

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED
VIDYUT SOUDHA :: VIJAYAWADA-4

APTRANSCO – Common Standard Scheduled Rates for Labour and Material rates for APTRANSCO, APEPDCL, APCPDCL & APSPDCL- Adoption for 400 KV,220 kV & 132 kV Transmission lines and substations Construction works and for O&M works of Transmission system for the year 2019-20– Communicated – Reg.

T.O.O. No. ED (Construction) / Ms. No. 1388,

dt. 17.02.2020

Read the following: -

Ref :-T.O.O.(CE-Construction) Rt. No.1026, dated 22.07.2019

<<<>>>

APTRANSCO, APEPDCL& APSPDCL have been communicating Standard Schedule of rates for labour items & Material cost data for adoption in preparation of estimates separately.

2) In the meeting held on 04/07/2019 on “Action plan for 9 hours power supply” under the chairmanship of CMD/APTRANSCO, it was decided to have a Common Standard Scheduled Rates for labour and Material rates for APTRANSCO, APEPDCL& APSPDCL for preparation of estimates.

3) Accordingly, a committee with the following members for preparation of Common Standard Scheduled Rates for labour and Material rates for APTRANSCO, APEPDCL& APSPDCL was constituted vide TOO Cited

- i) The Executive Director (Operations)/APSPDCL
- ii)The Chief General Manager (Projects)/APSPDCL.
- iii) The Chief General Manager (P&MM and Civil)/APSPDCL.
- iv)The Chief General Manager (P&MM)/APEPDCL
- v) The Chief General Manager (OCS, EA & IT)/APEPDCL
- vi) The Chief General Manager (projects)/APEPDCL
- vii)The Chief Engineer/Transmission/APTransco
- viii) The Executive Director /Construction/APTransco & Convener

4) The committee appointed Subcommittees for DISCOMS, and APTRANSCO for labour and Material Rates, the Subcommittees of DISCOMs and APTRANSCO prepared their draft Common SSR for APTRANSCO & DISCOMs labour rates and Material cost data and submitted to the committee which held meetings and discussed the Common Standard Scheduled Rates for Labour and Material rates for APTRANSCO, APEPDCL, & APSPDCL and finalized the report.

5) The CMDs of APTRANSCO, APEPDCL & APSPDCL in the APPCC meeting held on 24/10/2019 have approved the report of the Committee on Common SSR for Labour and Material rates for adoption in preparation of estimates with some changes in a Labour item of DISCOM, Area Allowances and Contractor Overhead charges & profits (COP). APCPDCL was formed subsequent to bifurcation of APSPDCL vide GO MS No 41 Dt 05-12-2019 of the Energy Department, Government of Andhra Pradesh.

6) The Finalized Common SSR was submitted to APTRANSCO board subsequent to revisions as per the APPCC decisions. APTRANSCO Board has approved the adoption of the Finalized Common SSR for 400 KV, 220 kV & 132 kV Transmission lines and substations works and rates for O&M works of Transmission system for the year 2019-20

ORDER

The Common Standard Scheduled Rates for Labour and Material rates for APTRANSCO, APEPDCL, APCPDCL & APSPDCL is adopted for 400 KV, 220 kV & 132 kV Transmission lines and substations Construction works and for O&M works of Transmission system for the year 2019-20 approved by Transmission Corporation of Andhra Pradesh is communicated herewith for adoption in preparation of estimates.

The Common Standard Scheduled Rates for Labour and Material rates for 2019-20 will come into force from the date of issue of this T.O.O.

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

**SRIKANTH NAGULAPALLI
CHAIRMAN & MANAGING DIRECTOR
AP TRANSCO**

To

The Executive Director/Construction-2/VS/Vijayawada.

The Chief Engineer/Transmission/VS/ Vijayawada.

The Chief Engineer/ Construction-1/VS/ Vijayawada.

The Chief Engineer/IT & Telecom/VS/ Vijayawada.

The Chief Engineer/Civil/VS/ Vijayawada.

The Chief Engineer/Zone/Vijayawada

The Chief Engineer/Zone/Kadapa

The Chief Engineer/Zone/Visakhapatnam

The Superintending Engineer/OMC/Vijayawada.

The Superintending Engineer/OMC/Guntur.

The Superintending Engineer/OMC/Nellore.

The Superintending Engineer/OMC/ Ongole.

The Superintending Engineer/OMC/ Anantapur.

The Superintending Engineer/OMC/Tirupathi

The Superintending Engineer/OMC/Visakhapatnam.

The Superintending Engineer/OMC/Vijayanagaram

The Superintending Engineer/OMC/Srikakulam.
 The Superintending Engineer/OMC/Rajahmundry.
 The Superintending Engineer/OMC/Eluru.

The Superintending Engineer/Construction/Kadapa
 The Superintending Engineer/ O &M /Kadapa
 The Superintending Engineer/Construction/Kurnool
 The Superintending Engineer/TLC/LIS/Kurnool.
 The Superintending Engineer/400kV/OMC/Vijayawada.
 The Superintending Engineer/400kV/OMC/Kadapa.
 The Superintending Engineer/400kV//Construction / Visakhapatnam.
 The Superintending Engineer/400kV/ O&M/Visakhapatnam.
 The Superintending Engineer/O&M/Kurnool

The Superintending Engineer/Telecom/Kadapa.
 The Superintending Engineer/Telecom/Vijayawada.
 The Superintending Engineer/Telecom/Vishakapatnam.
 The Superintending Engineer/Civil/TLC/Vijayawada.
 The Superintending Engineer /Civil/TLC/Kadapa.
 The Superintending Engineer /Civil/TLC/Visakhapatnam

The Superintending Engineer/Construction /PM /VS/ Vijayawada
 The Superintending Engineer/P&MM /VS/ Vijayawada
 The Superintending Engineer/PM/400 KV /VS/ Vijayawada.
 The Superintending Engineer/LIS /VS/ Vijayawada.
 The Superintending Engineer//Transmission/VIS/Vijayawada.

The Executive Engineer/Construction/Vijayawada.
 The Executive Engineer/ Construction /Gunadala.
 The Executive Engineer/ Construction /Guntur.
 The Executive Engineer/ Construction /Nellore.
 The Executive Engineer / Construction /Ongole.
 The Executive Engineer/ Construction /Thirupathi.

The Executive Engineer/ Construction /Rajahmundry.
 The Executive Engineer/ Construction /Vizag.
 The Executive Engineer/ Construction /Kurnool
 The Executive Engineer/TLC/LIS/Division-1/Kurnool.
 The Executive Engineer/TLC/LIS/Division-2/Kurnool.
 The Executive Engineer/ Construction /Kadapa.

The Executive Engineer/Div-I/400kV L&SS/Vijayawada.
 The Executive Engineer/Div-I/400kV L&SS/Guntur.
 The Executive Engineer/Div-I/400kV L&SS/Krishnapatnam.
 The Executive Engineer/Div-I/400kV L&SS/Rajahmundry.

The Executive Engineer /O&M 400kV TL&SS / Vemagiri.
 The Executive Engineer /O&M 400kV TL&SS / Rajahmundry.
 The Executive Engineer /O&M 400kV TL&SS / Chittoor.

The Executive Engineer /O&M 400kV TL&SS /Manubolu (Nellore district).
 The Executive Engineer /O&M 400kV TL&SS /Kalpaka (Visakhapatnam district).

The Executive Engineer/TLC/TRE/Kadapa
 The Executive Engineer/TL&SS / Nagarjunasagar
 The Executive Engineer/ MRT / EHT / TLC / Vijayawada
 The Executive Engineer/ MRT / EHT / TLC / Nellore
 The Executive Engineer/ TL&SS / Vijayawada
 The Executive Engineer/ TL&SS / Guntur
 The Executive Engineer/ MRT / TL&SS / Vijayawada
 The Executive Engineer/ MRT / TL&SS / Nellore
 The Executive Engineer/ TL&SS / Nellore
 The Executive Engineer/ TL&SS / Ongole
 The Executive Engineer/ TL&SS / Bommur
 The Executive Engineer/ TL&SS / Nidadavole
 The Executive Engineer/ HVDC / TL&SS Circle / Rajahmundry
 The Executive Engineer/ MRT / EHT / Rajahmundry
 The Executive Engineer/ TL&SS / Gazuwaka
 The Executive Engineer/ TL&SS / Garividi
 The Executive Engineer/ MRT / TL&SS / Vizag
 The Executive Engineer/ TL&SS / Kadapa
 The Executive Engineer/ TL&SS / Yerraguntla
 The Executive Engineer/ TL&SS / Tirupathi
 The Executive Engineer/ EHT / MRT / Kadapa
 The Executive Engineer/ MRT / TL&SS / Kurnool
 The Executive Engineer/ MRT / TL&SS / Ananthapur
 The Executive Engineer/ Windfarms / Ananthapur
 The Executive Engineer/ TL&SS / Kurnool
 The Executive Engineer/ TL&SS / Ananthapur
 The Executive Engineer/ O&M / 400 KV / Kurnool
 The Executive Engineer/ O&M / 400 KV Lines / Srisailem

The Executive Engineer/Civil/TLC/Rajahmundry.
 The Executive Engineer/Civil/TLC/Kadapa.

Executive Engineer-1/Construction/VS/Vijayawada.
 Executive Engineer-2/Construction/VS/Vijayawada.
 Executive Engineer-3/Construction/VS/Vijayawada.
 Executive Engineer/LIS/VS/ Vijayawada.
 Executive Engineer/Design/Construction/VS/Vijayawada.

Executive Engineer-1/PM/400kV Construction/VS/Vijayawada.
 Executive Engineer-2/PM/400kV Construction/VS/Vijayawada.
 Eme-1/Transmission/VS/Vijayawada.
 Eme-2/Transmission/VS/Vijayawada.
 Eme-3/Transmission/VS/Vijayawada.

PS to Chairperson Managing Director/APTransco/VS/ Vijayawada.

PS to Joint Managing Director/ (Finance, Comml., IPC, HRD, & IT)/APTransco /VS /Vijayawada

PS to Joint Managing Director/ Vigilance & Security)/APTransco/VS/Vijayawada.

The FA & CCA (Accounts)/APTransco/VS/Vijayawada.

ADE/Tech to Chief Engineer/Construction/APTransco/VS/Vijayawada

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

EASTERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

CENTRAL POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

SOUTHERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

**STANDARD SCHEDULE OF RATES FOR LABOUR ITEMS
&
MATERIAL RATES**

FOR THE YEAR 2019-20

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ORDER

APTRANSCO, APEPDCL & APSPDCL have been adopting Standard Schedule of rates for labour items & Material cost data for adoption in preparation of estimates separately.

2) In the meeting held on 04/07/2019 on "Action plan for 9 hours power supply" under the chairmanship of CMD/APTRANSCO, it was decided to have a Common Standard Scheduled Rates for labour and Material rates for APTRANSCO, APEPDCL & APSPDCL for preparation of estimates.

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- vii) The Chief Engineer/Transmission/APTransco
- viii) The Executive Director /Construction/APTransco & Convener

4) The committee held meetings and discussed with concerned to arrive at the Common Standard Scheduled Rates for Labour and Material rates for APTRANSCO, APEPDCL & APSPDCL and submitted the report.

5) The CMDs of APTRANSCO, APEPDCL & APSPDCL in the APPCC meeting held on 24/10/2019 have approved the report of the Committee on Common SSR for Labour and Material rates for adoption in preparation of estimates.

6) APCPDCL was formed subsequent to bifurcation of APSPDCL vide GO MS No 41 Dt 05-12-2019 of the Energy Department, Government of Andhra Pradesh.

7) The Common Standard Scheduled Rates for Labour and Material rates for APTRANSCO, APEPDCL, APCPDCL & APSPDCL for the year 2019-20 will come into force from 14/02/2020.

Sd/-

CMD/APTRANSCO &
CHAIRMAN/APPCC

EASTERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

CENTRAL POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

SOUTHERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

Volume-1 (PART – 1)

**Common SSR for labour
for Distribution Network
for the year**

2019-20

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1 Loading and Unloading charges

SL NO	Description of material		Unit weight in Kg	SAP Code	Loading	SAP Code	Un-Loading
1.1	PSCC Poles						
1.1.1	8m/140 KG PSCC Pole	EA	355	CLD00001	89.00	CUD00001	44.50
1.1.2	8m/200 KG PSCC Pole	EA	380	CLD00002	95.00	CUD00002	47.50
1.1.3	8m/300 KG PSCC Pole	EA	505	CLD00003	126.00	CUD00003	63.00
1.1.4	9.1m/280 KG PSCC Pole	EA	680	CLD00004	176.00	CUD00004	88.00
1.1.5	11m/365 KG PSCC Pole	EA	1127	CLD00005	303.00	CUD00005	151.50
1.2	Spun poles						
1.2.1	9.5m/300 KG Spun pole	EA	620	CLD00006	210.00	CUD00006	147.00
1.2.2	11m/350KG Spun pole	EA	900	CLD00007	314.00	CUD00007	219.80
1.2.3	12.5m/350 KG Spun pole	EA	1200	CLD00008	430.00	CUD00008	301.00
1.3	RS Joists						
1.3.1	9m - 150x75 RS Joist pole	EA	140	CLD00009	34.00	CUD00009	17.00
1.3.2	9m- 175 x85 RS Joist Pole	EA	215	CLD00010	52.00	CUD00010	26.00
1.3.3	9m - 150x150 RS Joist Pole (34.6Kg/m)	EA	311.4	CLD00011	75.00	CUD00011	37.50
1.3.4	11m- 175 x85 RS Joist Pole (19.3Kg/m)	EA	212.3	CLD00012	57.00	CUD00012	28.50
1.3.5	11m - 150x150 RS Joist Pole (34.6Kg/m)	EA	380.6	CLD00013	103.00	CUD00013	51.50
1.4	Rail poles						
1.4.1	8.23m - 60lbs/27.3 Kg Rail pole	EA	225	CLD00014	47.00	CUD00014	23.50
1.4.2	9.14m - 75lbs/34.1 Kg Rail pole	EA	312	CLD00015	69.00	CUD00015	34.50
1.4.3	9.14m - 90lbs/40.9Kg Rail pole	EA	374	CLD00016	82.00	CUD00016	41.00
1.4.4	9.14m - 105lbs/47.7Kg Rail pole	EA	436	CLD00017	96.00	CUD00017	48.00
1.5	Distribution Transformers						
1.5.1	1Ph 5 KVA DTR	EA	75	CLD00018	20.00	CUD00018	20.00
1.5.2	1Ph 10KVA DTR	EA	115	CLD00019	30.00	CUD00019	30.00
1.5.3	1Ph 15/16KVA DTR	EA	190	CLD00020	50.00	CUD00020	50.00
1.5.4	1Ph 25KVA DTR	EA	245	CLD00021	64.00	CUD00021	64.00
1.5.5	3Ph 15/16KVA DTR	EA	280	CLD00022	73.00	CUD00022	73.00

1.5.6	3Ph 25KVA DTR	EA	350	CLD00023	91.00	CUD00023	91.00
1.5.7	3Ph 40 KVA DTR	EA	455	CLD00024	118.00	CUD00024	118.00
1.5.8	3Ph 50 KVA DTR	EA	510	CLD00025	132.00	CUD00025	132.00
1.5.9	3Ph 63 KVA DTR	EA	690	CLD00026	179.00	CUD00026	179.00
1.5.10	3Ph 75 KVA DTR	EA	730	CLD00027	189.00	CUD00027	189.00
1.5.11	3Ph 100 KVA DTR	EA	730	CLD00028	189.00	CUD00028	189.00
1.5.12	Amorphous make 100KVA DTRs	EA	900	CLD00029	233.00	CUD00029	233.00
1.5.13	3Ph 160KVA DTR	EA	1200	CLD00030	335.00	CUD00030	335.00
1.5.14	3Ph 250 KVA DTR	EA	1700	CLD00031	474.00	CUD00031	474.00
1.5.15	3Ph 315 KVA DTR	EA	2340	CLD00032	652.00	CUD00032	652.00
1.5.16	3Ph 500 KVA DTR	EA	2750	CLD00033	766.00	CUD00033	766.00
1.6	Power Transformers						
1.6.1	3.15 MVA PTR	EA	10350	CLD00034	3500.00	CUD00034	3500.00
1.6.2	5.0 MVA PTR	EA	16000	CLD00035	5410.00	CUD00035	5410.00
1.6.3	8.0 MVA PTR	EA	18500	CLD00036	6991.00	CUD00036	6991.00
1.6.4	10.0 MVA PTR	EA	22500	CLD00037	8502.00	CUD00037	8502.00
1.6.5	12.5 MVA PTR	EA	25000	CLD00038	9447.00	CUD00038	9447.00
1.7	Isolators						
1.7.1	33 KV AB switch	EA	224	CLD00039	83.00	CUD00039	83.00
1.7.2	11 KV AB switch	EA	70	CLD00040	26.00	CUD00040	26.00
1.7.3	11 KV H.G. Fuse set	EA	30	CLD00041	12.00	CUD00041	12.00
1.7.4	L.T. H.G. Fuse set	EA	25	CLD00042	10.00	CUD00042	10.00
1.8	EQUIPMENT						
1.8.1	33 KV VCB alone	SET	910	CLD00043	724.00	CUD00043	724.00
1.8.2	11 KV VCB alone	SET	730	CLD00044	581.00	CUD00044	581.00
1.8.3	33KV or 11 KV control panels	EA	225	CLD00045	179.00	CUD00045	179.00
1.8.4	33KV HV/LV twin feeder panel	EA	600	CLD00046	358.00	CUD00046	358.00
1.8.5	11 KV Metering cubicle	SET	170	CLD00047	136.00	CUD00047	136.00
1.8.6	33KV PT or CT	EA	110	CLD00048	88.00	CUD00048	88.00
1.8.7	11KV PT or CT	EA	65	CLD00049	52.00	CUD00049	52.00
1.8.8	Batteries	EA	27	CLD00050	14.00	CUD00050	14.00
1.8.9	Charger with batteries	EA	45	CLD00051	23.00	CUD00051	23.00
1.9	Iron Materials						
1.9.1	Iron and steel materials	TON	1000	CLD00052	259.00	CUD00052	259.00
1.9.2	HT, Mild steel wire	TON	1000	CLD00053	259.00	CUD00053	259.00
1.9.3	Stay wire, GI wire	TON	1000	CLD00054	259.00	CUD00054	259.00
1.9.4	D.P. structural materials	SET	480	CLD00055	96.00	CUD00055	96.00

1.9.5	40 KVA DTR mounting arrangements	EA	45	CLD00056	12.60	CUD00056	12.60
1.9.6	Seating arrangements of 3ph 16/25KVA DTRs	EA	40	CLD00057	12.00	CUD00057	12.00
1.9.7	33 KV ' V' cross arms	EA	22.5	CLD00058	6.30	CUD00058	6.30
1.9.8	11 KV ' V' cross arms	EA	11	CLD00059	3.10	CUD00059	3.10
1.9.9	Three phase cross arms	EA	8.8	CLD00060	2.30	CUD00060	2.30
1.9.10	Single phase cross arms	EA	5.5	CLD00061	1.50	CUD00061	1.50
1.9.11	33 KV Top Fittings	EA	7	CLD00062	1.90	CUD00062	1.90
1.9.12	11 KV Top Fittings	EA	4.4	CLD00063	1.20	CUD00063	1.20
1.9.13	L.T Top Fittings	EA	3.5	CLD00064	1.00	CUD00064	1.00
1.9.14	Back clamps	EA	1.2	CLD00065	0.40	CUD00065	0.40
1.9.15	Stay clamps set	SET	1.5	CLD00066	0.40	CUD00066	0.40
1.9.16	Stay set	SET	7.8	CLD00067	2.10	CUD00067	2.10
1.9.17	G.I. Earth pipes	EA	6.4	CLD00068	1.70	CUD00068	1.70
1.9.18	C.I. Earth pipes	EA	35	CLD00069	9.10	CUD00069	9.10
1.9.19	'A' Type Distribution Box	EA	55	CLD00070	14.30	CUD00070	14.30
1.9.20	'B' type distribution box	SET	20	CLD00071	5.20	CUD00071	5.20
1.9.21	M.S/GI Bolts & Nuts	KG	1	CLD00072	0.30	CUD00072	0.30
	INSULATORS & PINS						
1.10	33KV - Insulators & Pins						
1.10.1	33 KV Post type Insulators-2 piece type	EA	6.2	CLD00073	3.70	CUD00073	3.70
1.10.2	33 KV Post type Insulators-Single piece solid core type	EA	10	CLD00074	6.00	CUD00074	6.00
1.10.3	33 KV Pin Insulators	EA	2.7	CLD00075	1.70	CUD00075	1.70
1.10.4	33 KV G.I. Pins	EA	2.3	CLD00076	1.10	CUD00076	1.10
1.10.5	33 KV Polymer disc	EA	1.25	CLD00077	0.60	CUD00077	0.60
1.10.6	33 KV LAS	EA	19.6	CLD00078	15.60	CUD00078	15.60
1.11	11KV - Insulators & Pins						
1.11.1	11 KV Post type Insulators	EA	5.6	CLD00079	3.40	CUD00079	3.40
1.11.2	11 KV Pin Insulators	EA	1.1	CLD00080	0.70	CUD00080	0.70
1.11.3	11 KV GI Pins	EA	0.9	CLD00081	0.40	CUD00081	0.40
1.11.4	11 KV Disc Insulators	EA	1.4	CLD00082	0.90	CUD00082	0.90
1.11.5	11 KV Polymer disc	EA	0.7	CLD00083	0.40	CUD00083	0.40
1.11.6	11 KV/33KV Metal parts	SET	1.95	CLD00084	0.90	CUD00084	0.90
1.11.7	H.T. Guy Insulators	EA	1.15	CLD00085	0.70	CUD00085	0.70
1.12	11 KV LAS						
1.12.1	11 KV LAS(Station Type)	EA	9.6	CLD00086	7.70	CUD00086	7.70
1.12.2	11 KV LAS(Line Type)	EA	6.6	CLD00087	5.30	CUD00087	5.30
1.13	LT- Insulators & Pins						

1.13.1	L.T. Pin Insulators	EA	0.5	CLD00088	0.30	CUD00088	0.30
1.13.2	L.T.G.I. Pins	SET	0.5	CLD00089	0.30	CUD00089	0.30
1.13.3	L.T. Shackles	EA	0.5	CLD00090	0.30	CUD00090	0.30
1.13.4	L.T. metal parts	SET	0.5	CLD00091	0.30	CUD00091	0.30
1.13.5	L.T. Guy Insulators	EA	0.5	CLD00092	0.30	CUD00092	0.30
1.14	CONDUCTOR/ CABLE						
1.14.1	Conductor Drum(All)	EA	900	CLD00093	179.00	CUD00093	89.50
1.14.2	PVC Cable(>25 up to 185sq.mm) Drum	EA	1000	CLD00094	199.00	CUD00094	199.00
1.14.3	PVC Cable up to and 10 Sq. Mm Drum	EA	734	CLD00095	146.00	CUD00095	146.00
1.14.4	33KV Cable XLPE Drum- 35/50,70,95,120,185,300 ,400 Sqmm & LT UV XLPE cable 300 Sqmm	DRUM	3000	CLD00096	597.00	CUD00096	597.00
1.14.5	11KV Cable XLPE Drum 35/50,70,95,120,185,300 Sqmm	DRUM	2000	CLD00097	398.00	CUD00097	398.00
1.15	GENERAL ITEMS						
1.15.1	Transformer oil drums with oil	EA	193	CLD00098	50.00	CUD00098	50.00
1.15.2	Empty oil drums	EA	22	CLD00099	4.40	CUD00099	4.40
1.15.3	C.T. Meter box with complete assembly	EA	15	CLD00100	15.00	CUD00100	15.00
1.15.4	3Ph/CT Meter Boxes	EA	10	CLD00101	6.00	CUD00101	6.00
1.15.5	3Ph Meters	EA	2.5	CLD00102	2.50	CUD00102	2.50
1.15.6	1Ph Meters	EA	1.2	CLD00103	1.20	CUD00103	1.20
1.15.7	Fuse units 16 A to 32 A	EA	0.4	CLD00104	0.30	CUD00104	0.30
1.15.8	Fuse units 63 A / 100 A	EA	0.75	CLD00105	0.50	CUD00105	0.50
1.15.9	Fuse units 200 A, 300 A	EA	1	CLD00106	0.60	CUD00106	0.60
1.15.10	100 Lugs	CAR-100 lugs	1.6	CLD00107	1.30	CUD00107	1.30
1.15.11	11KV Fixed/ Moving contacts	EA	1.2	CLD00108	0.80	CUD00108	0.80
1.15.12	33KV Fixed/ Moving contacts	EA	2.5	CLD00109	1.50	CUD00109	1.50
1.15.13	11KV Cable Jointing kits	EA	2	CLD00110	1.60	CUD00110	1.60
1.15.14	33KV Cable Jointing kits	EA	3.5	CLD00111	2.80	CUD00111	2.80
1.15.15	Street light fixture	SET	12.5	CLD00112	7.50	CUD00112	7.50
1.15.16	Fuse wire/MRT Materials	KG	1	CLD00113	0.60	CUD00113	0.60
1.15.17	Winding wire up to 5 Kg	ROL	5	CLD00114	3.00	CUD00114	3.00

1.15.18	Winding wire more than 5 Kg	ROL	15	CLD00115	9.00	CUD00115	9.00
1.16	Paints						
1.16.1	Paints up to & including 5 Lts	EA	5	CLD00116	1.60	CUD00116	1.60
1.16.2	Paints >5 Lts<=20 lts	EA	20	CLD00117	6.60	CUD00117	6.60
1.16.3	Cement	TO	1000	CLD00118	199.00	CUD00118	199.00
1.17	Loading and unloading of any other materials						
1.17.1	Indoor Items up to 10 Kgs	BAG	10	CLD00119	2.00	CUD00119	2.00
1.17.2	Indoor Items > 10 Kgs	BAG	25	CLD00120	5.00	CUD00120	5.00
1.18	SCRAP						
1.18.1	Al./Cu/Plastic Scrap	TO	1000	CLD00121	339.00	CUD00121	339.00
1.18.2	Meters Scrap W/weightment	TO	1000	CLD00122	339.00	CUD00122	339.00
1.18.3	MS/Lead Scrap W/weightment	TO	1000	CLD00123	339.00	CUD00123	339.00

1.19	Un coiling of conductor/ cables including weightment and loading			
		Rate per	SAP Code	Rate
1.19.1	34sqmm conductor	KM	CSR00001	70.00
1.19.2	55sqmm conductor	KM	CSR00002	84.00
1.19.3	100sqmm conductor	KM	CSR00003	105.00
1.19.4	200sqmm /Panther conductor- 100RM	EA	CSR00004	56.00
1.19.5	Single Core 120/95/70 Sqmm LT X-PLE cables	1RM	CSR00005	0.50
1.19.6	3 1/2 Core 120/95/70/50 Sqmm LT X-PLE cables	1RM	CSR00006	0.90
1.19.7	Coils 50 / 25 Sqmm	1RM	CSR00007	0.20
1.19.8	Coils 10 / 6 / 4.25 / 1.5 Sqmm	1RM	CSR00008	0.11
1.19.9	Unwinding including loading 11KV Cable XLPE 35, 50, 70, 95, 120,185,300 Sqmm & LT UV XLPE cable 300 Sqmm	Meter	CSR00009	4.20
1.19.10	Unwinding including loading 33KV Cable XLPE 35, 50, 70, 95, 120,185,300,400 Sqmm	Meter	CSR00010	8.40

