attested by the Gazetted Officer as stipulated in the bid document.
2. Hard Copies shall also to be submitted with all above mentioned documents only in sealed bid on or before **05.03.2025** **at 12:00 Hrs** to make him responsive, subject to fulfillment of other required obligations of the bid document.
3. The department shall not be responsible for any risk on account of postal delay, similarly, if any of the certificates, documents, etc., furnished by the bidder are found to be false misleading/ fabricated/ bogus, the bidder will be disqualified duly forfeiting the bid security & black listed and action will be initiated as deemed fit.
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| 11 | Right reserved with the Department | TGSPDCL reserves the right to accept or reject any or all the bids received without assigning any reasons there for. |
| 12 | General Terms and conditions | As specified in the bid document and TGSPDCL terms & Conditions. |

Tenderer

Technical specification

**SPECIFICATION OF BAY EXTENSION AT EHT WITH BOOM STRUCTURE**

 **Bay extension works at EHT SS**

The scope of supply includes supply, fixing testing and commissioning of 33 kV breaker at 132/33 kV SS including the cost of breaker etc as detailed below.

* Supply and erection of TC Structures & BD Booms 4 Nos. TC towers (each 578 kg), 3 Nos. BD Booms (225 kg each) & 1 No. Cantilever 110 kg including bolts and nuts.
* Supply & Fabrication & Galvanization of raw steel such as MS Angles, Plates, Channels, RS Joists, MS Rounds etc, and fabrication and galvanization of main and auxiliary structures stub setting template and foundation bolts 'U' Bolts with suitable galvanized nuts for foundations bolts including cost of steel and transportation to substation site.
* Providing & Fixing galvanized Bolts and nuts including cost of material for erection of tower.
* Erection of main and auxiliary structures.
* Excavation of pit of size 1.6x1.6x1.275 m =3.264 m³ X 4 Nos.
* Concrete PCC (1:4:8) 1.6x1.6x0.075 m=0.192 m³ x 4 Nos.
* Concrete RCC (1:2:4) (1.6x1.6x0.3+1x1x1.05) =1.818 m³ x 4 Nos.
* Plastering = 1x1x1+4x1x0.15 = 1.6 mm² x 4 Nos.
* Back filling (2x0.3x1.6x0.9+2x0.3x1x0.9 = 1.6 mm² 4 Nos.
* Reinforcement (RTS) 10mm Dia = 12 Nos. x 4.86, 14Nos. x3.88 = 73.84 R m x0.62 =45.78 kgx4Nos.
* Supply, erection and commissioning and testing of 33 kV 25 kA, 3 Sec VCB including Current transformers with 800-400/1-1 A, including the control and Relay panel of 220 V DC.
* Excavation in all types of soils (2.1x1.5x1.1x1.65) = 6.5 m³
* Cement concrete PCC (1:4:8) = 2x1.5x1.1x0.1 = 0.33 m³
* RCC (1:2:4) = 2x1.5x1.1x0.3 + 2x0.5x0.9x(1.2+0.35) = 4.34 m³
* Smooth plastering of VCB plinth (0.5x0.9+2x0.35x0.9+2x0.35x0.5) = 2.23 m³
* Back filling 6.5 - 4.67 = 1.83 m³
* Reinforcement (RTS) 10mm Dia = 16 Nos. x1.4x4+10 Nosx1x4=129.60R m=129.62x0.62 kg=80.352 kg
* Supply and Jumpering with Zebra conductor from A.B Switch to breaker,breaker to C.T. and C.T to A.B Switch (total 9 jumpering locations).
* Supply & erection of 33kV 800 A AB switch fixing of guide pipes and alignment, Jumpering of AB Switch, earthing with MS Flat cutting to size and making holes and spot welding and complete including cost of bolts & nuts.
* Supply & Erection of 33kV LAs with Bolts and nuts and fixing of guids with clamps, on structure, jumpering and earthing of LAs with MS flat (including cutting to size, making holes and spot welding).
* Supply & Laying of earth mat including excavation of trenches, welding and fixing lugs, connecting to equipment and connecting lighting shield to earth mat and earthing of fence posts, drilling and connecting earth rods including connecting cast iron pipes as per Drg. No. SET(P) 149/82 with the following sizes of MS/GI Flats including supply of MS Flat and GI Flat with 100 x 16mm MS Flat, 100 x 16mm GI Flat, 50 x 8mm MS Flat, 50 x 8mm GI Flat.
* Supply of Earth Electrode & Excavation of earthpit, putting cast iron pipe with flange on one end of nominal dia" 125mm and 2.75 m long inside the pit including supply and fixing RCC collar 4 m dia" and 0.6 m length inside the pit backfill the pit with mixture of Bentonite and Black cotton soil and earth of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH coke and RCC collars, labour charges for all operational and incidental items of work etc., complete but including cost of CI pipes.
* Supply & Erection of twin control & relay panel in the Control Room duly maintaining them on channels and grouting them with foundation bolts including cost of channels and foundation bolts.
* Supply and Laying of control cables of all sizes from 2 Cx2.5 mm² copper control cable trenches including running of cables in control room when cable are run on cable racks in cable duct.
* Supply and Laying of control cables of all sizes from 4 C x2.5mm² copper control cable trenches including running of cables in control room when cable are run on cable racks in cable duct.
* Supply and Laying of control cables of all sizes from 10 C x2.5mm² copper control cable trenches including running of cables in control room when cable are run on cable racks in cable duct.
* Supply of ACSR Zebra Conductor.
* Connecting equipment to bus and/or another equipment including measuring, cutting, clamping and hosting of suspension insulators assembly to support the conductor with twin/single zebra and other items of work, With Single Zebra without PASD, With Single Zebra with PASD with Twin Zebra without PASD.
* Hoisting of insulators and hardware stretching of 33kV Auxiliary Bus comprising three conductors with twin zebra conductor to a tension of 900 kg. Including fixing of spacer clamps, 3-bolted tension hardware for twin zebra with Twin zebra spacer clamps, T clamps for twin Zebra, Tension clamps for twin zebra, pad clamps.
* Supply Erection of Marshalling boxes on the structures of equipment in full shape including cost of marshalling boxes.
* Cable termination to the Switchgear, marshalling boxes/panel terminal blocks/control and relay panels, LTAC panel, including cost of suitable ferrules and lugs each on at both ends.
* Supply & Erection of Tubular Poles (30 feet Height) for yard Lights.
* Installation of lighting fixtures on switchyard structures including cost of lighting fixtures of Metal halide 150W/LED 100 and cabling and connections complete.
* Supply & Provision of Earth bonds including cost of Earthbonds.
* Cable ducts for laying of power & control cables for Switch yard, Control Room, Earth excavation & removing of earth boulders & leveling of the yard of the yard in the following soils, Red earth or hard gravel soil, Removing of Hard rock boulders by bendhin, chiseling, wedging and boring in rock in foundation complete for finished item & cleaning the removed boulders away from the site,
* Metal Spreading in the Yard with 20 mm Metal

