

**TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED**

**VIDYUT SOUDHA :: VIJAYAWADA**

APTRANSCO – Standard Schedule of Rates for Labour items for adoption in construction, RMI and O&M works pertaining to 220kV & 132kV Transmission lines and substations for the year 2023-24 - Communicated – Reg.

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**T.O.O. No. Chief Engineer (Transmission) Ms.No. 2921**

**Dt.17.08.2023**

Read the following: -

Ref :-T.O.O .(CE-Transmission) M.S. No.2531, dated 04.08.2022

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APTRANSCO is periodically communicating Standard Schedule of rates for Labour items for construction and O&M works pertaining to 220kV & 132kV Transmission lines and substations for adoption in preparation of estimates. Accordingly, the SSR communicated earlier in the above reference is revised for Labour item rates and communicated herewith.

**ORDER**

Standard Schedule of Rates for Labour items for construction, RMI and O&M works pertaining to 220kV & 132kV Transmission lines and substations for the year 2023-24 approved by Transmission Corporation of Andhra Pradesh is communicated herewith for adoption in preparation of estimates.

The standard scheduled of Rates for the year 2023-24 will come into force from the date of issue of this T.O.O and shall be valid till further orders. The SSR 2023-24 (Labour) is available in the APTRANSCO website.

This order is issued in concurrence with the Chairman and the Managing Director/APTRANSCO vide **Computer No: 2070069 File No: [ENE51-TRM0MISC/30/2023-EE2](#)**

(BY ORDER AND IN THE NAME OF TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED)

A K V Bhaskar

Director (Grid, Transmission & Management)

**TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED**



**STANDARD SCHEDULE OF RATES OF LABOUR  
ITEM RATES FOR 220kV & 132kV TRANSMISSION  
LINES AND SUBSTATIONS  
FOR THE YEAR 2023-24**

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**PREAMBLE**

1. The rates for the item of works (Line & Substations) involved under special conditions in the SSR-2022-23 are also continued in SSR-2023-24 are as follows.

<b>TRANSMISSION LINE WORKS (Annexure – A)</b>		
<b>Sl. No.</b>	<b>Description of work</b>	<b>% Over the basic labour rates</b>
1.	River Crossing with JC type towers	100% extra
2.	2 <sup>nd</sup> Circuit Stringing with 1 <sup>st</sup> Circuit live.	75% extra
3.	<u>Works under shutdown:</u> This is applicable under the following conditions only. i. Pre-programmed for interruption of line. ii. Pre-arranged replacement / rectification of line materials.	50% extra
4.	Dismantling works	75% of Normal Rate.
5.	Emergency Works such as break down works. This will not be applicable for pre- arranged shutdown works.	100% extra
6.	Stringing of railway crossings	100% extra
7.	National and State High way crossings	25% extra
8.	Tree cutting & Jungle Clearance in Tr. Line works as the works are in scattered areas.	100% extra
9.	DC Works under shutdown	100% extra
<b>SUBSTATIONS AND OTHER WORKS:</b>		
<b>Sl. No.</b>	<b>Description of work</b>	<b>% Over the Basic labour rates</b>
1.	<u>Works under shutdown:</u> This is applicable under the following conditions only. i. Pre-programmed for interruption of equipment. ii. Pre-Programmed replacement of bus in Substation. iii. Pre-arranged replacement/ rectification of equipment.	50% extra
2.	Dismantling works	75% of Normal Rate.

3.	<u>Emergency Works such as break down works.</u> <u>This will not be applicable for pre- arranged shutdown works.</u>	100% extra
4.	Idle trip (No load) rate of the low- bedded trailer for movement of Power Transformers.	50% of basic labour rate of loaded trip. Shortest distance from / to the place of availability of low bedded trailer shall be considered.

**Note:** - However if more than one special condition such as emergency, shutdown, 2<sup>nd</sup> circuit stringing with 1st circuit live and breakdown etc., are applicable for a particular work item / situation, only one condition with maximum extra rate out of applicable special conditions can be allowed. Applying more than one special condition for any item is not allowed.

2. For EHT (220kV & 132kV) Transmission line works: Uniform Area Allowance including Scattered area Mobilization efforts is provided as follows:
  - a. 20% extra provision on labour component of the basic rates of APTRANSCO towards Uniform Area Allowance including scattered area Mobilization efforts in general areas.
  - b. 35% extra provision on labour component of the basic rates of APTRANSCO towards Uniform Area Allowance including scattered area Mobilization efforts in difficult area/Scheduled terrain. The concerned SE/TLC has to certify that entire line passes through difficult area / Scheduled terrain duly furnishing the justification.

Note:- If 35% extra towards Uniform Area Allowance including Scattered area Mobilization efforts in difficult area/ Scheduled Terrain is applicable for a work, then the 20% extra towards Uniform Area Allowance including Scattered area Mobilization efforts in general areas is not applicable.

- c. 10% extra to the rate of earth flat (material) is allowed towards wastage, cleats and overlap etc., while preparing the estimate as the billing for this item is on Running Meters basis after laying of earth mat.
  - d. For stringing of conductor for small modification works, if the length of the line is less than 0.5 KM, 0.5KM is considered and if the length of the line is greater than 0.5 KM and less than 1 KM, 1KM is considered, in the preparation of estimate.
  - e. For survey of small length of lines, if the length of line is less than 1KM, then 1KM is considered for survey of small length of lines in the preparation of estimate.
  - f. The rates for tree cutting and jungle clearance may be followed as per Common SoR of Government of Andhra Pradesh.
3. **Area Allowance:**
    - a. (i). 40% extra over the basic rates on labour component of works is allowed in Greater Visakhapatnam Municipal Corporation and Vijayawada Municipal Corporation(Up to a belt of

12kms.from Municipal Corporation Limits).

(ii). 40% extra over the rates on labour component of works for Amaravati capital region city area (217sq.km) as declared by the Govt. Vide G.O.Ms.No:141, MA&UD(M2) Dept.,dt:09.06.2015(This is introduced as per the Govt instructions issued in Govt.Memo.No.668755/ Reforms/2017Dt:14.07.2017.

(iii) For works at Tirumala Hills in Chittoor District, 40% extra over the basic rates of labour component is allowed.

- b. 25% extra over the basic rates on labour component of works is allowed in other Municipal Corporations.
- c. 20% extra over the basic rates on labour component of works is allowed in district headquarters and other municipalities.

Note: Works within a belt of 12Km from the Municipal limits shall be taken into account for the purpose of allowing the extra percentages.

d. Agency Areas:

1. 25% extra is allowed for the works located inside the Agency area.
2. 25% extra is allowed for the works located in the border of Agency area i.e., works located within a belt of 16Km from the boundary of Agency area.

e. Industrial Area

20% over basic rates on labour component of works allowed for works situated within 10Kms belt of industrial area of Ibrahimpatnam, Vuyyuru, Jaggaiahpeta in Krishna District, Macherla, Gurajala, Challapalli in Guntur District, Garividi in Vijayanagaram District, Renigunta in Chittoor District, Yeeraguntla, Mangampet in Kadapa district, Hindupur, Tadipatri, Anantapur, Guntakal, Rayalcheruvu, Yadiki of Anantapur District, Adoni, Dhone, Cement Nagar, Nandyal, Kurnool, Yemmiganur, Bethamcherla of Kurnool District and Anakapally of Visakhapatnam District.

Note: If more than one area allowances (such as those) for Municipal Corporations, Municipalities, Agency area, Industrial areas are applicable for a particular situation, only the maximum out of the allowable percentage is to be allowed.

- f. The Area allowance/Uniform Area Allowance including scattered area Mobilization efforts charges are not applicable on Fabrication charges and Galvanization Charges.
- g. The area allowance shall be applicable for O&M and RMI works in substations also on par with construction works.
- h. The Uniform Area Allowance including scattered area Mobilization efforts shall be applicable for O&M & RMI works of lines also on par with construction works.

The area allowances are applicable for Civil ,Electrical & Telecom works (labour), Capital, O&M and RMI works irrespective to their value of works.

4. 13. 615% on basic labour rates towards COP (Contractors Overheads and Profit) including labour importation is applicable for turnkey projects, O&M and RMI works without any conditions. The following components of COP relevant/pertaining to APTRANSCO are considered.
- a. Site accommodation.
  - b. Setting up of plants and machinery.
  - c. Formation of access road.
  - d. Water supply for construction.
  - e. Electricity for construction.
  - f. General Site arrangement
  - g. Office furniture equipment and communication
  - h. Technical agents for site supervisions.
  - i. Documentation and as built drawings.
  - j. Mobilization/de-mobilization of resources.
  - k. Labour camps with minimum amenities and transportation to work sites.
  - l. Light vehicle for site supervision including field and laboratory testing.
  - m. Laboratory equipment and quality control including field and laboratory testing.
  - n. Watch & Ward.
  - o. Expenditure on safeguarding environment
  - p. Financing Expenditure
  - q. Work Insurance/Compensation

5. **Tree Cutting and Clearing of Jungle**

Please refer to the prevailing Common SoR of Board of Chief Engineers for engineering departments of GOAP.

6. **The (lead) Conveyance Charges for Transportation of Equipment/ Materials.**

Please refer to the prevailing SoR of Board of Chief Engineers for engineering departments of GOAP.

7. **Erection of Power Transformers and Oil filtration Works**

The rates communicated by CE/Transmission

- i) Lr.No.CE(Tr)/SE(Tr)/EE(Tr)/DEE-1/F.CTO-04/2021-ERC/D.No.129/21,dt.13.09.2021 on rate contract basis for erection, dismantling, transportation and oil filtration of 220kV and 132kV class Power Transformers through private agency are valid up to 23.08.2023.
- ii) Lr.No.CE(Tr)/SE(Tr)/EE(Tr)/DEE-1/F.CTO-05/2022-RRC/D.No.45/23, dt:27.03.2023 for fixing up for repair and overhauling works of 220 KV and 132 KV Class power Transformer valid upto 26.03.2025
- iii) Lr.No. CE(Tr)/ SE(Tr)/ EE(Tr)/ DEE-1/ F.ERC 400KV-Oil Filtration/ D.No.34/21, dt.09-03-2023 on rate contract basis for erection, dismantling, transportation and oil filtration of 400kV class Power Transformers through private agency are valid up to 31.03.2025.

Area Allowances, Special provisions and any other allowances are not applicable on the rates of rate contract. The rates mentioned under the rate contract include all taxes & duties, allowances and all extra provisions including Transport etc.

The erection, testing & commissioning of 220kV and 132kV Voltage Level Power Transformers where erection, testing and commissioning is not in the scope of supplier same

shall be arrived as per above rate contract for preparation of estimates.

In the case of the works of Handling, Erection and Filtration of power Transformers will be carried out by the department, in such cases, area allowances, special provisions other than shutdown charges, taxes and duties are not applicable.

Note:

- (i) Shutdown charges are applicable only for the works carried out during shutdown period. The same has to be certified by the concerned Superintending Engineer.
- (ii) Whenever double boom crane is utilized for PTR works of 80 MVA & above capacity, 50% extra over the existing crane charges are applicable. However, the same has to be certified by concerned Superintending Engineer.

#### **8. Civil Engineering Works in APTRANSCO:**

For Civil work items of APTRANSCO, the prevailing common SoR of Board of Chief Engineers for engineering departments of GOAP shall be followed in toto.

The area allowances & Contractors Profit and overheads (COP) shall be followed as per APTRANSCO SSR 2023-24.

The Area allowances indicated at **Para 3** is also applicable for Civil Works and a provision is made for 13.615% towards Contractors Profit and overheads on labour component. The provisions made in T.O.O.CE (Civil) Ms No.148, dated.21.10.2009 are also applicable for civil works except the Uniform area allowance & Scattered area allowance. The Uniform Area Allowance including scattered area Mobilization efforts charges indicated at **Para 2** is also applicable for Civil Works (Transmission Line).

With regard to Civil works pertaining to River Crossing Transmission Line Towers the following special allowances may be adopted with reference to **TOO (CE-Construction) Rt. No. 731, Dt.14.08.2018.**

- A) The Cost data for **BORED PILES & SUPERSTRUCTURE CONCRETE (PILE CAPS, COLUMNS & TIE BEAMS)** of River Crossing Transmission Line Towers worked-out as per Revised Standard Data part-II (Roads & Bridges) of Govt. of Andhra Pradesh for 750mm, 1000mm and 1200mm dia and that of Central Public works Department (CPWD) of Government of India for Bored Piles of 600mm and 1500mm dia with Uniform Area Allowance including Scattered Area Mobilization efforts of **20%** on Labour component of basic rates **PLUS Special Scattered Area Allowance of 50%** (towards formation of approaches, roads, bunds, transportation of men and material to work spot and other special works as may be necessary for finished item of work as directed by Engineer-in-charge) on basic rates for works on **DOWNSTREAM SIDE** of the Barrages etc. where there is no water or reasonably low water.
- B) The Cost data for **BORED PILES & SUPERSTRUCTURE CONCRETE (PILE CAPS, COLUMNS & TIE BEAMS)** of River Crossing Transmission Line Towers worked-out as per Revised Standard Data part-II (Roads & Bridges) of Govt. of Andhra Pradesh for 750mm, 1000mm and 1200mm dia and that of Central Public works Department (CPWD) of Government of India for Bored Piles of 600mm and 1500mm dia with Uniform Area Allowance including Scattered Area Mobilization efforts of **20%** on Labour component of basic rates **PLUS Special Scattered Area Allowance of 75%** (towards formation of approaches, roads, bunds, transportation of men and material to work spot and other special works as may be necessary for finished item of work as

directed by Engineer-in-charge) on basic rates for works on **UPSTREAM SIDE** of the Barrages and in large ponds, lakes etc. where there is impounded water.

C) The Cost Data for **ALL OTHER ITEMS OF WORK (other than those mentioned in A & B above)** RELATED to River Crossing Transmission Line Tower Foundations Viz. Fabrication & Fixing of Reinforcement Steel, MS Liners, Earth work Excavation, Cement Concrete for levelling course, Fabrication & Erection of MS/ GI structural

**9. Telecom Works in APTRANSCO:**

For Telecom work items of APTRANSCO, the Area allowances indicated at **Para 3** is also applicable for Telecom Works and a provision is made for 13.615% towards Contractors Profit and overheads. The Uniform Area Allowance including scattered area Mobilization efforts charges indicated at **Para 2** is also applicable for Telecom Works (Transmission Line).

Para 2(d) is applicable for OPGW Stringing works and all the works included in Annexure-A are applicable for Telecom Works.

- 10.** In respect of Cement and Steel rods the procedure indicated in Common SSR for all Engineering Departments shall be adopted for updating of estimates at the time of finalization of tenders.
- 11.** The SSR rates for the year 2023-24 is arrived with reference to the variation of consumer price index(CPI),issued by Ministry of Labor and employment of Government of India with reference to SSR2022-23.

The consumer price index variation of SSR 2023-24 w.r.t. SSR 2022-23 is evaluated as +5.7937%.