1.19.11	Un Winding , Weighing and Shifting of 3CX16+25 AB Cable (Check Measurement)	KM	CSR00011	84.00
1.19.12	Un Winding , Weighing and Shifting of 2CX16+25 AB Cable (Check Measurement)	KM	CSR00012	84.00
2	Survey of HT/LT lines			
2.1	Labour charges for survey and pit marking of HT/LT lines in plain areas	KM	CSR00013	416.00
2.2	Labour charges for survey and pit marking of HT/LT lines in Agency and Hilly areas.	KM	CSR00014	578.00
3	Jungle clearance			
3.1	Clearing of heavy jungle	10 sqm	CSR00015	32
3.2	Cutting and removing other kind of trees	1 No	CSR00016	33
3.3	General Tree cutting per one day - Semi skilled labour	1no	CSR00017	460
4	Excavation of pole pits			
4.1	Excavation of pits in all soils , i.e, mixture of gravel and soft disintegrated rock like shales ordinary gravel, stony earth and earth mixed with fair sized boulders.			
4.1.1	For 8m or 9.1m PSCC/RS Joist Poles (Size of pit is 2'x2'x5' or 0.6mx0.6mx1.5m)	Pit	CSR00018	166.00
4.1.2	For 10m Joists/Rail Poles (Size of pit is 2'x2'x5'6" or 0.6mx0.6mx1.65m)	Pit	CSR00019	182.00
4.1.3	For 9.5m Spun or 11m Spun/Joist /PSCC Poles (2'6"x2'6"x6' or 0.75mx0.75mx1.8m)	Pit	CSR00020	310.00
4.1.4	For 12.5m Spun/Joist Poles (2'6"x2'6"x7' or 0.75mx0.75mx2.1m)	Pit	CSR00021	362.00
4.2	Excavation of pits in soft disintegrated rock removable by pick axes and disposing material to a lead of 10m and lift of 3m.			
4.2.1	For 8m or 9.1m PSCC/RS Joist Poles (Size of pit is 2'x2'x5' or 0.6mx0.6mx1.5m)	Pit	CSR00022	236.00

4.2.2	For 10m Joists/Rail Poles (Size of pit is 2'x2'x5'6" or 0.6mx0.6mx1.65m)	Pit	CSR00023	260.00
4.2.3	For 9.5m Spun or 11m Spun/Joist /PSCC Poles (2'6"x2'6"x6' or 0.75mx0.75mx1.8m)	Pit	CSR00024	443.00
4.2.4	For 12.5m Spun/Joist Poles (2'6"x2'6"x7' or 0.75mx0.75mx2.1m)	Pit	CSR00025	516.00
4.3	Excavation of pole pits in hard rock by blasting.			
4.3.1	For 8m or 9.1m PSCC/RS Joist Poles (Size of pit is 2'x2'x5' or 0.6mx0.6mx1.5m)	Pit	CSR00026	610.00
4.3.2	For 10m Joists/Rail Poles (Size of pit is 2'x2'x5'6" or 0.6mx0.6mx1.65m)	Pit	CSR00027	671.00
4.3.3	For 9.5m Spun or 11m Spun/Joist /PSCC Poles (2'6"x2'6"x6' or 0.75mx0.75mx1.8m)	Pit	CSR00028	1144.00
4.3.4	For 12.5m Spun/Joist Poles (2'6"x2'6"x7' or 0.75mx0.75mx2.1m)	Pit	CSR00029	1335.00
4.4	Excavation of pole pits for all sizes in cement roads(Shall be certified by Deputy Executive Engineer)	Pit	CSR00030	1000
5	Transport of one Pole from road side to pit location including loading and unloading (For 1Km, 2Km, 3Km, 4Km and 5 KM)			
5.1	Transport of PSCC poles	Unit		Rate
	Up to 1 Km			
5.1.1	8m/140 KG PSCC Pole	EA	CSR00031	317
5.1.2	8m/200 KG PSCC Pole	EA	CSR00032	355
5.1.3	8m/300 KG PSCC Pole	EA	CSR00033	370

5.1.4	9.1m/280 KG PSCC Pole	EA	CSR00034	467
5.1.5	11m/365 KG PSCC Pole	EA	CSR00035	633
	Up to 2 Km			
5.1.6	8m/140 KG PSCC Pole	EA	CSR00036	356
5.1.7	8m/200 KG PSCC Pole	EA	CSR00037	398
5.1.8	8m/300 KG PSCC Pole	EA	CSR00038	415
5.1.9	9.1m/280 KG PSCC Pole	EA	CSR00039	524
5.1.10	11m/365 KG PSCC Pole	EA	CSR00040	709
	Up to 3 Km			
5.1.11	8m/140 KG PSCC Pole	EA	CSR00041	394
5.1.12	8m/200 KG PSCC Pole	EA	CSR00042	441
5.1.13	8m/300 KG PSCC Pole	EA	CSR00043	459
5.1.14	9.1m/280 KG PSCC Pole	EA	CSR00044	580
5.1.15	11m/365 KG PSCC Pole	EA	CSR00045	785
	Up to 4 Km			
5.1.16	8m/140 KG PSCC Pole	EA	CSR00046	432
5.1.17	8m/200 KG PSCC Pole	EA	CSR00047	483
5.1.18	8m/300 KG PSCC Pole	EA	CSR00048	504
5.1.19	9.1m/280 KG PSCC Pole	EA	CSR00049	636
5.1.20	11m/365 KG PSCC Pole	EA	CSR00050	861
	Up to 5 Km			
5.1.21	8m/140 KG PSCC Pole	EA	CSR00051	470
5.1.22	8m/200 KG PSCC Pole	EA	CSR00052	526
5.1.23	8m/300 KG PSCC Pole	EA	CSR00053	548
5.1.24	9.1m/280 KG PSCC Pole	EA	CSR00054	692
5.1.25	11m/365 KG PSCC Pole	EA	CSR00055	937
5.2	Transport of Spun Poles			
	Up to 1 Km			
5.2.1	9.5m/300 KG Spun pole	EA	CSR00056	726
5.2.2	11m/350KG Spun pole	EA	CSR00057	847
5.2.3	12.5m/350 KG Spun pole	EA	CSR00058	924
	Up to 2 Km			
5.2.4	9.5m/300 KG Spun pole	EA	CSR00059	814
5.2.5	11m/350KG Spun pole	EA	CSR00060	949
5.2.6	12.5m/350 KG Spun pole	EA	CSR00061	1035
	Up to 3 Km			
5.2.7	9.5m/300 KG Spun pole	EA	CSR00062	901
5.2.8	11m/350KG Spun pole	EA	CSR00063	1051
5.2.9	12.5m/350 KG Spun pole	EA	CSR00064	1146
	Up to 4 Km			
5.2.10	9.5m/300 KG Spun pole	EA	CSR00065	988
5.2.11	11m/350KG Spun pole	EA	CSR00066	1152
5.2.12	12.5m/350 KG Spun pole	EA	CSR00067	1257
	Up to 5 Km			

	Up to 5 Km			
5.2.13	9.5m/300 KG Spun pole	EA	CSR00068	1075
5.2.14	11m/350KG Spun pole	EA	CSR00069	1254
5.2.15	12.5m/350 KG Spun pole	EA	CSR00070	1368
5.3	Transport of RS Joist poles	Unit		
	Up to 1 Km			
5.3.1	9m - 150x75 RS Joist pole	EA	CSR00071	317
5.3.2	9m- 175 x85 RS Joist Pole	EA	CSR00072	370
5.3.3	9m - 150x150 RS Joist Pole	EA	CSR00073	443
	Up to 2 Km			
5.3.4	9m - 150x75 RS Joist pole	EA	CSR00074	356
5.3.5	9m- 175 x85 RS Joist Pole	EA	CSR00075	415
5.3.6	9m - 150x150 RS Joist Pole	EA	CSR00076	497
	Up to 3 Km			
5.3.7	9m - 150x75 RS Joist pole	EA	CSR00077	394
5.3.8	9m- 175 x85 RS Joist Pole	EA	CSR00078	459
5.3.9	9m - 150x150 RS Joist Pole	EA	CSR00079	550
	Up to 4 Km			
5.3.10	9m - 150x75 RS Joist pole	EA	CSR00080	432
5.3.11	9m- 175 x85 RS Joist Pole	EA	CSR00081	504
5.3.12	9m - 150x150 RS Joist Pole	EA	CSR00082	603
	Up to 5 Km			
5.3.13	9m - 150x75 RS Joist pole	EA	CSR00083	470
5.3.14	9m- 175 x85 RS Joist Pole	EA	CSR00084	548
5.3.15	9m - 150x150 RS Joist Pole	EA	CSR00085	656
5.4	Transport of Rail poles	Unit		
	Up to 1 Km			
5.4.1	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00086	355
5.4.2	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00087	467
5.4.3	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00088	493
5.4.4	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00089	522
	Up to 2 Km			
5.4.5	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00090	398
5.4.6	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00091	524
5.4.7	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00092	553
5.4.8	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00093	585
	Up to 3 Km			
5.4.9	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00094	441
5.4.10	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00095	580
5.4.11	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00096	612
5.4.12	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00097	648
	Up to 4 Km			
5.4.13	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00098	483
5.4.14	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00099	636

5.4.15	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00100	671
5.4.16	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00101	710
	Up to 5 Km			
5.4.17	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00102	526
5.4.18	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00103	692
5.4.19	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00104	730
5.4.20	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00105	773
6	Erection of PSCC/Spun/Rail/RS Joist Poles			
	Erection of PSCC/Spun/Rail/RS Joist Poles in position, aligning and setting to work as per specification including supply of labour, T&P, back filling the earth, ramming for consolidation but excluding the cost of pit excavation and cost of transport.			
6.1	Erection of PSCC poles	Unit		
6.1.1	8m/140 KG PSCC Pole	EA	CSR00106	430
6.1.2	8m/200 KG PSCC Pole	EA	CSR00107	447
6.1.3	8m/300 KG PSCC Pole	EA	CSR00108	574
6.1.4	9.1m/280 KG PSCC Pole	EA	CSR00109	727
6.1.5	11m/365 KG PSCC Pole	EA	CSR00110	1338
6.2	Erection of Spun Poles			
6.2.1	9.5m/300 KG Spun pole	EA	CSR00111	1459
6.2.2	11m/350KG Spun pole	EA	CSR00112	1877
6.2.3	12.5m/350 KG Spun pole	EA	CSR00113	2217
6.3	Erection of RS Joist poles			
6.3.1	9m - 150x75 RS Joist pole	EA	CSR00114	394
6.3.2	9m- 175 x85 RS Joist Pole	EA	CSR00115	406
6.3.3	9m - 150x150 RS Joist Pole	EA	CSR00116	752
6.4	Erection of Rail poles			
6.4.1	8.23m - 60lbs/27.3 Kg Rail pole	EA	CSR00117	710
6.4.2	9.14m - 75lbs/34.1 Kg Rail pole	EA	CSR00118	731
6.4.3	9.14m - 90lbs/40.9Kg Rail pole	EA	CSR00119	745
6.4.4	9.14m - 105lbs/47.7Kg Rail pole	EA	CSR00120	760

7	Rectification of Leaned poles			
	Labour charges for rectification of all types of leaned poles where the lean is more than 30 degree to the vertical.		35% of pole erection charges	
8	Dismantling works			
	Dismantling charges for all types of works		75% of erection charges . In case of poles if received in good condition, 75% erection charges are payable. If pole is received in damaged condition then 50% erection charges are payable.	
9	Erection of stay sets			
9.1	Erection of stay set for 33 KV line	EA	CSR00121	193
9.2	Erection of stay set for 11 KV line or LT Line	EA	CSR00122	169
10	Erection of Cross arms			
10.1	33KV Cross arms			
10.1.1	33 KV V X-arms	EA	CSR00123	71
10.1.2	33 KV Top fittings	EA	CSR00124	39
10.1.3	33 KV Tapping Channel X-arm set	EA	CSR00125	71
10.1.4	33 KV Side arm with strut	EA	CSR00126	94
10.1.5	33 KV T Channel Set	EA	CSR00127	94
10.2	11 KV Cross arms			
10.2.1	11 KV V X-arms	EA	CSR00128	57
10.2.2	11 KV Top fittings	EA	CSR00129	36
10.2.3	11 KV Tapping Channel X-arm	EA	CSR00130	57
10.2.4	11 KV Side arm with strut	EA	CSR00131	78
10.2.5	11 KV T Channel Set	EA	CSR00132	78
10.3	LT Cross arms			
10.3.1	LT S Ph. X-arm	EA	CSR00133	51
10.3.2	LT Top fitting	EA	CSR00134	32
10.3.3	LT 3 Ph. 4 / 5 W X-arm	EA	CSR00135	57
10.3.4	LT 3 Ph. Side arm with strut	EA	CSR00136	64
11	Fixing of insulators			
11.1	33 KV Insulators			
11.1.1	33 KV Polymer Pin Insulators	Each	CSR00137	25
11.1.2	33 KV Porcelain Pin Insulators	Each	CSR00138	25

11.1.3	33 KV Composite Polymer/porcelain Disc Insulator	Each	CSR00139	73
11.2	11 KV Insulators			
11.2.1	11 KV Polymer Pin Insulators	Each	CSR00140	20
11.2.2	11 KV Porcelain Pin Insulators	Each	CSR00141	20
11.2.3	11 KV Composite Polymer/ porcelain Disc Insulator	Each	CSR00142	42
11.3	LT Insulators			
11.3.1	LT PI / Shackles	Each	CSR00143	16
12	Erection of Double Pole structure			
	Individual pole erection charges and other relevant items are to be considered to arrive the cost of erection of double pole structure			
13	Erection of Strut			
13.1	Erection of Strut	Relevant pole erection charges are to be considered for erection of strut		
13.2	Erection of 33KV Stay set with stay wire binding for eye bolt guy insulator and anchor rod and back filling the stay pit.	EA	CSR00144	180
13.3	Erection of 11KV Stay set with stay wire binding for eye bolt guy insulator and anchor rod and back filling the stay pit.	EA	CSR00145	150
14	Paving, Stringing and Jumpering of Conductor			
14.1	100 sq mm AAAC /Per KM/Per Conductor	KM	CSR00146	4155
14.2	55 sq mm AAAC /Per KM/Per Conductor	KM	CSR00147	2078
14.3	34 sq mm AAAC /Per KM/Per Conductor	KM	CSR00148	1870

15	Paving , Stringing and Jumpering of Cable			
15.1	2x16+25 sq mm	KM	CSR00149	2112
15.2	3x16+25 sq mm	KM	CSR00150	2703
15.3	11KV AB cable	KM	CSR00151	11114
16	Restrstringing of loose spans			
	Charges for restrstringing of loose spans	50% of stringing charges		

17	Concreting of pole pits, stay pits and construction of DTR plinths						
	AP Government has issued orders duly specifying rates of sand based on stock point. These rates varies from Rs 375 to Rs 1865/- per Metric tonne for each stock point differently. Hence the item rates are given in four categories as shown below. While preparing estimate, user has to verify nearest stock point sand rate from the site and adopt proper item rate.						
17.1	Concreting of pole pit			Sand rate up to Rs 500/- per MT	Sand rate from Rs 501/- to Rs 1000/- per MT	Sand rate from Rs 1001/- to Rs 1500/- per MT	Sand rate from Rs 1501/- to Rs 1865/- per MT
17.1.1	Concreting of pole pit of size 2'x2'x5' (0.6m x 0.6mx1.5 m.) with C.C.(1:4:8) using 40 mm. HBG metal.	EA	CSR00152	1968	2151	2333	2466
17.1.2	Concreting of pole pit of size 2'x2'x5' (0.6m x 0.6mx1.5 m.) with C.C.(1:3:6) using 20 mm and 12mm HBG metal.	EA	CSR00153	2082	2264	2447	2580
17.2	Concreting of stay pit						
17.2.1	Concreting of stay pit of size 1'-6" x 1'-6" x 4'6" (0.45mx0.45x1.35m) with C.C. (1:4:8) using 40 mm and 20mm HBG metal	EA	CSR00154	997	1090	1182	1249
17.2.2	Concreting of stay pit of size 1' 6"x 1'-6" x 4' 6"(0.45mx0.45x1.35m) with C.C. (1:3:6) using 20 mm and 12mm HBG metal	EA	CSR00155	1055	1147	1239	1307

17.3	Construction of DTR plinths						
17.3.1	Construction of DTR plinths- Size 4'x4'x6'(above ground) and 4'x4'x3' (below ground) with brick masonry/RR masonry wall - Excavation of pit of size 4'x4'x3', laying bed concrete with CC(1:4:8) using 40mm and 20mm HBG metal for 6" depth, Construction of distribution transformer plinth with 9" thick 8' height brick masonry wall in CM (1:6) all-round, filling the hollow portion with sand, laying of 6" thick PCC (1:3:6) using 20 mm and 12mm HBG metal on top and plastering all-round the outer side of wall with CM (1:5) 12mm thick and white washing two coats, including cost and Transport of all materials.	EA	CSR00156	16685.00	18212	19738	20852
17.3.2	Construction of DTR plinths- Pillar mounted RCC plinth with 5'x5'x5" slab with column 6' above ground level. - Excavation of pit of size 4'x4'x5', laying bed concrete with CC(1:4:8) using 40mm and 20mm HBG metal for 6" depth, Construction of distribution transformer plinth with footing size (4'x4'x1.5'), column size 9"x9"x4'6"(below ground), 9"x9"x5' (above ground), cross beams in plus shape 4'x9"x12", slab size 5'x5'x5", providing reif steel 12mm rod for footings and slab at 6" spacing, 4 nos 12mm rod for columns and beams with 8mm stirrups, re-filling the hollow portion with excavated earth, plastering	EA	CSR00158	17040.00	17591	18142	18544

	CM (1:5) 12mm thick and painting one coat to slabs, column and beam.						
17.3.3	Construction of DTR plinths- Size 4'x4'x6' (above ground) and 4'x4'x3' (below ground) with brick masonry/RR masonry wall- Excavation of pit of size 4'x4'x3', laying bed concrete with CC(1:4:8) using 40mm and 20mm HBG metal for 6" depth, Construction of distribution transformer plinth with 9" thick 8'6" height brick masonry wall in CM (1:6) all-round, filling the hollow portion with sand, and plastering all-round the outer side of wall with CM (1:5) 12mm thick and white washing two coats, including cost and Transport of all	EA	CSR00159	22062.00	22796	23530	24066

18	Erection or Dismantlement of DTRs			
	Erection of Distribution Transformer on the plinth/pole carefully without causing and damaging to bushing including labour and transport complete including earthing as per department standards.			
18.1	1Ph DTRs 5 / 15 KVA	EA	CSR00160	448
18.2	3Ph DTRs up to 40 KVA	EA	CSR00161	529
18.3	3Ph DTRs 63 KVA to 160 KVA	EA	CSR00162	967
18.4	3Ph DTRs 200 KVA to 500 KVA	EA	CSR00163	1289
19	Erection of earth electrodes			

19	Erection of earth electrodes			
	Erection of earth electrodes using CI/GI pipes including pit excavation, back filling , betonite powder and cement collar of 2'dia x 1' height etc complete.			
19.1	GI Pipe 40mm/ 80mm depth up to 2m (6.5ft)	EA	CSR00164	676
19.2	CI Pipe 80mm/ 150mm depth up to 3m (10ft)	EA	CSR00165	903
20	Wiring of 3 Phase DTR			
	Wiring of 3 phase Distribution Transformer with PVC Cable/XLPE cable/ conductor from transformer LV bushing to LT HG Fuse set and HG Fuse set to line with bear conductor supported on insulator fixed to fabricated LV frame including lugging at terminals.			
20.1	Single feeder (open / PVC cable/ XLPE Cable)	EA	CSR00166	375
20.2	Double feeder (open / PVC cable/ XLPE Cable)	EA	CSR00167	574
21	Earthing of DTRs			
	Running of No 8 G.I wire from Distribution Transformer (3 Phase) AB Switch, HG Fuse Set V'X' Arm etc running of 14 SWG G.I. Wire including double earthing as per specification for running of total 10 Nos GI wires. (Per Lead Per length)	Per Lead Per length	CSR00168	30
22	Security fencing to DTRs			
	Providing security fencing to Distribution Transformer structures with gate and locking arrangement which is one side removable and three sides fixed fencing using G.I. Chain linkmesh 8 gauge 50.8mm x 50.8mm (2" x 2") size, MS angle 50 x 50 x 6, MS flat 35 x 6, MS flat 25 x 6, bolts, nuts, Aldrop, hinges, concreting the supports with PCC (1:3:6), painting one coat red oxide, two coats synthetic enamel paint, complete for finished item of work	1 sqm	CSR00169	1036

23	Erection of HG Fuse sets			
23.1	Erection of HG Fuse sets- 33 KV fuse set	EA	CSR00170	447
23.2	Erection of HG Fuse sets- 11 KV fuse set	EA	CSR00171	294
23.3	Erection of HG Fuse sets- LT fuse set	EA	CSR00172	220
24	Extra percentage towards work involving (a) Single Pole (b) Two Pole (c) Three Poles (This rate is applicable to both Urban and Rural areas)			
24.1	Single Pole	No Extra		
24.2	Two Poles	No Extra		
24.3	Three Poles	No Extra		
	33/11 KV Substation works			
25	Erection of VCBs with CTs and CR Panels including earthing, wiring and Jumpering with all accessories as per departmental standards.			
25.1	33 KV VCBs	EA	CSR00173	7550
25.2	11 KV VCBs	EA	CSR00174	5675
26	Erection of AB switches			
26.1	33 KV AB switch	EA	CSR00175	1245
26.2	11 KV AB switch	EA	CSR00176	830

27	Painting of old structures (Work is to be done during LC period, hence these rates are applicable for old structures. For new structures separate rate is to be worked out)			
27.1	Painting of old structures - with One coat of Anti corrosive bitumen black paint or red oxide priming coat during LC period.			
	Rate /1 sqm	1sqm	CSR00177	90
	Rate / 1MT	1MT	CSR00178	2807
27.2	Painting of old structures - with One coat of aluminium/ Synthetic enamel paint during LC period.			
	Rate /1 sqm	1sqm	CSR00179	99
	Rate / 1MT	1MT	CSR00180	3085
27.3	Painting of old structures - with two coats of aluminium/ Synthetic enamel paint during LC period.			
	Rate /1 sqm	1sqm	CSR00181	155
	Rate / 1MT	1MT	CSR00182	4848
27.4	Painting of old structures - with One coat of red oxide and two coats of aluminium paint or synthetic enamel paint during LC period.			
	Rate /1 sqm	1sqm	CSR00183	245
	Rate / 1MT	1MT	CSR00184	7655

28	Paving out and laying of 33KV/11 KV UG cable duly forming the cable trench including excavation of trench 2'X2' filling the trench with excavated earth including transporting of cable etc. complete with out construction of trench. / Laying of copper control cables buried in trench or ground and termination.			
28.1	33 KV UG cable	RM	CSR00185	320
28.2	11 KV UG cable	RM	CSR00186	175
28.3	4Corex2.5sqmm	RM	CSR00187	37
28.4	10Corex2.5sqmm	RM	CSR00188	42
29	Erection of Cable Heat Shrunken joints excluding material cost.			
29.1	33 KV cable heat shrunken joint			
29.1.1	up to 185 Sqmm	EA	CSR00189	3750
29.1.2	Above 185 Sqmm	EA	CSR00190	5250
29.2	11 KV cable heat shrunken joint			
29.2.1	Up to 70 Sqmm	EA	CSR00191	1500
29.2.2	95Sqmm to 185Sqmm	EA	CSR00192	2500
29.2.3	Above 185Sqmm	EA	CSR00193	3500
30	11 KV AB cable end termination consisting of 3 phases.	SET	CSR00194	7300
31	Labour charges for erection of 33 or 11 KV C.Ts including all connections.			
31.1	33 KV CTs	EA	CSR00195	250
31.2	11 KV CTs	EA	CSR00196	250
31.3	33KV Las- set(station type)	SET	CSR00197	1500
31.4	11KV Las- set(station type)	SET	CSR00198	1250
31.5	33 or 11KV Line type LAs	EA	CSR00199	100
32	Labour charges for erection of HT metering cubicle including all connections and earthing as per departmental standards.	EA	CSR00200	732

33	Labour charges for erection of HT Trivector meter box including all connections and earthing as per departmental standards.	EA	CSR00201	468
34	Labour charges for fixing of tube light fitting for street light	EA	CSR00202	147
35	Labour charges for fixing of MV/SV lamp fitting for street light	EA	CSR00203	162
36	Laying of earth mat/risers including excavation of trenches, welding, fixing lugs, connecting to equipment and refilling trenches using MS flat 75x8mm or 50x8mm.			
36.1	75x8mm	RM	CSR00204	68
36.2	50x8mm	RM	CSR00205	46
37	M & P Division Items			
	Labour charges for testing and repairing of meters and rigging and modification of CT Boxes.			
37.1	Single Phase meter repair and overhauling	Each	CSR00206	26
37.2	Single Phase meter old or new testing	Each	CSR00207	18
37.3	Sealing of Meter bit, including inserting of wire	Each	CSR00208	9
37.4	Winding of trip and close coils including material and without bobbin	Each	CSR00209	1035
37.5	Fixing of 3-Ph LT CT meter at DTR including transport	Each	CSR00210	1455
37.6	Replacement of existing S-Ph meter with H.A meter (all types including infrared(IR) meter) including writing meter change slip and handing over to Section office including transporting from section office to location and back.	Each	CSR00211	69

37.7	Replacement of existing S-Ph meter with H.A meter (all types including infrared(IR) meter) and supply of flexible pipe and PVC pipe including writing meter change slip and handing over to Section office including transporting from section office to location and back.	Each	CSR00212	99
37.8	Replacement of existing 3-Ph meter with H.A meter (all types including infrared(IR) meter) including writing meter change slip and handing over to Section office including transporting from section office to location and back.	Each	CSR00213	104
37.9	Replacement of existing 3-Ph meter with H.A meter (all types including infrared(IR) meter) and supply of flexible pipe and PVC pipe including writing meter change slip and handing over to Section office including transporting from section office to location and back.	Each	CSR00214	144
37.10	Erection of 33KV and 11KV CTs including earthing & Jumpering with GI/Copper wire	Each	CSR00215	262
37.11	Erection of 33KV and 11KV CTs including earthing & Jumpering with GI/Copper/MS Flat Earthing	Each	CSR00216	332
37.12	Handling, testing, providing of seals with cover, stacking neatly.			
37.12.1	S phase energy meter.	EA	CSR00217	12
37.12.2	3 Phase energy meter	EA	CSR00218	20