**SPECIFICATION BAY EXTENSION WORKS AT EHT SS**

**Schedule of Bay extension works with RS joists**

The scope of supply includes fixing testing and commissioning of 33 kV breakers at EHT SS with 150 x 150 mm RS joists as detailed below.

* 33 kV Bay Extension at 132/33 kV SS with RS joist pole 150 X 150 mm 9.0 m including the cost 100X50 MS channel supply connecting with zebra conductor,T clamps,earthing complete.
* Erection and commissioning and testing of 33 kV VCB including CT’s.
* Supply Erection, of 33 kV 800 A AB switch earthing with MS Flat cutting to size and making holes and spot welding and complete.
* Supply Erection of Marshalling boxes on the structures of equipment in full shape including cost of marshalling boxes and cable termination to all equipment with suitable lugs and ferrules complete.
* Earthing with earth electrodes by providing of CI pipe and shall be identical with the existing earthing system of EHT substation by fabrication and punching holes wielding brackets for fixing CI strip including supply and back filling mixture of Bentonite and black cotton soil , complete.
* Earthing of breaker with MS flat and shall be identical with the existing earthing system including cutting of MS Flat to size, making of holes and post wielding and connecting to earth grid, double earthing as per IS 3043 as per the scope of supply complete.
* Supply and Laying of control cables 2 core, 4 core , 10 core (2.5 mm² copper) of all sizes in cable trenches including running of cables in control room when cable are run on cable racks in cable duct.
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| **DATA-I** |
| **Erection of 33kV TD Structure**

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| **S. No** | **Description**  | **Qty** | **Per Unit** | **Rate**  | **Amount** |
|  | **Material** |  |  |
| 1 | Supply of fabricated GI structures from raw steel such as MS angles, plates, channels, RS joists, MS rounds etc. and fabrication and galvanisation of main and auxiliary structure stub setting template and foundation bolts,'U' bolts as per drawing and including cost of welding and cutting and labour chargers for all operational and incidental items of work etc. complete including cost of steel and transportation of site. | 0.22 | MT | 82272.23 | 17935.35 |
| 2 | Supply of hot dip galvanised bolts and nuts of various sizes required for all structures and booms fabricated under item 1 including transportation for sub-Station site and conforming to standard specified  | 0.01 | MT | 98688.29 | 1270.12 |
| 3 | Supply of Steel(HYSD Bars) | 0.041 | MT | 42425.00 | 1739.43 |
|   |   |   | **Total:** |   | 20944.89 |