- 12.** All statutory levies such as GST are based on the prevailing notified rate, shall have to be added in the estimate. As per Memo no: Dir(G,T&M)/APT/CE/Const/SE-400kV /D1AI/D.No.683/20, dt:30.09.2020 labour cess shall be in contractor scope. Hence labour cess shall not be included in the ECV and it is the liability of the Bidder/Contractor only.
- 13.** The S.S.R will come into force with immediate effect until further orders.

Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2023-24 in Rs.
<b>ANNEXURE - I</b>				
<b>ERECTION OF 220kV &amp; 132 kV TRANSMISSION LINES</b>				
CL1	1	Check Survey, peg marking the tower positions on ground, conforming to the approved Profile and tower schedules using GPS, Total stations, Digital theodolites etc. "the rate is also applicable for re-check survey if any done due to ROW problems"	kM	5,999
CL2	2	Conducting reconnoitery and preliminary survey along bee line with three alternative routes and furnishing report for selecting the best proposal for approval, including cost & conveyance of all materials, hire charges of equipment, tools and plant, preparation of drawings and reports, labour charges, complete for finished item of work as per the directions of Engineer-in-charge at site. <i>(With Theodolite / With GPS equipment ( As per Clause 4.9 of survey) /With total station equipment).</i>	RKM	5,448
CL3	3	Conducting detailed survey by taking the levels along the route to a corridor of 15 mtrs. width on either side of alignment, at every 20 mtrs. interval and wherever there is a steep increase/decrease in ground profile duly indicating the chainage between angle points, river crossings, railway crossing and major highway crossings and plotting the profiles and preparation of vicinity maps to the standard scales. The survey includes clearing of bushes, branches of tree, crops and shrubs wherever encountered for detailed survey for viewing, for fixing anchor towers and also taking levels etc. required for conducting detailed surveys.		
		<i><u>This work can be done with Theodolite or with GPS equipment (As per clause no.4.9 of survey) or with total station equipment. This work involves the following items.</u></i>		
CL3	3 (i)	Tower schedules as per tower spotting requirements plotted on reproducible tracing of profile original with one extra copy shall be given . <i><u>Towers Schedules should be submitted with GPS Co-ordinates. Identification of wind zones, collection of Hydraulic data of rivers / drains from competent authority.</u></i>	RKM	18,705
CL4	3 (ii)	Taking earth resistivity at an interval of 1 Km by electrical resistivity method (4 point method) or by ERM method.	Loc	1,362
CL5	3(i ii)	Preparing of PTCC questionnaire, topo sheets extracts with marking of the proposed line. Soil resistivity report, tower sketch, station single line diagram etc. (30 copies/sets)	Job	13,315

CL6	3 (iv)	Enumeration and numbering of trees, & marking on tree with white letters on yellow paint measuring girth and height of the trees and plotting in the profile. The trees enumerated shall be shown in profile on either side of centre line clearly, <u>up to required corridor for 132kV Line -27 Metres &amp; 220kV Line -35 Meters</u> ) indicating name of tree, girth & height. Separate tree schedule should be submitted along with the profile for arriving tree compensation amount.	Each	26
CL7	3 (v)	Preparation of ground profiles for Railway crossing, River crossing and EHV power line crossing separately wherever required.	Each crossing	4,054
		The above rates shall include cost and conveyance of all materials hire charges of equipment tools & plant, preparation of profile drawing, painting of trees, labour charges, preparation of report etc., complete for finished item of work as per instructions of Engineer-in-charge.		
CL8	4	Excavation of trial pits of standard dimensions of 1 mtr X 1 mtr. width upto 3 mtrs. depth at 1 KM interval or wherever there is abnormal change in topography and taking observation of soil strata for classification of foundation and position of existing ground water table/depth of water in the existing open wells if any and back filling the trial pits after vetting by Departmental officials.	Each	2,244
	5	<u>Setting of stubs with stub-setting template</u> : Erection of stubs, stub template, fixing of jacks for supporting template, allignment and levelling for exact location of stubs of stubsetting template, dismantling of template after completion of initial curing of C.C., movement of template from one location to other location (A minimum lead of 1 KM is adopted).		
CL9	(a)	132 KV P, R & S-Type Towers	Loc.	10,706
CL10	(b)	220 KV A, B, C & D-Type Towers	Loc.	15,601
CL11	(c)	132 KV Multi circuit Towers	Loc.	13,383
CL12	(d)	220 KV Multi circuit Towers	Loc.	19,499
CL13	(e)	132kV Narrow based Multi Circuit Towers.	Single pit	12,305
CL14	(f)	220kV Narrow based Multi Circuit Towers.	Single pit	17,953
CL15	(g)	Pole/structure for termination of 220/132kV cables	Loc.	12,044
CL16	(h)	220 /132 kV Narrow based tower	Loc.	17,550
CL17	6(a)	Erection of tower structures, including all types of extensions except JC type towers (stub template erection and dismantling are not to be included) (including 3 mtr., 6 mtr. , 9 mtr., & 12 mtr. extensions)	MT	7,087
CL18	6(b)	Erection of all types of narrow based towers / multi circuit tower structures / <u>narrow based multi circuit towers structures</u> , including all types of extensions except JC type towers (stub template erection and dismantling are not to be included) (including 3	MT	9,929

		mtr., 6 mtr. , 9 mtr., & 12 mtr. extensions)		
CL19	6(c)	Erection of all types of 'JC' Type tower structures, including all types of extensions (stub template erection and dismantling are not to be included) (including '0' based, Extended and Truncated)	MT	12,764
CL20	6(d)	Erection of pole/structure for 220/132 kV cable termination	MT	8,508
	7	STRINGING OF POWER CONDUCTOR: Hoisting of tension insulators and Suspension insulators, paving out the conductor, rough sagging, Jointing, tensioning, clipping and fixing of preformed Armour rods and vibration dampers. measuring ground clearances wherever necessary. <u>Which excludes the works involved in the crossing of LT, 11kV &amp; 33kV power lines viz dismantling and restringing of conductor</u>		
CL21	(i)	3 Nos. Zebra conductors	RKM	60,442
CL22	(ii)	6 Nos. Zebra conductors	RKM	90,660
CL23	(iii)	2 Nos. Panther conductors	RKM	32,228
CL24	(iv)	3 Nos. Panther conductors	RKM	48,348
CL25	(v)	6 Nos. Panther conductors	RKM	76,557
CL26	(vi)	12 Nos. Panther conductors for Multi circuit	RKM	1,53,113
CL27	(vii)	2 Nos. Moose conductors	RKM	51,037
CL28	(viii)	3 Nos. Moose conductors	RKM	76,557
CL29	(ix)	6 Nos. Moose conductors	RKM	1,20,872
CL30	(x)	Twin bundled Moose for DC	RKM	2,41,745
CL31	(xi)	12 Nos. Moose conductors for Multi circuit	RKM	2,41,745
CL32	(xii)	3 Nos. Bear conductors	RKM	60,442
CL33	(xiii)	6 Nos. Bear conductors	RKM	90,660
CL34	(xiv)	3 Nos. Dog conductors	RKM	36,260
CL35	(xv)	6 Nos. Dog conductors	RKM	57,415
	8	STRINGING OF HTLS POWER CONDUCTOR using tension - puller machine: Hoisting of tension insulators and Suspension insulators, paving out the conductor, rough sagging, Jointing, tensioning, clipping and fixing of preformed Armour rods and vibration dampers. measuring ground clearances wherever necessary. <u>Which excludes the works involved in the crossing of LT, 11kV &amp; 33kV power lines viz dismantling and restringing of conductor.</u>		
CL36	(i)	3 Nos Moose Conductors	RKM	2,83,601
CL37	(ii)	6 Nos Moose Conductors	RKM	4,25,402
CL38	(iii)	3 Nos Zebra Conductors	RKM	2,67,845
CL39	(iv)	6 Nos Zebra Conductors	RKM	4,01,769
CL40	(v)	3 Nos Panther Conductors	RKM	2,52,089
CL41	(vi)	6 Nos Panther Conductors	RKM	3,78,135

CL42	9	Stringing of Earthwire: Fixing hardware, paving out earth wire, jointing, tensioning, stringing and clamping of 7/3.15 mm high tensile galvanised steel wire.	RKM	9,674
CL43	10	Earthing of towers including cost of Excavation, Back-filling, including cost of 25 mm dia 2.5 mm thick, class 'C' G.I. pipe of 3.00 Mtrs length with 50X6 mm G.I. Flat 4.05 Mtrs long, <u>BH Coke</u> , Salt etc., and measuring tower footing resistance.	Nos.	6,151
CL44	11	Slant Earthing of towers including cost of Excavation, Back-filling, including cost of 25 mm dia 2.5 mm thick, class 'C' G.I. pipe of 3.00 Mtrs length, with 50x6mm G.I. Flat of 4.05 Meters, BH Coke, Salt etc., and measuring tower footing resistance.	Nos.	6,151
CL45	12	Earthing of towers including cost of Excavation, Back-filling, including cost of 25 mm dia 2.5 mm thick, class 'C' G.I. pipe of 3.00 Mtrs length, <u>BH Coke</u> , Salt etc., and measuring tower footing resistance. (Without GI Flat ) for counter poise earthing.	Nos.	5,007
CL46	13	Counterpoise earthing including clamping devices and terminal lugs, but excluding cost of steel wire.	Rmts	55
CL47	14	Half round welding of G.I.bolts and nuts of towers in the section between ground level & upto bottom X-arm level including all bolts connecting the bracings at the bottom X-arm level and painting the welded portion with one coat of zinc rich paint.	Each	25
CL48	15	Half round welding of G.I.bolts and nuts of towers in the section between ground level & upto bottom X-arm level including all bolts connecting the bracings at the bottom X-arm level and painting the welded portion with one coat of zinc rich paint- For JC type towers	Each	38
CL49	16	Laying of 33 kV 400 sq.mm XLPE cable	Rmts	412
CL50	17	Termination of 400 sq.mm XLPE cable	Each	7,477
CL51	18	Dismantling & re stringing of 33 kV conductor (all types of conductors) for crossing of 33 kV line during stringing of EHT lines.	Per conductor	3,907
CL52	19	Dismantling & re stringing of 11 kV conductor (all types of conductors) for crossing of 11 kV line during stringing of EHT lines	Per conductor	2,138
CL53	20	Dismantling & re stringing of LT conductor/cables for crossing of LT line (all types) during stringing of EHT lines	Per conductor	1,346

ANNEXURE - II				
ERECTION OF 220kV, 132 kV & 33kV SUBSTATIONS				
Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2023-24 (in Rs)
CS1	1	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>220 kV bus</u> comprising of three phases with <u>Quadruple Moose</u> conductor to a tension of <b>900kgs for single moose conductor.</b> ( <i>The maximum length or up to a length of bus section of <u>40m</u></i> )	Bus Section	32,224
CS2	2	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>220 kV bus</u> comprising of three phases with <u>single Zebra/Moose</u> conductor to a tension of <b>900kgs.</b> ( <i>The maximum length or up to a length of bus section of <u>40m</u></i> )	Bus Section	8,057
CS3	3	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>220 kV bus</u> comprising of three phases with <u>Twin Zebra/Moose</u> conductor to a tension of <b>1800kgs</b> including fixing of spacer clamps( <i>The maximum length or up to a length of bus section of <u>40m</u></i> ).	Bus Section	16,118
CS4	4	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>132 kV bus</u> comprising of three phases with <u>Single Zebra/Moose</u> conductor to a tension of <b>900kgs.</b> ( <i>The maximum length or up to a length of bus section of <u>45m</u></i> ).	Bus Section	8,057
CS5	5	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>132 kV bus</u> comprising of three phases with <u>Twin Zebra/Moose</u> conductor to a tension of <b>1800kgs</b> including fixing of spacer clamps.( <i>The maximum length or up to a length of bus section of <u>45m</u></i> ).	Bus Section	16,118
CS6	6	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>33 kV bus</u> comprising of three phases with <u>Single Zebra/Moose</u> conductor to a tension of <b>450kgs.</b> ( <i>The maximum length or up to a length of bus section of <u>20m</u></i> ).	Bus Section	6,045
CS7	7	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>33 kV bus</u> comprising of three phases with <u>Twin Zebra/Moose</u> conductor to a tension of <b>900kgs</b> including fixing of spacer clamps.( <i>The maximum length or up to a length of bus section of <u>20m</u></i> ).	Bus Section	10,077
CS8	8	Hoisting of Insulators and hardware, stretching the conductor and stringing of <u>132 kV bus</u> comprising of <i>two phases</i> with <u>Single Zebra/Moose</u> conductor to a tension of <b>900kgs.</b> ( <i>The maximum length or up to a length of bus section of <u>45m</u></i> ).	Bus Section	5,369
CS9	9	Fixing of spacers for Twin Moose conductor	Each	159
CS10	10	Fixing of spacers for Quadruple Moose Conductor	Each	220
CS11	11	Fixing of Hardware,stretching the ground wire and stringing of earth wire to a tension of 450kgs from pinnacle to pinnacle.	Each	1,204

CS12	12	Fixing of Hardware, stretching the ground wire and stringing of earth wire to a tension of 450kgs from pinnacle to ground.	RM	81
CS13	13	Connection of equipment to bus and or another equipment with <u>single zebra/Moose/Panther</u> conductor including measuring, cutting, clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	422
CS14	14	Connection of equipment to bus and or another equipment with <u>Twin zebra/Moose/Panther</u> conductor including measuring, cutting, clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	654
CS15	15	Connection of equipment to bus and or another equipment with <u>Quad zebra/Moose/Panther</u> conductor including measuring, cutting, clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	1,310
	16	Laying of earth mat including excavation of trenches, welding, connecting to equipment and connecting lightning 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 Flats /GI Flats. <b>(for 220kV &amp; 132kV) including fabrication.</b>		
CS16	16 a	100x16mm MS Flat / GI Flat.	RM	125
CS17	16 b	50x 8mm MS Flat / GI Flat.	RM	97
CS18	16 c	75x 8mm MS Flat / GI Flat.	RM	112
CS19	16 d	For laying of earth flat in hard rock in substation / bays extension, an additional amount to the basic labour rate of SSR will be allowed as there is no provision in the rate of laying of earth flat for removal of hard rocks.	RM	85
CS20	17	Excavation of earth pit, putting 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 in side the pit, backfill the pit in the 25mm size granules of BHcoke for full depth of the pit with alternate layers of BH coke and salt of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH coke, salt, clamps, C.I.Pipes and RCC collars, labour charges for all operational and incidental items of work etc., complete.	Each	17,965
CS21	18	Laying of control cables of all sizes (from 2 core. 2.5 / 4.0sqmm to 12 core, 2.5/4.0sqmm , both copper and alluminium in cable trenches including cost of suitable metallic cable glands with rubber lining. <b>Note:</b> This includes running of cables in control room where cables are run on cable racks in cable duct.	RM	14
	19	Laying of power cables.		
CS22	19 a	upto 50 sqmm	RM	19
CS23	19 b	above 50 sqmm	RM	25