37.13	Labour charges for sealing of single phase/3 phase meters including transportation of meter box carton to work spot, unpacking, packing of sealed meters and stocking etc., complete.			
37.13.1	2 Seals	EA	CSR00219	5
37.13.2	3 Seals	EA	CSR00220	5
37.13.3	4 Seals	EA	CSR00221	5
37.14	Labour charges for sealing of S Phase/ 3 phase energy meters housed in PP box including transportation unpacking and packing and stocking of meter box etc., complete.			
37.14.1	2 Seals	EA	CSR00222	5
37.14.2	3 Seals	EA	CSR00223	5
37.14.3	4 Seals	EA	CSR00224	5
37.14.4	6 Seals	EA	CSR00225	10
37.15	Removing the meter back cover, cleaning the old meter cover, painting the meter top & bottom covers with good approved enamel black paint, cleaning the meter with petrol and oiling to bearings with good 2 in 1 oil (Usha make) refixing the meter in meter cover duly providing new gaskets. Testing and adjustments of the meter as per departmental standards, loading, transporting, and unloading including introducing sealing wire to each meter including replacement of glass wherever necessary.			
37.15.1	Including cost of paint	EA	CSR00226	31
37.15.2	Excluding cost of paint	EA	CSR00227	23
37.16	Removal or fixing of PC coil, CC coil or Disc, cyclometer or terminal block.	EA	CSR00228	3.6
37.17	Metering arrangement with CTs to 16/25 KVA Agricultural DTRs			

37.17.1	Supply and rigging of meter with country wood of size 1'x1/2', 7/20 finolex wire, bolts and nuts and screws along with lugs. Removing of metallic strip in syntex box, fixing of wooden board suitably, fixing of meter and CT in position including fixing of neutral terminal bolt. Providing of internal wiring duly giving proper connections, opening of internal link in the meter duly providing sealing after testing. (energy meter and box will be supplied by the dept)	EA	CSR00229	759
37.17.2	Supply and fixing of 2meters of aluminium cable, 05m of 3/20 copper wire, 2 sets of clamps with bolts and nuts and misc items like insulation tapes, screws etc., including labour charges for fixing of box and transport charges including loading and unloading.	EA	CSR00230	350
37.17.3	.do. with 4 sets of clamps	EA	CSR00231	409
37.18	HT metering wiring including pipes, bends and wires including cost of pipes, bends and wires	LS	CSR00232	2200
	Transformer division/ SPM Works			
38.1	Loading or Unloading of PTR in to Lorry			
38.1.1	Loading or Unloading of 1.5MVA/ 3MVA / 3.15MVA PTR	EA	CSR00233	3500.00
38.1.2	Loading or Unloading of 5MVA PTR	EA	CSR00234	5410.00
38.1.3	Loading or Unloading of 8MVA PTR	EA	CSR00235	6991.00
38.1.4	Loading or Unloading of 10MVA	EA	CSR00236	8502.00
38.1.5	Loading or Unloading of 12.5MVA	EA	CSR00237	9447.00
38.2	Dragging of PTR on ground			
38.2.1	Dragging of 1.5MVA/3MVA/3.15MVA/5MVA PTR	FT	CSR00238	204
38.2.2	Dragging of 8MVA/10 MVA PTR	FT	CSR00239	237

38.3	Assembling or Dismantling of conservator tank, radiators, vent pipe and other accessories of PTR			
38.3.1	1.5MVA PTR to 5MVA PTR	EA	CSR00240	2186
38.3.2	8MVA PTR to 12.5MVA PTR	EA	CSR00241	2733
38.4	Top up/ removal of Transformer Oil into Conservator tank Radiators and other accessories			
38.4.1	1.5MVA PTR to 5MVA PTR	EA	CSR00242	1168
38.4.2	8MVA PTR to 12.5MVA PTR	EA	CSR00243	1378
38.5	Labour for opening of the top cover of CSP Transformer by cutting with grinder and welding/fixing with bolts and nuts of the top cover for various capacities of Distribution transformers ie.,63 KVA,100KVA 250 KVA and 500 KVA at SPM shed inclusive of cost of welding electrodes, cost of bolts and nuts and drilling of holes	EA	CSR00244	1800
38.6	Labour charges for reclamation of used transformer oil at MRT shed	Kilo Litre	CSR00245	5000
38.7	Providing of MS vent pipe with diaphragm to the top cover of the D.Tr. The vent Pipe consists of 50mm dia, 4mm thick copper foil should be fixed between flange of the Nipple and 180 bend. Wire gauge protection should be provided at the end of the bend Duly providing flange	EA	CSR00246	261
	FABRICATION OF LINE MATERIALS			
39	CUTTING CHARGES			
39.1	60 lbs. Rail poles	EA	CSR00247	38
39.2	90 lbs. Rail poles	EA	CSR00248	59

39.3	105 lbs. Rail poles	EA	CSR00249	59
39.4	R.S. Joists of various sizes	EA	CSR00250	30
39.5	M.S. Channels of size 75 x 40 mm. and 80 x 40 mm	EA	CSR00251	10
39.6	M.S. Channels of size 100 x 50 mm. and 125 x 65 mm	EA	CSR00252	11
39.7	M.S. Channels of size 150 x 75 mm. and above	EA	CSR00253	15
39.8	M.S. Angles of sizes 50 x 50 x 6 mm. and 55 x 55 x 5 mm.	EA	CSR00254	5
39.9	M.S. Angles of size 65 x 65 x 6 mm. and above	EA	CSR00255	6
39.10	M.S. Flat 75 x 8 mm.	EA	CSR00256	4
39.11	M.S. Flat of size 50 x 6 mm.	EA	CSR00257	4
39.12	M.S. Flat of width below 50 mm.	EA	CSR00258	4
39.13	M.S. Rounds up to 23 mm.	EA	CSR00259	4
40	DRILLING CHARGES			
40.1	Charges for drilling of holes to various sizes of angle, channel and flats.			
40.1.1	For holes up to 18 mm.	EA	CSR00260	4
40.1.2	For holes above 18 mm	EA	CSR00261	5
40.2	Drilling of holes of various sizes to R.S. Joists and Rail poles with ratchet or hand Drilling machine:			
40.2.1	For R.S. Joists	EA	CSR00262	6
40.2.2	For 60 lbs. Rail poles	EA	CSR00263	7
40.2.3	For 90 lbs. Rail poles	EA	CSR00264	8
40.3	Drilling of holes of various sizes to R.S. Joists or Rails poles using power drilling Machine:.			
40.3.1	For R.S. Joists	EA	CSR00265	5
40.3.2	For 60 lbs. Rail poles	EA	CSR00266	6
40.3.3	For 90 lbs. And 120 lbs Rail	EA	CSR00267	7
41	FABRICATION CHARGES			
41.1	33 KV "V" Cross arms with 100x50 mm MS Channel 2.08mtrs(6'.10") – Weight of the materials=19.0 Kg	EA	CSR00268	158
41.2	11KV "V" Cross arms .			

41.2.1	With 75x40 mm M.S. Channel . Weight of the materials = 9 Kgs.(with 4 nos 50x50x6 packing plates are welded)	EA	CSR00269	131
41.2.2	With 65x65x6mm M.S. Angle – . Weight of the materials =8.2 Kgs	EA	CSR00270	102
41.3	LT 3.Phase 4 Wire Cross arms.			
41.3.1	With 50x50x6mm M.S. Angle(3'.8") . Weight of the materials = 5.75 Kgs.	EA	CSR00271	58
41.3.2	With 65x65x6mm M.S. Angle (3'.8") – Weight of the materials = 7 Kgs	EA	CSR00272	58
41.4	LT 3.Phase 5 Wire Cross arms .			
41.4.1	With 50x50x6mm M.S. Angle(4'.5")– Weight of the materials = 7.3 Kgs	EA	CSR00273	60
41.4.2	With 65x65x6mm M.S. Angle (4'.5") – Weight of the materials = 9.6 Kgs	EA	CSR00274	60
41.5	LT S.Phase 3 Wire Cross arms with 50x50x6mm M.S. Angle (2'.5") = Weight of the materials = 4.2 Kgs.	EA	CSR00275	43
41.6	M.S. Stay sets			
41.6.1	11 KV M.S. Stay sets with 20 mm M.S. Rod & Stay Clamps with 100x50mm M.S. Channel . Weight of the materials = 10.3 Kgs	EA	CSR00276	143
41.6.2	M.S. Stay sets with 20 mm M.S. Rod & Stay Clamps with 75 x40mm M.S. Channel . Weight of the materials = 10.2 Kgs.	EA	CSR00277	143
41.6.3	M.S. Stay sets with 16mm M.S. Rod & Stay Clamps with 100x50mm M.S. Channel .Weight of the materials = 8.0 Kgs	EA	CSR00278	115
41.6.4	M.S. Stay sets with 16mm M.S. Rod & Stay Clamps with 75x40xmm M.S. Channel .Weight of the materials = 7.6 Kgs	EA	CSR00279	115

41.6.5	M.S. Stay sets with 16mm M.S. Rod & Stay Clamps with 50x50x6mm M.S. Angle – Weight of the materials = 6.3 Kgs	EA	CSR00280	100
41.7	33KV Top Fitting			
41.7.1	33KV Top Fitting with Clamps with 75x40mm M.S. Channel . Weight of the materials = 6.9 Kgs.	EA	CSR00281	72
41.7.2	33KV Top Fitting with Clamps with 65x65x6mm M.S. angle . Weight of the materials = 6.5 Kgs.	EA	CSR00282	72
41.8	11KV Top Fittings			0
41.8.1	11KV Top Fittings with Clamps 65x65x6mm M.S. Angle – Weight of the materials = 4.4 Kgs.	EA	CSR00283	77
41.8.2	11KV Top Fittings with Clamps 50x50x6mm M.S. Angle . Weight of the materials = 3.63Kgs.	EA	CSR00284	64
41.8.3	11KV Special Top Fittings with Clamps (2'.0” Height) 50x50x6mm M.S. Angle – Weight of the materials = 3.6Kgs.	EA	CSR00285	64
41.9	LT Top Fittings with Clamps 50x6mm M.S. Flat – Weight of the materials = 2.4 Kgs.	EA	CSR00286	42
41.10	11KV Tapping Cross arms with (5.6”) 100x50mm M.S. Channel – Weight of the materials =13.4 Kgs	EA	CSR00287	80
41.11	11KV Tapping Cross arms with (5.6”) 75x40mm M.S. Channel – Weight of the materials = 11.2 Kgs.	EA	CSR00288	80
41.12	33KV Tapping Cross arms with (7'.0”) 100x50mm M.S. Channel – Weight of the materials = 16.2 Kgs.	EA	CSR00289	80

41.13	HT/LT Side arms with strut- (7'.6") 75x40mm M.S. Channel, (3'.6") 50x50x6mm M.S. Angle, (7'.6") 50x50x6mm M.S. Angle, (3'.0") 50x50x6mm M.S. Angle – Weight of the materials = 37.600Kgs.	EA	CSR00290	132
41.14	LT Side arms with strut - (5'.6") 50x50x6mm M.S. Angle, (6'.0") 50x50x6mm M.S. Angle – Weight of the materials = 15.600Kgs.	EA	CSR00291	192
41.15	M.S Back Clamps (1'.3")			
41.15.1	With 50x6mm M.S. Flat for 8m/140 Kg Pole – Weight of the materials = 0.84 Kgs.	EA	CSR00292	19
41.15.2	With 50x6mm M.S. Flat for 8m/200 Kg Pole – Weight of the materials = 0.924 Kgs.	EA	CSR00293	19
41.15.3	With 75x8mm M.S. Flat for 9.1m/280 Kg Pole – Weight of the materials = 2.17 Kgs.	EA	CSR00294	20
41.16	M.S. Stay Clamps (1'.1" X 2Nos.)- 50x6mm M.S. Flat – Weight of the materials = 1.640Kgs.			
41.16.1	For 8m/140 Kg Pole – Weight of the materials = 1.38 Kgs.	EA	CSR00295	31
41.16.2	For 8m/200 Kg Pole – Weight of the materials = 1.416 Kgs.	EA	CSR00296	32
41.16.3	For 9.1m/280 Kg Pole – Weight of the materials = 3.71 Kgs.	EA	CSR00297	39
41.17	Pole mounting arrangement for 3.Phase 16/25 KVA DTR'S - (4'.0=2Nos.) 75x40mm M.S. Channel, (5'.0" =1No) 50x50x6mm M.S. Angle, (1'.6"=2Nos.)50x50x6mm M.S. Angle, (1'.1"=2Nos.)50x50x6mm M.S. Flat – Weight of the materials = 26Kgs	SET	CSR00298	289
41.18	D.P. Structures total set- 10' – 2Nos. 100 x 50 MS Channel, 10' .2Nos. 50 x 50x 6 Angle, 3' – 3 Nos. 75 x 40 Channel, 2' – 4Nos. 50 x 6 MS Flat	SET	CSR00299	598

41.19	Spun Pole Clamps			
41.19.1	i) Back Clamps	EA	CSR00300	34
41.19.2	ii) Stay Clamps	EA	CSR00301	28
41.20	Extension Pieces	EA	CSR00302	
41.21	HT/LT Spun Pole mounting- 8' – 100 x 50 Channel, 21' – 65 x 65 Angle, 12' – 75 x 8 MS Flat	SET	CSR00303	404
41.22	AB Switch OFF & ON Base with Clamp	SET	CSR00304	69
	WELDING CHARGES			
42.1	ARC WELDING charges for all steel materials to a length of 25 mm.(1") of weld including cost of power and electrodes.			
42.1.1	Double welding	25mm	CSR00305	12
42.1.2	Single welding	25mm	CSR00306	7
42.2	GAS WELDING charges for all steel materials to a length of 25 mm.(1") of weld including cost of gas	25mm	CSR00307	13
43	GAS CUTTING	25mm	CSR00308	6
	Other Items			
44	Labour charges for erection / fixing of heavy steel structures, like M+3, M+6, M+9 and M+12 towers , Trusses erecting in position and fixing by using chain pulley blocks, Derek pole arrangements and cranes etc., complete in position	1MT	CSR00309	7800
44.1	M+3 Tower Light(2.02MT)	1 No	CSR00310	15756
44.2	M+3 Tower Heavy(2.4MT)	1 No	CSR00311	18720
44.3	M+6 Tower Light(2.4MT)	1 No	CSR00312	18720
44.4	M+6 Tower Heavy(2.8MT)	1 No	CSR00313	21840
44.5	M+9 Tower Light(2.8MT)	1 No	CSR00314	21840
44.6	M+9 Tower Heavy(3.4MT)	1 No	CSR00315	26520
44.7	M+12 Tower Light(3.2MT)	1 No	CSR00316	24960
44.8	M+12 Tower Heavy(4MT)	1 No	CSR00317	31200

45	Providing of trenchless digging with HDD (Horizontal Directional Drilling) method for laying & installation of HT or LT lines using XLPE UG Cables			
45.1	33KV 400 sqmm	RM	CSR00318	806
45.2	11KV 300 sqmm	RM	CSR00319	719
45.3	11KV 185 sqmm	RM	CSR00320	635

46 Transport/ conveyance/ Lead charges

1)	Government SSR for the year 2019-20 for transport Charges of materials (Steel, RCC Poles, Cement, Packed materials) excluding loading and unloading is adopted for all DISCOM materials.	
2)	However, for transport of conductor drums, transformer oil drums, and fragile materials such as kiosks, L.As, Insulators, Transformers, Meters etc., which occupy more space and less weight, the rates with 20% excess over the Govt SSR rates for line materials shall be adopted.	
3)	Loading and unloading charges are payable extra.	
4)	Transport charges in respect of poles up to 5 KM, SSR item 10 may be adopted.	
	Transport/conveyance/Lead charges for trucks and tippers	
Sl No.	Distance	For Cement/ Steel/ RCC poles/ AC & GI sheets/ Packed materials/ Rate per Ton
1	2	3
1	Lead up to 1 km	17.1
2	Lead up to 2 km	24
3	Lead up to 3 km	33
4	Lead up to 4 km	40
5	Lead up to 5 km	47.1
6	for Every km beyond 5 km up to 30 km	7.1
7	for Every km beyond 30 km	5.9

Transport charges for Cement/ Steel/ RCC poles/ AC & GI sheets/ Packed materials excluding loading and unloading charges - Rate per Ton for each Km- is shown in the next page along with SAP codes.

Calculated transport charges		
SAP Service code	Lead in KM	Rate/MT
CTR00001	1	17.1
CTR00002	2	24
CTR00003	3	33
CTR00004	4	40
CTR00005	5	47.1
CTR00006	6	54.2
CTR00007	7	61.3
CTR00008	8	68.4
CTR00009	9	75.5
CTR00010	10	82.6
CTR00011	11	89.7
CTR00012	12	96.8
CTR00013	13	103.9
CTR00014	14	111
CTR00015	15	118.1
CTR00016	16	125.2
CTR00017	17	132.3
CTR00018	18	139.4
CTR00019	19	146.5
CTR00020	20	153.6
CTR00021	21	160.7
CTR00022	22	167.8
CTR00023	23	174.9
CTR00024	24	182
CTR00025	25	189.1
CTR00026	26	196.2
CTR00027	27	203.3
CTR00028	28	210.4
CTR00029	29	217.5
CTR00030	30	224.6
CTR00031	31	231.4
CTR00032	32	238.2
CTR00033	33	245
CTR00034	34	251.8
CTR00035	35	258.6

1Km to 35Km		
SAP Service code	Lead in KM	Rate/MT
CTR00001	1	17.1
CTR00002	2	24
CTR00003	3	33
CTR00004	4	40
CTR00005	5	47.1
CTR00006	6	54.2
CTR00007	7	61.3
CTR00008	8	68.4
CTR00009	9	75.5
CTR00010	10	82.6
CTR00011	11	89.7
CTR00012	12	96.8
CTR00013	13	103.9
CTR00014	14	111
CTR00015	15	118.1
CTR00016	16	125.2
CTR00017	17	132.3
CTR00018	18	139.4
CTR00019	19	146.5
CTR00020	20	153.6
CTR00021	21	160.7
CTR00022	22	167.8
CTR00023	23	174.9
CTR00024	24	182
CTR00025	25	189.1
CTR00026	26	196.2
CTR00027	27	203.3
CTR00028	28	210.4
CTR00029	29	217.5
CTR00030	30	224.6
CTR00031	31	231.4
CTR00032	32	238.2
CTR00033	33	245
CTR00034	34	251.8
CTR00035	35	258.6

36Km to 70Km		
SAP Service code	Lead in KM	Rate/MT
CTR00036	36	265.4
CTR00037	37	272.2
CTR00038	38	279
CTR00039	39	285.8
CTR00040	40	292.6
CTR00041	41	299.4
CTR00042	42	306.2
CTR00043	43	313
CTR00044	44	319.8
CTR00045	45	326.6
CTR00046	46	333.4
CTR00047	47	340.2
CTR00048	48	347
CTR00049	49	353.8
CTR00050	50	360.6
CTR00051	51	367.4
CTR00052	52	374.2
CTR00053	53	381
CTR00054	54	387.8
CTR00055	55	394.6
CTR00056	56	401.4
CTR00057	57	408.2
CTR00058	58	415
CTR00059	59	421.8
CTR00060	60	428.6
CTR00061	61	435.4
CTR00062	62	442.2
CTR00063	63	449
CTR00064	64	455.8
CTR00065	65	462.6
CTR00066	66	469.4
CTR00067	67	476.2
CTR00068	68	483
CTR00069	69	489.8
CTR00070	70	496.6

71Km to 105Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00071	71	503.4
CTR00072	72	510.2
CTR00073	73	517
CTR00074	74	523.8
CTR00075	75	530.6
CTR00076	76	537.4
CTR00077	77	544.2
CTR00078	78	551
CTR00079	79	557.8
CTR00080	80	564.6
CTR00081	81	571.4
CTR00082	82	578.2
CTR00083	83	585
CTR00084	84	591.8
CTR00085	85	598.6
CTR00086	86	605.4
CTR00087	87	612.2
CTR00088	88	619
CTR00089	89	625.8
CTR00090	90	632.6
CTR00091	91	639.4
CTR00092	92	646.2
CTR00093	93	653
CTR00094	94	659.8
CTR00095	95	666.6
CTR00096	96	673.4
CTR00097	97	680.2
CTR00098	98	687
CTR00099	99	693.8
CTR00100	100	700.6
CTR00101	101	707.4
CTR00102	102	714.2
CTR00103	103	721
CTR00104	104	727.8
CTR00105	105	734.6

106Km to 140Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00106	106	741.4
CTR00107	107	748.2
CTR00108	108	755
CTR00109	109	761.8
CTR00110	110	768.6
CTR00111	111	775.4
CTR00112	112	782.2
CTR00113	113	789
CTR00114	114	795.8
CTR00115	115	802.6
CTR00116	116	809.4
CTR00117	117	816.2
CTR00118	118	823
CTR00119	119	829.8
CTR00120	120	836.6
CTR00121	121	843.4
CTR00122	122	850.2
CTR00123	123	857
CTR00124	124	863.8
CTR00125	125	870.6
CTR00126	126	877.4
CTR00127	127	884.2
CTR00128	128	891
CTR00129	129	897.8
CTR00130	130	904.6
CTR00131	131	911.4
CTR00132	132	918.2
CTR00133	133	925
CTR00134	134	931.8
CTR00135	135	938.6
CTR00136	136	945.4
CTR00137	137	952.2
CTR00138	138	959
CTR00139	139	965.8
CTR00140	140	972.6

141Km to 175Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00141	141	979.4
CTR00142	142	986.2
CTR00143	143	993
CTR00144	144	999.8
CTR00145	145	1006.6
CTR00146	146	1013.4
CTR00147	147	1020.2
CTR00148	148	1027
CTR00149	149	1033.8
CTR00150	150	1040.6
CTR00151	151	1047.4
CTR00152	152	1054.2
CTR00153	153	1061
CTR00154	154	1067.8
CTR00155	155	1074.6
CTR00156	156	1081.4
CTR00157	157	1088.2
CTR00158	158	1095
CTR00159	159	1101.8
CTR00160	160	1108.6
CTR00161	161	1115.4
CTR00162	162	1122.2
CTR00163	163	1129
CTR00164	164	1135.8
CTR00165	165	1142.6
CTR00166	166	1149.4
CTR00167	167	1156.2
CTR00168	168	1163
CTR00169	169	1169.8
CTR00170	170	1176.6
CTR00171	171	1183.4
CTR00172	172	1190.2
CTR00173	173	1197
CTR00174	174	1203.8
CTR00175	175	1210.6

176Km to 210Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00176	176	1217.4
CTR00177	177	1224.2
CTR00178	178	1231
CTR00179	179	1237.8
CTR00180	180	1244.6
CTR00181	181	1251.4
CTR00182	182	1258.2
CTR00183	183	1265
CTR00184	184	1271.8
CTR00185	185	1278.6
CTR00186	186	1285.4
CTR00187	187	1292.2
CTR00188	188	1299
CTR00189	189	1305.8
CTR00190	190	1312.6
CTR00191	191	1319.4
CTR00192	192	1326.2
CTR00193	193	1333
CTR00194	194	1339.8
CTR00195	195	1346.6
CTR00196	196	1353.4
CTR00197	197	1360.2
CTR00198	198	1367
CTR00199	199	1373.8
CTR00200	200	1380.6
CTR00201	201	1387.4
CTR00202	202	1394.2
CTR00203	203	1401
CTR00204	204	1407.8
CTR00205	205	1414.6
CTR00206	206	1421.4
CTR00207	207	1428.2
CTR00208	208	1435
CTR00209	209	1441.8
CTR00210	210	1448.6

211Km to 245Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00211	211	1455.4
CTR00212	212	1462.2
CTR00213	213	1469
CTR00214	214	1475.8
CTR00215	215	1482.6
CTR00216	216	1489.4
CTR00217	217	1496.2
CTR00218	218	1503
CTR00219	219	1509.8
CTR00220	220	1516.6
CTR00221	221	1523.4
CTR00222	222	1530.2
CTR00223	223	1537
CTR00224	224	1543.8
CTR00225	225	1550.6
CTR00226	226	1557.4
CTR00227	227	1564.2
CTR00228	228	1571
CTR00229	229	1577.8
CTR00230	230	1584.6
CTR00231	231	1591.4
CTR00232	232	1598.2
CTR00233	233	1605
CTR00234	234	1611.8
CTR00235	235	1618.6
CTR00236	236	1625.4
CTR00237	237	1632.2
CTR00238	238	1639
CTR00239	239	1645.8
CTR00240	240	1652.6
CTR00241	241	1659.4
CTR00242	242	1666.2
CTR00243	243	1673
CTR00244	244	1679.8
CTR00245	245	1686.6

246Km to 280Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00246	246	1693.4
CTR00247	247	1700.2
CTR00248	248	1707
CTR00249	249	1713.8
CTR00250	250	1720.6
CTR00251	251	1727.4
CTR00252	252	1734.2
CTR00253	253	1741
CTR00254	254	1747.8
CTR00255	255	1754.6
CTR00256	256	1761.4
CTR00257	257	1768.2
CTR00258	258	1775
CTR00259	259	1781.8
CTR00260	260	1788.6
CTR00261	261	1795.4
CTR00262	262	1802.2
CTR00263	263	1809
CTR00264	264	1815.8
CTR00265	265	1822.6
CTR00266	266	1829.4
CTR00267	267	1836.2
CTR00268	268	1843
CTR00269	269	1849.8
CTR00270	270	1856.6
CTR00271	271	1863.4
CTR00272	272	1870.2
CTR00273	273	1877
CTR00274	274	1883.8
CTR00275	275	1890.6
CTR00276	276	1897.4
CTR00277	277	1904.2
CTR00278	278	1911
CTR00279	279	1917.8
CTR00280	280	1924.6

281Km to 315Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00281	281	1931.4
CTR00282	282	1938.2
CTR00283	283	1945
CTR00284	284	1951.8
CTR00285	285	1958.6
CTR00286	286	1965.4
CTR00287	287	1972.2
CTR00288	288	1979
CTR00289	289	1985.8
CTR00290	290	1992.6
CTR00291	291	1999.4
CTR00292	292	2006.2
CTR00293	293	2013
CTR00294	294	2019.8
CTR00295	295	2026.6
CTR00296	296	2033.4
CTR00297	297	2040.2
CTR00298	298	2047
CTR00299	299	2053.8
CTR00300	300	2060.6
CTR00301	301	2067.4
CTR00302	302	2074.2
CTR00303	303	2081
CTR00304	304	2087.8
CTR00305	305	2094.6
CTR00306	306	2101.4
CTR00307	307	2108.2
CTR00308	308	2115
CTR00309	309	2121.8
CTR00310	310	2128.6
CTR00311	311	2135.4
CTR00312	312	2142.2
CTR00313	313	2149
CTR00314	314	2155.8
CTR00315	315	2162.6