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| **DATA-IV** |  |  |
| **Erection of 33kV BD Boom** | **SSR for FY 2023-24** |
| **S. No.** | **Description**  | **Qty** | **Per Unit** | **Rate**  | **Amount** |
|  | **Material** |  |  |
| 1 | Supply of fabricated GI structures from raw steel such as MS angles, plates, channels, RS joists, MS rounds etc. and fabrication and galvanisation of main and auxiliary structure stub setting template and foundation bolts,'U' bolts as per drawing and including cost of welding and cutting and labour chargers for all operational and incidental items of work etc.complete including cost of steel and transportation of site. | 0.20 | MT | 82256.20 | 16368.98 |
| 2 | Supply of hot dip galvanised bults and nuts of various sizes required for all structures and booms fabricated under item 1 including transportation for sub-Station site and conforming to standard specified  | 0.0190 | MT | 98669.07 | 1874.71 |
|   |   |   | **Total:** |   | 18243.70 |
|  | **Labour** |   |   |
| 3 | Erection structure fabricated for RS joists, channel, MS angles  | 0.2000 | MT | 2522.76 | 504.55 |
|   |   |   | **Total:** |   | 504.55  |
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TECHNICAL SPECIFICATION

AB SWITCHES

(33 kV 800 A, 11 kV 400 A & 11 kV 200A)

**1. SCOPE:**

The specification provides for the manufacture, testing before dispatch, packing forwarding supply and delivery at destination stores (FADS) of **1) 33 kV 800 AAB Switch metallic 2) 11 kV 400A conventional AB Switches with insulators 3) 11 kV 200A conventional type AB switch metallics.**

**2. STANDARDS:**

**A) 33kV 800 A AB Switch metallics:** The 33kV, 800A double break AB Switches shall confirm in all respects to Tender Spn No. SPMPT – 22/02-03 IS:9920 part I to IV (latest version) and IS – 9921 part I – IV (latest version)

**B) 11kV, 400A conventional AB Switches with solid core insulators:** The 11kV 400A double break AB Switches shall confirm in all respects to tender Spn No. SPMPT – 22/02-03, IS 1818/1972, IS – 9920 part I to IV (latest version), IS: 9921 part I to IV (latest version).

**C) 11kV, 200A conventional AB Switch metallics:** The 11kV 200A conventional AB Switch metallics shall confirm in all respects to tender Spn No. SPMPT – 22/02-03, IS 1818/1972, IS – 9920 part I to IV (latest version).

**3) DIMENSIONS :** The dimensions of 1) 33 kV 800A AB Switch metallics 2) 11 kV, 400A conventional type AB Switch metallics 3) 11 kV, 200A conventional type AB switch metallics and 4) 11 kV, 400A solid core insulators shall confirm in all respects to IS as mentioned above.

**4) DRAWINGS:** The successful tendereres before proceeding for manufacture of the material, the detailed drawing shall be got approved by this office. The tenderers also required to produce three sets of drawings together with bill of materials along with the tender.

**5) TESTS AND TESTS CERTIFICATES:**

i) As soon as the material is ready for dispatch, the material is to be offered for inspection by Registered Post and the tests as per the standards are to be carried out in the presence of TGSPDCL representative without any cost and test certificates shall be got approved by this office.

 ii) The TGSPDCL reserves the right to carry out the tests by any standard organization at contractor cost, in case of any discrepancy regarding the quality of materials.

**6) GUARANTEED TECHNICAL PARTICULARS:**  The Guaranteed Technical Particulars as per the IS shall be guaranteed and statement of Guaranteed Technical particulars shall be furnished along with the tender.

**7) NAME PLATE:**  Equipment should be provided with name plate giving full details of manufacture, capacities and other details as specified in the relevant ISS or other specification stipulated. The Purchase Order No. and date and year of supply and words TGSPDCL must be etched on the name plate.

**8) ASSEMBLY:** The Assembly of the AB Switches at the destination stores is the responsibility of the Contractors.

1. **For 33 kV 800A AB Switches:**

1. Operating down pipe : 6.1 m, 32 NB Class-B GI Pipe

2. Connectors (Jumper plate) : LM –6 Alloy terminal connectors (75X12mm) suitable for panther conductor.

3. Fixed Contact : 25X4 mm Copper Flat (HDE)

4. Moving Contact :38 OD and 30 ID Copper Pipe (HDE)

5. Base Channel : 100X50 mm MS Channel of length 1065 mm

6. Provision for pad lacking in ON-OFF position shall be provided.

7. Three numbers Guides of MS Angle 50X50X6 mm for supporting the down pipe, slotted holes are to be mate to the angles for fixing the same to the pole.

1. **For 11 kV 400A Conventional AB Switches (Double Break):**

1. Operating down pipe : 6.1 m, 32 NB Class-B GI Pipe

2. Terminal Connectors : LM –6 Alloy terminal connectors suitable for Dog ACSR conductor.

3. Fixed Contact : 25X4 mm Copper Flat (HDE)

4. Moving Contact : 32X6.5 mm HDEC Flat

5. Flexible Jumper : Two numbers flexible jumpers of size

 25X4X360 mm

6. Base Channel : 75X40 mm MS Channel of length 609.6 mm

7. Provision for pad lacking in ON-OFF position shall be provided.

8. Three numbers Guides of MS Angle 40X40X5 mm for supporting the down pipe, slotted holes are to be mate to the angles for fixing the same to the pole.