	20	Cable terminations to the switchgear, Marshalling boxes / Panel terminal blocks/control & relay panels, LTAC panel including providing suitable ferrules and lugs as per specification (including cost of ferrules and lugs) <b>(for 220kV &amp; 132kV)</b> .		
CS24	20 i	2.5 sqmm Copper with copper lugs each core at both ends.	Nos.	42
CS25	20 ii	4.0 sqmm Aluminium with Aluminium lugs each core at both ends.	Nos.	45
CS26	20 iii	Up to 50 sqmm Power Cable with lugs each core at both ends.	Nos.	99
CS27	20 iv	Above 50 sqmm Power Cable with lugs each core at both ends.	Nos.	181
CS28	21	Installation of lighting fixtures on switch yard structures including cabling and connections, labour charges etc., including 40mm dia G.I bent pipe of 0.75m length with suitable clamps for fixing to structures in complete shape (excluding cost of lighting fixtures)	Each	1,613
	22	Erection of the following equipment with Crane / Derrick at site including handling the material / equipment carefully at site including labour charges for all incidental and operational items of work. (excluding cost of transport charges from Dept. stores to the site).		
CS29	22.1	220 kV Circuit breakers with support structure & marshalling boxes including grouting of foundation bolts and wiring of cables from Pole to Pole including terminations.	Each	28,206
CS30	22.2	132 kV Circuit breakers with support structure & marshalling boxes including Pole to Pole cable wiring and terminations.	Each	20,152
CS31	22.3	33 kV Circuit breakers including Pole to Pole cable wiring and terminations.	Each	8,121
CS32	22.4	2-pole 220 kV Circuit Breaker with support structure & marshalling boxes incl. grouting of foundation bolts & wiring of cables & terminations.	Each	23,974
CS33	22.5	2-pole 132 kV Circuit Breaker with support structure & marshalling boxes incl. grouting of foundation bolts & wiring of cables & terminations.	Each	17,128
CS34	22.6	220 kV Current Transformers.	Each	6,853
CS35	22.7	132 kV Current Transformers.	Each	4,432
CS36	22.8	33 kV Current Transformers.	Each	1,369
CS37	22.9	220 kV Potential Transformers.	Each	6,853
CS38	22.10	132 kV Potential transformers.	Each	4,432
CS39	22.11	33 kV Potential transformers.	Each	1,369
CS40	22.12	220 kV Lightning Arrestors.	Each	4,432
CS41	22.13	132 kV Lightning Arrestors.	Each	2,093
CS42	22.14	33 kV Lightning Arrestors.	Each	818
CS43	22.15	220 kV Capacitive Voltage Transformers.	Each	6,449
CS44	22.16	132 kV Capacitive Voltage Transformers.	Each	4,432
CS45	22.17	220 kV Isolators with earth switch including solid core insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	10,881

CS46	22.18	132 kV Isolators with earth switch including solid core insulators erection, alignment in full shape for smooth operation by manually.	Each	8,057
CS47	22.19	220 kV Isolators without earth switch including solid core insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	10,077
CS48	22.20	132 kV Isolators without earth switch including solid core insulators erection, alignment in full shape for smooth operation by manually.	Each	7,249
CS49	22.21	2-pole, 220 kV Isolators without earth switch including solid core insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	8,565
CS50	22.22	2-pole, 132 kV Isolators without earth switch including solid core insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	6,162
CS51	22.23	33 kV Isolators including solid core insulators erection, alignment in full shape for smooth operation.	Each	2,618
CS52	22.24	220 kV Bus Post Type Insulators.	Each	570
CS53	22.25	132 kV Bus Post Type Insulators.	Each	431
CS54	22.26	33 kV Solid Core Insulators	Each	289
CS55	23	33 kV /400 V Station Transformer including all necessary connections on HV & LV side including cost of lugs (But excluding cost of transformer and HG fuse set)	Each	9,102
CS56	24	Erection of Control / Relay panels, LTAC panels, annunciation, <b>PTDB</b> panels etc.,in the control room duly mounting them on channels and grouting them with foundation bolts excluding cost of channels & foundation bolts <b>(for 220kV &amp; 132kV)</b> , <b>including</b> man power support to MRT wing for commissioning.	Each	3,580
CS57	25	Erection of 220 V, 200 Ah/ 80 Ah Lead Acid battery in complete shape fit for charging.	Set	14,029
CS58	26	Erection of 220 V, 200 Ah/ 80 Ah maintenance free battery in complete shape fit for charging .	Set	4,534
CS59	27	Erection of 220 V, 200 Ah / 80Ah battery charger.	Set	4,662
CS60	28	Erection of Capacitor Bank including series reactor of 7.5 MVAR Capacity	Each	7,226
CS61	29	Erection of Marshalling kiosk	Each	1,204
CS62	30	Erection of Marshalling boxes	Each	585
CS63	31	Erection of Lighting pillar box in switchyard on foundation laid (Excluding pillar box). <b>(for 220kV &amp; 132kV )</b>	Each	1,612
CS64	32	Fabrication of Main and Auxiliary structures, stub setting templates, foundation bolts, 'U' bolts etc.,using raw steel such as M.S.Angles, Plates, Channels, R.S.Joists, M.S.rounds, excluding cost of Mild Steel and transport charges to site.	MT	13,186

CS65	33	Galvanization of Main and Auxiliary structures, stub setting templates, foundation bolts, 'U' bolts etc.,using raw steel such as M.S.Angles, Plates, Channels, R.S.Joists, M.S.rounds, excluding cost of zinc and transport charges to substation site.(Cost of zinc should be followed as per IEEMA rates.).The average quantity of Zinc required for all angles of tower parts is 60 Kgs.	MT	7,720
	34	Setting of stubs with stub setting template for sub-station structure: Erection of stub template, fixing of jacks for supporting the template, alignment and leveling of exact location of stubs of stubsetting template, dismantling of template after completion of initial curing of CC		
CS66	34.1	220kV Towers	Set	5,203
CS67	34.2	132kV Towers	Set	3,736
CS68	34.3	33kV Towers & CPL's	Set	933
CS69	34.4	220kV Isolator	Set	3,903
CS70	34.5	132kV Isolator	Set	2,801
CS71	34.6	220 kV Breaker	Set	3,375
CS72	34.7	132 kV Breaker	Set	2,531
CS73	34.8	33 kV Breaker	Set	1,687
CS74	35	Erection of the main and auxiliary structures etc., using bolts and nuts.	MT	4,031
CS75	36	Fixing of 90lb rail poles over the transformer plinths.	RM	802
CS76	37	Fixing of 105lb rail poles over the transformer plinths.	RM	937
CS77	38	Erection of 33kV HG Fuse set	Each	973
CS78	39	Erection of 33kV PT Distribution Box	Each	586
CS79	40	Laying and Terminations of 11kV, XLPE 1000 Sqmm Cable	RM	205
CS80	41	Erection of 11kV VCB outdoor type Kisok (within built Breaker, CTs, PTs, Surge Arrestors & Relays).	Each	4,163
		Marking as per approved layout with the help of surveyor		
CS81	42	220 kV sub-station	Each	50,614
CS82	43	132 kV sub-station	Each	33,742
CS83	44	Bay / Bays in one sub-station	Each	16,871
	45	Auto-CADD drawing with 12 copies indicate complete land with dimensions, plan of SS with equipments, location of control room, equipments, roads, duct routes, earth mat of 100X16mm & 50X 8mm flat earth pits,yard lighting fixtures etc.,		
CS84	i	132kV SS layout drawing	Job	8,571
CS85	ii	220kV SS layout drawing	Job	10,517
CS86	46	Writing of letters in control room panels of lettering on panels marshalling boxes.	Line	122
CS87	47	Supply and installation of Key - Board of size 1.5'x2' of Eco Wood Board with Glass covering with lock and key arrangements for providing all the keys of equipment and SS.	Each	6,743

Note: i. Bore earthing in estimations as per field conditions will be considered on case to case basis as supplemental items. ii. 25% excess over CS64 is allowed for JC tower fabrication charges.				
CS88	48	NABL Lab Testing Charges for 220/132kV CTs & PTs	Each	45,830
CS89	49	NABL Lab testing charges for Energy Meter	Each	38,665

ANNEXURE -III					
I		Loading / Unloading of materials from departmental / Private vehicles in to the stores yard and stacking and vice-versa			
Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2023-24 (in Rs)	
				Loading	Un Loading
ST1	1	Cement	MT	145	169
	2	All other materials			
ST2	(i)	Steel	MT	329	329
ST3	(ii)	Tower parts	MT	329	329
ST4	(iii)	RS Joists and rail poles and MS Sheets pf various sizes.	MT	329	329
	3	Cable / Conductor drums (for loading/ un loading )			
ST5	a	Panther ACSR	Each Drum	362	362
ST6	b	Zebra ACSR	Each Drum	506	506
ST7	c	Moose ACSR	Each Drum	506	506
ST8	d	Moose ACSR (Huge Drums of 1.75KM and above)	Each Drum	744	744
ST9	e	Earth wire	Each Drum	217	217
ST10	f	Control cables up to 6 Core	Each Drum	217	217
ST11	g	Control cables above 6 Core	Each Drum	289	289
ST12	h	3 1/2 Core LTAC cable drum (up to 500 meters).	Each Drum	289	289
ST13	i	3 1/2 Core LTAC cable drum (above 500 meters).	Each Drum	362	362
	4	Other materials received in cases.			
ST14	(i)	Case weighing not more than	Each case	190	190
ST15	(ii)	Case weighing from 101kgs to 500kgs.	Each case	360	360
ST16	(iii)	Case containg fragile items and weighing more than 501kgs and up to 1MT	Each case	719	574
ST17	(iv)	for LTAC panel	Each	479	479
ST18	v(a)	70KN Normal disc insulator	Each	2	2
ST19	v(b)	120KN Normal disc insulator	Each	2	2
ST20	v(c)	160KN Normal disc insulator	Each	3	3
ST21	vi(a)	70KN Anti-fog disc insulator	Each	2	2
ST22	vi(b)	120KN Anti-fog disc insulator	Each	3	3
ST23	vi(c)	160KN Anti-fog disc insulator	Each	4	4

	(vii)	Loading / Un loading and stacking charges for 70KN /120KN SRC insulators.			
ST24	(a)	132kV	Each string	4	4
ST25	(b)	220kV	Each string	4	4
ST26	(viii)	Loading / Un loading and stacking charges for 120KN /160KN SRC insulators for 400kV .	Each string	5	5
	5	Cases containing Control & Relay Panels			
ST27	(a)	33kV	Each	479	479
ST28	(b)	132kV and 220kV	Each	598	598
	6	Cases containing CTs, PTs, CVTs			
ST29	(i)	11kV to 33kV Rating	Each case	108	108
ST30	(ii)	Above 33kV and up to 132kV	Each case	723	723
ST31	(iii)	220kV Rating	Each case	1078	1078
	7	Cases containing LAs			
ST32	(i)	33kV	Each case	19	19
ST33	(ii)	132kV	Each case	360	360
ST34	(iii)	220kV	Each case	479	479
	8	Loading / Un-Loading of			
ST35	1	33kV Breaker	Each set	884	884
ST36	2	132kV CB	Each set	2873	2873
ST37	3	220kV SF6 CB	Each set	3590	3590
ST38	4	Station Transformer (100KVA)	Each set	551	551
ST39	5	Station Transformer (250KVA)	Each set	660	660
ST40	6	220V 80AH Battery ( <b><i>Conventional</i></b> ) ( <i>Lead Acid</i> )	Set	1197	1197
ST41	7	220V 80AH Battery (VRLA) (Maintenance Free)	Set	839	839
ST42	8	220V 200AH Battery ( <b><i>Conventional</i></b> ) ( <i>Lead Acid</i> )	Set	1315	1315
ST43	9	220V 400AH Battery	Set	1915	1915
ST44	10	220V Battery Charger with DC distribution Board	Set	719	719
ST45	11	DCDB for battery Charger.	Each	239	239
ST46	12	132kV Hardware single	Set	17	17
ST47	13	132 KV Hardware double	Set	18	18
ST48	14	220 kV Hardware single	Set	23	23
ST49	15	220 KV Hardware double	Set	25	25
ST50	16	220 KV Isolators, without insulators including mechanism box	Set	719	719

ST51	17	220kV Solid core insulators	Each	96	96
ST52	18	132 KV Isolators (without solid core insulators)	Each	538	538
ST53	19	132kV Solid core insulators	Each	59	59
ST54	20	33 KV Isolators (without solid core insulators)	Each	239	239
ST55	21	33kV Solid core insulators	Each	6	6
ST56	22	Vibration dampers, mid span compression joints, repair sleeves, clamps & connectors etc.,	100 Nos	239	239
	23	Capacitor Banks			
ST57	a	5 MVAR	Set	1915	1915
ST58	b	Neutral C.T.	Each	131	131
ST59	24	Scrap items like MS Scrap, GI Scrap, Ferrous Scrap etc.,	Per MT	360	360
ST60	25	Scrap items like Conductor scrap, Earth wire Scrap etc.,	Per MT	479	479
ST61	26	Bolts & Nuts weighing 50 Kgs bags <u>including springs washers, flat washers.</u>	Each bag	11	11
ST62	27	3 1/2 Core LTAC Cable bits (loose) by measuring and load / unload (up to 500 Meters, limited to Rs.142 per Bit (Maximum)	Mts	1	1
ST63	28	Cable bits (loose) up to 6 Core by measuring and load / un load.( up to 500 Meters, limited to Rs.106 per Bit (Maximum)	Mts	1	1
ST64	29	Cable bits (loose) above 6 Core by measuring and load / un load.(up to 500 Meters, limited to Rs.142 per Bit (Maximum)	Mts	1	1
ST65	30	Copper Scrap	Per MT	287	287
ST66	31	Battery Scrap	Per MT	300	300
ST67	32	Capacitor units Scrap	Each	13	13
ST68	33	33kV Breaker Limb	Each	242	242
ST69	34	132kV Breaker Limb	Each	598	598
ST70	35	220kV Breaker Limb	Each	861	861
ST71	36	Tyres scrap of all sizes	Each	29	15
ST72	37	Empty oi drums	Barrel	5	5
ST73	38	Full oil drums	Barrel	61	61
ST74	39	220V, 200AH Battery (VRLA) (Maintenance free)	Set	920	920
ST75	40	220kV Bushing	Each	372	372
ST76	41	132kV Bushing	Each	186	186
ST77	42	33kV Bushing	Each	47	37
Note		If Loading/Unloading is done with Crane, 1/3 <sup>rd</sup> Charges are to be paid towards labour charges and remaining amount is towards crane hire charges. Example: Loading charges of 100kVA Station Transformer is Rs.521 and in case is loaded by using a crane then labour charges would be Rs.174.			