316Km to 350Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00316	316	2169.4
CTR00317	317	2176.2
CTR00318	318	2183
CTR00319	319	2189.8
CTR00320	320	2196.6
CTR00321	321	2203.4
CTR00322	322	2210.2
CTR00323	323	2217
CTR00324	324	2223.8
CTR00325	325	2230.6
CTR00326	326	2237.4
CTR00327	327	2244.2
CTR00328	328	2251
CTR00329	329	2257.8
CTR00330	330	2264.6
CTR00331	331	2271.4
CTR00332	332	2278.2
CTR00333	333	2285
CTR00334	334	2291.8
CTR00335	335	2298.6
CTR00336	336	2305.4
CTR00337	337	2312.2
CTR00338	338	2319
CTR00339	339	2325.8
CTR00340	340	2332.6
CTR00341	341	2339.4
CTR00342	342	2346.2
CTR00343	343	2353
CTR00344	344	2359.8
CTR00345	345	2366.6
CTR00346	346	2373.4
CTR00347	347	2380.2
CTR00348	348	2387
CTR00349	349	2393.8
CTR00350	350	2400.6

351Km to 385Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00351	351	2407.4
CTR00352	352	2414.2
CTR00353	353	2421
CTR00354	354	2427.8
CTR00355	355	2434.6
CTR00356	356	2441.4
CTR00357	357	2448.2
CTR00358	358	2455
CTR00359	359	2461.8
CTR00360	360	2468.6
CTR00361	361	2475.4
CTR00362	362	2482.2
CTR00363	363	2489
CTR00364	364	2495.8
CTR00365	365	2502.6
CTR00366	366	2509.4
CTR00367	367	2516.2
CTR00368	368	2523
CTR00369	369	2529.8
CTR00370	370	2536.6
CTR00371	371	2543.4
CTR00372	372	2550.2
CTR00373	373	2557
CTR00374	374	2563.8
CTR00375	375	2570.6
CTR00376	376	2577.4
CTR00377	377	2584.2
CTR00378	378	2591
CTR00379	379	2597.8
CTR00380	380	2604.6
CTR00381	381	2611.4
CTR00382	382	2618.2
CTR00383	383	2625
CTR00384	384	2631.8
CTR00385	385	2638.6

386Km to 420Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00386	386	2645.4
CTR00387	387	2652.2
CTR00388	388	2659
CTR00389	389	2665.8
CTR00390	390	2672.6
CTR00391	391	2679.4
CTR00392	392	2686.2
CTR00393	393	2693
CTR00394	394	2699.8
CTR00395	395	2706.6
CTR00396	396	2713.4
CTR00397	397	2720.2
CTR00398	398	2727
CTR00399	399	2733.8
CTR00400	400	2740.6
CTR00401	401	2747.4
CTR00402	402	2754.2
CTR00403	403	2761
CTR00404	404	2767.8
CTR00405	405	2774.6
CTR00406	406	2781.4
CTR00407	407	2788.2
CTR00408	408	2795
CTR00409	409	2801.8
CTR00410	410	2808.6
CTR00411	411	2815.4
CTR00412	412	2822.2
CTR00413	413	2829
CTR00414	414	2835.8
CTR00415	415	2842.6
CTR00416	416	2849.4
CTR00417	417	2856.2
CTR00418	418	2863
CTR00419	419	2869.8
CTR00420	420	2876.6

421Km to 455Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00421	421	2883.4
CTR00422	422	2890.2
CTR00423	423	2897
CTR00424	424	2903.8
CTR00425	425	2910.6
CTR00426	426	2917.4
CTR00427	427	2924.2
CTR00428	428	2931
CTR00429	429	2937.8
CTR00430	430	2944.6
CTR00431	431	2951.4
CTR00432	432	2958.2
CTR00433	433	2965
CTR00434	434	2971.8
CTR00435	435	2978.6
CTR00436	436	2985.4
CTR00437	437	2992.2
CTR00438	438	2999
CTR00439	439	3005.8
CTR00440	440	3012.6
CTR00441	441	3019.4
CTR00442	442	3026.2
CTR00443	443	3033
CTR00444	444	3039.8
CTR00445	445	3046.6
CTR00446	446	3053.4
CTR00447	447	3060.2
CTR00448	448	3067
CTR00449	449	3073.8
CTR00450	450	3080.6
CTR00451	451	3087.4
CTR00452	452	3094.2
CTR00453	453	3101
CTR00454	454	3107.8
CTR00455	455	3114.6

456Km to 490Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00456	456	3121.4
CTR00457	457	3128.2
CTR00458	458	3135
CTR00459	459	3141.8
CTR00460	460	3148.6
CTR00461	461	3155.4
CTR00462	462	3162.2
CTR00463	463	3169
CTR00464	464	3175.8
CTR00465	465	3182.6
CTR00466	466	3189.4
CTR00467	467	3196.2
CTR00468	468	3203
CTR00469	469	3209.8
CTR00470	470	3216.6
CTR00471	471	3223.4
CTR00472	472	3230.2
CTR00473	473	3237
CTR00474	474	3243.8
CTR00475	475	3250.6
CTR00476	476	3257.4
CTR00477	477	3264.2
CTR00478	478	3271
CTR00479	479	3277.8
CTR00480	480	3284.6
CTR00481	481	3291.4
CTR00482	482	3298.2
CTR00483	483	3305
CTR00484	484	3311.8
CTR00485	485	3318.6
CTR00486	486	3325.4
CTR00487	487	3332.2
CTR00488	488	3339
CTR00489	489	3345.8
CTR00490	490	3352.6

491Km to 525Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00491	491	3359.4
CTR00492	492	3366.2
CTR00493	493	3373
CTR00494	494	3379.8
CTR00495	495	3386.6
CTR00496	496	3393.4
CTR00497	497	3400.2
CTR00498	498	3407
CTR00499	499	3413.8
CTR00500	500	3420.6
CTR00501	501	3427.4
CTR00502	502	3434.2
CTR00503	503	3441
CTR00504	504	3447.8
CTR00505	505	3454.6
CTR00506	506	3461.4
CTR00507	507	3468.2
CTR00508	508	3475
CTR00509	509	3481.8
CTR00510	510	3488.6
CTR00511	511	3495.4
CTR00512	512	3502.2
CTR00513	513	3509
CTR00514	514	3515.8
CTR00515	515	3522.6
CTR00516	516	3529.4
CTR00517	517	3536.2
CTR00518	518	3543
CTR00519	519	3549.8
CTR00520	520	3556.6
CTR00521	521	3563.4
CTR00522	522	3570.2
CTR00523	523	3577
CTR00524	524	3583.8
CTR00525	525	3590.6

526Km to 560Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00526	526	3597.4
CTR00527	527	3604.2
CTR00528	528	3611
CTR00529	529	3617.8
CTR00530	530	3624.6
CTR00531	531	3631.4
CTR00532	532	3638.2
CTR00533	533	3645
CTR00534	534	3651.8
CTR00535	535	3658.6
CTR00536	536	3665.4
CTR00537	537	3672.2
CTR00538	538	3679
CTR00539	539	3685.8
CTR00540	540	3692.6
CTR00541	541	3699.4
CTR00542	542	3706.2
CTR00543	543	3713
CTR00544	544	3719.8
CTR00545	545	3726.6
CTR00546	546	3733.4
CTR00547	547	3740.2
CTR00548	548	3747
CTR00549	549	3753.8
CTR00550	550	3760.6
CTR00551	551	3767.4
CTR00552	552	3774.2
CTR00553	553	3781
CTR00554	554	3787.8
CTR00555	555	3794.6
CTR00556	556	3801.4
CTR00557	557	3808.2
CTR00558	558	3815
CTR00559	559	3821.8
CTR00560	560	3828.6

561Km to 595Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00561	561	3835.4
CTR00562	562	3842.2
CTR00563	563	3849
CTR00564	564	3855.8
CTR00565	565	3862.6
CTR00566	566	3869.4
CTR00567	567	3876.2
CTR00568	568	3883
CTR00569	569	3889.8
CTR00570	570	3896.6
CTR00571	571	3903.4
CTR00572	572	3910.2
CTR00573	573	3917
CTR00574	574	3923.8
CTR00575	575	3930.6
CTR00576	576	3937.4
CTR00577	577	3944.2
CTR00578	578	3951
CTR00579	579	3957.8
CTR00580	580	3964.6
CTR00581	581	3971.4
CTR00582	582	3978.2
CTR00583	583	3985
CTR00584	584	3991.8
CTR00585	585	3998.6
CTR00586	586	4005.4
CTR00587	587	4012.2
CTR00588	588	4019
CTR00589	589	4025.8
CTR00590	590	4032.6
CTR00591	591	4039.4
CTR00592	592	4046.2
CTR00593	593	4053
CTR00594	594	4059.8
CTR00595	595	4066.6

596Km to 630Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00596	596	4073.4
CTR00597	597	4080.2
CTR00598	598	4087
CTR00599	599	4093.8
CTR00600	600	4100.6
CTR00601	601	4107.4
CTR00602	602	4114.2
CTR00603	603	4121
CTR00604	604	4127.8
CTR00605	605	4134.6
CTR00606	606	4141.4
CTR00607	607	4148.2
CTR00608	608	4155
CTR00609	609	4161.8
CTR00610	610	4168.6
CTR00611	611	4175.4
CTR00612	612	4182.2
CTR00613	613	4189
CTR00614	614	4195.8
CTR00615	615	4202.6
CTR00616	616	4209.4
CTR00617	617	4216.2
CTR00618	618	4223
CTR00619	619	4229.8
CTR00620	620	4236.6
CTR00621	621	4243.4
CTR00622	622	4250.2
CTR00623	623	4257
CTR00624	624	4263.8
CTR00625	625	4270.6
CTR00626	626	4277.4
CTR00627	627	4284.2
CTR00628	628	4291
CTR00629	629	4297.8
CTR00630	630	4304.6

631Km to 665Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00631	631	4311.4
CTR00632	632	4318.2
CTR00633	633	4325
CTR00634	634	4331.8
CTR00635	635	4338.6
CTR00636	636	4345.4
CTR00637	637	4352.2
CTR00638	638	4359
CTR00639	639	4365.8
CTR00640	640	4372.6
CTR00641	641	4379.4
CTR00642	642	4386.2
CTR00643	643	4393
CTR00644	644	4399.8
CTR00645	645	4406.6
CTR00646	646	4413.4
CTR00647	647	4420.2
CTR00648	648	4427
CTR00649	649	4433.8
CTR00650	650	4440.6
CTR00651	651	4447.4
CTR00652	652	4454.2
CTR00653	653	4461
CTR00654	654	4467.8
CTR00655	655	4474.6
CTR00656	656	4481.4
CTR00657	657	4488.2
CTR00658	658	4495
CTR00659	659	4501.8
CTR00660	660	4508.6
CTR00661	661	4515.4
CTR00662	662	4522.2
CTR00663	663	4529
CTR00664	664	4535.8
CTR00665	665	4542.6

666Km to 700Km		
SAP Service code	Lead in KM	Rate/ MT
CTR00666	666	4549.4
CTR00667	667	4556.2
CTR00668	668	4563
CTR00669	669	4569.8
CTR00670	670	4576.6
CTR00671	671	4583.4
CTR00672	672	4590.2
CTR00673	673	4597
CTR00674	674	4603.8
CTR00675	675	4610.6
CTR00676	676	4617.4
CTR00677	677	4624.2
CTR00678	678	4631
CTR00679	679	4637.8
CTR00680	680	4644.6
CTR00681	681	4651.4
CTR00682	682	4658.2
CTR00683	683	4665
CTR00684	684	4671.8
CTR00685	685	4678.6
CTR00686	686	4685.4
CTR00687	687	4692.2
CTR00688	688	4699
CTR00689	689	4705.8
CTR00690	690	4712.6
CTR00691	691	4719.4
CTR00692	692	4726.2
CTR00693	693	4733
CTR00694	694	4739.8
CTR00695	695	4746.6
CTR00696	696	4753.4
CTR00697	697	4760.2
CTR00698	698	4767
CTR00699	699	4773.8
CTR00700	700	4780.6

Annexure – I - References

1 Points observed for preparation of common SSR for APSPDCL and APEPDCL.

i)	Rates of labour, Transport and other items of Andhra Pradesh Government common SSR as per A.P revised standard data for the year 2019-20 (with effect from 1-6-2019) is adopted in preparation of Common SSR for Transco and Discoms.
ii)	Lower rates of APSPDCL and APEPDCL SSRs with worked out data are considered for preparation of this SSR.
iii)	No contractor profit and over head charges are applicable from the date of issue of this SSR in respect of all Civil, Electrical and Telecom works.
iv)	Area allowances on labour extra is revised and are as per Annexure Point 3.
v)	Transport/ Lead/ Conveyance Charges of Government SSR for the year 2019-20 is adopted for preparation of common SSR.
vi)	For construction of DTR plinths and pole pit concreting average lead of 30 Km is adopted for Sand, Metal, stone, brick and gravel material to arrive at common rate. But these rates may be revised by local civil wings based on actual leads of above materials

2 Note on GST rates on labour and materials and Contractor Profit and overhead charges

SL No	Description of Item		
1	All the labour rates in SSR and material rates (except Petrol & Diesel) in Cost data are exclusive of GST only. At the time of preparation of estimate, applicable Building workers welfare cess and applicable GST is to be applied on the final value of estimate.		
2	But for Petrol & Diesel, the rates are inclusive of VAT & Excise duty as per the current policy of Govt. of India.		
3	Rates of Cement, Reinforcement Steel and structural steel are exclusive of GST only and are communicated by Govt of AP on monthly basis.		
4	As on 1-9-2019 applicable Building workers welfare cess and GST on works is as below (Estimates are to be revised as and when Government revises applicable Cess and GST rates)		
a)	Building workers welfare cess	1%	To be applied at the end of estimate but before GST.
b)	Rate of GST on works contract, applicable on estimate value + Building workers welfare cess	18%	To be applied at the end of estimate. GST rate from 1-7-2017 to till date

Imp Note :- No provision is allowed towards Contractor profit and over head charges in respect of all Discom Electrical, Civil and Telecom works. Hence adding of extra percentage towards CP & OH in Electrical, Civil and Telecom estimates is not allowed from the date of issue of this SSR.

3. Area Allowances

- a) 15% extra over the basic rates on labour component of works is allowed in all District head quarters for all special class and Municipal Corporations.
- b) 10% extra over the basic rates on labour component of works is allowed in minor municipalities.

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

- c) Agency/ Tribal Areas:-
 - i. 25% extra is allowed for the works located inside the Agency/Tribal area.
 - ii. 15% extra is allowed for the works located in the border of Agency/ Tribal area i.e., works located within a belt of 16km from the boundary of Agency/Tribal area.

Note:-

- i. The extra percentage on cost of material in agency / tribal area can be allowed on the labour component only, if they are manufactured in agency/ tribal area, itself except forest produced.
- ii. No extra percentage is permissible in respect of forest produce such as Bamboos, Rellu grass and for all materials obtained from outside the Agency/ Tribal area.
- iii. 20% extra rate is payable for soils such as hard gravel, murrum in case of excavation of pits for erection of poles, joists etc.

4 Basic rates of Labour and hire charges of machinery

(As per AP Government Common Schedule of rates for the year 2019-20, effective from 1-6-2019)

a) Basic rates of labour

Sl no	Description of item	Unit	Rate in Rs
Part I (WATER RESOURCES DEPARTMENT WORK ITEMS)- Labour Rates-Common SoR 2019-20- Page No 6 to 9			
1	<u>Skilled Labour</u>		
a	Electrician (Licensed)	1 No	575
b	Bar bender	1 No	625
c	Work inspector with Non Technical qualification SSLC/ SSC/ HSC	1 No	520
d	Operator Crane/ Tower Crane/ Cable way/ Tipper/ dumper/ Lorry/ Bus/ Tanker/ Driller/ Drifter/ Blaster	1 No	570
e	Operator concrete vibrator	1 No	510
f	Mason/ Brick layer/ Tile layer 1st class	1 No	500
g	Carpenter/ Painter/ Plumber 1st class	1 No	580
h	Welder/ Gas cutter	1 No	510
2	<u>Semi Skilled Labour</u>		
a	Lineman Electric	1 No	460
b	Helper Crane/ Tower Crane/ Cable way/ Tipper/ dumper/ Lorry/ Bus/ Tanker	1 No	460
c	Helper Vibrator	1 No	460
d	Mason/ Brick layer 2nd class	1 No	460
e	Helper Carpenter/ Painter 2nd class	1 No	460
3	<u>Un Skilled Labour</u>		
a	Man/ Woman Mazdoor	1 No	420
b	Watch man	1 No	420

b) Hire charges of machinery

Part I (WATER RESOURCES DEPARTMENT WORK ITEMS)- Machinery Hire Charges – Common SoR 2019-20- Page No 44 to 47			
1	Truck mounted derrick crane 5 Ton		
	Hire charges	1 Hour	432.10
	Fuel charges	1 Hour	369.30
	Crew Charges	1 Hour	200.90
		1 Hour	1002.30
		1 day	8018.40

2	Hydraulic Truck Crane 16 Ton		
	Hire charges	1 Hour	1893.60
	Fuel charges	1 Hour	1282.40
	Crew Charges	1 Hour	601.50
		1 Hour	3777.50
		1 day	30220.00
3	Hydraulic Truck Crane 30 Ton		
	Hire charges	1 Hour	2574.10
	Fuel charges	1 Hour	1450.10
	Crew Charges	1 Hour	601.50
		1 Hour	4625.70
		1 day	37005.60
4	Tractor (as per Local market rates)		
	Hire charges + Crew Charges - 1500/- per day	1 day	1500.00
	Fuel Charges -	1 day	583.33
	Tractor hire charges	1 day	2084.00

Diesel cost per 1 Lt in Rs	70
Tractor mileage in KM for 1 lt	6 Km
Tractor utilised distance in KM	50 Km

5	Concrete mixer 300 / 200 (diesel)		
	Hire charges	1 Hour	44.5
	Fuel charges	1 Hour	97.7
	Crew Charges	1 Hour	252.2
		1 Hour	394.4
6	Needle vibrator 40 mm (petrol)		
	Hire charges	1 Hour	6.4
	Fuel charges	1 Hour	21.2
	Crew Charges	1 Hour	181.5
		1 Hour	209.1
7	Batching plant 0.5 cum (6 Cum/hr)		
	Hire charges	1 Hour	95.3
	Fuel charges	1 Hour	127.6
	Crew Charges	1 Hour	387.4
		1 Hour	610.3
8	Air compressor 15 cmm/ hour		
	Hire charges	1 Hour	115.4
	Fuel charges	1 Hour	1063.1
	Crew Charges	1 Hour	201.8
		1 Hour	1380.3
9	Welding set		
	Hire charges	1 Hour	14.4
	Fuel charges/ Power charges	1 Hour	102.1

	Crew Charges	1 Hour	0
		1 Hour	116.5

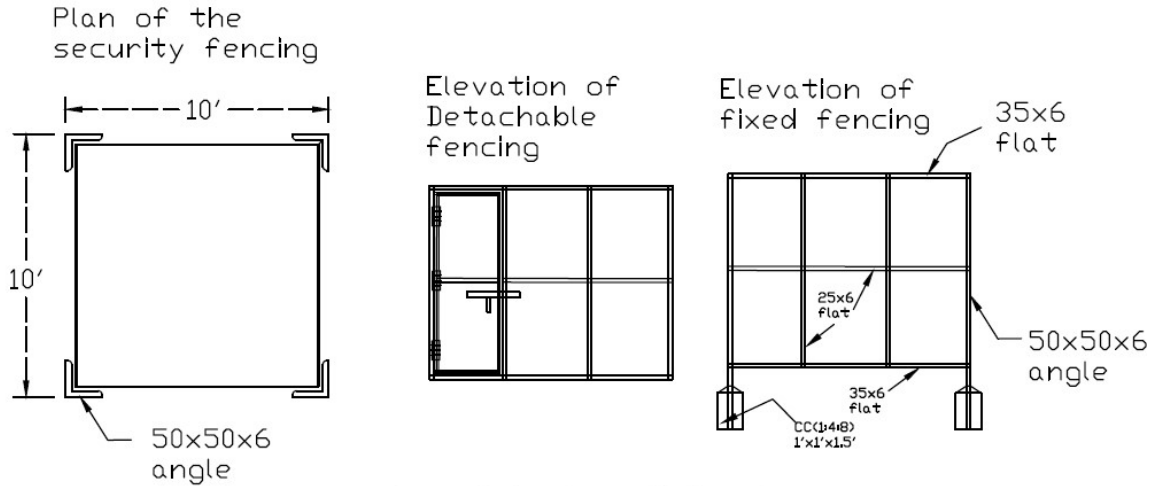
c) Other items

i)	Part II ROAD & BRIDGE WORKS- Rates of works-Common SoR 2019-20- Page No 21 &22		
ii)	Clearing of heavy jungle	32	10 sqm
iii)	Cutting and removing other kind of trees	33	1 No
iv)	Gelatin 80%	59	1 Kg
v)	Detonator electric	9	1 No
vi)	Water proof Cement paint	49	1 Kg
vii)	Water charges (urban)	107	1 KL
viii)	Water charges (Rural)	80	1 KL
ix)	Binding wire	55	1 Kg
xi)	Red Oxide Primer Paint/ black bitumen paint for iron works of Grade -1	121	1 Lt
x)	Ready mixed Synthetic Enamel paints in all shades Grade I	248	1 Lt
xi)	Aluminium paint Grade I	255	1 Lt
xii)	Labour charges for fabricating steel works like Window Grills, Compound Wall Grills, Iron Doors, Windows including cost of welding rods, power charges, excluding cost of fixing in position	27	1 Kg
xiii)	Hot dipped Galvanised Iron Chain link mesh 8 gauge - (4.0 mm) as per IS: 2721-1979: 2"x2" (50 mm x 50 mm) - 8 Gauge	404	1 sqm
xiv)	Oxygen gas @ 2.4 cum / t	40	1 cum
xv)	Acetylene gas @ 0.8 cum / t	306	1 cum

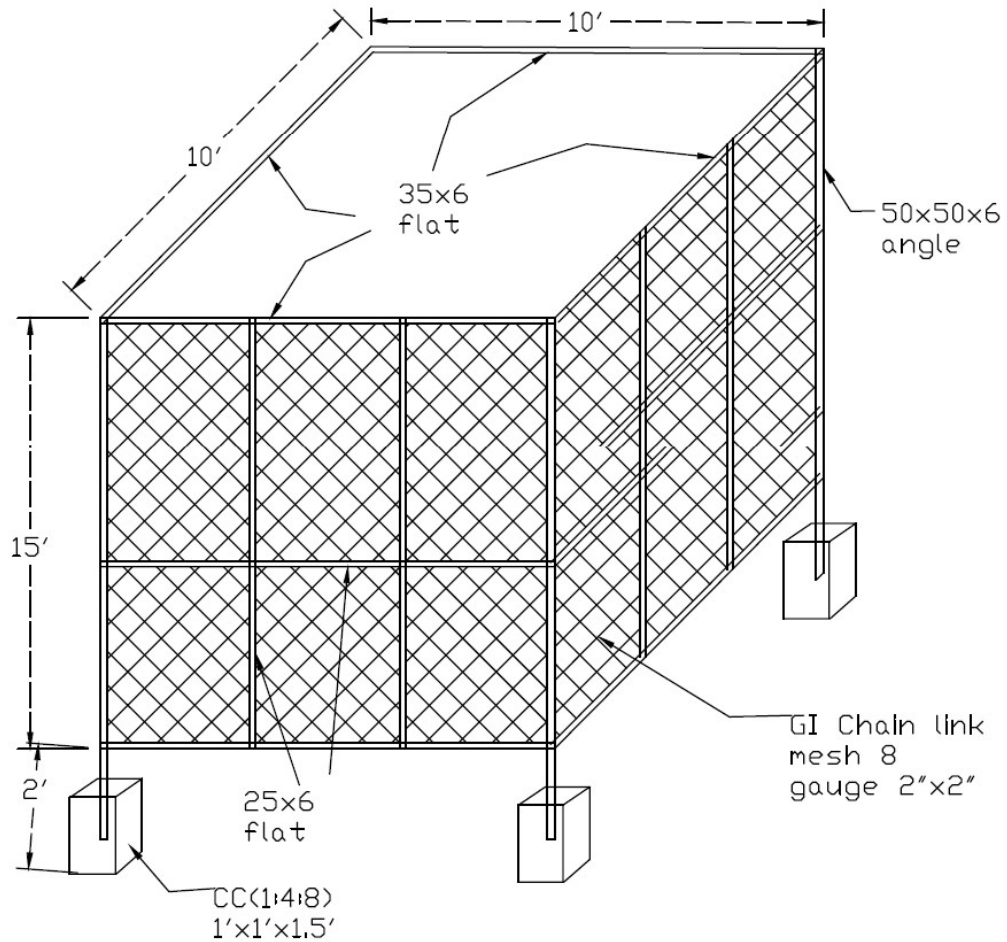
d) Centering Charges

i)	Footings		
		Material	1 cum 288
		Labour	1 cum 631
		Total	1 cum 919
ii)	Columns		
		Material	1 cum 355
		Labour	1 cum 2268
		Total	1 cum 2623
iii)	Beams		
		Material	1 cum 2085
		Labour	1 cum 1903
		Total	1 cum 3988
iv)	Slab up to 150mm thick		
		Material	1 cum 236
		Labour	1 cum 226
		Total	1 cum 462

DTR security fencing, with GI chain link mesh 8 gauge, 50x50x6 angle supports, 35x6 flat around, 25x6 flat inside supports



Isometric view of fencing



TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

**STANDARD SCHEDULE OF RATES FOR LABOUR ITEMS OF 400 KV, 220
KV & 132 KV TRANSMISSION LINES AND SUBSTATIONS WORKS AND
FOR O&M WORKS OF TRANSMISSION SYSTEM**

FOR THE YEAR 2019-20

VOLUME-I, PART-2

VOLUME-I, PART-2

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PREAMBLE**1. The Rates for the item of works (Line & Substations) involved under special conditions in the existing SSR 2019-20 are as follows:****(I) TRANSMISSION LINEWORKS:**

Sl. No.	Description of work	% Over the basic labour rates
1.	River Crossing with JC type towers	100% extra
2.	2 nd Circuit Stringing with 1 st 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 linematerials.	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

SUBSTATIONS AND OTHER WORKS:

Sl. No.	Description of work	% Over the Basic labour rates
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

Sl. No.	Description of work	% Over the Basic labour rates
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, 2nd circuit stringing with First 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 dispensed.

2 For EHT (400 KV, 220 KV & 132 KV) Transmission line works: Uniform Area Allowance including scattered area Mobilization efforts are provided as follows:-

- a. 15% extra provision on the basic rates of APTRANSCO towards Uniform Area Allowance including scattered area Mobilization efforts in general areas
- b. 25% extra provision on the basic rates of APTRANSCO towards Uniform Area Allowance including scattered area Mobilization efforts in difficult/Scheduled terrain /areas. The concerned SE/TLC has to certify that entire line passes through difficult/Scheduled terrain/ Area duly furnishing the justification.