1. **For 11 kV 200A Conventional AB Switches:**

1. Operating down pipe : 6.1 m, 32 NB Class-B GI Pipe

2. Terminal Connectors : LM –6 Alloy terminal connectors suitable for 20/30/50 ACSR conductor

3. Fixed Contact : 25X4 mm Copper Flat (HDE)

4. Moving Contact : 32X5 mm HDEC Flat

5. Flexible Jumper : Flexible jumpers of size

 25X4X360 mm (Copper)

6. Base Channel : 75X40 mm MS Channel of length 609.6 mm

7. Provision for pad locking in ON-OFF position shall be provided.

8. Three numbers Guides of MS Angle 40X40X5 mm for supporting the down pipe, slotted holes are to be match to the angles for fixing the same to the pole.

**GUARANTEED TECHNICAL PARTICULARS FOR 33 kV 800A AB SWITCHES**

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| **S.No.** | **Details** | **33kV 800A** |
| 1. | Whether single break or double break | Double Block |
| 2 | No. of poles | 3 Poles |
| 3. | Frequency | 50 Hz |
| 4. | Voltage rating | 36 kV |
| 5. | Current rating in A |  |
|  | i) Normal | 800 A |
|  | ii) Maximum with duration | 800 A |
| 6. | Temperature rise of the following at full rated current in Degree over ambient temperature | Within limits as specified in IS. |
|  | i) Copper contract with coating | Within limits as specified in IS. |
|  | ii) Terminals of switches intended to be bolted to  the external conductor | Within limits as specified in IS. |
|  | iii) Metallic parts acting as springs | Within limits as specified in IS. |
| 7 | Whether contacts are silver coated or tin coated | Silver plated |
| 8. | Volt drop across terminals of poles | Note more than 20 mV at 100A DC. |
| 9. | Short time current and duration | 25 kA |
| 10. | Material of fixed contract & size | Copper flat |
| 12. | Material of moving blade & size | Electrolytic Copper tube |
| 13. | Material of terminal connector | LM-6 Alloy |
| 14. | Type diameter and length of operating pipe | 6.1 m, 40 mm N.B. class ‘B’ GI Pipe |
| 15. | Material of arcing horns | GI Rod 10mm dia |
| 16. | Size & Length of base mounting channel (Hot dip Galvanized) | 100X50mm channel 1065 mm long |
| 17. | Whether dimensional drawing is enclosed with the tender | Yes |
| 18. | Whether the air break switch is complete with all accessories | Yes |
| 19. | Minimum clearance between phases (The center distance between the insulators of adjacent phases in the assembled position of switch) | 1524 mm |
| 20. | Center to center distance between insulators of the consecutive poles of the same phase in the assembled position of switch (in mm) | 457.5mm |
| 21. | Whether mechanical interlock has been provided for arcing switches | Yes |
| 22. | Types of bearing used in |  |
|  | i) Rotating insulators stack | Ball bearing |
|  | ii) Operating shaft | N-m |
| 23. | Impulse withstand voltage (peak) with 1/50 MS wave positive and negative polarity |  |
|  | i) Across isolating distance | 195 kV Peak |
|  | ii) To earth between poles | 170 kV Peak |
| 24. | One minute power frequency withstand voltage (RMS) across isolating distance to earth and between poles |  |
|  | i) Across isolating distance | 80 kV (RMS) |
|  | ii) To earth between poles | 70 kV (RMS) |