II.		Loading and Un loading and counting at Stores for check measuring and Stock Verification Purpose		
Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2023-24 (in Rs)
ST78	43	Tower parts counting on part wise and restocking at stores yard ( for stock verification purpose)	Per MT	121
ST79	44	Labour charges for weighing and restocking of GI Tower Parts or Bolts & Nuts, Washers (for stock verification purpose)	Per MT	479
ST80	45	Labour charges for loading and unloading of ACSR, AAA Conductor & Earth wire bits for weighment (for stock verification purpose).	Per MT	479
ST81	46	Counting and Restocking of Hardware (Iron parts, Al jumper cones, Al Tension cones, PA rods, Arcing horns, Al grippers etc) (for stock verification purpose).	Each set	7
ST82	47	Counting and Restocking of 220kV & 132kV Line accessories like Dampers, MSC Joints, Repair sleeves, PA rods, D- Shackles Links, Earthing sets, Hangers, Counter Poise Earthing Clamps etc (for stock verification purpose)	Each set	2
ST83	48	Counting and restocking of insulators of various capacities (for stock verification purpose).	Each	2
ST84	49	Loading of Assorted tower parts from different places by observing part wise and loading in to lorry at stores.	Per MT	360
ST85	50	For Opening and Repacking of Packing of Panels for check measuring purpose	Each	72
	51	For Opening and Repacking of Packing of Breakers for check measuring purpose		
ST86	(a)	220 kV	Each	239
ST87	(b)	132 kV	Each	169
ST88	(c)	33 kV	Each	72
ST89	52	For Opening and Repacking of Packing of Fragile Materials, and Small Packages like wooden, Cartoon Boxes etc., for check measuring purposes.	Each	36

III		Crane Hire charges:(for departmental works at the premises)		
Sl. No.	Item No.	Description of Item		SSR Rate for 2023-24 (in Rs)
	53	For 2 to 8 Tonne Capacity crane		
ST90		i.For Ist hour	Hour	3557
ST91		ii.For every hour or part thereof after Ist hour	Hour	1615
	54	For 8 to 20 Tonne Capacity crane		
ST92		i.For Ist hour	Hour	5547
ST93		ii.For every hour or part thereof after Ist hour	Hour	1849
	55	For above 20 Tonne Capacity crane		
ST94		i.For Ist hour	Hour	8553
ST95		ii.For every hour or part thereof after Ist hour	Hour	3007
IV		Sparing of Departmental vehicle to the contractor:		
Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2022-23 (in Rs)
ST96	56	Sparing of Departmental vehicle(Lorry) to the contractor is under emergency only. When departmental lorry is engaged to the Contractor on a particular day an amount per day or part there of should be recovered for a total KM run up to 100KM on that day plus for every additional KM rate, which ever is higher. The run to be worked out taking initial reading at starting point and closing reading after returning the same starting point duly completing the transport	Per day	4661
			Plus additional 1Km	39
ST97	57	Providing Transportation to Officers		8.46

**Note:**

1 When the departmental lorry is used for transport of fragile and costly equipment, they have to be insured by the contractor in first place before transport and the same will be claimed in the respective work bill.

2 If the crane is given on hire to other than APTRANSCO works, the rate is a minimum of Rs. 29283.12 (Rs.1220.13-per hr X 24Hrs) + (Fuel cost & lubricants) per day or part thereof and the time is to be reckoned from the time of leaving department premises till reaching back.

ANNEXURE -IV			
TRANSPORT OF EQUIPMENTS / MATERIALS			
Sl.No.	Item No.	Description of Item	Per Load SSR 2023-24
		The following are the minimum materials / equipment, for each load. One Load = 9.0 MT	
	<b>1</b>	<b>CTs, PTs, &amp; CVTs:</b>	
T.1	1.a	220 kV	2 Nos.
T.2	1.b	132 kV	3 Nos.
T.3	1.c	33 kV	12 Nos.
		NOTE: For transport of 220kV CTs, PTs & CVTs extra provision may be added for each load towards labour for clearing the obstructions like electrically and telephone lines as the equipment are very tall.(In Rupees)	284
	<b>2</b>	<b>SF6 Circuit Breakers:</b>	
T.4	2.a	220 kV	1/2 sets
T.5	2.b	132 kV	2/3 sets
T.6	2.c	33 kV	3 Nos.
	<b>3</b>	<b>Isolators with or without Earth switch including post type insulators:</b>	
T.7	3.a	220 kV	2 set.
T.8	3.b	132 kV	3 Sets
T.9	3.c	33 kV	8 Nos.
	<b>4</b>	<b>Lighting Arrestors:</b>	
T.10	4.a	220 kV	6 Nos.
T.11	4.b	132 kV	6 Nos.
T.12	4.c	33 kV	24 Nos.
	<b>5</b>	<b>Control &amp; Relay panels:</b>	6 Nos.
	<b>6</b>	<b>ACSR Conductor and Earth wire drums:</b>	
T.13	6.a	ACSR moose	3Nos.
T.14	6.b	ACSR Zebra	4Nos.
T.15	6.c	ACSR Panther	6Nos.
T.16	6.d	Earth wire of 2 km per each drum	8Nos.
T.17	6.e	Earth wire of 3 km per each drum	7 Nos.
T.18	6.f	CABLE DRUMS	10Nos.
	<b>7</b>	<b>Disc Insulators</b>	
T.19	7.a	70 KN	1000 Nos.
T.20	7.b	120KN	800 Nos.
	<b>8</b>	<b>Silicon Rubber Insulators</b>	
T.21	8.a	70 KN	275 Nos.
T.22	8.b	120KN	228 Nos.
	<b>9</b>	<b>Wave Traps</b>	
T.23	9.a	220kV	6 Nos.
T.24	9.b	132kV	16 Nos.

ANNEXURE - V				
RATES FOR HANDLING & ERECTION OF POWER TRANSFORMERS				
Sl. No.	Item No.	Description of Item	Unit	SSR Rate for 2023-24 (in Rs)
	1	2	3	5
		<b>A) HANDLING AS JOB WORK BY DEPARTMENT</b>		
	<b>1</b>	<b>Loading/Unloading of T&amp;P such as wooden sleepers, winch jacks, packing pieces etc., required for handling the power transformers.</b>		
PT1	a	Up to 31.5 MVA transformers, one load of wooden sleepers and another load of T&P such as chain pulley block and rail poles etc (Maximum two loads)	Load	1,581
PT2	b	For above 31.5 MVA and up to 100 MVA transformers, two loads of wooden sleepers and another load of T&P such as chain pulley block, winch and rail poles etc (Maximum three loads)	Load	1,581
PT3	c	For the above 100 MVA and up to 160 MVA transformers, three loads of wooden sleepers and another load of T&P such as winch machine and rail poles etc (Maximum Four loads)	Load	1,581
	<b>2</b>	<b>Loading/Unloading of fragile material such as</b>		
	a)	LV bushing / Neutral bushing for 132 kV transformer		
PT4	(i)	Loading	Each	48
PT5	(ii)	Unloading	Each	38
	b)	132kV Bushings		
PT6	(i)	Loading	Each	186
PT7	(ii)	Unloading	Each	186
	c)	220kV Bushings		
PT8	(i)	Loading	Each	371
PT9	(ii)	Unloading	Each	371
		<b>NOTE</b> :If loading / Un loading is done with Crane, 1/3rd Charges are to be paid towards labour charges and remaining amount is towards crance hire charges.		
PT10	3	Loading/Unloading of accessories of transformer including raidator, pipe line, FCC & RTCC panels, conservator tank, turrets LA set frames and oil barrels 'A' frame and header etc., (For 50MVA and above 50 MVA PTRs without oil barrels)	Load	2,615
	<b>4</b>	<b>Dragging of power transformer main tank duly arranging wooden sleeper platform providing packing pieces, jacking up the transformer, insertion of wooden sleeper, rail poles arrangement of pullies, steel ropes positioning of winch and anchoring of winch.</b>		
	a	Transformers upto 16 MVA capacity		
PT11		Up to 10 Mtrs.	LS	4,163

PT12		Over and above 10 Mtrs.	RM	415
	b	Transformers above 16MVA and upto 31.5 MVA capacity		
PT13		Up to 10 Mtrs.	LS	7,602
PT14		Over and above 10 Mtrs.	RM	761
	c	Transformers above 31.5MVA and upto 50 MVA capacity		
PT15		Up to 10 Mtrs.	LS	8,872
PT16		Over and above 10 Mtrs.	RM	887
	d	Transformers above 50MVA and upto 100 MVA capacity		
PT17		Up to 10 Mtrs.	LS	10,964
PT18		Over and above 10 Mtrs.	RM	1,095
	e	Transformers above 100MVA and upto 160 MVA capacity		
PT19		Up to 10 Mtrs.	LS	14,105
PT20		Over and above 10 Mtrs.	RM	1,411
	<b>5</b>	<b>Turning the transformer through 90 degrees including making arrangements as above.</b>		
PT21	a	Transformers upto 16 MVA capacity	Each	3,726
PT22	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	4,673
PT23	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	5,812
PT24	d	Transformers above 50MVA and upto 100 MVA capacity	Each	6,650
PT25	e	Transformers above 100MVA and upto 160 MVA capacity	Each	8,312
	<b>6</b>	<b>Turning the transformer through 180 degrees including making arrangements as above.</b>		
PT26	a	Transformers upto 16 MVA capacity	Each	6,460
PT27	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	7,767
PT28	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	9,152
PT29	d	Transformers above 50MVA and upto 100 MVA capacity	Each	10,170
PT30	e	Transformers above 100MVA and upto 160 MVA capacity	Each	12,202
PT31	7(a)	Anchoring of transformer including excavation of trench of 4 x 1x0. 5 mtrs for anchoring and burying 2 Nos. sleepers in it and removing the same after work is completed.	1 Job	1,581
PT32	7(b)	Movement of 10 MT winch for anchoring.	1 Job	1,430
	<b>8</b>	<b>Lifting/Lowering the transformer main tank to the required height of one sleeper using jacks and wooden sleepers packing pieces for loading onto /from the truck.</b>		
PT33	a	Transformers upto 16 MVA capacity	Each	4,522
PT34	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	6,969
PT35	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	8,676
PT36	d	Transformers above 50MVA and upto 100 MVA capacity	Each	11,566
PT37	e	Transformers above 100MVA and upto 160 MVA capacity	Each	14,799
	<b>9</b>	<b>Pulling the transformer from platform to the truck for loading/ from truck to the platform for unloading</b>		

PT38	a	Transformers upto 16 MVA capacity	Each	3,803
PT39	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	6,650
PT40	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	7,391
PT41	d	Transformers above 50MVA and upto 100 MVA capacity	Each	9,242
PT42	e	Transformers above 100MVA and upto 160 MVA capacity	Each	12,491
	<b>10</b>	<b>Fixing of transformer wheels to main tank including alignment of transformer etc.,</b>		
PT43	a	Transformers upto 16 MVA capacity	Job	1,758
PT44	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	2,075
PT45	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	3,021
PT46	d	Transformers above 50MVA and upto 100 MVA capacity	Job	3,915
PT47	e	Transformers above 100MVA and upto 160 MVA capacity	Job	5,802
PT48	11	Arranging gas cutter equipment at site including operator and helper to remove anchoring of transformer main tank on truck for loading and unloading (including cost of gas)	Job	2,882
	<b>12</b>	<b>Removal of steel rope and turn buckles of transformer main tank on truck.</b>		
PT49	(a)	Up to 100MVA Capacity	Job	792
PT50	(b)	above 100MVA and up to 160MVA Capacity	Job	1,186
	13	Tieing the transformer main tank on to the truck with steel rope and turn buckles		
PT51	(a)	Up to 100MVA Capacity	Job	1,020
PT52	(b)	above 100MVA and up to 160MVA Capacity	Job	1,526
	14	Assisting for lifting of overhead live lines, while transporting of transformers by truck.		
PT53	(a)	Up to 100MVA Capacity	Job	2,232
PT54	(b)	above 100MVA and up to 160MVA Capacity	Job	4,462
<b>**Note:</b>				
1. Rate Contract for Erection and Oil Filtration works of 220kV & 132kV Class Power Trasnformers valid for 2 years (i.e. from 24.08.2021 to 23.08.2023) issued vide Lr.No.CE(Tr)/SE(Tr)/EE(Tr)/DEE-3/F.CTO-4/2021-ERC/D.No.129/21, Dt 13.09.2021.				
2. Rate Contract for Erection and Oil Filtration works of 400kV Class Power Trasnformers issued vide Lr.No.CE(Tr)/SE(Tr)/EE(Tr)/DEE-1/F.ERC-400KV Oil filtration/D.No.34/23, Dt 09.03.2023.				
3. Rate Contract for Repair & Overhauling works of 220kV & 132kV Class Power Transformers valid for 2 Years for the period from 27.03.2023 to 26.03.2025 issued vide Lr.No.CE(Tr)/SE(Tr)/EE(Tr)/DEE-1/F.CTO-05/2022-RRC/D.No.45/23, Dt 27.03.2023.				
	<b>B)</b>	<b>ERECTION OF POWER TRANSFORMERS AS JOB WORK BY DEPARTMENT</b>		
	1	Opening of crates and keep ready for erection of accessories of transformers		

PT55	a	Transformers upto 16 MVA capacity	Job	2,485
PT56	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	3,105
PT57	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	4,157
PT58	d	Transformers above 50MVA and upto 100 MVA capacity	Job	4,988
PT59	e	Transformers above 100MVA and upto 160 MVA capacity	Job	6,650
	2	Shifting, loading dragging of accessories of transformers like radiator, conservator tank, pipe line, fans, headers, DM box, FCC, oil barrels etc., from place of storage to work spot and vice versa of transformers.(For 50MVA and above 50 MVA PTRs without oil barrels)		
PT60	a	Transformers upto 31.5 MVA capacity	Job	3,726
PT61	b	Transformers above 31.5MVA and upto 100 MVA capacity	Job	4,972
PT62	c	Transformers above 100MVA and upto 160 MVA capacity	Job	6,830
PT63	d	Transportation of oil barrels from unloading place to the filter machine in the substation.	Job	3,717
	3	Erection of Radiators to the transformers including headers		
PT64	a	Transformers upto 16 MVA capacity	Job	2,765
PT65	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	4,431
PT66	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	5,507
PT67	d	Transformers above 50MVA and upto 100 MVA capacity	Job	6,750
PT68	e	Transformers above 100MVA and upto 160 MVA capacity	Job	9,201
	4	Erection of main conservator tank.		
PT69	a	Transformers upto 16 MVA capacity	Each	2,495
PT70	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	2,773
PT71	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	4,068
PT72	d	Transformers above 50MVA and upto 100 MVA capacity	Each	6,335
PT73	e	Transformers above 100MVA and upto 160 MVA capacity	Each	8,155
PT74	f	Pronal bag testing and commissioning	Each	2,743
PT75	g	Hiring of compressor	Each	1,922
PT76	h	Dry Nitrogen Cylinder (In case, Dry Nitrogen Cylinder is used for commissioning of Air cell instead of Air compressor), excluding transportation cost.	Each	3,011
	5	Erection of transformer bushing		
PT77	a	33 kV Neutral and tertiary bushings	Each	544
PT78	b(I)	132 kV bushings up to 100MVA.	Each	1,011
PT79	b(ii)	132 kV bushings for above 100MVA and up to 160MVA	Each	1,266
PT80	c(I)	220 kV bushings up to 100MVA	Each	1,520
PT81	c(ii)	220 kV bushings for above 100MVA and up to 160MVA	Each	1,884
PT82	d(I)	220kV 3 Nos. erection of turrets up to 100MVA	Job	2,176