Note:- If 25% extra toward Uniform Area Allowance including scattered area Mobilization efforts in difficult Terrain/Area is applicable for a work, then the 15% extra towards Uniform Area Allowance including scattered area Mobilization efforts in general areas is not applicable.

- 3(a) 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 and after laying of earth mat.
- 3(b) 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.
- 3(c) 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.
- 3(d) The rates for tree cutting and jungle clearance may be followed as per Common SoR of Govt of Andhra Pradesh.

4. AREA ALLOWANCES:

- a. 15% extra over the basis rates on labour component of works is allowed in all District headquarters and Municipal Corporations (Including Greater Visakhapatnam Municipal Corporation and Vijayawada Municipal Corporation).
- b. 10% extra over the basis rates on labour component of works is allowed in 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.

- c. Agency Areas:
 - i. 25% extra is allowed for the works located inside the Agency area.
 - ii. 15% 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.

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

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

The area allowances are applicable for Civil & Electrical works (labour), where the value of work is more than Rs.20.00 lakhs (electrical & civil).

6. **The provision of 13.615% towards Contractors Profit and overheads (COP) is not allowed for estimates of all works.**

7 (a) TREE CUTTING AND CLEARING OF JUNGLE

Please refer to the Common SoR of Board of Chief Engineers for engineering departments for year 2019-20 of GOAP

7 (b) THE (LEAD) CONVEYANCE CHARGES FOR TRANSPORTATION OF EQUIPMENT /MATERIALS.

Please refer to the Common SoR of Board of Chief Engineers for engineering departments for year 2019-20 of GOAP

8 Erection of Power Transformers and Oil filtration Works

The rates communicated by CE/Transmission vide letter No.CTO/121/F. Erection RC/D.No.333/15,dt.31.03.2015 and subsequent Amendment No.I, dt. 31.03.2017 and Amendment No.II, dt. 22.01.2018 on rate contract basis for erection, dismantling, transportation and oil filtration of power transformers through private agency with GST are valid up to 31.03.2021.

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.

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.

9 Civil Engineering Works in APTRANSCO:

For Civil work items of APTRANSCO, the common SoR of Board of Chief Engineers for engineering departments year 2019-20 of GOAP shall be followed in toto except area allowances & Contractors Profit and overheads (COP).

The Area allowances of APTRANSCO SSR 2019-20 at Para 4 is also applicable for Civil Works and no provision is made for 13.615% towards Contractors Profit and overheads. 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 at Para 2 is also applicable for Civil Works (Transmission Line).

- 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 All statutory levies such as GST, Cess for labour welfare if any, are based on the prevailing notified rate, shall have to be added in the estimate
- 12 The S.S.R will come into force with immediate effect until further orders.

ANNEXURE – I
SSR RATES FOR ERECTION OF 400KV TRANSMISSION
LINES

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4L1	1(a)	Preliminary Survey with GPS survey, theodolite & total station, marking route on topo sheets represents actual field conditions	kM	4148.17
C4L 2	1(b)	Detailed Survey with GPS, total stations, Digital theodolite etc., along the approved alignments preparation of profiles, tower spotting, tower schedules and soil resistivity	kM	21549.01
C4L 3	2(a)	Excavation of trail pit (1mt x 1 mt x 3.5mt)	No.	2141.62
	2(b)	Excavation of Trial Pit by Auguring & Boring of holes of 300mm Dia x 3.5 RM	No.	2386.06
C4L 4	3	Check Survey, peg marking the tower positions on ground, conforming to the approved Profile and tower schedules using GPS, Total stations, Digital theodolites etc.	kM	4907.58
C4L 5	4	Setting with stub for all types of towers with stub setting template which includes erection of stubs, fixing of jacks for supporting template, alignment and leveling excluding cost of excavation and concrete (excluding transportation charges)	Set	17486.03
C4L 6	5(a)	Super structure erection of all type of towers including extensions except RC towers including fitting of step bolts, danger plates, number plates, phase plates, circuit plates, bird guards, anti-climbing devices etc., and tack welding of all bolts & nuts (upto bottom cross arm level) (excluding transportation charges).	MT	9384.41
C4L 7	5(b)	Erection of all types of Anchor Towers and their extensions (complete), including fitting of step bolts, danger plates, number and phase plates, circuit plates, bird guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level)	MT	14076.62

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4L 8	5(c)	Super structures erection of 400kV Multi circuit towers including Auxiliary cross arms (complete), including fitting of step bolts, danger plates numbers and phase plates, circuit plates, birds guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level) etc.	MT	16704.36
C4L 9	5(d)	Super structure erection of River crossing towers and their extensions (complete), including all the associated works such as, earthing of all the four legs as per the approved drawing(including the cost of material),fitting of step bolts, danger plates, number and phase plates, circuit plates, bird guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level)	MT	23445.06
C4L 10	6	Mounting of Insulators and stringing of double circuit with twin bundled ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges).		
	6(a)	Single circuit Stringing	KM	249013.38
	6(b)	Double Circuit Stringing	KM	373520.05
	6(c)	Multi Circuit Stringing (4 circuits)	KM	560280.08
C4L 11	7	Mounting of Insulators and stringing of double circuit with Quadruple ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges).		
	7(a)	Single circuit Stringing	KM	373520.05
	7(b)	Double Circuit Stringing	KM	560281.60
	7(c)	Multi Circuit Stringing (4 circuits)	KM	840422.40
C4L 12	8	Mounting of Insulators and stringing of double circuit with twin bundled ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges) for River crossing tower.		
C4L 13	8(a)	Double Circuit Stringing	KM	933072.77
	8(b)	Multi Circuit Stringing(4 circuits)	KM	1399609.16

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4L 14	9(a)	Stringing of two (2) nos. 7/3.66 mm galvanized steel earth wire, including laying jointing, tensioning etc., with necessary accessories upto the pinnacle (excluding transportation charges).	KM	17549.94
C4L 15	9(b)	Stringing of one (1) no. 7/3.66 mm galvanized steel earth wire, including laying jointing, tensioning etc., with necessary accessories (excluding transportation charges).	KM	11700.46
C4L 16	9(c)	Stringing of two (2) nos. 7/3.66 mm galvanized steel earth wire, including laying jointing, tensioning etc., with necessary accessories upto the pinnacle (excluding transportation charges) for River crossing towers.	KM	43842.13
C4L 17	9(d)	Stringing of two (2) nos. OPG Wire, including laying jointing, tensioning etc., with necessary accessories.(excluding transportation charges).	KM	86402.95
C4L 18	9(e)	Stringing of one (1) no. OPG Wire, including laying jointing, tensioning etc., with necessary accessories.(excluding transportation charges).	KM	57601.46
	10	Earthing of transmission towers:		
C4L 19	10(a)	Providing of Pipe type earthing including of cost of BH coke & salt but excluding cost of earthing set	Each	4808.62
C4L 20	10(b)	Counter poise earthing sets excluding cost of all materials (4sides of tower)	Each location	4031.00
C4L 21	10(c)	Counter poise earthing sets using Bentonite and salt (4 sides of tower)	Each location	6047.29

ANNEXURE - II				
ERECTION OF 220kV & 132 kV TRANSMISSION LINES				
Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
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	4907.58
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.(With Theodolite / With GPS equipment (As per Clause 4.9 of survey) /With total station equipment).	RKM	4148.17
	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.		
		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.		
CL3	3i)	Tower schedules as per tower spotting requirements plotted on reproducible tracing of profile original with one extra copy shall be given . Towers Schedules should be submitted with GPS Co-ordinates. Identification of wind zones, collection of Hydraulic data of rivers / drains from competent authority.	RKM	15304.16

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
CL4	3ii)	Taking earth resistivity at an interval of 1 Km by electrical resistivity method (4 point method) or by ERM method.	Loc	1113.78
CL5	3iii)	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	10894.16
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, up to required corridor for 132kV Line - 27 Metres & 220kV Line -35 Meters) indicating name of tree, girth & height. Separate tree schedule should be submitted along with the profile for arriving tree compensation amount.	Each	21.90
CL7	3 (v)	Preparation of ground profiles for Railway crossing, River crossing and EHV power line crossing separately wherever required.	Each crossing	3316.84
		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 3.5 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	2141.62
	5	Setting of stubs with stub-setting template : Erection of stubs, stub template, fixing of jacks for supporting template, alignment and levelling for exact location of stubs of stub setting 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).		

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
CL09	(a)	132 KV P, R & S-Type Towers	Loc.	8759.41
CL10	(b)	220 KV A, B, C & D-Type Towers	Loc.	12764.65
CL11	(c)	132 KV Multi circuit Towers	Loc.	10949.58
CL12	(d)	220 KV Multi circuit Towers	Loc.	15953.86
CL13	(e)	132kV Narrow based Multi Circuit Towers.	Single pit	10067.85
CL14	(f)	220kV Narrow based Multi Circuit Towers.	Single pit	14689.27
CL15	(g)	Pole/structure for termination of 220/132kV cables	Loc.	9853.86
CL16	(h)	220 /132 kV Narrow based tower	Loc.	14359.24
CL17	6(a)	Erection of tower structures ,narrow based towers 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	5798.35
CL18	6(b)	Erection of all types of multi circuit tower structures / narrow based multi circuit towers 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	8123.89
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	10442.98
CL20	6(d)	Erection of pole/structure for 220/132 kV cable termination	MT	6961.13
	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. Which excludes the works involved in the crossing of LT, 11kV & 33kV power lines viz. dismantling and restringing of conductor		
CL21	(i)	3 Nos. Zebra conductors	RKM	49452.34
CL22	(ii)	6 Nos. Zebra conductors	RKM	74175.93
CL23	(iii)	2 Nos. Panther conductors	RKM	26368.49
CL24	(iv)	3 Nos. Panther conductors	RKM	39557.24
CL25	(v)	6 Nos. Panther conductors	RKM	62637.22
CL26	(vi)	12 nos Panther Conductors for Multi Circuit	RKM	125274.44
CL27	(vii)	2 Nos. Moose conductors	RKM	41757.73

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
CL28	(viii)	3 Nos. Moose conductors	RKM	62637.22
CL29	(ix)	6 Nos. Moose conductors	RKM	98895.66
CL30	(x)	Twin Bundled Moose Conductors for Double Circuit	RKM	197791.32
CL31	(xi)	12 Nos Moose Conductors for Multi Circuit	RKM	197791.32
CL32	(xii)	3 Nos. Bear conductors	RKM	49452.34
CL33	(xiii)	6 Nos. Bear conductors	RKM	74175.93
CL34	(xiv)	3 Nos. Dog conductors	RKM	29667.28
CL35	(xv)	6 Nos. Dog conductors	RKM	46975.99
		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. Which excludes the works involved in the crossing of LT, 11kV & 33kV power lines viz dismantling and restringing of conductor.		
CL36	(i)	3 Nos Moose Conductors	RKM	232037.47
CL37	(ii)	6 Nos Moose Conductors	RKM	348056.21
CL38	(iii)	3 Nos Zebra Conductors	RKM	219146.50
CL39	(iv)	6 Nos Zebra Conductors	RKM	328719.76
CL40	(v)	3 Nos Panther Conductors	RKM	206255.53
CL41	(vi)	6 Nos Panther Conductors	RKM	309383.30
CL42	8	Stringing of Earthwire: Fixing hardware, paving out earth wire, jointing, tensioning, stringing and clamping of 7/3.15 mm high tensile galvanized steel wire.	RKM	7915.06
CL43	9	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, <i>BH Coke</i> , Salt etc., and measuring tower footing resistance.	Nos.	4808.62
CL44	10	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.	4808.62

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
CL45	11	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 Mtrslength, BH Coke , Salt etc., and measuring tower footing resistance. (Without GI Flat) for counter poise earthing.	Nos.	4096.76
CL46	12	Counterpoise earthing including clamping devices and terminal lugs, but excluding cost of steel wire.	Rmts	45.12
CL47	13	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	20.63
CL48	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- For JC type towers	Each	30.94
CL49	15	Laying of 33 kV 400 sq.mm XLPE cable	Rmts	336.46
CL50	16	Termination of 400 sq.mm XLPE cable	Each	6118.06
CL51	17	Dismantling & re stringing of 33 kV conductor (all types of conductors) for crossing of 33 kV line during stringing of EHT lines.	Per conductor	3196.96
CL52	18	Dismantling & re stringing of 11 kV conductor (all types of conductors) for crossing of 11 kV lineduring stringing of EHT lines	Per conductor	1749.30
CL53	19	Dismantling & re stringing of LT conductor/cables for crossing of LT line (all types) during stringing of EHT lines	Per conductor	1100.88

ANNEXURE – III**ERECTION OF 400kV SUBSTATIONS**

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4S1	1	Total cost of receipt from site/stores, storage, handling, erection, testing & commissioning of 400/220kV, 315MVA Transformers 50/63/80/125 MVAR Shunt reactor with all accessories and fittings including storage cum erection insurance as per specification. The charges include AC power for oil filter machines and all other supplier supervision charges including oil testing charges in a third party lab for complete erection, testing and commissioning.	Nos	2446917.00
C4S2	2(a)	Hoisting of insulators & hardware, paving conductor and stringing of 400kV main bus for three phases with quadruple moose conductor to a tension of 1000kgs for single moose conductor, bus section length is 54mtrs.	Bus Section	41778.66
C4S 3	2(b)	Hoisting of insulators & hardware, paving conductor and stringing of 400kV Jack bus for three phases with twin moose conductor to a tension of 1000kgs for single moose conductor, bus section length is 60mtrs.	Bus Section	21189.88
C4S 4	3	Erection of 7/3.66 GSS Earth wire from top of peak tower and LMs to ground and connecting to untreated earth pits including cutting, clamping and fixing of all hardware like Pad type compression clamp, cleat type clamp and T clamp etc.	RM	62.40
C4S 5	4(a)	Connecting equipment to equipment through 4"/4.5" IPS Al tube including cutting, bending, welding, testing, clamping etc., for each meter including both side connections.	Meter	269.33
	4(b)	Connection of equipment to bus and other equipments with Quad Moose conductor where ever necessary	Each	988.50

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	5	Laying of earth mat including excavation & backfilling, welding, connecting to all equipment, structures, Junction boxes, and connecting lightning shield to earth mat and earthing of fence posts, drilling and connecting earth rods including connecting to cast iron pipes as per approved drawings with the following sizes:		
C4S 6	5.1	M.S. Rod 40 mm dia.	RM	161.30
	6	Fabrication and connecting to risers from earth mat to structures, equipment, marshalling boxes, electrical panels, PLCC panels, fencing posts etc.,.		
C4S 7	6.1	M.S./ G.S. Flat 75 x 12 mm	RM	141.53
C4S 8	6.2	M.S./ G.S. Flat 50 x 8 mm (Above ground)	RM	59.33
C4S 9	6.3	Un-Treated Earth pits including installation of 40 mm dia rod electrode, disconnecting links, and all required materials and RCC collar/ chambers with bricks, cement mortar 1:4 and completion of related civil works as specified for LMs, LAs, Carrier couplings and CVTs. (Cost of RCC Collar included)	Each	2259.73
	7.0	Laying including termination and providing suitable ferrules & lugs etc of armoured control cables of size 2 core, 2.5 sq.mm to 27 core, 2.5 sq.mm including cost of cable glands, lugs, ferrules.		
C4S 10	7.1	2 to 12 core	RM	54.78
C4S 11	7.2	14 to 19 core	RM	62.40
C4S 12	7.3	27 core	RM	73.05
	7.4	Laying including termination and providing suitable ferrules & lugs, jointing kits etc of armoured power cables of the following size including cost of cable glands, lugs, ferrules etc complete.		
C4S 13	7.4(a)	Upto 50 sq.mm	RM	94.36
C4S 14	7.4(b)	Above 50 sq.mm to 300 sq.mm	RM	120.22
C4S 15	7.4(c)	Above 300 sq.mm to 700 sq.mm	RM	152.16

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	8	Buried cable trench – Excavation for cable trench providing 100mm thick sand layer before and after laying the cable & providing 4” thick brick cover over sand, refilling, consolidation and leveling of surplus earth including the cost and conveyance of all materials, route markers, labour charges etc.,complete for finished item of work.		
C4S 16	8.1	Size: 300 X 300 mm	RM	261.74
C4S 17	8.2	Size: 300 X 600 mm	RM	261.74
C4S 18	8.3	Size: 1500 X 800 mm	RM	698.47
C4S 19	9	Erection of Galvanised cable trays with 2 mm thick perforated CRCA sheet. Size: 200 and 600mm	RM	62.40
C4S 20		Erection of 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). Note:- In 400 kV substations only, 25% extra charges for Testing and Commissioning of switchgear equipment where ever applicable).		
C4S 21	10	420 KV SF6 Circuit breaker with support structure & marshalling boxes	Set	25382.20
C4S 22	11	420 KV Single phase current transformers with secondary terminal box	Each	7234.23
C4S 23	12	390 KV Lightning Arrestors	Each	6978.59
C4S 24	13	420kV Single phase Capacitive Voltage transformers with secondary terminal box (with/without carrier coupling device)	Each	7234.23
C4S 25	14.1	400 KV Isolators, 3 pole Horizontal centre break/Pantograph with Single earth switch including solid core insulators, interpole cable laying and connections for electrical ganging, fixing of MOMs etc.,	Set	14696.73
C4S 26	14.2	400 KV Isolators, 3 pole Horizontal centre break With Double earth switches including solid core insulators, interpole cable laying and connections for electrical ganging, fixing of MOMs etc.,	Set	17636.69

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4S 27	14.3	220 KV Isolators, 3 pole Horizontal Double break/staggered with Double earth switches including solid core insulators, MOMs/BOMs etc.,	Set	9833.31
C4S 28	15	400 KV Bus post insulators	Set	6978.59
C4S 29	16(a)	Erection of Marshalling kiosk	Each	984.87
C4S 30	(b)	Erection of Marshalling boxes	Each	478.26
C4S 31	17.1	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 substation site.	MT	10788.45
C4S 32	17.2	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	6316.58

ANNEXURE - IV				
ERECTION OF 220kV, 132 kV & 33kV SUBSTATIONS				
Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
CS1	1	Hoisting of Insulators and hardware, stretching the conductor and stringing of 220 kV bus comprising of three phases with Quadruple Moose conductor to a tension of 900kgs for single moose conductor.(The maximum length or up to a length of bus section of 40m)	Bus Section	26364.62
CS2	2	Hoisting of Insulators and hardware, stretching the conductor and stringing of 220 kV bus comprising of three phases with single Zebra/Moose conductor to a tension of 900kgs.(The maximum length or up to a length of bus section of 40m)	Bus Section	6592.44
CS3	3	Hoisting of Insulators and hardware, stretching the conductor and stringing of 220 kV bus comprising of three phases with Twin Zebra/Moose conductor to a tension of 1800kgs, including fixing of spacer clamps(The maximum length or up to a length of bus section of 40m).	Bus Section	13187.46
CS4	4	Hoisting of Insulators and hardware, stretching the conductor and stringing of 132 kV bus comprising of three phases with Single Zebra/Moose conductor to a tension of 900kgs.(The maximum length or up to a length of bus section of 45m).	Bus Section	6592.44
CS5	5	Hoisting of Insulators and hardware, stretching the conductor and stringing of 132 kV bus comprising of three phases with Twin Zebra/Moose conductor to a tension of 1800kgs including fixing of spacer clamps.(The maximum length or up to a length of bus section of 45m).	Bus Section	13187.46
CS6	6	Hoisting of Insulators and hardware, stretching the conductor and stringing of 33 kV bus comprising of three phases with Single Zebra/Moose conductor to a tension of 450kgs.(The maximum length or up to a length of bus section of 20m).	Bus Section	4946.27
CS7	7	Hoisting of Insulators and hardware, stretching the conductor and stringing of 33 kV bus comprising of three phases with Twin Zebra/Moose conductor to a tension of 900kgs including fixing of spacer clamps.(The maximum length or up to a length of bus section of 20m).	Bus Section	8245.06

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
CS8	8	Hoisting of Insulators and hardware, stretching the conductor and stringing of 132 kV bus comprising of two phases with Single Zebra/Moose conductor to a tension of 900kgs.(The maximum length or up to a length of bus section of 45m).	Bus Section	4393.24
CS9	9	Fixing of spacers for Twin Moose conductor	Each	130.20
CS10	10	Fixing of spacers for Quadruple Moose Conductor	Each	180.47
CS11	11	Fixing of Hardware,stretching the ground wire and stringingof earth wire to a tension of 450kgs from pinnacle to pinnacle.	Each	984.87
CS12	12	Fixing of Hardware,stretching the ground wire and stringingof earth wire to a tension of 450kgs from pinnacle to ground.	RM	67.03
CS13	13	Connection of equipment to bus and or another equipmentwith single zebra/Moose/Panther conductor including measuring, cutting,clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	345.48
CS14	14	Connection of equipment to bus and or another equipmentwith Twin zebra/Moose/Panther conductor including measuring, cutting,clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	534.98
CS15	15	Connection of equipment to bus and or another equipmentwith Quad zebra/Moose/Panther conductor including measuring, cutting,clamping and hoisting of suspension insulator assembly to support the conductor wherever necessary.	Each	1071.23
	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.(for 220kV & 132kV) including fabrication.		
CS16	16 a	100x16mm MS Flat / GI Flat.	RM	101.85
CS17	16 b	50x 8mm MS Flat / GI Flat.	RM	79.92
CS18	16 c	75x 8mm MS Flat / GI Flat.	RM	91.53
CS19	16 d	For laying of earth flat in hard rock in substation / bayextension, 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	69.61

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
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 inside 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	14698.29
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 aluminum in cable trenches including cost of suitable metallic cable glands with rubber lining. Note: This includes running of cables in control room where cables are run on cable racks in cable duct.	RM	11.60
	19	Laying of power cables.		
CS22	19 a	upto 50 sqmm	RM	15.47
CS23	19 b	above 50 sqmm	RM	20.63
	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) (for 220kV & 132kV).		
CS24	20 i	2.5 sqmm Copper with copper lugs each core at both ends.	Nos.	34.81
CS25	20 ii	4.0 sqmmAluminum with Aluminum lugs each core at both ends.	Nos.	37.40
CS26	20 iii	Up to 50 sqmm Power Cable with lugs each core at both ends.	Nos.	81.22
CS27	20 iv	Above 50 sqmm Power Cable with lugs each core at both ends.	Nos.	148.26
CS28	21	Installation of lighting fixtures on switch yard structuresincluding 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	1320.03

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
	22	Erection of the following equipment with Crane / Derrick atsite including handling the material / equipment carefully at site including labour charges forall 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 & marshallingboxes including grouting of foundation bolts and wiring of cables from Pole to Pole including terminations.	Each	23077.42
CS30	22.2	132 kV Circuit breakers with support structure & marshallingboxes including Pole to Pole cable wiring and terminations.	Each	16487.54
CS31	22.3	33 kV Circuit breakers including Pole to Pole cable wiringand terminations.	Each	6644.01
CS32	22.4	2-pole 220 kV Circuit Breaker with support structure &marshalling boxes incl. grouting of foundation bolts & wiring of cables & terminations.	Each	19614.89
CS33	22.5	2-pole 132 kV Circuit Breaker with support structure &marshalling boxes incl. grouting of foundation bolts & wiring of cables & terminations.	Each	14013.77
CS34	22.6	220 kV Current Transformers.	Each	5607.57
CS35	22.7	132 kV Current Transformers.	Each	3626.23
CS36	22.8	33 kV Current Transformers.	Each	1120.24
CS37	22.9	220 kV Potential Transformers.	Each	5607.57
CS38	22.10	132 kV Potential transformers.	Each	3626.23
CS39	22.11	33 kV Potential transformers.	Each	1120.24
CS40	22.12	220 kV Lightning Arrestors.	Each	3626.23
CS41	22.13	132 kV Lightning Arrestors.	Each	1711.92
CS42	22.14	33 kV Lightning Arrestors.	Each	669.04
CS43	22.15	220 kV Capacitive Voltage Transformers.	Each	5276.28
CS44	22.16	132 kV Capacitive Voltage Transformers.	Each	3626.23
CS45	22.17	220 kV Isolators with earth switch including solid coreinsulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	8902.49
CS46	22.18	132 kV Isolators with earth swtich including solid core insulators erection, alignment in full shape for smooth operation by manually.	Each	6592.44

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
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	8245.06
CS48	22.20	132 kV Isolators without earth switch including solid coreinsulators erection, alignment in full shape for smooth operation by manually.	Each	5931.13
CS49	22.21	2-pole, 220 kV Isolators without earth switch including solidcore insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	7007.53
CS50	22.22	2-pole, 132 kV Isolators without earth switch including solidcore insulators erection, alignment in full shape for smooth operation by Electrical and manually.	Each	5041.67
CS51	22.23	33 kV Isolators including solid core insulators erection,alignment in full shape for smooth operation.	Each	2142.47
CS52	22.24	220 kV Bus Post Type Insulators.	Each	466.65
CS53	22.25	132 kV Bus Post Type Insulators.	Each	351.92
CS54	22.26	33 kV Solid Core Insulators	Each	235.91
CS55	23	33 kV /400 V Station Transformer including all necessaryconnections on HV & LV side including cost of lugs (But excluding cost of transformer and HG fuse set)	Each	7447.12
CS56	24	Erection of Control / Relay panels, LTAC panels, annunciation, PTDB panels etc.,in the control room duly mounting them on channels and grouting them with foundation bolts excluding cost of channels & foundation bolts (for 220kV & 132kV), including man power support to MRT wing for commissioning.	Each	2928.83
CS57	25	Erection of 220 V, 200 Ah/ 80 Ah Lead Acid battery incomplete shape fit for charging.	Set	11478.12
CS58	26	Erection of 220 V, 200 Ah/ 80 Ah maintenance free battery incomplete shape fit for charging.	Set	3710.02
CS59	27	Erection of 220 V, 200 Ah / 80Ah battery charger.	Set	3814.44
CS60	28	Erection of Capacitor Bank including series reactor of 7.5MVAR Capacity	Each	5911.80
CS61	29	Erection of Marshalling kiosk	Each	984.87
CS62	30	Erection of Marshalling boxes	Each	478.26

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
CS63	31	Erection of Lighting pillar box in switchyard on foundation laid (Excluding pillar box). (for 220kV & 132kV)	Each	1318.74
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	10788.45
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 IEMA rates.). The average quantity of Zinc required for all angles of tower parts is 60 Kgs.	MT	6316.58
	34	Setting of stubs with stub setting template for substation structure:-Erection of stub template, fixing of jacks for supporting the template, alignment and leveling of exact location of stubs of stub setting template, dismantling of template after completion of initial curing of CC		
CS66	34.1	220kV Towers	Set	4256.61
CS67	34.2	132kV Towers	Set	3056.44
CS68	34.3	33kV Towers & CPL's	Set	763.15
CS69	34.4	220kV Isolator	Set	3193.09
CS70	34.5	132kV Isolator	Set	2292.01
CS71	34.6	220 kV Breaker	Set	2761.26
CS72	34.7	132 kV Breaker	Set	2070.28
CS73	34.8	33 kV Breaker	Set	1380.61
CS74	35	Erection of the main and auxiliary structures etc., using bolts and nuts.	MT	3297.50
CS75	36	Fixing of 90lb rail poles over the transformer plinths.	RM	656.15
CS76	37	Fixing of 105lb rail poles over the transformer plinths.	RM	767.01
CS77	38	Erection of 33kV HG Fuse set	Each	796.66
CS78	39	Erection of 33kV PT Distribution Box	Each	479.54
CS79	40	Laying and Terminations of 11kV, XLPE 1000 Sqmm Cable	RM	167.59
CS80	41	Erection of 11kV VCB outdoor type Kiosk (within built Breaker, CTs, PTs, Surge Arrestors & Relays).	Each	3405.80

Sl. No.	Item No.	Description of Item	Unit	Rate for 2019-20 (Rs.)
		Marking as per approved layout with the help of surveyor		
CS81	42	220 kV sub-station	Each	41410.95
CS82	43	132 kV sub-station	Each	27607.30
CS83	44	Bay / Bays in one sub-station	Each	13803.65
	45	Auto-CADD drawing with 12 copies indicate complete land with dimensions, plan of SS with equipment, location of control room, equipment, roads, duct routes, earth mat of 100X16mm & 50X8mm flat earth pits, yard lighting fixtures etc.,		
CS84	i	132kV SS layout drawing	Job	7012.69
CS85	ii	220kV SS layout drawing	Job	8604.73
CS86	46	Writing of letters in control room panels of lettering on panelsmarshalling boxes.	Line	99.26
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	5517.32
	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.		