# **GUARANTEED TECHNICAL PARTICULARS FOR 11 kV 400A CONVENTIONAL TYPE AB SWITCHES**

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| **S. No.** | **Details** | **11 kV 400A** |
| 1. | Whether single break or double break | Single break |
| 2. | No. of poles | 3 |
| 3. | Frequency | 50 Hz |
| 4. | Voltage rating | 11 kV |
| 5. | Current rating in A |  |
|  | i) Normal | 400 A |
|  | ii) Maximum with duration | 400 A |
| 6. | Temperature rise of the following at full rated current in Degree over ambient temperature |  |
|  | i) Copper contract with coating | Within the limits as specified in IS. |
|  | ii) Terminals of switches intended to be bolted to  the external conductor |
|  | iii) Metallic parts acting as springs |
| 7. | Whether contacts are silver coated or tin coated | Tin plated, 12-15 microns  |
| 8. | Volt drop across terminals of poles | Not more than 20 mV at 100A DC |
| 9. | Short time current and duration | 16.0 kA for 1 second |
| 10. | Material of fixed contract & size | Hard drawn electrolytic copper flat |
| 12. | Material of moving blade & size | Hard drawn electrolytic copper flat |
| 13. | Material of terminal connector | LM-6 Alloy |
| 14. | Type diameter and length of operating pipe | 6.1 m, 32mm N.B. Class B G.I. Pipe  |
| 15. | Material of arcing horns | 6mm dia stainless steel |
| 16. | Size & Length of base mounting channel (Hot dip Galvanized) | 75X40mm channel609.6mm long |
| 17. | Whether dimensional drawing is enclosed with the tender | Yes, enclosed |
| 18. | Whether the air break switch is complete with all accessories | Yes, Complete with all accessories. |
| 19. | Minimum clearance between phases (The center distance between the insulators of adjacent phases in the assembled position of switch) | 914.4mm |
| 20. | Center to center distance between insulators of the consecutive poles of the same phase in the assembled position of switch (in mm) | 457.2mm |
| 21. | Whether mechanical interlock has been provided for arcing switches | Yes, Provided. |
| 22. | Types of bearing used in |  |
|  | i) Rotating insulators stack | Gunmetal, Bush bearing |
|  | ii) Operating shaft | Guide bracket |
| 23. | Impulse withstand voltage (peak) with 1/50 MS wave positive and negative polarity |  |
|  | i) Across isolating distance | 85 kV (Peak) |
|  | ii) To earth between poles | 75 kV (Peak) |
| 24. | One minute power frequency withstand voltage (RMS) across isolating distance to earth and between poles |  |
|  | i) Across isolating distance | 32 kV (RMS) |
|  | ii) To earth between poles | 28 kV (RMS) |
| 25. | PARTICULARS FOR INSULATORS |  |
|  | i) Type of insulators | Post type |
|  | ii) Name of manufacturer of insulators | Allied/IPL/JSI |
|  | iii) Height of the insulators | 254mm |
|  | iv) Diameter of the largest shell  | 152mm |
|  | v) No. of units per stack | One |
| 26. | Electrical characteristics (For one insulator)  |  |
|  | A) Flash over voltage  |  |
|  | i) Dry Power frequency (kV) | 70 kV |
|  | ii) Wet power frequency (kV) | 45 kV |
|  | iii) Impulse voltage of 1/50 micro seconds  (+Ve) (kVPeak)iv) Impulse voltage of 1/50 micro seconds  ( - Ve) (kVPeak) | 95 kV(Peak)120 kV(Peak) |
|  | B) Withstand Voltage |  |
|  | i) Dry Power frequency (kV) | 65 kV |
|  | ii) Wet power frequency (kV) | 40kV |
|  | iii) Impulse voltage of 1/50 micro seconds  (+Ve) (kV (Peak))iv). Impulse voltage of 1/50 micro seconds  (- Ve) (kV (Peak)) | 90 kV (Peak)105 kV (Peak) |
| 27. | Power frequency puncture withstand voltage of unit | 110 kV |
| 28. | Mechanical characteristics |  |
|  | i) Cantilever strength upright | 600 kgf |
|  | ii) Cantilever strength under hung | 350 kgf |
|  | iii) Torsinal strength (kgfm) | 34 kgfm |
|  | iv) Tensile strength | 2050 kgf |
| 29. | General characteristics |  |
|  | i) Minimum creepage distance mm | 320 mm |
|  | ii) weight of complete unit (kg) | 3.5 kg approximately  |
| 30. | Standard to which insulator conforms | IS 2544 and IS 5356 |

**GUARANTEED TECHNICAL PARTICULARS**

**FOR 11 kV 200A CONVENTIONAL TYPE AB SWITCHES**

|  |  |  |
| --- | --- | --- |
| S. No. | **Details** | **11 kV 200A** |
| 1. | Whether single break or double break | Single Break |
| 2. | No. of poles | Three |
| 3. | Frequency | 50 Hz |
| 4. | Voltage rating | 12kV |
| 5. | Current rating in A |  |
|  | i) Normal | 200A |
|  | ii) Maximum with duration | 200A |
| 6. | Temperature rise of the following at full rated current in 0C over an ambient temperature | Within the limits of IS-9921. |
|  | i) Copper contract with coating | Within limits as specified in IS |
|  | ii) Terminals of switches intended to be bolted to the external conductor |
|  | iii) Metallic parts acting as springs |
| 7 | Whether contacts are silver coated or tin coated | Tin plated |
| 8. | Volt drop across terminals of poles | Within the limits of IS:9921 (Not more than 20m V at 100V DC) |
| 9. | Short time current and duration | 16kV RMS for one second. |
| 10. | Material of fixed contact  | HDEC Flat |
| 12. | Material of moving contact  | HDEC Flat |
| 13. | Material of terminal connector | Rigid type pad type A1. Terminal connector made out of LM6 Alloy with bi-metallic strip. |
| 14. | Type diameter and length of operating handle | 32mm NB GI pipe of 6.1mlong with intermediate couplings. |
| 15. | Material of arcing horns | G.I.Rod 6mm dia. |
| 16. | Size & Length of base mounting channel  | 75\*40\*6mm MSHDG 610mm length. |
| 17. | Whether dimensional drawing is enclosed with the tender | Yes |
| 18. | Minimum clearance between phases (The center distance between the insulators of adjacent phases in the assembled position of switch) | 915mm |
| S. No. | **Details** | **11 kV 200A** |
| 19. | Center to center distance between insulators of the consecutive poles of the same phase in the assembled position of switch (in mm) | 457.2 mm |
| 20. | Whether mechanical interlock has been provided for arcing switches | No |
| 21. | Types of bearing used in |  |
|  | i) Rotating insulators stack | Bush Bearing |
|  | ii) Operating shaft |
| 22. | Impulse withstand voltage (peak) with 1/50 MS wave positive and negative polarity |  |
|  | i) Across isolating distance | 85 kV |
|  | ii) To earth between poles | 75 kV |
| 23. | One minute power frequency withstand voltage across isolating distance to earth between poles | 28 kV (RMS)32 kV (RMS) |