PT83	d(ii)	220kV 3 Nos. erection of turrets for above 100MVA and up to 160MVA	Job	2,855
PT84	e(I)	132kV 3 Nos. erection of turrets up to 100MVA	Job	1,021
PT85	e(ii)	132kV 3 Nos. erection of turrets for above 100MVA and up to 160MVA	Job	1,497
PT86	6	Erection of air blowers (cooling fans) including frames and control cubical etc., (for each transformer)	Job	4,112
PT87	7	Erection of LA frames (HV & LV side)	Each	1,291
PT88	8(a)	D).Erection of driving mechanism box, bevel gear of OLTC for below 100MVA..	Each	1,291
PT89		ii).Erection of driving mechanism box, bevel gear of OLTC 100MVA and above 100MVA.	Each	2,580
PT90	8(b)	ii).Erection of OLTC conservator tank with stand for up to 100MVA.	Each	1,667
PT91		ii).Erection of OLTC conservator tank with stand for above 100MVA and upto 160MVA.	Each	2,495
	9	Erection of pipe line.		
PT92	a	Transformers upto 31.5 MVA capacity	Each	873
PT93	b	Transformers above 31.5MVA and upto 50 MVA capacity	Each	1,304
PT94	c	Transformers above 50MVA and upto 100 MVA capacity	Each	2,210
PT95	d	Transformers above 100MVA and upto 160 MVA capacity	Each	2,763
PT96	10	D).Erection of Thermometer, pressure Relief valve and vent pipe etc.,	Each	873
PT97		ii).Erection of Thermometer, pressure Relief valve and vent pipe etc.,100MVA and above PTRs.	Each	1,304
	11	Erection of detachable OLTC including connecting internal jumper with OLTC tank.		
PT98	a	Transformers upto 31.5 MVA capacity	Each	4,287
PT99	b	Transformers above 31.5MVA and upto 100 MVA capacity	Each	6,460
PT100	c	Transformers above 100MVA and upto 160 MVA capacity	Each	7,201
PT101	12	D).Erection of separate, cooler bay including 'A' frame header pipes and bends of transformers up to 100 PTRs MVA capacity.	Bay	9,242
PT102		ii).Erection of separate, cooler bay including 'A' frame header pipes and bends of transformers above 100 MVA and up to 160MVA PTRs capacity.	Bay	10,170
	13(I)	Removal of old worn out gaskets and replacement with new gaskets including cutting, pasting of gasket with all accessories including cost of adhesives. Excl. top cover		
PT103	a	Transformers upto 16 MVA capacity	Job	3,575
PT104	b	Transformers 31.5MVA and 50 MVA capacity	Job	5,555
PT105	c	Transformers 100 MVA and upto 160 MVA capacity	Job	7,148

	13(II)	Removal of old worn out gaskets and replacement with new gaskets including cutting, pasting of gasket with all accessories including cost of adhesives. for top cover. The following rates are exclusive of crane hire charges which are payable at actuals.		
PT106	a	Transformers upto 16 MVA capacity	Job	1,790
PT107	b	Transformers 31.5MVA and 50 MVA capacity	Job	2,186
PT108	c	Transformers 100 MVA and upto 160 MVA capacity	Job	2,579
PT109	14	Erection of supporting insulators and earth flat for HV & LV Neutrals / Tertiary.	Job	873
	<b>C</b>	<b>OIL FILTRATION OF TRANSFORMERS AS JOB WORK BY DEPARTMENT</b>		
PT110	1	Loading / Unloading of 2KL Oil filter.	Job	3,052
PT111	2	Laying of L.T.Cable from AC Supply point to filter connecting Pipes etc, from filter to transformer and back to filter and Vice-versa.	Job	1,475
PT112	3	Loading / unloading of full transformer oil barrels.	Barr el	60
PT113	4	Loading / unloading of oil drums.	Barr el	10
	5	Oil topping for transformer through oil filter:		
	5.1	Transformer already filled with oil		
PT114	a	Transformers upto 31.5 MVA capacity	Each	1,172
PT115	b	Transformers above 31.5MVA and upto 50 MVA capacity when the transformer is received with transformer oil	Each	2,580
PT116	5.2	Transformers above 50MVA upto 160 MVA capacity When the transformer is received empty with Nitrogen	Barr el	38
	6	Assisting labour for filtering of oil for a period of 5 days during filtration of oil		
PT117	a	For a period of 5 days for Transformers upto 31.5 MVA capacity	Each	5,573
PT118	b	For a period of 5 days for Transformers above 31.5 MVA and upto 100 MVA capacity	Each	7,802
PT119	c	For a period of 5 days for Transformers above 100 MVA and upto 160 MVA capacity	Each	11,149
PT120	a	Over and above 5 days for Transformers upto 31.5 MVA capacity	per day	1,114
PT121	b	Over and above 5 days for Transformers above 31.5 MVA and upto 100 MVA capacity	per day	1,559
PT122	c	Over and above 5 days for Transformers above 100 MVA and upto 160 MVA capacity	per day	2,229

PT123	7(I)	Dismantling of control cables of power transformer for arranging, pulling of transformer maintank out of plinth for failed transformer or improvement of transformer capacity.	Job	1,030
PT124	(ii)	Laying of control cables for the transformers which are received with non completion of wiring on the transformer and complete wiring of the transformer on the tank. F.C.C,D.M box etc., (for old repaired transformers).	Job	2,743
PT125	8	Shifting of filter machine in switch yard from existing place to near transformer or to the convenient place manually (where movement of tractor trailer is not possible).	RM	128
	9	Labour charges for arrangement for vaccum filling for the power transformer for prescribed time duration for 50MVA and above PTRs which are received at site with nitrogen gas filled.		
PT126	(a)	Below 100MVA PTRs	Job	4,112
PT127	(b)	Above 100MVA PTRs.	Job	8,228
PT128	10	Loading / Unloading of 5 KL Storage tanker.	Job	1,362
	11	Hire charges for a private tractor for transport of 6 KL of oil filter.		
PT129		Up to 50 KM	LS	6,457
PT130		Beyond 50 KM	per KM	125
	12	Providing of oil tanker on daily hire charges		
PT131	a	10 KL capacity	Per day	2,025
PT132	b	20 KL capacity	Per day	3,712
	13	Transportation of 10 KL & 20 KL oil tanker (including return trip charges), (a) or (b) only applicable		
PT133		Minimum amount upto 50 KM	LS	10,123
PT134		More than 50 KM	KM	51
	14	Unloading of oil tanker at site and loading the same after completion of the job		
PT135		10 KL capacity	Job	8,013
	15(i)	Complete wiring up of the transformer indicating systems cooler control fans and motor driving mechanism of OLTC panel providing suitable ferrules and lugs.		
PT136	a)	16/31.5 MVA Transformer	LS	24,171
PT137	b)	50 MVA Transformer	LS	31,426
PT138	c)	100 MVA Transformer	LS	34,855
PT139	d)	160 MVA Transformer	LS	34,855

	15(ii)	Complete wiring up of the transformer indicating systems cooler control fans and motor driving mechanism of OLTC panel providing suitable ferrules and lugs excluding OLTC panel		
PT140	a)	16/31.5 MVA Transformer	LS	12,086
PT141	b)	50 MVA Transformer	LS	15,711
PT142	c)	100 MVA Transformer	LS	17,425
PT143	d)	160 MVA Transformer	LS	17,425
PT144	16	Draining of oil from main tank of the transformer into empty oil drums and stacking them neatly as directed by the APTRANSCO Engineer at site.	KL	589
PT145	17	Unloading of 20 KL oil storage taken at site and loading the same after completion of the job	Job	8,753
	D)	Insurance for fragile material during transportation, erection, dismantling may be paid as per actuals from department side for department works.		

ANNEXURE - VI				
Rates for O&M works of EHT Lines				
Sl. No.	Item No.	Description of work	Unit	SSR Rate for 2023-24 (in Rs)
OM1	1	(a).Providing of Vibration dampers ( for 220 KV & 132 KV lines) (Excluding Material & Transportation cost)	Each	180
OM2		(b). Providing of spacer damper for 400 KV twin Moose lines (Excluding Material & Transportation cost)	Each	245
	2	Painting of towers 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 towers and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.		
OM3	a)	First coat of 1st Grade Aluminum Paint duly scratching and cleaning of towers including labour charges, cost of paint, brushes etc.	MT	5,738
OM4	b)	Labour charges for painting including scratching and cleaning of towers of 1st coat of Alluminum without cost of paint & brushes.	MT	1,607
OM5	c)	(*) Second coat of 1st Grade Aluminium Paint duly scratching and cleaning of towers including labour charges, cost of pint, brushes, etc.	MT	3,358
OM6	d)	(*) Labour charges for painting including scratching and cleaning of towers of 2nd coat of Aluminum without cost of paint & brushes.	MT	911
		<b><i>(*) : The requirement of 2nd coat is to be justified by the concerned Divisional Engineer/Executive Engineer before execution of the work.</i></b>		
	3	Painting of towers with single coat of red oxide paint of 1st Grade, including scratching and cleaning of towers.		
OM7	a)	One coat of 1st Grade Red Oxide Paint including labour charges for scratching and cleaning of towers including cost of paint, brushes etc.	MT	3,594
OM8	b)	Labour charges for painting of towers including scratching and cleaning of towers without cost of paint & brushes.	MT	1,993
OM9	4	Providing of Arcing Horns for 132 KV line on both tower side and line side i.e. two per string (Excluding Material & Transportation cost)(with lefty & Pullies)	per string	1,439
OM10	5	Providing of Arcing Horns for 132 KV line (Excluding Material & Transportation cost)(without lefty & Pullies)	Each	180

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OM11	6	Providing of Arcing Horns for 220 KV line on both tower side and line side i.e. two per string (Excluding Material & Transportation cost)(with lefty & Pullies)	per string	2,112
OM12	7	Providing of Arcing Horns for 220 KV line (Excluding Material & Transportation cost)(without lefty & Pullies)	Each	180
OM13	8	Providing of Missing angles/ Replacement of rusted angles on the existing towers departmentally (including transportation charges & Excluding cost of tower parts, bolts & nuts)	Per each	161
OM14	9	Replacement of insulators at Suspension tower of 132 KV line (Excluding Material & Transportation cost)	Per string	1,812
OM15	10	Replacement of insulators at Tension tower of 132 KV line (Excluding Material & Transportation cost)	Per string	3,066
OM16	11	Replacement of insulators at Suspension tower of 220 KV line (Excluding Material & Transportation cost)	Per string	1,993
OM17	12	Replacement of insulators at Tension tower of 220 KV line (Excluding Material & Transportation cost)	Per string	3,525
OM18	13	Replacement of 132 KV line single suspension insulator string with double suspension insulator strings (Excluding Material & Transportation cost)	Per string	2,717
OM19	14	Replacement of 132 KV line single tension insulator string with double tension insulator strings (Excluding Material & Transportation cost)	Per string	4,598
OM20	15	Replacement of 220 KV line single suspension insulator string with double suspension insulator strings (Excluding Material & Transportation cost)	Per string	2,885
OM21	16	Replacement of 220 KV line single tension insulator string with double tension insulator strings (Excluding Material & Transportation cost)	Per string	5,287
OM22	17	Replacement of insulators at Suspension tower of 400kV line (Excluding material & Transportation cost )	Per string	2,702
OM23	18	Replacement of insulators at Tension tower of 400kV line (Excluding material & Transportation cost )	Per string	4,506
OM24	19	Painting the welded portion of GI bolts and nuts of towers In the section ground level and up to X-arm level including all bolts connecting the bracings at the bottom x-arm level with one coat of zinc rich paint including cost of paing.	Each	6
OM25	18	Fixing of earth bonds for existing transmission line towers	Each	180
	19	Re-Stringing of power conductor on the existing lines (for correction of sag including fixing of tension insulators/suspension insulators, Hardware and accessories, rough sagging, jointing, tensioning, clipping and fixing of performed armour rods and vibration dampers, measuring ground clearances wherever necessary. Which includes the works involved in the crossing of LT, 11kV &333kV power lines viz dismantling and restringing of conductor.		
OM26	a	3. Nos. Zebra conductors	RKM	45,330
OM27	b	6. Nos. Zebra conductors	RKM	67,994
OM28	c	2. Nos. Panther conductors	RKM	24,171
OM29	d	3. Nos. Panther conductors	RKM	36,262
OM30	e	6. Nos. Panther conductors	RKM	57,418
OM31	f	2. Nos. Moose conductors	RKM	38,276
OM32	g	3. Nos. Moose conductors	RKM	57,418

OM33	h	6. Nos. Moose conductors	RKM	90,655
OM34	i	3. Nos. Bear conductors	RKM	45,330
OM35	j	6. Nos. Bear conductors	RKM	67,994
OM36	k	3. Nos. Dog conductors	RKM	27,194
OM37	l	6. Nos. Dog conductors	RKM	43,061
	21	<b><i>Loading / Unloading charges :</i></b>		
	a)	For above half drum and up to one drum full drum rate	Basic rate of Full	Basic rate of Full Drum
	b)	For below half drum and for a Piece	Basic rate of Half	Basic rate of Half Drum