ANNEXURE – V

ERECTION OF ILLUMINATION, LIGHTING, FIRE FIGHTING, AIRCONDITIONING, D.G Set & 33kV STATION SUPPLY SYSTEMS IN 400kV SUBSTATIONS.				
Sl. No.	Item. No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4F1		Erection of indoor and outdoor illumination for 400/220 KV Substation, Control House, Auxiliary Buildings, 33 KV Switch yard, street lighting, erection and commissioning of following items as per the approved design and drawings, including indoor/ outdoor Junction Boxes, Conduits, Lighting wires, lugs, ferules etc for complete finished item of work.		
	1	Fixing Buzzer anchor make or equivalent approved make with ISI mark with necessary bell and switches etc.	Each	296.74
C4F 2	2	Providing and fixing concealed in roof and walls with PVC Conduit piping of ISI standards with necessary GI wire of of suitable guage to draw wires at later date including cost of junction Box etc. cost of conveyance of all materials etc complete for finished item of work for Guest House, store building, pump house building & security room as approved and directed by the Engineer- in-charge at site.		
	(i)	32 mm dia - 2mm thick	RM	118.70
	(ii)	25 mm dia - 2 mm thick	RM	103.49
	(iii)	12 mm dia - 1.5mm thick	RM	70.00
C4F 3	3	Modular for Main distribution board with 1 No. 63A, TPMCB for I/C and 2 Nos. 32A SPMCB & 6 Nos. SPMCB with neutral link for O/G complete make Havells or MDS or equivalent.	Each	2165.42
	3(i)	Fixtures for 36W lamps BJLM-236 type, Fixtures for 36W lamps BJSM-236 type , Fixtures for 36W lmaps BJIV-236 type, Fixtures for energy saving tube light 2x36W or equivalent LED lamps.	Each	591.93

Sl. No.	Item No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	3(ii)	Fixtures for 9W CFL Lamp, Fixtures for GLS DBD-10type, Fixtures for 2x18 W CFL Lamp, Fixtures for 1x36W CFL Lamp or equivalent LED lamps.	Each	296.74
C4F 4	4	Erection, testing and commissioning of outdoor and street Lighting Fixtures including fixing of conduit, Junction boxes, wiring and terminations complete etc.(excluding cost of concrete)		
	1	Lighting Masts / Poles as per drawing enclosed including concreting in full shape.		
	(i)	Type A1	Each	6086.86
	(ii)	Type E1	Each	3251.90
	(iii)	All types of Lighting Panels	Each	2089.32
	(iv)	Junction Box with MCB and Terminal Blocks (Bolt Type)	Each	413.91
	(v)	415V 63A Power Recepticle outdoor	Each	827.83
	(vi)	5/15 A, 240 V sockets with swtich board	Each	54.78
	(vii)	Decorative type switch Boards	Each	118.70
	(viii)	Telephone Junction Boxes	Each	103.49
	(ix)	Telephone Jacks for Telephones	Each	38.05
	(x)	Celling Fans with Electronic regulators	Each	210.00
	(xi)	Flood lighting fixtures for 400W sodium Vapour lamp or Equivalent LED Lamp	Each	388.04
	(xii)	Street lighting fixtures for 150 W sodium Vapour lamp or Equivalent LED Lamp	Each	388.04
	(xiii)	Street lighting fixtures for 250 W sodium Vapour lamp or Equivalent LED Lamp	Each	467.17
	(xiv)	Industrial high bay lightining fixtures for 250 W HVSP lamp or Equivalent LED Lamp	Each	467.17
	(xv)	Lighting fixtures for 125 HP MV lamp post lanterns or Equivalent LED Lamp	Each	290.65

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4F 5		Erection, testing and commissioning of Fire Fighting, Detection and Alarm System :		
	1	Erection of Horizontal centrifugal Electric Driven Hydrant/HVW Spray pump of capacity 410 Cum/hr, total dynamic head of 88MWC with all accessories & fittings and Electric Induction Motor Squirrel cage type for the above with all accessories & fittings.	Each	75015.96
	2	Erection of Horizontal centrifugal Diesel Engine Driven Hydrant/HVW spray pump of capacity 410 Cum/hr and total dynamic head of 88MWC with all accessories and fittings. Diesel Engine, multi cylinder type, four stroke cycle with mechanical airless injection cold starting type for the above with all accessories and fittings and a set of Batteries and battery chargers and fuel tank having capacity to hold fuel oil for six hours of full load run.	Each	79689.14
	3	Erection of Horizontal centrifugal Electric Driven jockey pump of capacity 10.8 Cum/hr and Total dynamic head of 88MWC with all accessories and fittings along with Electric Motor for the above with all accessories and fittings.	Each	7114.01
	4	Air vessels with vent valves etc. as per system requirement.	Each	6172.07
	5	Sump pumps 10 Cum/ Hr. MWC with motor starter and all accessories	Each	5458.40
	6	Basket strainer 300 NB	Each	2370.82
C4F6	7(a)	Control panel equipped with all accessories for motor drives of Fire water pumps and 2 Nos. jockey pumps for two sources of supply.	Each	4743.19
	7(b)	Panel for 2 nos. Battery chargers & Diesel Engine driven fire water pumps.	Each	4743.19
	7(c)	Annunciation panel at fire water pump house.	Each	1807.79

Sl. No.	Item No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	7(d)	Annunciation panel in Control Room.	Each	1807.79
C4F 7	8	Hydrant and HVWS system Accessories.		
	(a)	Single headed Hydrants	Each	827.83
	(b)	Landing valves	Each	827.83
	(c)	Hose cabinets.	Each	903.89
	(d)	Hoses of 15.0m length with coupling	Each	82.17
	(e)	Hoses of 7.5m length with coupling	Each	82.17
	(f)	Branch pipe with Nozzles.	Each	82.17
C4F8	9	Mild steel black pipes and Galvanized Mild steel pipes with wrapping & coating for below ground and painting for above ground including cost of wrapping & coating material and paint required & excavation, back filling & all civil works etc., & testing complete.		
	a(i)	300 NB (below ground)	RM	2370.82
	a(ii)	300 NB (above ground)	RM	1581.05
	b(i)	250 NB (below ground)	RM	1938.67
	b(ii)	250 NB (above ground)	RM	1223.46
	c(i)	200 NB (below ground)	RM	1504.97
	c(ii)	200 NB (above ground)	RM	1148.90
	d(i)	150 NB (below ground)	RM	1186.94
	d(ii)	150 NB (above ground)	RM	969.34
	e(i)	100 NB (below ground)	RM	753.24
	e(ii)	100 NB (above ground)	RM	611.73
	f(i)	80 NB (below ground)	RM	573.67
	f(ii)	80 NB (above ground)	RM	395.64
		g)	50 NB	RM
	h)	25 NB	RM	229.78
	i)	15 NB	RM	162.83
C4F 9	10(a)	Set of GI Piping beyond deluge valves for transformer including detection piping and pipe supports including all accessories.	per Set	270149.97
	10(b)	Erection of Hume pipe as per specification	RM	753.24

Sl. No.	Item.No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4F10	11	VALVES		
	(a)	300 NB Gate	Each	2370.82
	(b)	250 NB Gate	Each	2013.24
	(c)	250 NB Check	Each	2013.24
	(d)	200 NB Gate	Each	1581.05
	(e)	150 NB Gate	Each	1504.97
	(f)	100 NB Gate	Each	1071.29
	(g)	80 NB Gate	Each	715.21
	(h)	80 NB Check	Each	715.21
	(i)	25 NB Gate	Each	261.74
	(j)	50 NB Gate	Each	573.67
	(k)	50 NB Check	Each	573.67
	(l)	15 NB	Each	158.27
(m)	Float operated valve 100 NB	Each	1504.97	
C4F11	12	INSTRUMENTS		
	(a)	Float operated level gauge	Each	1299.55
	(b)	Level Switch	Each	1299.55
	(c)	Pressure Gauge	Each	753.24
	(d)	Pressure Switch	Each	1581.05
	(e)	Differential Pressure Gauge	Each	1148.90
C4F12	13(a)	Deluge valve with motor gounge, pr. switch, pr.guage, solenoid valve to drain - size 150 NB	set	7114.01
	13(b)	Local control panel for Deluge valve	Each	2013.24
	13(c)	Strainer Y type, 150 NB	Each	1581.05
	13(d)	Quartzoid bulb detectors	Each	127.83
	13(e)	HVW spray nozzles	Each	127.83
C4F13	14	Detection & Alarm System		
	(a)	Ionization smoke detector	Each	573.67
	(b)	Photoelectric smoke detector	Each	573.67
	(c)	Heat detector	Each	573.67
	(d)	Response indicator	Each	573.67
	(e)	Manual call point	Each	573.67
	(f)	Fire detection & Alarm panel	Each	573.67
C4F14	15	Portable Fire Extinguishers		
	(a)	Dry chemical powdertype Fire extinguishers with all accessories.		
	(i)	10 kgs. Capacity	Each	57.83

Sl. No.	Item.No.	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	(ii)	25 kgs. Capacity (trolley mounted)	Each	114.13
	(iii)	50 kgs. Capacity (trolley mounted)	Each	153.69
	(iv)	150 kgs. Capacity (trolley mounted)	Each	328.71
	(b)	CO2 type portable Fire extinguishers		
	(i)	45 kgs. Capacity (trolley mounted)	Each	118.70
	(ii)	22.5 kgs. Capacity (trolley mounted)	Each	118.70
	(iii)	9 kgs. Capacity (trolley mounted)	Each	56.30
	(iv)	2 kgs. Capacity (Portable)	Each	44.13
	(c)	9 Litres capacity Mechanical foam type fire extinguishers	Each	59.33
	(d)	Sand / water Buckets 9 litres capacity	Each	77.61
C4F15	16	Air Conditioning System		
	1	Erection, testing and commissioning of Split AC 2 Ton with all suitable accessories	Each	5631.86
	2	Erection of Air Conditioning AC distribution panel	Each	4743.19
	3	Providing Under Deck Insulation for the Roof exposed to sunlight with 50 mm thick TF quality expanded poly styrene including GI washers and wire for fixing.	Sq. ft.	51.73
	4	Erection of Ventilation fans		
	i)	600 mm Sweep	Each	1261.50
	ii)	450 mm Sweep	Each	1261.50
	iii)	300 mm Sweep	Each	1261.50
C4F16	17	Erection, testing and commissioning of 250 KVA DG Set complete including AMF Panel, auxiliaries etc.	Set	84019.94
C4F17	18	Erection, testing and commissioning of 33kV Station Supply System		
	1	33kV/440 V Substation :		
	(a)	33kV/433 V, 630KVA Station supply transformer	Each	7196.19
	(b)	33 kV Isolator with terminal connectors and support insulators	Set	2142.47
	(c)	33 kV HG Fuse set	Each	796.66
	(d)	33 kV Lightning Arrestor	Each	669.04

Sl. No.	Item.No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	(e)	150 x 75 mm M.S Channels &Struc.	MT	3035.83
	(f)	HT Trivector Meter Box	Each	903.89
	(g)	Hoisting of Insulators & Hardware, stringing / formation of the 33 kV Bus comprising of 3 phases with DOG Conductor and all equipment to equipment, equipment to bus interconnections, jumpering, fixing of clamps & connectors etc. required for the entire 33kV/440 V station supply switchyard of 400/220 KV Substation complete as directed by site engineer.	LS	16566.91
	2	33 kV Line :		
	(a)	Erection of pole in position, aligning and setting to work, fixing of cross arms and top clamps, earthing of supports, fixing of danger boards, back filling with earth and stones properly ramming including transport of materials from road side to location excluding concreting and including excavation.	Set	1918.89
	(b)	Assembly and erection of D.P.Structure as per specification which includes fixing of top channels and cross bracings, transport of all materials from road side to the location, earthing, back filling with earth ramming etc excluding concreting and including excavation.	Set	3073.86
	(c)	Mass concreting of supports erected with CC (1:4:6) using 40 mm, HBG metal including the cost of metal, sand, cement and curing etc.	Cum	5787.09
	(d)	Assembly and erection of stay set including fixing of guy insulators, clamps etc., on the pole and fixing stay wire and binding securely on either side as per standards, transport of material from road side to location and back filling with earth ramming etc excluding concreting and including excavation.	Set	384.99

Sl. No.	Item.No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	(e)	Paving out conductor, providing temporary stays, tensioning, sagging correctly, fixing strain points, transferring to pin points binding, fixing of Insulators, guys and jumpering etc., including transport of material from road side to location. (3phases)	km	14080.44
C4F18	19	Erection of Control and Relay Panels		
		Receipt from site stores, Transport to control room, handling, Erection, Testing and commissioning of all Control, Relay, Protection and other Panels/ Equipment, with complete accessories, equipment etc., as specified.		
	(i)	400 KV Feeders/ Tie/ 315 MVA Transformer Control/ Relay/ Protection Panels.	Each	39620.89
	(ii)	220 KV Feeders/ Bus coupler/ Transfer Bus / 315 MVA Transformer / 50/63/80MVAR/125 MVAR Shunt Reactors Control/ Relay/ Protection Panels.	Each	37735.49
	(iii)	Common equipment panels for 400/220kV	Each	32563.16
	(iv)	400kV Bus bar Protection	Set	51143.31
	(v)	220KV Bus bar Protection	Set	66028.72
C4F19	19(i)	Common equipment Panels for 400/220kV.	Each	32563.16
	19(ii)	All other equipment of SMS and Time synchronizing equipment.	Each	151541.46
	19(iii)	400KV AC Bay Kiosk	Each	38363.96
	19(iv)	220KV AC Bay Kiosk	Each	28774.11
C4F20	20	Complete Substation Automation system for 400/220KV Substation including hard ware and software for remote control station along with associated equipments and kiosks in full shape as per specification.		
	(a)	Installation, Testing and commissioning of Networking Panel, OWS1, OWS2, EWS Remote work station. BCUs, LIUs, Ethernet Switches, Splicing of OFC etc.,	Set	247579.93

Sl. No.	Item.No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	(b)	Installation, Testing and commissioning of all necessary software's compatible to IEC: 61850 for making the SAS operation in full shape including remote SCADA complete as directed by site engineer.	Set	82527.15
	(c)	Extension works of Installation, Testing and commissioning of BCU, LIU, Ethernet Switch, Splicing of OFC to the existing SAS System.		
	(I)	FIRST BAY	per bay (if it is First Bay)	33010.55
	(ii)	SECOND BAY onwards	Per Bay	16506.03
	(d)	Extension works of Installation, Testing and commissioning of all necessary software's compatible to IEC: 61850, adding new SLD for the new bay in the existing substation and configuring all necessary signals and data base for making the SAS operation in full shape including Remote SCADA as directed by site engineer.		
	(I)	FIRST BAY	per bay (if it is First Bay)	82527.15
	(ii)	SECOND BAY onwards	Per Bay	41262.81
		220 V DC Battery & Battery Chargers and AC, DC Distribution Boards		
	1	Receipt from site stores, Transport to control room, handling Erection, Testing and commissioning of Battery & Battery chargers with complete accessories, equipment etc., as specified.		
	(a)	220V, 400AH Capacity Sealed Maintenance free VRLA Type 1 No Battery Banks along with all other required accessories.	Set	13925.19
	(b)	40/100A Float - Cum- Boost Charger (1 No.)	Set	8284.21

Sl. No.	Item.No	Description of item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
	2	Receipt from site stores, Transport to control room, handling, Erection, Testing and commissioning of A.C.& D.C. Distribution Boards with complete accessories, equipment etc., as specified.		
	(a)	415V AC Main Board (Sub-Boards- I & II) as per the Specification & Drawing.	Each	112635.80
	(b)	415V AC Distribution Board (Sub- Boards- I & II) as per the Specification & Drawing.	Each	187730.87
	(c)	415V AC Lighting Board (Sub- Boards- I & II) & Emergency Lighting Board as per the Specification & Drawing.	Each	47159.46
	(d)	220V DC Distribution Board (Sub-Boards- I & II) as per the Specification & Drawing.	Each	28446.95

ANNEXURE - VI					
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	SS Rate for 2019-20(Rs.)	
				Loading	Un Loading
ST1	1	Cement	MT	118.47	138.07
	2	All other materials			
ST2	(i)	Steel	MT	268.91	268.91
ST3	(ii)	Tower parts	MT	268.91	268.91
ST4	(iii)	RS Joists and rail poles and MS Sheets pf various sizes.	MT	268.91	268.91
	3	Cable / Conductor drums (for loading / un loading)			
ST5	a	Panther ACSR	Each	295.86	295.86
ST6	b	Zebra ACSR	Each	414.06	414.06
ST7	c	Moose ACSR	Each	414.06	414.06
ST8	d	Moose ACSR (Huge Drums of 1.75KM and above)	Each Drum	608.72	608.72
ST9	e	Earth wire	Each	177.38	177.38
ST10	f	Control cables up to 6 Core	Each	177.38	177.38
ST11	g	Control cables above 6 Core	Each	236.55	236.55
ST12	h	3 1/2 Core LTAC cable drum (up to 500 meters).	Each Drum	236.55	236.55
ST13	i	3 1/2 Core LTAC cable drum (above 500 meters).	Each Drum	295.86	295.86
	4	Other materials received in cases.			
ST14	(i)	Case weighing not more than 100kgs.	Each case	155.97	155.97
ST15	(ii)	Case weighing from 101kgs to 500kgs.	Each case	294.03	294.03
ST16	(iii)	Case containing fragile items and weighing more than 501kgs and up to 1MT	Each case	588.20	469.75
ST17	(iv)	for LTAC panel	Each	392.54	392.54
ST18	v(a)	70KN Normal disc insulator	Each	1.54	1.54
ST19	v(b)	120KN Normal disc insulator	Each	1.94	1.94
ST20	v(c)	160KN Normal disc insulator	Each	2.31	2.31
ST21	vi(a)	70KN Anti-fog disc insulator	Each	1.94	1.94
ST22	vi(b)	120KN Anti-fog disc insulator	Each	2.31	2.31
ST23	vi(c)	160KN Anti-fog disc insulator	Each	3.10	3.10
	(vii)	Loading / Un loading and stacking charges for 70KN /120KN SRC insulators.			
ST24	(a)	132kV	Each	3.10	3.10
ST25	(b)	220kV	Each	3.87	3.87

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20(Rs.)	
				Loading	Un Loading
ST26	(viii)	Loading / Un loading and stacking charges for 120KN /160KN SRC insulators for 400kV .	Each string	4.52	4.52
	5	Cases containing Control & Relay Panels			
ST27	(a)	33kV	Each	392.54	392.54
ST28	(b)	132kV and 220kV	Each	489.34	489.34
	6	Cases containing CTs, PTs, CVTs			
ST29	(i)	11kV to 33kV Rating	Each Case	Discom SSR Rate	Discom SSR Rate
ST30	(ii)	Above 33kV and up to 132kV	Each Case	591.44	591.44
ST31	(iii)	220kV Rating	Each Case	882.00	882.00
	7	Cases containing LAs			
ST32	(i)	33kV	Each Case	Discom SSR Rate	Discom SSR Rate
ST33	(ii)	132kV	Each Case	294.03	294.03
ST34	(iii)	220kV	Each Case	392.54	392.54
	8	Loading / Un-Loading of			
ST35	1	33kV Breaker	Each set	Discom SSR Rate	Discom SSR Rate
ST36	2	132kV CB	Each set	2350.53	2350.53
ST37	3	220kV SF6 CB	Each set	2936.69	2936.69
ST38	4	Station Transformer (100KVA)	Each set	451.18	451.18
ST39	5	Station Transformer (250KVA)	Each set	540.52	540.52
ST40	6	220V 80AH Battery (Conventional) (Lead Acid)	Set	978.93	978.93
ST41	7	220V 80AH Battery (VRLA) (Maintenance Free)	Set	686.56	686.56
ST42	8	220V 200AH Battery (Conventional) (Lead Acid)	Set	1075.75	1075.75
ST43	9	220V 400AH Battery	Set	1567.02	1567.02
ST44	10	220V Battery Charger with DC distribution Board	Set	588.20	588.20
ST45	11	DCDB for battery Charger.	Each	195.43	195.43
ST46	12	132kV Hardware single	Set	13.79	13.79
ST47	13	132 KV Hardware double	Set	14.30	14.30
ST48	14	220 kV Hardware single	Set	19.47	19.47
ST49	15	220 KV Hardware double	Set	20.76	20.76

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20(Rs.)	
				Loading	Un Loading
ST50	16	220 KV Isolators, without insulators including mechanism box	Set	588.20	588.20
ST51	17	220kV Solid core insulators	Each	78.77	78.77
ST52	18	132 KV Isolators (without solid core insulators)	Each	441.00	441.00
ST53	19	132kV Solid core insulators	Each	48.47	48.47
ST54	20	33 KV Isolators (without solid core insulators)	Each	Discom SSR Rate	Discom SSR Rate
ST55	21	33kV Solid core insulators	Each	Discom SSR Rate	Discom SSR Rate
ST56	22	Vibration dampers, mid span compression joints, repair sleeves, clamps & connectors etc	100 Nos	195.43	195.43
	23	Capacitor Banks			
ST57	a	5 MVAR	Set	1567.02	1567.02
ST58	b	Neutral C.T.	Each	107.51	107.51
ST59	24	Scrap items like MS Scrap, GI Scrap, Ferrous Scrap etc.,	Per MT	294.03	294.03
ST60	25	Scrap items like Conductor scrap, Earth wire Scrap, etc.,	Per MT	392.54	392.54
ST61	26	Bolts & Nuts weighing 50 Kgs bags including springs washers, flat washers.	Each bag	9.01	9.01
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	0.90	0.77
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	0.77	0.77
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	1.29	1.29

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2019-20(Rs.)	
				Loading	Un Loading
ST65	30	Copper Scrap	Per MT	234.75	234.75
ST66	31	Battery Scrap	Per MT	245.57	245.57
ST67	32	Capacitor units Scrap	Each	10.56	10.56
ST68	33	33kV Breaker Limb	Each	198.27	198.27
ST69	34	132kV Breaker Limb	Each	489.34	489.34
ST70	35	220kV Breaker Limb	Each	704.49	704.49
ST71	36	Tyres scrap of all sizes	Each	23.46	11.86
ST72	37	Empty oil drums	Barrel	Discom SSR Rate	Discom SSR Rate
ST73	38	Full oil drums	Barrel	Discom SSR Rate	Discom SSR Rate
ST74	39	220V, 200AH Battery (VRLA) (Maintenance free)	Set	753.22	753.22
ST75	40	220kV Bushing	Each	304.36	304.36
ST76	41	132kV Bushing	Each	152.11	152.11
ST77	42	33kV Bushing	Each	38.14	30.41

	Note:	If loading / Un loading is done with Crane, 1/3rd Charges are to be paid towards labour charges and remaining amount is towards crane hire charges. Example: Loading charges of 100 kVA Station Transformer is Rs.416.49 and in case is loaded by using a crane then labour charges would be Rs.138.83 & crane hire charges would be Rs.277.66.
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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 for 2019-20 (Rs.)
ST78	43	Tower parts counting on part wise and restocking at stores yard (for stock verification purpose)	Per MT	98.61
ST79	44	Labour charges for weighing and restocking of GI Tower Parts or Bolts & Nuts, Washers (for stock verification purpose)	Per MT	392.54
ST80	45	Labour charges for loading and unloading of ACSR, AAA Conductor & Earth wire bits for weighment (for stock verification)	Per MT	392.54
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	5.94
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	1.94
ST83	48	Counting and restocking of insulators of various capacities (for stock verification purpose).	Each	1.94
ST84	49	Loading of Assorted tower parts from different places by observing part wise and loading in to lorry at stores.	Per MT	294.03
ST85	50	For Opening and Repacking of Packing of Panels for check measuring purpose	Each	59.04
	51	For Opening and Repacking of Packing of Breakers for check measuring purpose		
ST86	(a)	220 kV	Each	195.43
ST87	(b)	132 kV	Each	138.07
ST88	(c)	33 kV	Each	59.04
ST89	52	For Opening and Repacking of Packing of Fragile Materials, and Small Packages like wooden, Cartoon Boxes etc., for check measuring purposes.	Each	29.39

Crane Hire charges:(for departmental works at the premises)				
Sl. No.	Item No.	Description of Item	Unit	SSR for 2019-20 (Rs.)
	53	For 2 to 8 Tonne Capacity crane		
ST90		i.For 1st hour	Hour	2909.88
ST91		ii.For every hour or part thereof after 1st hour	Hour	1321.77
	54	For 8 to 20 Tonne Capacity crane		
ST92		i.For 1st hour	Hour	4538.18
ST93		ii.For every hour or part thereof after 1st	Hour	1512.69
	55	For above 20 Tonne Capacity crane		
ST94		i.For 1st hour	Hour	6998.39
ST95		ii.For every hour or part thereof after 1st hour	Hour	2460.21
	IV	Sparing of Departmental vehicle to the contractor:		
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 thereof should be recovered for a total KM run up to 100KM on that day plus for every additional KM rate, whichever 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 work.	Per day	3814.20
			Plus Additional 1 Km	31.71
ST97	57	Providing Transportation to Officers		6.50

Note:

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.