**LIGHTNING ARRESTORS:**

The lightning arrestors shall be of metal oxide, heavy duty type and should have impulse flash over characteristic and other technical parameters as per IS 3070 or any other equivalent international standards.

The lightning arresters shall be of metal oxide, heavy duty type and should have impulse flash over characteristic and other technical parameters as per IS 3070 or any other equivalent international standards.

**SCHEDULE OF TECHNICAL AND GUARANTEED PARTICULARS**

**FOR LIGHTNING ARRESTORS**

|  |  |
| --- | --- |
| Sl.No. | Description |
| 1. | Name of Manufacturer |
| 2. | Type |
| 3. | Model |
| 4. | Number of units |
| 5. | Rated Voltage |
| 6. | Nominal discharge current |
| 7. | Power frequency sparkover voltage |
| 8. | Impulse spark over voltage 1/50 micro secondWave |
| 9. | Maximum front of wave impulse sparkover voltage |
| 10. | Virtual steepness for front of wave for above |
| .``11. | Maximum residual voltage for discharge current – 8/20 micro second Wave |
|  | i) 1500 A |
|  | ii) 2500 A |
|  | iii) 5000 Aiv) 10000 A |
| 12. | High current 4/10 micro second wave test value |
| 13. | Long duration current tests |
|  | i) Current peak |
|  | ii) Virtual duration |
|  | iii) Pressure relief device  |
| 14. | Weight of complete unit |
| 15. | Height of complete unit from base of the line side |
| 16. | Minimum recommended spacing between arresters centre to centre  |
| 17. | Clearance required from grounded equipment at various heights of arresters unit |
| 18. | Earthing arrangement provided for earthing side of arrestor(s)  |
| 19. | Mounting flange dimensional details |
| 20. | Equipment to be protected |