<b>ANNEXURE - VII</b>			
<b>LABOUR CHARGES FOR TELECOM MATERIAL</b>			
<b>Sl.No.</b>	<b>Description</b>	<b>Unit</b>	<b>SSR Rate for 2023-24 (in Rs)</b>
<b>1</b>	Erection of PLCC panel in 220KV/132KV SS	Each	8,931
<b>2</b>	Erection of LMU	Each	1,492
<b>3</b>	Erection of Wave Trap		
i	Fixing of wavetrapp on pedastal mounting insulator stack in 400KV	Each	8,346
ii	Fixing of the wave trap on pedastal mounting insulator stack in 200KV	Each	6,763
iii	Fixing of the wave trap on Suspension mounting including jumpering in 132KV	Each	4,032
<b>4</b>	Erection and commissioning of 48V DC/50A, 35A Battery charger in 220KV/132KV SS	Each	2,946
<b>5</b>	Erection and commissioning of 48V DC/100A/150A Battery charger in 400 KV SS	Each	2,946
<b>6</b>	Erection and commissioning of 48V/200AH & 250AH battery sets in 132 & 220 KV SS	Each	5,795
<b>7</b>	Erection and commissioning of 48V/300AH battery sets in 132 & 220KV SS	Each	6,375
<b>8</b>	Erection and commissioning of 48V/400AH battery set in 400kV SS	Each	6,955
<b>9</b>	Erection and commissioning of OLTE & MUX (Optical line terminal equipment)	Each	29,374
<b>10</b>	Erection and commissioning of FDP(Fibre Distribution Panel) in 400KV/220KV/132KV SS (12F/24F/48F)	Each	12,854
<b>11</b>	Erection and commissioning of 32/32, 16/16 or 8/8 EPAX400KV/220KV/132KV SS	Each	13,799
<b>12</b>	Erection and commissioning of 32/32, 16/16 with 2 E1 cards EPAX in 400KV/220KV/ 132KV SS	Each	18,150
<b>13</b>	Erection of RTU panel in 400KV/220KV/132KV SS	Each	22,695
<b>14</b>	Erection and commissioning of Analog/Digital protection coupler equipment in 400KV/220KV/132KV SS	Each	21,797
<b>15</b>	Laying of optical fibre approach cable in switch yards of 400KV, 220KV & 132KV (Including hardware) along with HDPE Pipe	KM	23,808
<b>16</b>	Laying of HDPE Pipe in trenches in 400KV, 220KV, 132KV SS.	KM	15,656
<b>17</b>	Laying of 12F/24/48 F OPGW cable on 132 kV, 220KV and 400KV lines (including Splicing and fixing of hardware accessories)	Km	92,200
<b>18</b>	Stringing of ADSS type optical fibre cable (12F/24F capacity) on 132KV, 220KV line sections in plane areas/ forest areas/ hill areas separately, inclusive of splicing and fixing of hardware		
i	For plane area	KM	43,398

ii	For agency or tribal area	KM	54,247
iii	For Hill areas	KM	60,756
iv	For interior area	KM	60,756
v	For municipal corporation areas (upto 12 Kms from municipality)	KM	54,247
vi	For municipalities (upto 12 Kms from municipality)	KM	52,077
<b>19</b>	Fixing of tension clamp set of OFC on 132KV & 220KV towers	per set	2,974
<b>20</b>	Fixing of suspension clamp set of OFC on 132KV, 220KV towers	per set	2,450
<b>21</b>	Fixing of tension clamp set of OPGW on 400KV lines	per set	3,599
<b>22</b>	Fixing suspension clamp set of OPGW on 400KV lines	per set	3,074
<b>23</b>	Fixing of splice box on 132KV & 220KV towers	Each	4,475
<b>24</b>	Fixing of splice box on 400KV towers	Each	5,594
<b>25</b>	Fixing of vibration dampers on 132KV & 220KV towers	Per set	1,392
<b>26</b>	Fixing of vibration dampers on 400KV towers	Per set	1,773
<b>27</b>	Splicing charges for OFC fibres laid on 132KV, 220KV, 400KV lines in plane Areas/Forest/ Hill Areas/ Municipal limits, separately for each case		
i	For plane area	Each fibre splice	707
ii	for agency or tribal area	Each fibre splice	883
iii	for Hill areas	Each fibre splice	988
iv	for interior area	Each fibre splice	988
v	for municipal corporation areas (upto 12 Kms from municipalities)	Each fibre splice	883
vi	for municipalities (upto 12 Kms from municipalities)	Each fibre splice	848
<b>28</b>	Fixing of ADSS type OFC to the tower members with ties, clamps		
i	for 220kv/132 kv	Each	2,442
ii	for 400kv	Each	3,051
<b>29</b>	Laying of aerial type OFC on 33KV/11KV HT/LT poles	KM	14,377
<b>30</b>	Laying of 6 pair telephone cable in the trenches in 132KV, 220KV & 400KV	KM	10,881
<b>31</b>	Laying of Cat 5E/6 Cables in Offices.	KM	5,580
<b>32</b>	Laying of Cat 5E/6 Cables with Conduit pipes along with accessories in Offices.	KM	16,740
<b>33</b>	Fixing of 6U × 19 inch Rack in Offices for ERP works	Each	465
<b>34</b>	Laying of single pair telephone cable in the trenches in 132KV, 220KV & 400KV	KM	10,044
<b>35</b>	Laying of 25sq mm battery cable in control room in 132kv, 220KV & 400KV	KM	23,715
<b>36</b>	Laying of Co-axial cable from switch yard gantry tower to communication room in the existing trench	KM	22,766

37	Laying of 6 pair telephone cable on overhead poles LT & HT	KM	8,369
38	Laying of single pair telephone cable on overhead poles LT & HT	KM	8,369
39	Laying of RF cables in 132KV, 220KV & 400 KV SS	KM	22,766
40	Digging of 1 X 1 X 1 (Cu.mt) ducts for laying of telephone cable in 132KV, 220KV, 400KV SS	Cu.mt	868
41	Excavation, refilling & closing of ducts of 1 X 1 X 1 (Cu.mt) in 132 KV, 220KV and 400 KV SS premises	Cu.mt	1,734
42	Erection of earth pit as per standards in 132KV, 220KV SS for communication purpose	Each	17,965
43	Erection of earth pit as per standards in 400 KV SS	Each	17,965
44	Erection of VSAT equipment in 132KV, 220KV, 400 KV SS	Each	8,507
45	Dismantling of VSAT equipment of 132KV, 220KV, 400 KV SS	Each	4,253
46	Loading/unloading charges for PLCC equipment in 132KV SS, 220KV/400KV in to vehicle		
i	for single channel PLCC pannel	Each	868
ii	for Twin channel PLCC pannel	Each	868
47	Loading/unloading charges for 48V/35A, 50A, chargers	Each	868
48	Loading/unloading charges for 48V/100A/150A chargers	Each	1,301
49	Loading/unloading charges for OLTE/MUX equipment	Each	1,301
50	Loading/unloading charges for RTU panels	Each	1,301
51	Loading/unloading charges for EPAXs	Each	434
52	Loading/unloading charges for battery sets 48V/150 AH, 200 AH, 250 AH, 300 AH, 400 AH		
i	for 150 AH/200 AH	Each	868
ii	for 250 AH/300AH	Each	868
iii	for 400AH	Each	1,301
53	Loading/unloading charges for LMUs	Each	434
54	Loading/unloading charges for Wavetrap		
i	132KV wave trap	Each	434
ii	220KV Wave Trap & 400 KV	Each	868
55	Dismantling of existing PLCC chargers (35A, 50A, 100A)		
i	35/50A	Each	2,062
ii	100A	Each	5,999
56	Dismantling of existing 48V/165AH, 200AH, 250AH,300AH	Each	4,678
57	Dismantling of existing 48V/400 AH battery sets	Each	6,215
58	Dismantling of existing RTU, OLTE/MUX equipment		
i	RTU	Each	11,347
ii	OLTE/MUX	Each	4,466
59	Dismantling of EPAXs	Each	1,845

60	Dismantling of wave traps on 132 KV/220KV SS/400 KV SS separately		
i	50% of Erection of 2000A/1 m H Wave Trap(400 kv)	Each	4,174
ii	50 % of Erection of 1250A/0.5 mH Wave Trap(220 kv)	Each	3,382
iii	50% of Erection of 630A/0.2mH Wave Trap (132 KV)	Each	2,016
61	Dismantling of 12F/24 F ADSS cable from 132KV, 220KV SS lines	Each	21,698
62	Dismantling of 12F/24/48 F OPGW cable from 132KV, 220KV SS,400KVSS lines	Each	46,101
63	Dismantling and bringing down of splice boxes on 132KV, 220KV towers	Each	2,238
64	Dismantling and bringing down of splice boxes on 400KV towers	Each	2,797
65	Hiring charges of 5 KVA Diesel Generator per day for attending OFC break down works	Each	1,320
66	Hiring charges of 230V AC inverter (2KVA) with battery backup for attending OFC break down works	Each	1,320
67	Hiring charges of 8X8X10(C.u.ft) closed tent shutter for attending splicing works for attending OFC break down works	Each	930
68	Dismantling of VHF 30 ft masts with Gay wires etc.	Each	2,723
69	Dismantling of 10 ft/20 ft trylon masts	Each	2,198
	<b>UGOF cabling works rates</b>		
	Survey & documentation		
70	Survey of route, providing as built drawing, documentation for unarmoured underground optical fibre cable	Km	5,514
	Excavation & Backfilling		
71	All types of soil, road, footpath, including PCC, sand, warning brick/stone, semi-circular RCC split cover etc. for underground fibre optic cable.	Km	2,20,364
72	Warning Tape (including supply and installation).	Km	33,064
73	Laying of PLB HDPE pipe O.D. 40mm	Km	15,656
74	Installation of HDPE pipe by <b>Trenchless digging</b>		
(a)	0-10 mtrs	mtr	880
(b)	> 10 and up to 30 mtrs	mtr	992
(c)	More than 30 mtrs	mtr	1,101
75	Laying of GI pipe 100mm (Nominal bore), Including accessories.	mtr	280
76	Laying of RCC hume pipe (NP3), 100mm Diameter (Inside), Including accessories.	mtr	420
77	laying of unarmoured UG OFC 24F/48F (DWSM) with HDPE duct in case of underground works	Km	33,066
78	Installation of Joint box in underground (Including splicing & testing) - 24 Fibers	No.	6,894
79	Erection of RCC Joint Chambers	No.	5,872

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<b>80</b>	Installation of PLB HDPE pipe on wall in building premises including routing of OFC through it	mtr	556
<b>81</b>	Reinstatement of excavated area/damages (in road, pavement, footpath etc.)	Sq.mtr rs	278
<b>82</b>	Main Distribution frame (100 pairs)	No.	2,757
<b>83</b>	Split type AC Units including Stabilizer	No.	7,549

<b>Annexure-VIII (a)</b>				
<b>LAYING OF 132KV UG CABLE (SINGLE CIRCUIT)</b>				
<b>Item No.</b>	<b>Sl. No.</b>	<b>Description of Material/Work</b>	<b>UNIT</b>	<b>SSR Rate for 2023-24 (in Rs)</b>
	<b>1</b>	<b>CABLE ROUTE SURVEY</b>		
U1S 1	a)	Conducting reconnoitery and preliminary survey along shortest route with best proposed route and furnishing report for selecting the best proposal for approval including cost and conveyance of all materials, hire charges of equipment, tools and plant, preparation of drawings and reports, labour charges, complete for finished item of work as per the directions of Engineer- in-charge at site as per SSR 2013-14. (a) With GPS equipment (As per clause 4.9 of survey) (b) With total station equipment.	Mts.	394
U1S 2	b)	Conducting Detailed Survey of cable route including evaluation of thermal resistivity of the soil along the cable route, excavation of trial pits as per field requirements, preparation of cable route profile, drawings for cable laying, final route alignment, marking lines & grades, and preparing bill of materials/ lengths of the cable for the project incl. preparation of PTCC questionnaire and marking of proposed cable route in topo sheet, tower/SS sketch, Single line diagram etc.(30 copies/sets) .(NOTE: For survey of small lengths of UG Cable, if the length of UG cable is less than 0.5KM, then 0.5KM is considered for survey of small length of UG cable in the preparation of	Mts.	1,182
	<b>2</b>	<b>LAYING OF CABLE</b>		
	<b>2.1</b>	Laying of 132 kv 630 sq. mm. XLPE U/G copper cable (3 Nos. for single Circuit) including road cutting, pulling and laying of cable including excavation in the following soils and back filling, sand filling dewatering, including cost of RCC protective tiles, cost of route markers, warning tapes etc. Across and along CC, BT & earth road, Nala crossings, bridge crossings, providing HDPE (thickness 10 mm)pipes, Bell mouths, end caps after laying cable, labour charges and all incidental items of work for finished item of work. This includes loading, unloading and transportation of all materials to work spot. (flat formation)		
U1S 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	10,453
U1S 4	b)	Hard Rock with soils	Rmt	14,361
U1S 5	c)	CC or BT road surface etc.	Rmt	9,317
U1S 6	d)	Hard Rock	Rmt	10,744
U1S 7	e)	CC or BT road with Hard rock	Rmt	19,959

U1S 8	f)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road and other service lines including cost of concrete cost of HDPE pipes of 250 mm dia etc. complete	Rmt	13,100
U1S 9	g)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road with hard rock and other service lines including cost of concrete cost of HDPE pipes of 250 mm dia etc. complete	Rmt	30,843
U1S 10	h)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	13,100
U1S 11	i)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	13,100
U1S 12	j)	Cable laying by clamping on special type tower including earthing cable from termination to Link box including cost of Aluminum clamps	Rmt	12,604
U1S 13	k)	Cable laying while clamping bare on the walls , ceiling and structures including cost of clamps in complete	Rmt	4,727
U1S 14	l)	Cable laying across the railway tracks	Rmt	31,512
U1S 15	m)	Cable laying by clamping on Sub-station structures like CPL etc., including earthing cable from termination to Link box including cost of Aluminum clamps.	Rmt	2,363
	<b>2.2</b>	<b>Including excavation and excluding backfilling without cable laying</b>		
U1S 16	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	13,392
U1S 17	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	4,727
	<b>2.3</b>	<b>Excluding excavation and including backfilling</b>		
U1S 18	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	1,970
U1S 19	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	6,302
U1S 20	<b>2.4</b>	Only excavation and back filling of soil without laying of cable	Rmt	2,363
U1S 21	<b>2.5</b>	Excavation and backfilling of suitable thermal backfill for maintaining soil thermal resistance value of 120	Cum	6,302
U1S 22	<b>2.6</b>	Laying of cable excluding excavation and backfilling	Rmt	631
	<b>2.7</b>	<b>Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe</b>		
U1S 23	a)	Soil/Morrem, soft rock (upto 5000 PSI) per each pipe	Rmt	15,441
U1S 24	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per each pipe	Rmt	25,209
	<b>3</b>	<b>LAYING OF CO-AXIAL CABLE</b>		
U1S 25	a)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	23
U1S 26	b)	300sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	23

U1S 27	c)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats	Rmt	23
U1S 28	d)	300sq.mm.single core copper cable conductor PVC insulated 6.6kV grade on pole mounted termination tower including cost of cleats.	Rmt	23
	<b>4</b>	For pulling optical fiber cable the following items shall be done while excavation of trenches as per		
U1S 29	a)	Supply of HDPE duct pipe of OD/ID 40/33 mm dia and associated material of standard make as per the specification of the contract/tender and laying jointing, bedding of above HDPE duct pipe in the already excavated XLPE cable trench including sealing the section ends as per the specification of the	RM	158
U1S 30	b)	Supply of RCC joint chambers (1200/760/50 mm) W/L/T with base and top plates as per the specification of the contract/tender and erection of RCC joint chambers for every 1KM in HDPE duct enroot as per the specification of the contract/tender.	Each	11,029
	<b>5</b>	<b>CABLE JOINTING</b>		
		Jointing of cable excluding cost of pre-moulded straight through joints, Protection box, 3-phase solid bond link box without SVL / 3-phase cross bond link box with SVL, including excavation of pit for single circuit cable, providing cement concrete base and walls etc. including cost of cement, steel etc., labour charges and all incidental items of work for finished item of work including design of pit providing joint bay identification mark including providing necessary T&P for jointing viz., tarpaulin tent, DG Set, Air Conditioner etc., complete wherever necessary for complete item of work. This includes loading, un- loading and transportation of all materials to work spot		
U1S 31	a)	With excavation of joint bay size (9mX4m) and laying of CC(1:2:4) bed and sand bed and back filling	Nos.	4,72,668
U1S 32	b)	Jointing charges for cross bonding joints/normal joints	Nos.	2,36,335
	<b>6</b>	<b>TERMINATION CHARGES</b>		
		Termination of cable excluding cost of outdoor type cable terminations and single phase link boxes without SVL complete and all incidental item of work finished item of work including providing necessary T&P viz., tarpaulin tent, DG set, air conditioner, scaffolding etc complete wherever necessary for complete item of work.		
U1S 33	a)	132 KV tower mounted type cable end terminations including erection on tower in all respects	Each	5,51,446
U1S 34	b)	132 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	4,72,668