If the crane is given on hire to other than APTRANSCO works, the rate is a minimum of Rs. 31,722.48 (Rs.1321.77- per hr X 24Hrs) + (Fuel cost & lubricants) per day or part there off and the time is to be reckoned from the time of leaving department premises till reaching back.

ANNEXURE – VII**TRANSPORTATION, HANDLING CHARGES
INVOLVED DURING ERECTION OF 400KV
TRANSMISSION LINES**

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2019-20 (Rs.)
1	2	3	4	5
C4H1	1	Total cost for transportation and handling Charges for Setting of Stub with Stub setting template	Each Set	900.85
C4H2	2	Erection of Tower: Total cost for transportation and handling Charges	Per MT	710.63
C4H3	3	Double Circuit Stringing with Twin Moose: Transportation and handling charges for line materials	Per KM	19471.86
C4H4	4	Single Circuit Stringing with Twin Moose : Transportation and handling charges for line materials.	Per KM	10393.30
C4H5	5	Double Circuit Stringing with Quadruple Moose: Transportation and handling charges for line materials	Per KM	38943.71
C4H6	6	Single Circuit Stringing with Quadruple Moose: Transportation and handling charges for line materials.	Per KM	20788.15
C4H7	7	OPG wire & earth wire: Transportation and handling charges for OPGW/earthing materials for 1 kM for D/C stringing.	Per KM	591.93
C4H8	8	OPG wire & earth wire: Transportation and handling charges for OPGW/earthing materials for 1 kM for S/C stringing.	Per KM	605.65

ANNEXURE -VIII			
TRANSPORT OF EQUIPMENTS / MATERIALS			
Sl.No.	Item No.	Description of Item	Per Load SSR 2019-20
		The following are the minimum materials / equipment, for each load. One Load = 9.0 MT	
	1	CTs, PTs, & CVTs:	
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)	232.03
	2	SF6 Circuit Breakers:	
T.4	2.a	220 kV	1/2 sets
T.5	2.b	132 kV	2/3 sets
T.6	2.c	33 kV	2 Nos.
	3	Isolators with or without Earth switch including post type insulators:	
T.7	3.a	220 kV	1 set.
T.8	3.b	132 kV	2 Sets
T.9	3.c	33 kV	8 Nos.
	4	Lighting Arrestors:	
T.10	4.a	220 kV	6 Nos.
T.11	4.b	132 kV	6 Nos.
T.12	4.c	33 kV	24 Nos.
	5	Control & Relay panels:	6 Nos.
	6	ACSR Conductor and Earth wire drums:	
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	6 Nos.
T.18	6.f	CABLE DRUMS	10Nos.
	7	Disc Insulators	
T.19	7.a	70 KN	1000 Nos.
T.20	7.b	120KN	800 Nos.
	8	Silicon Rubber Insulators	
T.21	8.a	70 KN	275 Nos.
T.22	8.b	120KN	228 Nos.
	9	Wave Traps	
T.23	9.a	220kV	6 Nos.
T.24	9.b	132kV	16 Nos.

ANNEXURE - IX
RATES FOR HANDLING & ERECTION OF POWER TRANSFORMERS

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
1	2	3	4	5
	A)	HANDLING AS JOB WORK BY DEPARTMENT		
	1	Loading/Unloading of T&P such as wooden sleepers, winch jacks, packing pieces etc., required for handling the power		
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	1292.95
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	1292.95
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	Load	1292.95
	2	Loading/Unloading of fragile material such		
	a)	LV bushing / Neutral bushing for 132 kV transformer		
PT4	(i)	Loading	Each	38.66
PT5	(ii)	Unloading	Each	30.94
	b)	132kV Bushings		
PT6	(i)	Loading	Each	152.11
PT7	(ii)	Unloading	Each	152.11
	c)	220kV Bushings		
PT8	(i)	Loading	Each	304.22
PT9	(ii)	Unloading	Each	304.22
		NOTE :If loading / Un loading is done with Crane, 1/3rd Charges are to be paid towards labour charges and remaining amount is towards		
PT10	3	Loading/Unloading of accessories of transformer including radiator, 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	Load	2139.91
	4	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.		
	a	Transformers upto 16 MVA capacity		
PT11		Up to 10 Mtrs.	LS	3405.80
PT12		Over and above 10 Mtrs.	RM	339.03

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
	b	Transformers above 16MVA and upto 31.5 MVA capacity		
PT13		Up to 10 Mtrs.	LS	6219.91
PT14		Over and above 10 Mtrs.	RM	622.64
	c	Transformers above 31.5MVA and upto 50 MVA capacity		
PT15		Up to 10 Mtrs.	LS	7258.90
PT16		Over and above 10 Mtrs.	RM	725.76
	d	Transformers above 50MVA and upto 100 MVA capacity		
PT17		Up to 10 Mtrs.	LS	8970.83
PT18		Over and above 10 Mtrs.	RM	895.92
	e	Transformers above 100MVA and upto 160 MVA capacity		
PT19		Up to 10 Mtrs.	LS	11541.28
PT20		Over and above 10 Mtrs.	RM	1155.03
	5	Turning the transformer through 90 degrees including making arrangements as above.		
PT21	a	Transformers upto 16 MVA capacity	Each	3048.72
PT22	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	3823.45
PT23	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	4755.47
PT24	d	Transformers above 50MVA and upto 100 MVA capacity	Each	5441.28
PT25	e	Transformers above 100MVA and upto 160 MVA capacity	Each	6801.27
	6	Turning the transformer through 180 degrees including making arrangements as		
PT26	a	Transformers upto 16 MVA capacity	Each	5285.30
PT27	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	6355.24
PT28	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	7488.37
PT29	d	Transformers above 50MVA and upto 100 MVA capacity	Each	8321.12
PT30	e	Transformers above 100MVA and upto 160 MVA capacity	Each	9984.06
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	1292.95
PT32	7(b)	Movement of 10 MT winch for anchoring.	1 Job	1170.49

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
	8	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.		
PT33	a	Transformers upto 16 MVA capacity	Each	3699.71
PT34	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	5701.68
PT35	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	7099.05
PT36	d	Transformers above 50MVA and upto 100 MVA capacity	Each	9463.26
PT37	e	Transformers above 100MVA and upto 160 MVA capacity	Each	12108.49
	9	Pulling the transformer from platform to the truck for loading/ from truck to the platform for unloading		
PT38	a	Transformers upto 16 MVA capacity	Each	3111.89
PT39	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	5441.28
PT40	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	6047.15
PT41	d	Transformers above 50MVA and upto 100 MVA capacity	Each	7561.85
PT42	e	Transformers above 100MVA and upto 160 MVA capacity	Each	10219.96
	10	Fixing of transformer wheels to main tank including alignment of transformer etc.,		
PT43	a	Transformers upto 16 MVA capacity	Job	1438.63
PT44	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	1697.74
PT45	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	2472.49
PT46	d	Transformers above 50MVA and upto 100 MVA capacity	Job	3203.40
PT47	e	Transformers above 100MVA and upto 160 MVA capacity	Job	4746.46
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	2357.76
	12	Removal of steel rope and turn buckles of transformer main tank on truck.		
PT49	(a)	Up to 100MVA Capacity	Job	648.42
PT50	(b)	above 100MVA and up to 160MVA Capacity	Job	970.68
	13	Tying the transformer main tank on to the truck with steel rope and turn buckles		

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
PT51	(a)	Up to 100MVA Capacity	Job	834.05
PT52	(b)	above 100MVA and up to 160MVA Capacity	Job	1247.84
	14	Assisting for lifting of overhead live lines, while transporting of transformers by truck.		
PT53	(a)	Up to 100MVA Capacity	Job	1826.66
PT54	(b)	above 100MVA and up to 160MVA Capacity	Job	3650.72
	B)	ERECTION OF POWER TRANSFORMERS AS JOB WORK BY DEPARTMENT		
	1	Opening of crates and keep ready for erection of accessories of transformers		
PT55	a	Transformers upto 16 MVA capacity	Job	2032.91
PT56	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	2540.82
PT57	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	3400.64
PT58	d	Transformers above 50MVA and upto 100 MVA capacity	Job	4081.28
PT59	e	Transformers above 100MVA and upto 160 MVA capacity	Job	5441.28
	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	3048.72
PT61	b	Transformers above 31.5MVA and upto 100 MVA capacity	Job	4068.39
PT62	c	Transformers above 100MVA and upto 160 MVA capacity	Job	5588.22
PT63	d	Transportation of oil barrels from unloading place to the filter machine in the substation.	Job	3040.99
	3	Erection of Radiators to the transformers including headers		
PT64	a	Transformers upto 16 MVA capacity	Job	2262.36
PT65	b	Transformers above 16MVA and upto 31.5 MVA capacity	Job	3624.94
PT66	c	Transformers above 31.5MVA and upto 50 MVA capacity	Job	4505.39
PT67	d	Transformers above 50MVA and upto 100 MVA capacity	Job	5522.50
PT68	e	Transformers above 100MVA and upto 160 MVA capacity	Job	7528.32
	4	Erection of main conservator tank.		
PT69	a	Transformers upto 16 MVA capacity	Each	2040.66
PT70	b	Transformers above 16MVA and upto 31.5 MVA capacity	Each	2268.82

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
PT71	c	Transformers above 31.5MVA and upto 50 MVA capacity	Each	3328.45
PT72	d	Transformers above 50MVA and upto 100 MVA capacity	Each	5183.46
PT73	e	Transformers above 100MVA and upto 160 MVA capacity	Each	6672.36
PT74	f	Pronal bag testing and commissioning	Each	2244.33
PT75	g	Hiring of compressor	Each	1572.69
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	2463.47
	5	Erection of transformer bushing		
PT77	a	33 kV Neutral and tertiary bushings	Each	444.75
PT78	b(I)	132 kV bushings up to 100MVA.	Each	827.61
PT79	b(ii)	132 kV bushings for above 100MVA and up to 160MVA	Each	1036.44
PT80	c(I)	220 kV bushings up to 100MVA	Each	1243.99
PT81	c(ii)	220 kV bushings for above 100MVA and up to 160MVA	Each	1541.76
PT82	d(I)	220kV 3 Nos. erection of turrets up to 100MVA	Job	1780.24
PT83	d(ii)	220kV 3 Nos. erection of turrets for above 100MVA and up to 160MVA	Job	2335.83
PT84	e(I)	132kV 3 Nos. erection of turrets up to 100MVA	Job	835.33
PT85	e(ii)	132kV 3 Nos. erection of turrets for above 100MVA and up to 160MVA	Job	1224.65
PT86	6	Erection of air blowers (cooling fans) including frames and control cubical etc., (for each transformer)	Job	3364.55
PT87	7	Erection of LA frames (HV & LV side)	Each	1055.77
PT88	8(a)	i)Erection of driving mechanism box, bevel gear of OLTC for below 100MVA..	Each	1055.77
PT89		ii)Erection of driving mechanism box, bevel gear of OLTC 100MVA and above 100MVA.	Each	2111.56
PT90	8(b)	i)Erection of OLTC conservator tank with stand for up to 100MVA.	Each	1363.85
PT91		ii)Erection of OLTC conservator tank with stand for above 100MVA and upto 160MVA.	Each	2040.66
	9	Erection of pipe line.		
PT92	a	Transformers upto 31.5 MVA capacity	Each	714.15
PT93	b	Transformers above 31.5MVA and upto 50 MVA	Each	1067.38
PT94	c	Transformers above 50MVA and upto 100 MVA	Each	1808.60
PT95	d	Transformers above 100MVA and upto 160 MVA capacity	Each	2261.09
PT96	10	i)Erection of Thermometer, pressure Relief valve and vent pipe etc.,	Each	714.15
PT97		ii)Erection of Thermometer, pressure Relief valve and vent pipe etc.,100MVA and above	Each	1067.38

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
	11	Erection of detachable OLTC including connecting internal jumper with OLTC tank.		
PT98	a	Transformers upto 31.5 MVA capacity	Each	3507.64
PT99	b	Transformers above 31.5MVA and upto 100 MVA capacity	Each	5285.30
PT100	c	Transformers above 100MVA and upto 160 MVA capacity	Each	5892.46
PT101	12	i).Erection of separate, cooler bay including 'A' frame header pipes and bends of transformers up to 100 PTRs MVA capacity.	Bay	7561.85
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	8321.12
	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	2924.96
PT104	b	Transformers 31.5MVA and 50 MVA capacity	Job	4545.35
PT105	c	Transformers 100 MVA and upto 160 MVA capacity	Job	5848.64
	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	1464.42
PT107	b	Transformers 31.5MVA and 50 MVA capacity	Job	1787.98
PT108	c	Transformers 100 MVA and upto 160 MVA capacity	Job	2110.25
PT109	14	Erection of supporting insulators and earth flat for HV & LV Neutrals / Tertiary.	Job	714.15
	C	OIL FILTRATION OF TRANSFORMERS AS JOB WORK BY DEPARTMENT		
PT110	1	Loading / Unloading of 2KL Oil filter.	Job	2496.98
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	1206.59
PT112	3	Loading / unloading of full transformer oil	Barrel	49.00
PT113	4	Loading / unloading of oil drums.	Barrel	7.73
	5	Oil topping for transformer through oil filter:		
	5.1	Transformer already filled with oil		
PT114	a	Transformers upto 31.5 MVA capacity	Each	959.09
PT115	b	Transformers above 31.5MVA and upto 50MVA capacity when the transformer is received with transformer oil	Each	2111.56
PT116	5.2	Transformers above 50MVA upto 160 MVA capacity When the transformer is received empty with Nitrogen	Barrel	30.94

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
	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	4559.53
PT118	b	For a period of 5 days for Transformers above 31.5 MVA and upto 100 MVA capacity	Each	6383.62
PT119	c	For a period of 5 days for Transformers above 100 MVA and upto 160 MVA capacity	Each	9121.65
PT120	a	Over and above 5 days for Transformers upto 31.5 MVA capacity	per day	911.38
PT121	b	Over and above 5 days for Transformers above 31.5 MVA and upto 100 MVA capacity	per day	1276.20
PT122	c	Over and above 5 days for Transformers above 100 MVA and upto 160 MVA capacity	per day	1824.07
PT123	7(I)	Dismantling of control cables of power transformer for arranging, pulling of transformer main tank out of plinth for failed transformer or improvement of transformer capacity.	Job	843.07
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	2244.33
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	104.41
	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	3364.55
PT127	(b)	Above 100MVA PTRs.	Job	6731.67
PT128	10	Loading / Unloading of 5 KL Storage tanker.	Job	1113.78
	11	Hire charges for a private tractor for transport of 6 KL of oil filter.		
PT129		Up to 50 KM	LS	5282.70
PT130		Beyond 50 KM	per KM	101.85
	12	Providing of oil tanker on daily hire charges		
PT131	a	10 KL capacity	Per day	1656.48
PT132	b	20 KL capacity	Per	3037.11
	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	8282.46
PT134		More than 50 KM	KM	41.24

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
	14	Unloading of oil tanker at site and loading the same after completion of the job		
PT135		10 KL capacity	Job	6556.35
	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	19776.03
PT137	b)	50 MVA Transformer	LS	25712.33
PT138	c)	100 MVA Transformer	LS	28517.41
PT139	d)	160 MVA Transformer	LS	28517.41
	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	9888.65
PT141	b)	50 MVA Transformer	LS	12854.88
PT142	c)	100 MVA Transformer	LS	14257.42
PT143	d)	160 MVA Transformer	LS	14257.42
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	482.12
PT145	17	Unloading of 20 KL oil storage taken at site and loading the same after completion of the job	Job	7162.23
	D)	Insurance for fragile material during transportation, erection, dismantling may be paid as per actuals from department side for		

ANNEXURE - X
Rates for O&M works of EHT Lines

Sl. No.	Item No.	Description of work	Unit	SSR 2019-20 (Rs.)
OM1	1	(a) Providing of Vibration dampers (for 220 KV & 132 KV lines) (Excluding Material & Transportation cost)	Each	146.96
OM2		(b). Providing of spacer damper for 400 KV twin Moose lines (Excluding Material & Transportation cost)	Each	201.10
	2	Painting of towers with two coats of aluminum paint using Aluminum paint 1st grade containing 306 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	4694.90
OM4	(b)	Labour charges for painting including scratching and cleaning of towers of 1st coat of Aluminum without cost of paint & brushes.	MT	1314.89
OM5	(c)	(*) Second coat of 1st Grade Aluminum Paint duly scratching and cleaning of towers including labour charges, cost of paint, brushes, etc.	MT	2747.06
OM6	(d)	(*) Labour charges for painting including scratching and cleaning of towers of 2nd coat of Aluminum without cost of paint & brushes.	MT	745.09
		(*): The requirement of 2nd coat is to be justified by the concerned Divisional Engineer/Executive Engineer before execution of the work.		
	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	2940.42
OM8	(b)	Labour charges for painting of towers including scratching and cleaning of towers without cost of paint & brushes.	MT	1630.71
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	1176.93

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
OM10	5	Providing of Arcing Horns for 132 KV line (Excluding Material & Transportation cost) (without lefty & Pullies)	Each	146.96
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	1727.39
OM12	7	Providing of Arcing Horns for 220 KV line (Excluding Material & Transportation cost)(without lefty & Pullies)	Each	146.96
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	131.48
OM14	9	Replacement of insulators at Suspension tower of 132 KV line (Excluding Material & Transportation cost)	Per string	1482.46
OM15	10	Replacement of insulators at Tension tower of 132 KV line (Excluding Material & Transportation cost)	Per string	2508.59
OM16	11	Replacement of insulators at Suspension tower of 220 KV line (Excluding Material & Transportation cost)	Per string	1630.71
OM17	12	Replacement of insulators at Tension tower of 220 KV line (Excluding Material & Transportation cost)	Per string	2883.72
OM18	13	Replacement of 132 KV line single suspension insulator string with double suspension insulator strings (Excluding Material & Transportation cost)	Per string	2222.41
OM19	14	Replacement of 132 KV line single tension insulator string with double tension insulator strings (Excluding Material & Transportation cost)	Per string	3761.59
OM20	15	Replacement of 220 KV line single suspension insulator string with double suspension insulator strings (Excluding Material & Transportation cost)	Per string	2360.34
OM21	16	Replacement of 220 KV line single tension insulator string with double tension insulator strings (Excluding Material & Transportation cost)	Per string	4324.92
OM22	17	Replacement of insulators at Suspension tower of 400kV line (Excluding material & Transportation cost)	Per string	2210.81
OM23	18	Replacement of insulators at Tension tower of 400kV line (Excluding material & Transportation cost)	Per string	3686.82

Sl. No.	Item No.	Description of Item	Unit	SSR rate for 2019-20 (Rs.)
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 paint.	Each	5.52
OM25	18	Fixing of earth bonds for existing transmission line towers	Each	146.96
	19	Re-Stringing of power conductor on the existing lines (for correction of		
OM26	a	3. Nos. Zebra conductors	RKM	37088.61
OM27	b	6. Nos. Zebra conductors	RKM	55630.99
OM28	c	2. Nos. Panther conductors	RKM	19776.03
OM29	d	3. Nos. Panther conductors	RKM	29668.58
OM30	e	6. Nos. Panther conductors	RKM	46978.58
OM31	f	2. Nos. Moose conductors	RKM	31317.31
OM32	g	3. Nos. Moose conductors	RKM	46978.58
OM33	h	6. Nos. Moose conductors	RKM	74172.07
OM34	i	3. Nos. Bear conductors	RKM	37088.61
OM35	j	6. Nos. Bear conductors	RKM	55630.99
OM36	k	3. Nos. Dog conductors	RKM	22249.82
OM37	l	6. Nos. Dog conductors	RKM	35232.32
	21	Loading / Unloading charges :		
	(a)	For above half drum and up to one drum full drum rate	Basic rate of Full Drum	Basic rate of Full Drum
	(b)	For below half drum and for a Piece	Basic rate of Half Drum	Basic rate of Half Drum

ANNEXURE-XI
SSR RATES FOR TELECOM WING

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
1	Erection of PLCC panel in 220KV/132KV SS	Each	7307.65
2	Erection of LMU	Each	1220.24
3	Erection of Wave Trap		
i	Fixing of wave trap on pedestal mounting insulator stack in 400KV	Each	6828.67
ii	Fixing of the wave trap on pedestal mounting insulator stack in 200KV	Each	5533.88
iii	Fixing of the wave trap on Suspension mounting including jumpering in 132KV	Each	3299.07
4	Erection and commissioning of 48V DC/50A, 35A Battery charger in 220KV/132KV SS	Each	7500.00
5	Erection and commissioning of 48V DC/100A/150ABattery charger in 400 KV SS	Each	7500.00
6	Erection and commissioning of 48V/200AH, 250AH &300AH battery sets in 132 & 220 KV SS	Each	7369.79
7	Erection and commissioning of 48V/400AH battery set in 400 KV SS	Each	7369.79
8	Erection and commissioning of OLTE & MUX (Optical line terminal equipment)	Each	24033.33
9	Erection and commissioning of FODP (Fibre Distribution Panel) in 400KV/220KV/132KV SS (12F/24F/48F)	Each	10516.67
10	Erection and commissioning of 16/16 or 8/8 EPAX400KV/220KV/ 132KV SS	Each	11290.00
11	Erection and commissioning of 16/16 with 2 E1 cards EPAX in 400KV/220KV/ 132KV SS	Each	14850.00
12	Erection of RTU panel in 400KV/220KV/132KV SS	Each	18568.67
13	Erection and commissioning of Analog/Digital protection coupler equipment in 400KV/220KV/132KV SS	Each	17833.33

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
14	Laying of optical fibre approach cable in switch yards of 400KV, 220KV & 132KV (Including hardware) along with HDPE Pipe	KM	19479.32
15	Laying of HDPE Pipe in trenches in 400KV, 220KV, 132KV SS .	KM	12809.79
16	Laying of 12F/24/48 F OPGW cable on 132 kV, 220KV and 400 KV lines (including Splicing and fixing of hardware accessories)	Km	75436.96
17	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 accessories		
i	For plane area	KM	35507.13
ii	for agency or tribal area	KM	44383.92
iii	for Hill areas	KM	49709.99
iv	for interior area	KM	49709.99
v	for municipal corporation areas (upto 12 Kms from municipality)	KM	44383.92
vi	for municipalities (upto 12 Kms from municipality)	KM	42608.56
18	Fixing of tension clamp set of OFC on 132KV & 220KV towers	per set	2433.58
19	Fixing of suspension clamp set of OFC on 132KV, 220KV towers	per set	2004.29
20	Fixing of tension clamp set of OPGW on 400KV lines	per set	2944.32
21	Fixing suspension clamp set of OPGW on 400KV lines	per set	2515.03
22	Fixing of splice box on 132KV & 220KV towers	Each	3661.83
23	Fixing of splice box on 400KV towers	Each	4577.29
24	Fixing of vibration dampers on 132KV & 220KV towers	Per set	1138.80

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
25	Fixing of vibration dampers on 400KV towers	Per set	1450.76
26	Splicing charges for OFC fibers 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	578.37
ii	for agency or tribal area	Each fibre splice	722.97
iii	for Hill areas	Each fibre splice	808.89
iv	for interior area	Each fibre splice	808.89
v	for municipal corporation areas (upto 12 Kms from municipalities)	Each fibre splice	722.97
vi	for municipalities (upto 12 Kms from municipalities)	Each fibre splice	694.05
27	Fixing of ADSS type OFC to the tower members with ties, clamps etc.		
i	for 220 KV/132 KV	Each	1997.39
ii	for 400 KV	Each	2496.74
28	Laying of aerial type OFC on 33KV/11KV HT/LT poles	KM	11763.47
29	Laying of 6 pair telephone cable in the trenches in 132KV, 220KV & 400KV	KM	8902.34
30	Laying of Cat 5E/6 Cables in Offices.	KM	4565.31
31	Laying of Cat 5E/6 Cables with Conduit pipes along with accessories in Offices.	KM	13695.92

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
32	Fixing of 6U × 19 inch Rack in Offices for ERP works	Each	380.44
33	Laying of single pair telephone cable in the trenches in 132KV, 220KV & 400KV	KM	8217.55
34	Laying of 25sq mm battery cable in control room in 132 KV,220 KV & 400 KV	KM	19402.55
35	Laying of Co-axial cable from switch yard gantry tower to communication room in the existing trench	KM	18626.45
36	Laying of 6 pair telephone cable on overhead poles LT & HT	KM	6847.96
37	Laying of single pair telephone cable on overhead poles LT & HT	KM	6847.96
38	Laying of RF cables in 132 KV, 220 KV & 400 KV SS	KM	18626.45
39	Digging of 1 X 1 X 1 (Cu.mt) ducts for laying of telephone cable in 132 KV, 220 KV, 400KV SS	Cu.mt	709.51
40	Excavation, refilling & closing of ducts of 1 X 1 X 1 (Cu.mt) in 132 KV, 220KV and 400 KV SS premises	Cu.mt	1419.02
41	Erection of earth pit as per standards in 132KV, 220KV SS for communication purpose	Each	14698.76
42	Erection of earth pit as per standards in 400 KV SS	Each	14698.76
43	Erection of VSAT equipment in 132KV, 220KV, 400 KVSS	Each	6959.80
44	Dismantling of VSAT equipment of 132KV, 220KV, 400 KV SS	Each	3479.90
45	Loading/unloading charges for PLCC equipment in 132KV SS, 220KV/400KV in to vehicle		
i	for single channel PLCC panel	Each	709.51
ii	for Twin channel PLCC panel	Each	709.51

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
46	Loading/unloading charges for 48V/35A, 50A, chargers	Each	709.51
47	Loading/unloading charges for 48V/100A/150Achargers	Each	1064.26
48	Loading/unloading charges for OLTE/MUX equipment	Each	1064.26
49	Loading/unloading charges for RTU panels	Each	1064.26
50	Loading/unloading charges for EPAXs	Each	354.75
51	Loading/unloading charges for battery sets 48V/ 150 AH,200 AH ,250 AH, 300 AH, 400 AH		
i	for 150 AH/200 AH	Each	709.51
ii	for 250 AH/300AH	Each	709.51
iii	for 400AH	Each	1064.26
52	Loading/unloading charges for LMUs	Each	354.75
53	Loading/unloading charges for Wave trap		
i	132KV wave trap	Each	354.75
ii	220KV Wave Trap & 400 KV	Each	709.51
54	Dismantling of existing PLCC chargers (35A, 50A, 100A)		
i	35/50A	Each	1686.81
ii	100A	Each	4907.89
55	Dismantling of existing 48V/165AH, 200AH, 250AH battery sets	Each	3827.75
56	Dismantling of existing 48V/400 AH battery sets	Each	5085.27