|  |
| --- |
| **Schedule for the work of erection of 33kV VCB along with twin feeder control panel and AB switches at 220/132/33kV Shapur nagar EHT SS for newly erected 33kV Ushamullapudi feeder with HTLS ACSS Dog conductor and single core 630Sq.mm. aluminium XLPE cable from 220/132/33kV Shapur Nagar SS upto 33/11kV Ushamullapudi Sub-Station in Operation Division Medchal of Master Plan Sub-Division - II (WCGH) in Master Plan Division (WCGH) of Master Plan RR circle - Under T&D 33kV VCB Erection works** |
| **S.No** | **Quantity** |  **Description of the service** | **Work type** | Item short description | **Service Code** | **Rate in Rs.** | **Unit** | **Amount in Rs.** |
| 1 | 1 | Erection of 33kV Twin feeder C&R panel.Erection of 33kV Twin feeder control & Relay panel in the control room duly mounting them on channels and grouting them with foundation bolts excluding cost of channels & foundation bolts | Elecy | Labour | SWR10934 | 1,729.00 | EA | 1729.00 |
| 2 | 2.00 | Loading of 33 KV VCBs along with Panel boards | Elecy | Labour | SWR10198 | 1,024.00 | EA | 2048.00 |
| 3 | 2.00 | Transport of Cond Drum,VCBs >10 & <20KmTransport of conductor drums, cable drums, fragile material such as kiosks, VCBs, control panels, current transformers, boosters, lightning arrestors, insulators, transformers, meters (which are less in weight and occupy more space) (excluding of loading unloading)Note: 1). It will be treated as full load of 10 MT and paid for 10 MT.2). For 3 Ton vehicle : 50% of the following ratesAbove 10 Km and upto 20 Km with Lorry for each trip | Elecy | Labour | SWR11861 | 3,299.70 | EA | 6599.40 |
| 4 | 2.00 | Un loading of 33 KV VCBs along with Panel boards | Elecy | Labour | SWR10516 | 1,044.48 | EA | 2088.96 |
| 5 | 2.00 | Loading of 33KV 800 Amps AB Switch | Elecy | Labour | SWR10239 | 126.00 | EA | 252.00 |
| 6 | 2.00 | Un loading of 33KV 800 Amps AB Switch | Elecy | Labour | SWR10557 | 79.00 | EA | 158.00 |
| 7 | 2.00 | Erection of 33 KV AB Switch including alignment and earthing | Elecy | Labour | SWR10392 | 4,500.00 | EA | 9000.00 |
| 8 | 2.00 | Painting AB switch OP rods with PO redPainting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 liters of thinner 1st coat is to be applied before erection of sub-station structures and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.(\*) Note:-The requirement of 2nd coat is to be justified by the concerned Divisional Engineer /Executive Engineer before execution of this workPainting of operating rods of 33kV, 11kV AB switches with post office red colour (including cost of paint) | Elecy | Labour | SWR10881 | 142.00 | EA | 284.00 |
| 9 | 2.00 | AB Switch Coil Earthing GI No. 8 WireMaking of coil earthing pole with 8mm GI wireNut& Bolts for AB Switch | Elecy | Labour | SWR12331 | 146.63 | EA | 293.26 |
| 10 | 1195 | Lay-4C/10C 2.5Sqmm Control CableLaying of 4 core/10 core 2.5 sq. mm.Copper control cable in aready excavation trench including cost of providing single compress glands at both ends . | Elecy | Labour | SWR11879 | 27.00 | M | 32265.00 |
| 11 | 1.00 | Transport of Cond Drum,VCBs >10 & <20KmTransport of conductor drums, cable drums, fragile material such as kiosks, VCBs, control panels, current transformers, boosters, lightning arrestors, insulators, transformers, meters (which are less in weight and occupy more space) (excluding of loading unloading)Note: 1). It will be treated as full load of 10 MT and paid for 10 MT.2). For 3 Ton vehicle : 50% of the following ratesAbove 10 Km and upto 20 Km with Lorry for each trip | Elecy | Labour | SWR11861 | 3,299.70 | EA | 3299.70 |
| 12 | 3.00 | Loading of LT AB Cable 3X16+25 Sqmm | Elecy | Labour | SWR11702 | 200.00 | DR | 600.00 |
| 13 | 3.00 | Un loading of LT AB Cable 3X16+25 Sqmm | Elecy | Labour | SWR11713 | 204.00 | DR | 612.00 |
| 14 | 0.21 | Loading of M.S.Channels, Angles, Flats & Rods etc., | Elecy | Labour | SWR10206 | 221.00 | TO | 46.41 |
| 15 | 0.21 | Un loading of M.S.Channels, Angles, Flats & Rods etc., | Elecy | Labour | SWR10524 | 185.00 | TO | 38.85 |
| 16 | 0.21 | Sup Material for 1st coat Al. Painting.Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 liters of thinner 1st coat is to be applied before erection of sub-station structures and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.Supply of material cost for First coat of 1st Grade Aluminium Paint, brushes etc. | Elecy | Supply | SMR40009 | 2181.00 | TO | 458.01 |
| 17 | 0.21 | Sup Material for 2nd coat Al. Painting.Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 liters of thinner 1st coat is to be applied before erection of sub-station structures and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.Supply of material cost for Second coat of 1st GradeAluminium Paint, brushes, etc | Elecy | Supply | SMR40010 | 1293.00 | TO | 271.53 |
| 18 | 0.21 | Labour for 1st coat Al. Painting.Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 liters of thinner 1st coat is to be applied before erection of sub-station structures and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.Labour charges for painting including scratching and cleaning of Sub-station structures of 1st coat of Aluminium | Elecy | Labour | SWR10877 | 851.00 | TO | 178.71 |
| 19 | 0.21 | Labour for 2nd coat Al. Painting.Painting of sub-station structures with two coats of Aluminum paint using Aluminum paint 1st grade containing 3.6 kg of Aluminum paste for 18 liters of thinner 1st coat is to be applied before erection of sub-station structures and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.Labour charges for painting including scratching andcleaning of Sub-station structures of 2nd coat of Aluminum | Elecy | Labour | SWR10879 | 482.00 | TO | 101.22 |
| 20 | 3.00 | Loading of 33 KV, 10 KA LAs Station type | Elecy | Labour | SWR10266 | 41.00 | EA | 123.00 |
| 21 | 3.00 | Un loading of 33 KV, 10 KA LAs Station type | Elecy | Labour | SWR10584 | 35.00 | EA | 105.00 |
| 22 | 1.00 | Erection of 33 KV LAS station/Line type including earthing | Elecy | Labour | SWR10396 | 880.00 | SET | 880.00 |
| 23 | 6.30 | Excavate-Pit for 33kV VCB | Elecy | Labour | SWR23224 | 331 | M3 | 2085.30 |
| 24 | 7.26 | Cement concrete with 40MM metal VCB plinCement concrete 1:3:6 ration with 40 MML HBG metalincluding the cost of all materials and labour complete 1.8 x 1.8 x 0.75 cum for VCB Plinth | Elecy | Labour | SWR20685 | 5,160.00 | M3 | 37461.60 |
| 25 | 1.00 | Paint-Coping 2 Coats White Cement incl.Painting of coping with two coats of white cement including cost of paint & conveyance charges for PTR/VCB plinths | Elecy | Labour | SWR12334 | 160.00 | EA | 160.00 |
| 26 | 3.00 | Sup Spacer T- clamps -Twin zebra/PantherSupply of clamps as per IS 5561- 1970 , 12mm thickness with Aluminum and Aluminum alloy conforming to A6 of IS 617 1994 & hot dip galvanized with Nuts & Bolts including spring washers conforming to IS 2633-1964, IS 1363-1967, IS1367-1961)Supply of Spacer T- clamps for suitable for Twin zebra/panther ACSR conductor with 150mm spacing | Elecy | Supply | SMR40012 | 508 | EA | 1524.00 |
| 27 | 6.00 | SupPad clamps 100X100X15mm 2 panth 1200ASupply of clamps as per IS 5561- 1970 , 12mm thickness with Aluminum and Aluminum alloy conforming to A6 of IS 617 1994 & hot dip galvanised with Nuts & Bolts including spring washers conforming to IS 2633-1964, IS 1363-1967, IS1367-1961)Supply of Aluminum alloy Pad clamps conforming to A6 of IS 617, 4 bolted with hot dip galvanised bolts and double nuts with spring and flat washers of size M10 x 65 i.e(3/8" x 21/2 " to suit for twin panther ACSR/Zebra of pad size 100 X 100 X 15mm for carrying 1200 A current rating . | Elecy | Supply | SMR40021 | 284 | EA | 1704.00 |
| 28 | 9.00 | Labour for Fixing of all types of clamps | Elecy | Labour | SWR10917 | 65.00 | EA | 585.00 |
| 29 | 4.00 | Supply& Erec of CI earth Pipe as APTRANCOExcavation of earth pit, supply of cast iron pipe with flange on one end (as per ISS7181/86) of nominal dia 125mm and 2.75 meters long in side the pit including supply and fixing RCC collars 0.75 meter dia (OD), 50mm thick and 0.60meters long complete as per APTRANSCO standards | Elecy | Labour | SWR10924 | 9,804.00 | EA | 39216.00 |
| 30 | 100 | S-GI Bolts & Nuts,Washers etc.,Supply of earthing pipe with materialsSupply of GI Bolts & Nuts etc | Elecy | Supply | SMR11488 | 117.5 | KG | 11750.00 |
| 31 | 6.40 | Plastering 2 coats, 20/16 mm (1:6)/(1:4) | Elecy | Labour | SWR10862 | 373 | m2 | 2387.20 |
| **Total Labour cost:** |  1,58,305.15  |
| **GST 18%** |  28,494.93  |
| **Schedule cost:** |  1,86,800.08  |