U1S 35	c)	132 kV SF6 type cable end terminations complete in all respect.	Each	4,72,668
U1S 36	7a	Providing earthing of joint bays with copper flat of cross section equivalent to the earthing cable and run all around the joint bay, providing earth electrodes of steel rods coated with copper as per standards and treated with suitable earth enhancing compound to get an effective diameter and welding the copper flat to the electrodes by exothermic weldng. The earthing scheme drawing shall be got approved with all eath resistance calculations considering the fault currents earth leads from link box to earth pit and connecing lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Each	39,389
U1S 37	7b	Excavation of earth pit at CTT Tower, putting cast iron pipe with flange on one end (as per ISS7181/86) of nominal dia 125 mm and 2.75 metres long inside the pit including supply and fixing of RCC Collars 0.75 mtr. dia (OD) 50mm thick and 0.60 mtrs. long inside the pit, backfill the pit in the 25mm size granules of BH coke for full depth of the pit with alternate layers of BH Coke and salt of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH Coke,salt,clamps,CI pipes and RCC collars, labour charges for all operational and incidental items of work etc., complete.(as per SSR	Each	16,780
U1S 38	8a	Provision for RCC (1:2:4) for any unforeseen requirement whenever necessary at culverts, drains, nalas, bridges.(rate to be taken as per CSSR)	Cum	(rate to be taken as per CSSR)
U1S 39	8b	Supplying, fitting and placing of HYSD, TMT bar reinforcement (TISCO/SAIL/VSP) in foundtions, columns , beams slabs wherever necessiated.for the work as per the drawings furnished by the field engineer including cutting , bending, cranking, tying grill in position including cost of binding wire scaffolding etc. (rate to be taken as per CSSR)	MT	(rate to be taken as per CSSR)
	9	<b>CONNECTION OF LINK BOXES</b>		
U1S 40	a)	Erection of single phase link boxes, providing suitable supporting arrangements, sheath bonding cable, connecting earth leads, with all lugs, fixtures, clamps, bolts and nuts etc., complete including excavation, providing concrete box with walls of 75mm thick RCC for inserting link boxes, and refilling, etc. including earthing as per the directions of site engineer.	Each	47,267
U1S 41	b)	Erection of 3 phase link boxes making connections with earth leads with lugs, fixtures, fasteners sheath bonding cable etc., including excavation, providing RCC concrete wall box of 75mm thick for inserting link boxes , and refilling, etc. including earthing as per the directions of site engineer.	Each	63,022

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U1S 42	10	Erection of Lightning Arrestors on special type tower including cost of hardware, jumpering with suitable conductor between line conductor and the pole mounted terminations including labour charges and insurance for all incidental and operational items of	Each	7,877
U1S 43	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies	Mts.	9,454
U1S 44	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	3,15,113

Annexure-VIII (b)				
LAYING OF 132KV UG CABLE (DOUBLE CIRCUIT)				
Item No.	Sl. No.	Description of Material/Work	UNIT	SSR Rate for 2023-24 (in Rs)
	<b>1</b>	<b>CABLE ROUTE SURVEY</b>		
UID 1	a)	Conducting reconnoitery and preliminary survey along shortest route with best proposed route and furnishing report for selecting the best proposal for approval including cost and conveyance of all materials, hire charges of equipment, tools and plant, preparation of drawings and reports, labour charges, complete for finished item of work as per the directions of Engineer-in-charge at site as per SSR 2013-14. (a) With GPS equipment (As per clause 4.9 of survey) (b) With total station equipment.	Mts.	394
UID 2	b)	Conducting Detailed Survey of cable route including evaluation of thermal resistivity of the soil along the cable route, excavation of trial pits as per field requirements, preparation of cable route profile, drawings for cable laying, final route alignment, marking lines & grades, and preparing bill of materials/ lengths of the cable for the project incl. preparation of PTCC questionnaire and marking of proposed cable route in topo sheet, tower/SS sketch, Single line diagram etc.(30 copies/sets). ( <b>NOTE:</b> For survey of small lengths of UG Cable, if the length is less than 0.5KM, then 0.5KM is considered in preparation of estimate).	Mts.	1,575
	<b>2</b>	<b>LAYING OF CABLE</b>		
	<b>2.1</b>	Laying of 132 kv 630 sq. mm. XLPE U/G copper cable (6 Nos. for double Circuit) including road cutting, pulling and laying of cable including excavation in the following soils and back filling, sand filling dewatering, including cost of RCC protective tiles, cost of route markers, warning tapes etc. Across and along CC, BT & earth road, Nala crossings, bridge crossings, providing HDPE (thickness 10 mm)pipes, Bell mouths, end caps after laying cable, labour charges and all incidental items of work for finished item of work. This includes loading, unloading and transportation of all materials to work spot. (flat formation)		
UID 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	18,906
UID 4	b)	Hard Rock with soils	Rmt	25,209
UID 5	c)	CC or BT road surface etc.	Rmt	15,756
UID 6	d)	Hard Rock	Rmt	19,695
UID 7	e)	CC or BT road with Hard rock	Rmt	37,814

U1D 8	f)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road and other service lines including cost of concrete cost of HDPE pipes of 250 mm dia etc. complete	Rmt	23,633
U1D 9	g)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road with hard rock and other service lines including cost of concrete cost of HDPE pipes of 250 mm dia etc. complete	Rmt	30,843
U1D 10	h)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	23,633
U1D 11	i)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	23,633
U1D 12	j)	Cable laying by clamping on special type tower including earthing cable from termination to Link box including cost of Aluminum clamps	Rmt	25,209
U1D 13	k)	Cable laying while clamping bare on the walls , ceiling and structures including cost of clamps in complete shape	Rmt	9,454
U1D 14	l)	Cable laying across the railway tracks	Rmt	55,145
U1D 15	m)	Cable laying by clamping on Sub-station structures like CPL etc., including earthing cable from termination to Link box including cost of Aluminum clamps.	Rmt	4,727
	<b>2.2</b>	<b>Including excavation and excluding backfilling without cable laying</b>		
U1D 16	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	26,785
U1D 17	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	9,454
	<b>2.3</b>	<b>Excluding excavation and including backfilling</b>		
U1D 18	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	3,939
U1D 19	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	9,454
U1D 20	<b>2.4</b>	Only excavation and back filling of soil without laying of cable	Rmt	4,727
U1D 21	<b>2.5</b>	Excavation and backfilling of suitable thermal backfill for maintainings soil thermal resistance value of 120 degrees	Cum	12,604
U1D 22	<b>2.6</b>	Laying of cable excluding excavation and backfilling	Rmt	1,260
	<b>2.7</b>	<b>Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe</b>		
U1D 23	a)	Soil/Morrem,soft rock (upto 5000 PSI) per each pipe	Rmt	15,441
U1D 24	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per each pipe	Rmt	25,209
	<b>3</b>	<b>LAYING OF CO-AXIAL CABLE</b>		
U1D 25	a)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	39
U1D 26	b)	300sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	39

U1D 27	c)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats	Rmt	39
U1D 28	d)	300sq.mm.single core copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats.	Rmt	39
	<b>4</b>	For pulling optical fiber cable the following items shall be done while excavation of trenches as per specifications		
U1D 29	a)	Supply of HDPE duct pipe of OD/ID 40/33 mm dia and associated material of standard make as per the specification of the contract/tender and laying jointing, bedding of above HDPE duct pipe in the already excavated XLPE cable trench including sealing the section ends as per the specification of the contract/tender.	RM	158
U1D 30	b)	Supply of RCC joint chambers (1200/760/50 mm) W/L/T with base and top plates as per the specification of the contract/tender and erection of RCC joint chambers for every 1KM in HDPE duct enroot as per the specification of the contract/tender.	Each	11,029
	<b>5</b>	<b>CABLE JOINTING</b>		
		Jointing of cable excluding cost of pre-moulded straight through joints, Protection box, 3-phase solid bond link box without SVL / 3-phase cross bond link box with SVL, including excavation of pit for double circuit cable, providing cement concrete base and walls etc. including cost of cement, steel etc., labour charges and all incidental items of work for finished item of work including design of pit providing joint bay identification mark including providing necessary T&P for jointing viz., tarpaulin tent, DG Set, Air Conditioner etc., complete wherever necessary for complete item of work. This includes loading, un-loading and transportation of all materials to work spot as per drawing and preparation of joint bay.		
U1D 31	a)	With excavation of joint bay size (9mX4m) and laying of CC(1:2:4) bed and sand bed and back filling	Nos.	7,09,003
U1D 32	b)	Jointing charges for cross bonding joints/normal joints	Nos.	2,36,335
	<b>6</b>	<b>TERMINATION CHARGES</b>		
		Termination of cable excluding cost of out door type cable terminations and single phase link boxes without SVL complete and all incidental item of work finished item of work including providing necessary T&P viz., tarpaulin tent, DG set, air conditioner, scaffolding etc complete wherever necessary for complete item of work.		
U1D 33	a)	132 KV tower mounted type cable end terminations including erection on tower in all respects	Each	5,51,446

U1D 34	b)	132 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	4,72,668
U1D 35	c)	132 kV SF6 type cable end terminations complete in all respect.	Each	4,72,668
U1D 36	7a	Providing earthing of joint bays with copper flat of cross section equivalent to the earthing cable and run all around the joint bay, providing earth electrodes of steel rods coated with copper as per standards and treated with suitable earth enhancing compound to get an effective diameter and welding the copper flat to the electrodes by exothermic weldng. The earthing scheme drawing shall be got approved with all eath resistance calculations considerting the fault currents earth leads from link box to earth pit and connecing lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Each	63,022
U1D 37	7b	Excavation of earth pit at CTT Tower, putting cast iron pipe with flange on one end (as per ISS7181/86) of nominal dia 125 mm and 2.75 metres long inside the pit including supply and fixing of RCC Collars 0.75 mtr. dia (OD) 50mm thick and 0.60 mtrs. long inside the pit, backfill the pit in the 25mm size granules of BH coke for full depth of the pit with alternate layers of BH Coke and salt of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH Coke,salt,clamps,CI pipes and RCC collars, labour charges for all operational and incidental items of work etc., complete.(as per SSR 2013-14)	Each	16,780
U1D 38	8a	Provision for RCC (1:2:4) for any unforeseen requirement whenever necessary at culverts, drains, nalas, bridges.(rate to be taken as per CSSR)	Cum	(rate to be taken as per CSSR)
U1D 39	8b	Supplying, fitting and placing of HYSD, TMT bar reinforcement (TISCO/SAIL/VSP) in foundtions, columns , beams slabs wherever necessiated.for the work as per the drawings furnished by the field engineer including cutting , bending, cranking, tying grill in position including cost of binding wire scaffolding etc.(rate to be taken as per CSSR)	MT	(rate to be taken as per CSSR)
	9	<b>CONNECTION OF LINK BOXES</b>		
U1D 40	a)	Erection of single phase link boxes, providing suitable supporting arrangements, sheath bonding cable, connecting earth leads, with all lugs, fixtures, clamps, bolts and nuts etc., complete including excavation, providing concrete box with walls of 75mm thick RCC for inserting link boxes, and refilling, etc. including earthing as per the directions of site engineer.	Each	47,267

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U1D 41	b)	Erection of 3 phase link boxes making connections with earth leads with lugs, fixtures, fasteners sheath bonding cable etc., including excavation, providing RCC concrete wall box of 75mm thick for inserting link boxes , and refilling, etc. including earthing as per the directions of site engineer.	Each	63,022
U1D 42	10	Erection of Lightning Arrestors on special type tower including cost of hardware, jumpering with suitable conductor between line conductor and the pole mounted terminations including labour charges and insurance for all incidental and operational items of work.	Each	7,877
U1D 43	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies	Mts.	15,756
U1D 44	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	4,72,668

Annexure-VIII ( c )				
LAYING OF 220 KV UG CABLE (SINGLE CIRCUIT)				
Item No.	Sl. No.	Description of Material/Work	UNIT	SSR Rate for 2023-24 (in Rs)
	<b>1</b>	<b>CABLE ROUTE SURVEY</b>		
U2S 1	a)	Conducting reconnoitery and preliminary survey along shortest route with best proposed route and furnishing report for selecting the best proposal for approval including cost and conveyance of all materials, hire charges of equipment, tools and plant, preparation of drawings and reports, labour charges, complete for finished item of work as per the directions of Engineer-in-charge at site as per SSR 2013-14. (a) With GPS equipment (As per clause 4.9 of survey) (b) With total station equipment.	Mts.	394
U2S 2	b)	Conducting Detailed Survey of cable route including evaluation of thermal resistivity of the soil along the cable route, excavation of trial pits as per field requirements, preparation of cable route profile, drawings for cable laying, final route alignment, marking lines & grades, and preparing bill of materials/ lengths of the cable for the project incl. preparation of PTCC questionnaire and marking of proposed cable route in topo sheet, tower/SS sketch, Single line diagram etc.(30 copies/sets) . <b>(NOTE:</b> For survey of small lengths of UG Cable, if the length of UG cable is less than 0.5KM, then 0.5KM is considered for survey of small length of UG cable in the preparation of estimate)	Mts.	1,182
	<b>2</b>	<b>LAYING OF CABLE</b>		
	<b>2.1</b>	Laying of 220 kv 1000 sq. mm. XLPE U/G copper cable (3 Nos. for Single Circuit) including road cutting, pulling and laying of cable including excavation in the following soils and back filling, sand filling dewatering, including cost of RCC protective tiles, cost of route markers, warning tapes etc. Across and along CC, BT & earth road, Nala crossings, bridge crossings, providing HDPE (thickness 10 mm)pipes, Bell mouths, end caps after laying cable, labour charges and all incidental items of work for finished item of work. This includes loading, unloading and transportation of all materials to work spot. (flat formation)		
U2S 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	12,545
U2S 4	b)	Hard Rock with soils	Rmt	17,234
U2S 5	c)	CC or BT road surface etc.	Rmt	11,180
U2S 6	d)	Hard Rock	Rmt	12,893
U2S 7	e)	CC or BT road with Hard rock	Rmt	23,951
U2S 8	f)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road and other service lines including cost of concrete cost of	Rmt	15,721

		HDPE pipes of 250 mm dia etc. complete		
U2S 9	g)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	15,721
U2S 10	h)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	15,721
U2S 11	i)	Cable laying by clamping on special type tower including earthing cable from termination to Link box including cost of aluminum clamps	Rmt	14,180
U2S 12	j)	Cable laying by clamping on Sub-station structures like CPL etc., including earthing cable from termination to Link box including cost of aluminum clamps.	Rmt	3,152
U2S 13	k)	Cable laying while clamping bare on the walls , ceiling and structures including cost of clamps in complete shape	Rmt	6,302
U2S 14	l)	Cable laying across the railway tracks	Rmt	39,389
	<b>2.2</b>	<b>Including excavation and excluding backfilling without cable laying</b>		
U2S 15	a)	Hard rock with CC or BT Road surfaces etc.	Rmt	13,392
U2S 16	b)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	4,727
	<b>2.3</b>	<b>Excluding excavation and including backfilling</b>		
U2S 17	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	1,970
U2S 18	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	7,877
U2S 19	<b>2.4</b>	Only excavation and back filling of soil without laying of cable	Rmt	2,363
U2S 20	<b>2.5</b>	Excavation and backfilling of suitable thermal backfill for maintainings soil thermal resistance value of 120 degrees	Cum	6,302
U2S 21	<b>2.6</b>	Laying of cable excluding excavation and backfilling	Rmt	788
	<b>2.7</b>	<b>Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe</b>		
U2S 22	a)	Soil/Morrem,soft rock (upto 5000 PSI) per pipe	Rmt	15,441
U2S 23	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per pipe	Rmt	25,209
	<b>3</b>	<b>LAYING OF CO-AXIAL CABLE</b>		
U2S 24	a)	240sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	23
U2S 25	b)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	23
U2S 26	c)	240sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats	Rmt	23
U2S 27	d)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats.	Rmt	23

	<b>4</b>	For pulling optical fiber cable the following items shall be done while excavation of trenches as per specifications		
U2S 28	a)	Supply of HDPE duct pipe of OD/ID 40/33 mm dia and associated material of standard make as per the specification of the contract/tender and laying jointing, bedding of above HDPE duct pipe in the already excavated XLPE cable trench including sealing the section ends as per the specification of the contract/tender (Per Pipe).	RM	158
U2S 29	b)	Supply of RCC joint chambers (1200/760/50 mm) W/L/T with base and top plates as per the specification of the contract/tender and erection of RCC joint chambers for every 1KM in HDPE duct enroot as per the specification of the contract/tender.	Each	11,029
	<b>5</b>	<b>CABLE JOINTING</b>		
		Jointing of cable excluding cost of pre-moulded straight through joints, Protection box, 3-phase solid bond link box without SVL / 3-phase cross bond link box with SVL, including excavation of pit for single circuit cable, providing cement concrete base and walls etc. including cost of cement, steel etc., labour charges and all incidental items of work for finished item of work including design of pit providing joint bay identification mark including providing necessary T&P for jointing viz., tarpaulin tent, DG Set, Air Conditioner etc., complete wherever necessary for complete item of work. This includes loading, un-loading and transportation of all materials to work spot as per drawing and preparation of joint bay.		
U2S 30	a)	With excavation of joint bay size (13mX4m) and laying of CC(1:2:4) bed and sand bed and back filling	Each	5,51,446
U2S 31	b)	Jointing charges for cross bonding joints for each phase	Each	3,93,890
	<b>6</b>	<b>TERMINATION CHARGES</b>		
		Termination of cable excluding cost of out door type cable terminations and single phase link boxes without SVL complete and all incidental item of work finished item of work including providing necessary T&P viz., tarpaulin tent, DG set, air conditioner, scaffolding etc complete wherever necessary for complete item of work.		
U2S 32	a)	220 KV tower mounted type cable end terminations including erection on tower in all respects per phase including scaffolding charges.	Each	6,61,736
U2S 33	b)	220 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	5,51,446
U2S 34	c)	220 kV SF6 type cable end terminations complete in all respect.	Each	5,51,446

U2S 35	7a	Providing earthing of joint bays with copper flat of cross section equivalent to the earthing cable and run all around the joint bay, providing earth electrodes of steel rods coated with copper as per standards and treated with suitable earth enhancing compound to get an effective diameter and welding the copper flat to the electrodes by exothermic weldng. The earthing scheme drawing shall be got approved with all eath resistance calculations considering the fault currents earth leads from link box to earth pit and connecing lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Each	39,389
U2S 36	7b	Excavation of earth pit at CTT Tower, putting cast iron pipe with flange on one end (as per ISS7181/86) of nominal dia 125 mm and 2.75 metres long inside the pit including supply and fixing of RCC Collars 0.75 mtr. dia (OD) 50mm thick and 0.60 mtrs. long inside the pit, backfill the pit in the 25mm size granules of BH coke for full depth of the pit with alternate layers of BH Coke and salt of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH Coke, salt, clamps, CI pipes and RCC collars, labour charges for all operational and incidental items of work etc., complete.(as per SSR 2013-14)	Each	16,780
U2S 37	8a	Provision for RCC (1:2:4) for any unforeseen requirement whenever necessary at culverts, drains, nalas, bridges.(rate to be taken as per CSSR)	Cum	(rate to be taken as per CSSR)
U2S 38	8b	Supplying, fitting and placing of HYSD, TMT bar reinforcement (TISCO/SAIL/VSP) in foundtions, colums , beams slabs wherever necessiated.for the work as per the drawings furnished by the field engineer including cutting , bending, cranking, tying grill in position including cost of binding wire scaffolding etc.(rate to be taken as per CSSR)	MT	(rate to be taken as per CSSR)
	9	<b>CONNECTION OF LINK BOXES</b>		
U2S 39	a)	Erection of single phase link boxes, providing suitable supporting arrangements, sheath bonding cable, connecting earth leads, with all lugs, fixtures, clamps, bolts and nuts etc., complete including excavation, providing concrete box with walls of 75mm thick RCC for inserting link boxes, and refilling, etc. including earthing as per the directions of site engineer including connecting to the earthing cable from link box to earthpit	Each	47,267
U2S 40	b)	Erection of 3 phase link boxes making connections with earth leads with lugs, fixtures, fasteners sheath bonding cable etc., including excavation, providing RCC concrete wall box of 75mm thick for inserting link boxes , and refilling, etc. including earthing as per the directions of site engineer including connecting to the earthing cable from link box to earthpit.	Each	63,022

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U2S 41	10	Erection of Lightning Arrestors on special type tower including cost of hardware, jumpering with suitable conductor between line conductor and the pole mounted terminations including labour charges and insurance for all incidental and operational items of work.	Each	7,877
U2S 42	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies. The cost is for estimate purpose however, the amount will be reimbursed as per actuals against documentary evidence.	Mts.	9,454
U2S 43	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	3,15,113

Annexure-VIII (d)				
LAYING OF 220 KV UG CABLE (DOUBLE CIRCUIT)				
Item No.	Sl. No.	Description of Material/Work	Unit	SSR Rate for 2023-24 (in Rs)
	<b>1</b>	<b>CABLE ROUTE SURVEY</b>		
U2D 1	a)	Conducting reconnoitery and preliminary survey along shortest route with best proposed route and furnishing report for selecting the best proposal for approval including cost and conveyance of all materials, hire charges of equipment, tools and plant, preparation of drawings and reports, labour charges, complete for finished item of work as per the directions of Engineer-in-charge at site as per SSR 2013-14. (a) With GPS equipment (As per clause 4.9 of survey) (b) With total station equipment.	Mts	394
U2D 2	b)	Conducting Detailed Survey of cable route including evaluation of thermal resistivity of the soil along the cable route, excavation of trial pits as per field requirements, preparation of cable route profile, drawings for cable laying, final route alignment, marking lines & grades, and preparing bill of materials/ lengths of the cable for the project incl. preparation of PTCC questionnaire and marking of proposed cable route in topo sheet, tower/SS sketch, Single line diagram etc.(30 copies/sets) . <b>(NOTE:</b> For survey of small lengths of UG Cable, if the length of UG cable is less than 0.5KM, then 0.5KM is considered for survey of small length of UG cable in the preparation of estimate).	Mts	1,575
	<b>2</b>	<b>LAYING OF CABLE</b>		
	<b>2.1</b>	Laying of 220 kv 1000 sq. mm. XLPE U/G copper cable (6 Nos. for double Circuit) including road cutting, pulling and laying of cable including excavation in the following soils and back filling, sand filling dewatering, including cost of RCC protective tiles, cost of route markers, warning tapes etc. Across and along CC, BT & earth road, Nala crossings, bridge crossings, providing HDPE (thickness 10 mm)pipes, Bell mouths, end caps after laying cable, labour charges and all incidental items of work for finished item of work. This includes loading, unloading and transportation of all materials to work spot. (flat formation).		
U2D 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	20,908
	b)	Hard Rock with soils	Rmt	28,723
U2D 5	c)	CC or BT road surface etc.	Rmt	18,635
U2D 6	d)	Hard Rock	Rmt	21,489
U2D 7	e)	CC or BT road with Hard rock	Rmt	39,918

U2D 8	f)	Across the road In HDPE pipes (thickness 10mm) to cross CC or BT road and other service lines including cost of concrete cost of HDPE pipes of 250 mm dia etc. Complete.	Rmt	26,202
U2D 9	g)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	26,202
U2D 10	h)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	26,202
U2D 11	i)	Cable laying by clamping on special type tower including earthing cable from termination to Link box including cost of aluminum clamps	Rmt	28,360
U2D 12	j)	Cable laying by clamping on Sub-station structures like CPL etc., including earthing cable from termination to Link box including cost of aluminum clamps.	Rmt	6,302
U2D 13	k)	Cable laying while clamping bare on the walls , ceiling and structures including cost of clamps in complete shape.	Rmt	12,604
U2D 14	l)	Cable laying across the railway tracks.	Rmt	63,022
	<b>2.2</b>	<b>Including excavation and excluding backfilling without cable laying</b>		
U2D 15	a)	Hard rock with CC or BT Road surfaces etc.	Rmt	26,785
U2D 16	b)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	9,454
	<b>2.3</b>	<b>Excluding excavation and including backfilling</b>		
U2D 17	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	3,939
U2D 18	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	11,029
U2D 19	<b>2.4</b>	Only excavation and back filling of soil without laying of cable.	Rmt	4,727
U2D 20	<b>2.5</b>	Excavation and backfilling of suitable thermal backfill for maintainings soil thermal resistance value of 120 degrees.	Cum	12,604
U2D 21	<b>2.6</b>	Laying of cable excluding excavation and backfilling.	Rmt	1,575
	<b>2.7</b>	<b>Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe</b>		
U2D 22	a)	Soil/Morrem,soft rock (upto 5000 PSI) per pipe	Rmt	15,441
U2D 23	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per pipe	Rmt	25,209
	<b>3</b>	<b>LAYING OF CO-AXIAL CABLE</b>		
U2D 24	a)	240sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	39
U2D 25	b)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	39
U2D 26	c)	240sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats.	Rmt	39

U2D 27	d)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade on pole mounted termination tower including cost of cleats.	Rmt	39
	<b>4</b>	<b>For pulling optical fiber cable the following items shall be done while excavation of trenches as per specifications.</b>		
U2D 28	a)	Supply of HDPE duct pipe of OD/ID 40/33 mm dia and associated material of standard make as per the specification of the contract/tender and laying jointing, bedding of above HDPE duct pipe in the already excavated XLPE cable trench including sealing the section ends as per the specification of the contract/tender (Per Pipe).	RM	158
U2D 29	b)	Supply of RCC joint chambers (1200/760/50 mm) W/L/T with base and top plates as per the specification of the contract/tender and erection of RCC joint chambers for every 1KM in HDPE duct enroot as per the specification of the contract/tender.	Each	11,029
	<b>5</b>	<b>CABLE JOINTING</b>		
		Jointing of cable excluding cost of pre-moulded straight through joints, Protection box, 3-phase solid bond link box without SVL / 3-phase cross bond link box with SVL, including excavation of pit for double circuit cable, providing cement concrete base and walls etc. including cost of cement, steel etc., labour charges and all incidental items of work for finished item of work including design of pit providing joint bay identification mark including providing necessary T&P for jointing viz., tarpaulin tent, DG Set, Air Conditioner etc., complete wherever necessary for complete item of work. This includes loading, un-loading and transportation of all materials to work spot as per drawing and preparation of joint bay.		
U2D 30	a)	With excavation of joint bay size (13mX4m) and laying of CC(1:2:4) bed and sand bed and back filling	Nos.	8,03,537
U2D 31	b)	Jointing charges for cross bonding joints for each phase.	Nos.	3,93,890
	<b>6</b>	<b>TERMINATION CHARGES</b>		
		Termination of cable excluding cost of out door type cable terminations and single phase link boxes without SVL complete and all incidental item of work finished item of work including providing necessary T&P viz., tarpaulin tent, DG set, air conditioner, scaffolding etc complete wherever necessary for complete item of work.		
U2D 32	a)	220 KV tower mounted type cable end terminations including erection on tower in all respects per phase including scaffolding charges.	Each	6,61,736
U2D 33	b)	220 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	5,51,446

U2D 34	c)	220 kV SF6 type cable end terminations complete in all respect.	Each	5,51,446
U2D 35	7a	Providing earthing of joint bays with copper flat of cross section equivalent to the earthing cable and run all around the joint bay, providing earth electrodes of steel rods coated with copper as per standards and treated with suitable earth enhancing compound to get an effective diameter and welding the copper flat to the electrodes by exothermic weldng. The earthing scheme drawing shall be got approved with all eath resistance calculations considering the fault currents earth leads from link box to earth pit and connecing lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Nos.	63,022
U2D 36	7b	Excavation of earth pit at CTT Tower, putting cast iron pipe with flange on one end (as per ISS7181/86) of nominal dia 125 mm and 2.75 metres long inside the pit including supply and fixing of RCC Collars 0.75 mtr. dia (OD) 50mm thick and 0.60 mtrs. long inside the pit, backfill the pit in the 25mm size granules of BH coke for full depth of the pit with alternate layers of BH Coke and salt of 300mm thick around the earth pipe of 150mm on all the sides of the pipe including cost and conveyance of BH Coke,salt,clamps,CI pipes and RCC collars, labour charges for all operational and incidental items of work etc., complete.(as per SSR 2013-14)	Nos	16,780
U2D 37	8a	Provision for RCC (1:2:4) for any unforeseen requirement whenever necessary at culverts, drains, nalas, bridges.(rate to be taken as per CSSR)	Cum	(rate to be taken as per CSSR)
U2D 38	8b	Supplying, fitting and placing of HYSD, TMT bar reinforcement (TISCO/SAIL/VSP) in foundtions, colums , beams slabs wherever necessiated.for the work as per the drawings furnished by the field engineer including cutting , bending, cranking, tying grill in position including cost of binding wire scaffolding etc.(rate to be taken as per CSSR)	MT	(rate to be taken as per CSSR)
	9	<b>CONNECTION OF LINK BOXES</b>		
U2D 39	a)	Erection of single phase link boxes, providing suitable supporting arrangements, sheath bonding cable, connecting earth leads, with all lugs, fixtures, clamps, bolts and nuts etc., complete including excavation, providing concrete box with walls of 75mm thick RCC for inserting link boxes, and refilling, etc. including earthing as per the directions of site engineer including connecting to the earthing cable from link box to earthpit.	Each	47,267

U2D 40	b)	Erection of 3 phase link boxes making connections with earth leads with lugs, fixtures, fasteners sheath bonding cable etc., including excavation, providing RCC concrete wall box of 75mm thick for inserting link boxes , and refilling, etc. including earthing as per the directions of site engineer including connecting to the earthing cable from link box to earthpit.	Each	63,022
U2D 41	10	Erection of Lightning Arrestors on special type tower including cost of hardware, jumpering with suitable conductor between line conductor and the pole mounted terminations including labour charges and insurance for all incidental and operational items of work.	Nos.	7,877
U2D 42	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies. The cost is for estimate purpose however, the amount will be reimbursed as per actuals against documentary evidence.	Mts.	15,756
U2D 43	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	4,72,668

A K V Bhaskar

Director (Grid, Transmission & Management)