FOOT NOTE (Schedule A)

TENDER NOTIFICATION No. Spc No. 01/2023-24 of DE/MP/WCGH Division/ RR Circle

**Name of the work: -**

Erection of 33kV VCB along with twin feeder control panel and AB switches at 220/132/33kV Shapur nagar EHT SS for newly erected 33kV Ushamullapudi feeder with HTLS ACSS Dog conductor and single core 630Sq.mm. aluminum XLPE cable from 220/132/33kV Shapur Nagar SS up to 33/11kV Ushamullapudi Sub-Station in Operation Division Medchal of Master Plan Sub-Division - II (WCGH) in Master Plan Division (WCGH) of Master Plan RR circle - Under T&D 33kV VCB Erection works.

**Estimated value of contract: - Rs.** 1,58,306/- (Excluding GST) (One Lakh Fifty Eight Thousand Three hundred and Six Rupees only) and Rs.1,86,801 /-(Incl GST)(One Lakh Eighty Six Thousand Eight Hundred and One Rupees only)

 I/ We …………………………………………………………… do hereby

Express my/ our willingness to execute the aforesaid work as per the conditions, standards, specifications, rules and regulations etc., stipulated in the Tender Schedules

1) The estimated value of the contract Rs. /- (Rupees ………………………………………………………………………………………………………………………………..only)

 (or)

2) An overall tender percentage of *excess over* (in figures …………………….. And in words

 …………………………………………………..) the estimated value of the contract.

(or)

3) An overall tender percentage of *less than* (in figures …………………….. And in words

 …………………………………………………..) the estimated value of the contract.

(Clearly strike out whichever is not applicable)

Conditions:

1. The percentage quoted shall be up to a maximum of the decimals and shall be written clearly in figures and words. In case of discrepancy between the percentage quoted in figures and words the percentage quoted in words will prevail.
2. In case contractor quotes % only in words and does not quoted in figures or vice versa, such tenders shall be treated as incomplete and rejected.

Signature of the Tenderer Divisional Engineer Electrical,

**With SEAL Master Plan, WCGH,**

 **RR, Kukatpally,**

 **TGSPDCL/ Hyderabad.**