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
57	Dismantling of existing RTU, OLTE/MUX equipment		
I	RTU	Each	9284.34
ii	OLTE/MUX	Each	3653.83
58	Dismantling of EPAXs	Each	1509.43
59	Dismantling of wave traps on 132 KV/220KV SS/400 KV SS separately		
¹	50% of Erection of 2000A/1 m H Wave Trap (400 KV)	Each	3414.33
ⁱⁱ	50 % of Erection of 1250A/0.5 MHz Wave Trap (220 KV)	Each	2766.94
ⁱⁱⁱ	50% of Erection of 630A/0.2mH Wave Trap (132 KV)	Each	1649.54
60	Dismantling of 12F/24 F ADSS cable from 132KV,220KV SS lines	Each	17753.57
61	Dismantling of 12F/24/48 F OPGW cable from 132KV, 220KV SS,400KVSS lines	Each	37718.48
62	Dismantling and bringing down of splice boxes on 132KV,220KV towers	Each	1830.92
63	Dismantling and bringing down of splice boxes on 400KV towers	Each	2288.65
64	Hiring charges of 5 KVA Diesel Generator per day for attending OFC break down works	Each	1080.46
65	Hiring charges of 230V AC inverter (2KVA) with battery backup for attending OFC break down works	Each	1080.46
66	Hiring charges of 8X8X10(C.u.ft) closed tent shutter for attending splicing works for attending OFC break down works	Each	760.88
67	Dismantling of VHF 30 ft masts with Gay wires etc.	Each	2227.91
68	Dismantling of 10 ft/20 ft trylon masts	Each	1798.62

Sl.No.	Description	Unit	SSR2019-20 Rates (Rs.)
	UG OF cabling works rates		
	Survey & documentation		
69	Survey of route, providing as built drawing, documentation for un armoured underground optical fibre cable	Km	4511.03
	Excavation & Backfilling		
70	All types of soil, road, footpath, including PCC, sand, warning brick/stone, semi-circular RCC split cover etc. for underground fibre optic cable.	Km	180297.78
71	Warning Tape (including supply and installation).	Km	27052.40
72	Laying of PLB HDPE pipe O.D. 40mm	Km	12809.79
73	Installation of HDPE pipe by Trenchless digging		
(a)	0-10 mtrs	mtr	720.55
(b)	> 10 and up to 30 mtrs	mtr	811.65
(c)	More than 30 mtrs	mtr	901.38
74	Laying of GI pipe 100mm (Nominal bore), Including accessories.	mtr	229.14
75	Laying of RCC hume pipe (NP3), 100mm Diameter (Inside), Including accessories.	mtr	343.71
76	Laying of unarmoured UG OFC 24F/48F (DWSM) with HDPE duct in case of underground works	Km	27053.78
77	Installation of Joint box in underground (Including splicing & testing) - 24 Fibers	No.	5640.17
78	Erection of RCC Joint Chambers	No.	4803.67
79	Installation of PLBHDPE pipe on wall in building premises including routing of OFC through it	mtr	455.52
80	Reinstatement of excavated area/damages (in road, pavement, footpath etc.)	Sq.mtrs	227.76
81	Main Distribution frame (100 pairs)	No.	2255.52
82	Split type AC Units including Stabilizer	No.	6176.55

Annexure-XII
LAYING OF 132KV UG CABLE (SINGLE CIRCUIT)

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	1	CABLE ROUTE SURVEY		
UIS 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.	322.28
UIS 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 estimate)	Mts.	966.82
	2	LAYING OF CABLE		
	2.1	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)		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
UIS 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	8553.15
UIS 4	b)	Hard Rock with soils	Rmt	11750.12
UIS 5	c)	CC or BT road surface etc.	Rmt	7623.07
UIS 6	d)	Hard Rock	Rmt	8790.99
UIS 7	e)	CC or BT road with Hard rock	Rmt	16330.28
UIS 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	10718.84
UIS 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	25235.35
UIS 10	h)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	10718.84
UIS 11	i)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	10718.84
UIS 12	j)	Cable laying by clamping on special type tower including earthing cable from termination to Link box including cost of Aluminum clamps	Rmt	10312.78
UIS 13	k)	Cable laying while clamping bare on the walls ,ceiling and structures including cost of clamps in complete shape	Rmt	3867.28
UIS 14	l)	Cable laying across the railway tracks	Rmt	25781.94
UIS 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	1933.65
	2.2	Including excavation and excluding backfilling without cable laying		
UIS 16	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	10957.32
UIS 17	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	3867.28
	2.3	Excluding excavation and including backfilling		
UIS 18	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	1611.37
UIS 19	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	5156.39

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
U1S 20	2.4	Only excavation and back filling of soil without laying of cable	Rmt	1933.65
U1S 21	2.5	Excavation and backfilling of suitable thermal backfill for maintaining soil thermal resistance value of 120 degrees	Cum	5156.39
U1S 22	2.6	Laying of cable excluding excavation and backfilling	Rmt	515.64
	2.7	Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe		
U1S 23	a)	Soil/Morrem, soft rock (upto 5000 PSI) per each Pipe	Rmt	12633.14
U1S 24	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per each pipe	Rmt	20625.56
	3	LAYING OF CO-AXIAL CABLE		
U1S 25	a)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	19.34
U1S 26	b)	300sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	19.34
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	19.34
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	19.34
	4	For pulling optical fiber cable the following items shall be done while excavation of trenches as per specifications		
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 contract/tender.	RM	128.90
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	9023.68

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	5	CABLE JOINTING		
		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.		
UIS 31	a)	With excavation of joint bay size (9mX4m) and laying of CC(1:2:4) bed and sand bed and back filling	Nos.	386729.12
UIS 32	b)	Jointing charges for cross bonding joints/normal joints	Nos.	193364.55
	6	TERMINATION CHARGES		
		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.		
UIS 33	a)	132 KV tower mounted type cable end terminations including erection on tower in all respects	Each	451183.99
UIS 34	b)	132 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	386729.12
UIS 35	c)	132 kV SF6 type cable end terminations complete in all respect.	Each	386729.12

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
UIS 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 welding. The earthing scheme drawing shall be got approved with all earth resistance calculations considering the fault currents earth leads from link box to earth pit and connecting lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Each	32227.43
UIS 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	13728.88
UIS 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)
UIS 39	8b	Supplying, fitting and placing of HYSD, TMT bar reinforcement (TISCO/SAIL/VSP) in foundations, columns, beams slabs wherever necessitated .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)

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	9	CONNECTION OF LINK BOXES		
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	38672.91
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	51563.88
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 work.	Each	6445.49
U1S 43	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies	Mts.	7734.58
U1S 44	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	257819.42

Annexure-XII
LAYING OF 132KV UG CABLE (DOUBLE CIRCUIT)

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	1	CABLE ROUTE SURVEY		
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.	322.28
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). (NOTE : 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.	1289.11
	2	LAYING OF CABLE		
	2.1	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)		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR2019-20 (Rs.)
U1D 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	15469.17
U1D 4	b)	Hard Rock with soils	Rmt	20625.56
U1D 5	c)	CC or BT road surface etc.	Rmt	12890.97
U1D 6	d)	Hard Rock	Rmt	16113.72
U1D 7	e)	CC or BT road with Hard rock	Rmt	30938.33
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	19336.46
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	25235.35
U1D 10	h)	Cable laying in built-up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	19336.46
U1D 11	i)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	19336.46
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	20625.56
U1D 13	k)	Cable laying while clamping bare on the walls ,ceiling and structures including cost of clamps in complete shape	Rmt	7734.58
U1D 14	l)	Cable laying across the railway tracks	Rmt	45118.41
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	3867.28
	2.2	Including excavation and excluding backfilling without cable laying		
U1D 16	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	21914.65
U1D 17	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	7734.58
	2.3	Excluding excavation and including backfilling		
U1D 18	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	3222.75

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR2019-20 (Rs.)
U1D 19	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	7734.58
U1D 20	2.4	Only excavation and back filling of soil	Rmt	3867.28
U1D 21	2.5	Excavation and backfilling of suitable thermal backfill for maintaining soil thermal resistance value of 120degrees	Cum	10312.78
U1D 22	2.6	Laying of cable excluding excavation and backfilling	Rmt	1031.28
	2.7	Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe		
U1D 23	a)	Soil/Morrem, soft rock (upto 5000 PSI) per each pipe	Rmt	12633.14
U1D 24	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per each pipe	Rmt	20625.56
	3	LAYING OF CO-AXIAL CABLE		
U1D 25	a)	300sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	32.24
U1D 26	b)	300sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	32.24
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	32.24
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	32.24
	4	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/ ID40 /33mm 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	128.90
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	9023.68

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	5	CABLE JOINTING		
		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.	580093.70
U1D 32	b)	Jointing charges for cross bonding joints/normal joints	Nos.	193364.55
	6	TERMINATION CHARGES		
		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	451183.99
U1D 34	b)	132 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	386729.12
U1D 35	c)	132 kV SF6 type cable end terminations complete in all respect.	Each	386729.12

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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 welding. The earthing scheme drawing shall be got approved with all earth resistance calculations considering the fault currents earth leads from link box to earth pit and connecting lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/connivance.	Each	51563.88
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 dia125 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, back fill the pit with e25mm 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 SSR2013-14)	Each	13728.88
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 foundations, columns, beams slabs wherever necessitated 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	CONNECTION OF LINK BOXES		
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	38672.91

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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	51563.88
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	6445.49
U1D 43	11	Road cutting charges and charges for way leaves to be paid for various Government and other agencies	Mts.	12890.97
U1D 44	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	386729.12

Annexure-XII
LAYING OF 220 KV UG CABLE (SINGLE CIRCUIT)

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	1	CABLE ROUTE SURVEY		
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.	322.28
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) .(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 estimate)	Mts.	966.82
	2	LAYING OF CABLE		
	2.1	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)		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
U2S 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	10263.79
U2S 4	b)	Hard Rock with soils	Rmt	14100.15
U2S 5	c)	CC or BT road surface etc.	Rmt	9147.69
U2S 6	d)	Hard Rock	Rmt	10549.21
U2S 7	e)	CC or BT road with Hard rock	Rmt	19596.33
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 HDPE pipes of 250 mm dia etc. complete	Rmt	12862.62
U2S 9	g)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	12862.62
U2S 10	h)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	12862.62
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	11601.87
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	2578.19
U2S 13	k)	Cable laying while clamping bare on the walls , ceiling and structures including cost of clamps in complete shape	Rmt	5156.39
U2S 14	l)	Cable laying across the railway tracks	Rmt	32227.43
	2.2	Including excavation and excluding backfilling without cable laying		
U2S 15	a)	Hard rock with CC or BT Road surfaces etc.	Rmt	10957.32
U2S 16	b)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	3867.28
	2.3	Excluding excavation and including backfilling		
U2S 17	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	1611.37
U2S 18	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	6445.49
U2S 19	2.4	Only excavation and back filling of soil without laying of cable	Rmt	1933.65
U2S 20	2.5	Excavation and backfilling of suitable thermal backfill for maintaining soil thermal resistance value of 120 degrees	Cum	5156.39
U2S 21	2.6	Laying of cable excluding excavation and backfilling	Rmt	644.54

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	2.7	Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe		
U2S 22	a)	Soil/Morrem,soft rock (upto 5000 PSI) per pipe	Rmt	12633.14
U2S 23	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per pipe	Rmt	20625.56
	3	LAYING OF CO-AXIAL CABLE		
U2S 24	a)	240sq.mm. co-axial copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	19.34
U2S 25	b)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	19.34
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	19.34
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	19.34
	4	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	128.90
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	9023.68
	5	CABLE JOINTING		
		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.		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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	451183.99
U2S 31	b)	Jointing charges for cross bonding joints for each phase	Each	322274.26
	6	TERMINATION CHARGES		
		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.		
U2S 32	a)	220 KV tower mounted type cable end terminations including erection on tower in all respects per phase including scaffolding charges.	Each	541420.77
U2S 33	b)	220 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	451183.99
U2S 34	c)	220 kV SF6 type cable end terminations complete in all respect.	Each	451183.99
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 welding. The earthing scheme drawing shall be got approved with all earth resistance calculations considering the fault currents earth leads from link box to earth pit and connecting lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Each	32227.43
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.	13728.88

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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 foundations, columns, beams slabs wherever necessitated 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	CONNECTION OF LINK BOXES		
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	38672.91
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	51563.88
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	6445.49
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.	7734.58
U2S 43	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	257819.42

Annexure-XII
LAYING OF 220 KV UG CABLE (DOUBLE CIRCUIT)

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
	1	CABLE ROUTE SURVEY		
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.	322.28
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) .(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 estimate)	Mts.	1289.11
	2	LAYING OF CABLE		
	2.1	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)		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
U2D 3	a)	Hard gravel soils, BC soils, red earth, stone and earth mixed with fair size boulders etc	Rmt	17106.33
	b)	Hard Rock with soils	Rmt	23500.22
U2D 5	c)	CC or BT road surface etc.	Rmt	15246.20
U2D 6	d)	Hard Rock	Rmt	17581.99
U2D 7	e)	CC or BT road with Hard rock	Rmt	32660.56
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	21437.67
U2D 9	g)	Cable laying in built up trenches, cable trays and supports etc. complete including cost of trays and support etc, complete.	Rmt	21437.67
U2D 10	h)	Cable laying across the culverts and over bridges etc., complete in PVC pipes of 250 mm dia in complete	Rmt	21437.67
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	23203.74
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	5156.39
U2D 13	k)	Cable laying while clamping bare on the walls, ceiling and structures including cost of clamps in complete shape	Rmt	10312.78
U2D 14	l)	Cable laying across the railway tracks	Rmt	51563.88
	2.2	Including excavation and excluding backfilling without cable laying		
U2D 15	a)	Hard rock with CC or BT Road surfaces etc.	Rmt	21914.65
U2D 16	b)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	7734.58
	2.3	Excluding excavation and including backfilling		
U2D 17	a)	Hard Gravel soils, BC Soils, Red Earth, stone & Earth mixed with fair size boulders etc.,	Rmt	3222.75
U2D 18	b)	Hard rock with CC or BT Road surfaces etc.	Rmt	9023.68
U2D 19	2.4	Only excavation and back filling of soil without laying of cable	Rmt	3867.28
U2D 20	2.5	Excavation and backfilling of suitable thermal backfill for maintaining soil thermal resistance value of 120 degrees	Cum	10312.78

U2D 21	2.6	Laying of cable excluding excavation and backfilling	Rmt	1289.11
	2.7	Laying of cable by Horizontal Directional Drilling (HDD) incl. cost of 250 mm HDPE Pipe		
U2D 22	a)	Soil/Morrem,soft rock (upto 5000 PSI) per pipe	Rmt	12633.14
U2D 23	b)	Soil/Hard rock (5000 PSI upto 9000 PSI) per pipe	Rmt	20625.56
	3	LAYING OF CO-AXIAL CABLE		
U2D 24	a)	240sq.mm. co-axial copper cable conductor PVC insulated6.6KV grade across the cable.	Rmt	32.24
U2D 25	b)	240sq.mm.single core copper cable conductor PVC insulated 6.6KV grade across the cable.	Rmt	32.24
U2D 26	c)	240sq.mm. co-axial copper cable conductor PVC insulated6.6KV grade on pole mounted termination tower including cost of cleats	Rmt	32.24
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	32.24
	4	For pulling optical fiber cable the following items shall be done while excavation of trenches as per specifications		
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	128.90
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	9023.68
	5	CABLE JOINTING		
		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.		

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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.	657439.52
U2D 31	b)	Jointing charges for cross bonding joints for each phase	Nos.	322274.26
	6	TERMINATION CHARGES		
		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.		
U2D 32	a)	220 KV tower mounted type cable end terminations including erection on tower in all respects per phase including scaffolding charges.	Each	541420.77
U2D 33	b)	220 kV Outdoor type cable end terminations with silicon materials complete in all respect.	Each	451183.99
U2D 34	c)	220 kV SF6 type cable end terminations complete in all respect.	Each	451183.99
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 welding. The earthing scheme drawing shall be got approved with all earth resistance calculations considering the fault currents earth leads from link box to earth pit and connecting lug fixtures, fasteners shall be supplied. Length of the earth lead will be as per site condition/ connivance.	Nos.	51563.88

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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.	13728.88
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 foundations, columns , beams slabs wherever necessitated 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	CONNECTION OF LINK BOXES		
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	38672.91
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	51563.88

Item No.	Sl.No.	Description of Material/Work	UNIT	SSR 2019-20 (Rs.)
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.	6445.49
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.	12890.97
U2D 43	12	Site testing and commissioning (including phase sequence test, megger test, continuity test, HV test etc.)	KM	386729.12

EASTERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

CENTRAL POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

SOUTHERN POWER DISTRIBUTION COMPANY OF ANDHRA PRADESH LIMITED

Volume-II (PART – 1)

**Material rates
For Distribution
Network for the
year 2019-20**

Volume-II, Part-1**INDEX**

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**COMMON COST DATA 2019-20
OF CENTRALISED MATERIALS FOR
R.E. AND DISTRIBUTION WORKS**

Sl. No.	Name of the Material	Unit	Ex-Works inclu. F&I	GST	Unit rate in Rs.
	SUB HEAD-1 : SUPPORTS AND FIXTURES, IRON, STEEL AND CEMENT				
	1(a) RS JOISTS				
1.1	RS Joists 175 x 85mm	MT	48600	18%	57348
1.2	RS Joists 150 x 150mm	MT	47700	18%	56286
1.3	RS Joists 150 x 75mm	MT	47700	18%	56286
1.4	RS Joists 175 x 50mm	MT	47700	18%	56286
	1(b) PSCC POLES				
1.5	12.5 mts. Spun Poles 350kgs	Each	11074	18%	13067.32
1.6	11 mts. Spun Poles 350Kgs	Each	10255	18%	12100.9
1.7	11 mts. PSCC poles 365 Kgs	Each	6465	18%	7628.7
1.8	9.5 mts. Spun Poles 350Kgs	Each	8363.66	18%	9869.12
1.9	9.5 mts. Spun Poles 300Kgs	Each	8363.66	18%	9869.12
1.10	9.1 mts. PSCC poles 280 Kgs.	Each	3136	18%	3700.48
1.11	8 mts. PSCC poles 300 Kgs.	Each	1936.44	18%	2285
1.12	8 mts. PSCC poles 200 Kgs.	Each	1750	18%	2065
1.13	8 mts. PSCC poles 140 Kgs.	Each	1334.74	18%	1574.99
1.14	3 mts. RCC Fencing Poles	EA	263	18%	310.34
1.15	2 mts. RCC Fencing Poles	EA	110	18%	129.8
1.16	RCC Base Plate	EA	61	18%	71.98
	1(c) RAIL POLES				
1.17	7 mts. Rail poles	MT	48600	18%	57348
1.18	13 mts.52 Kg (105 lb) Rails	MT	48600	18%	57348
	1(d) STEEL MATERIALS				
1.19	MS Channel 100 x 50mm	MT	45000	18%	53100
1.20	MS Channel 75 x 40mm	MT	45000	18%	53100
1.21	MS Angle 130 x 130 x 12mm	MT	45000	18%	53100
1.22	MS Angle 65 x 65 x 6mm	MT	45000	18%	53100
1.23	MS Angle 50 x 50 x 6mm	MT	45000	18%	53100
1.24	MS Flat 75 x 8mm	MT	45000	18%	53100
1.25	MS Flat 50 x 6mm	MT	45000	18%	53100
1.26	GI Flat 25 x 4mm	MT	60682	18%	71604.76
1.27	GI Flat 25 x 6mm	MT	60682	18%	71604.76

1.28	GI SS Structures (including Fabrication and Galvanization charges)	MT	68106	18%	80365.08
1.29	GI Tower Parts of different sizes (including Fabrication and Galvanization charges)	MT	77174	18%	91065.32
1.30	MS Rod 20mm	MT	45619	18%	53830.42
1.31	MS Rod 16mm	MT	45619	18%	53830.42
	1(e) STEEL WIRE & MS SHEET				
1.32	HT Steel wire-4mm (NEW)	MT	56000	18%	66080
1.33	GI Stay wire 7/3.15 mm	MT	57372.88	18%	67700
1.34	GI Stay wire 7/2.5 mm	MT	57372.88	18%	67700
1.35	GI Wire 4.877 mm (SWG:6)		56915.25	18%	67160
1.36	GI Wire 4.064 mm (SWG:8)	MT	55381.36	18%	65350
1.37	C R Sheet 1.6mm	MT	44900	18%	52982
1.38	M S Plate 12mm/6mm	MT	44900	18%	52982
1.39	Torsteel 10mm/12mm	MT	45619	18%	53830.42
	1(f) BOLT & NUTS				
1.40	MS Bolts and Nuts with Washers full thread (5/8"X 1.5", 2", 6", 7", 8", 9")	MT	57600	18%	67968
1.41	MS Bolts and Nuts with Washers full thread (5/8" X 2 1/2", 3", 4")	MT	57600	18%	67968
1.42	MS Bolts and Nuts with Washers full thread (3/8" X 1 1/2")	MT	57600	18%	67968
1.43	MS Bolts and Nuts with Washers full thread (1/2" X 1 1/2")	MT	57600	18%	67968
1.44	MS Nuts 16 mm (1" Thick')	MT	57600	18%	67968
1.45	MS Nuts 16 mm (1/2" Thick')	MT	57600	18%	67968
1.46	MS Hexagonal Polished Nuts 3/4	MT	57600	18%	67968
1.47	GI Bolts and Nuts with Washers full thread (5/8"X 1.5", 2", 6", 7", 8", 9")	MT	68106	18%	80365.08
1.48	GI Bolts and Nuts with Washers full thread (5/8" X 2 1/2", 3", 4")	MT	68106	18%	80365.08

1.49	GI Bolts and Nuts with Washers full thread (3/8" X 1 1/2")	MT	68106	18%	80365.08
1.50	GI Bolts and Nuts with Washers full thread (1/2" X 1 1/2")	MT	68106	18%	80365.08
	1 (g) CEMENT				
1.51	Cement	MT	3900	18%	4602
	SUB HEAD-2 : INSULATORS AND HARDWARE				
	2(a) 33KV				
2.1	33 KV Pin Insulator	Each	203	18%	239.54
2.2	33 KV GI Pin	Each	139.14	18%	164.19
2.3	33 KV Polymer Pin Insulator with pins	Each	420	18%	495.6
2.4	33KV 70KN Disc Insulators	Each	331	18%	390.58
2.5	33 KV String Insulator Fittings (B&S Type Metal Parts)	Each	180	18%	212.4
2.6	33 KV polymer disc insulator/string insulator (B&S)	Each	229	18%	270.22
2.7	33 KV Post Type Insulators (Stags)	Each	776	18%	915.68
2.8	33 KV Solid Core Insulators	Each	1547.62	18%	1826.19
	2(b) 11KV				
2.9	11 KV Pin Insulator	Each	54	18%	63.72
2.10	11 KV GI Pin	Each	53.09	18%	62.65
2.11	11 KV Polymer Pin Insulator with Pins	Each	147	18%	173.46
2.12	11 KV Disc Insulator (B&S)	Each	200	18%	236
2.13	11 KV Disc Insulator (C&T)	Each	205	18%	241.9
2.14	11 KV Polymer Disc insulator (B&S)	Each	113.49	18%	133.92
2.15	11 KV Polymer Disc insulator (C&T)	Each	113.49	18%	133.92
2.16	11 KV Disc Insulator Fittings (C&T Type Metal Parts)	Each	88.14	18%	104.01
2.17	11KV Post Type Insulator	Each	223.6	18%	263.85
2.18	11 KV Solid Core Insulators for AB Switches	Each	223.73	18%	264
2.19	11 KV Solid Core Insulators for 11 KV HG Fuse sets	Each	156.62	18%	184.81
2.20	HT Guy Insulator	Each	45	18%	53.1

	2(c) LT				
2.21	LT Pin Insulator	Each	20.97	18%	24.74
2.22	LT GI Pin	Each	27.46	18%	32.4
2.23	LT Shackle Insulator	Each	21.31	18%	25.15
2.24	LT Metal Parts for Shackles	Each	34	18%	40.12
2.25	CI Knob	Each	11.01	18%	12.99
2.26	LT Guy Insulator	Each	23.64	18%	27.9
2.27	LT Bus-Bar Insulator with Aluminium Strip	Each	52.48	18%	61.93
	SUB HEAD-3 : CROSS ARMS AND TOP CLEATS				
	3(a) 33KV				
3.1	1.53 Mts 100X50 MS Channel Cross arms without back clamp (33KV V-Cross arm)	Each	1044	18%	1231.92
3.2	1.53 Mts 100X50 MS Channel Cross arms with back clamp (33KV V-Cross arm)	Each	1242	18%	1465.56
3.3	2.1 Mts. 33KV Tapping Cross arm with 100X50mm MS Channel	Each	970	18%	1144.6
3.4	33KV Top Cleat with Clamp with MS Angle 65x65x6	Each	304	18%	358.72
3.5	33KV Side arm (2.1Mts) with 100x50 MS Cannel and Strut(2.5Mts) with 65x65 MS Angle back clamp and stay clamp set	set	1944.36	18%	2294.34
3.6	33KV DP Sets (For Lines) with 100x50mm MS Channel, 65x65x6mm MS Angle and 75x8mm MS Flat Along with Fish Plates	set	7209.79	18%	8507.55
3.8	33KV T-Raiser (2.1M long and 1.5M height with 100x50MS Channel 2sets of stay clamps with 75x8mm MS Flat	set	2231.87	18%	2633.61
3.9	33KV T-Raiser (2.1M long and 2.1M height with 100x50MS Channel 2sets of stay clamps with 75x8mm MS Flat	set	2970.55	18%	3505.25

3.10	33KV Cut point with 100x50mm MS Channel, 75x8mm MS Flat for fish plates & strut clamps and 65x65x6mm MS Angle for strut	set	3792.58	18%	4475.24
	3(b) 11KV				
3.11	FRP V Cross Arm	Each	1664.26	18%	1963.83
3.12	1.07 Mts Channel Cross arms without back clamp (11KV V-Cross arm)	Each	481.5	18%	568.17
3.13	1.07 Mts Channel Cross arms with back clamp (11KV V-Cross arm) for 8M 200 Kgs	Each	459	18%	541.62
3.14	1.07 Mts Channel Cross arms with back clamp (11KV V-Cross arm) for 9.1 M pole	Each	610	18%	719.8
3.15	1.5Mts. 11KV Tapping Cross arm with 75X40mm MS Channel	Each	456	18%	538.08
3.16	11KV Top Cleat with Clamp for 8M PSCC pole	Each	179.66	18%	212
3.17	11KV Top Cleat with Clamp for 9.1 M PSCC pole	Each	260	18%	306.8
3.18	11KV Side arm (1.65Mts.) with 75x40 MS Channel and Strut (1.7Mts) with 50x50x6mm MS Angle back clamp and stay clamp set with 50x6mm MS Flat	set	1434	18%	1692.12
3.19	11KV DP Sets (For Lines) with 75x40mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat Along with Fish Plates	set	4523.04	18%	5337.19
3.20	11KV T-Raiser (1.5M long and 1.5M height with 75x40MS Channel 2sets of stay clamps with 50x6mm MS Flat	set	1133.67	18%	1337.73
	3(c) LT				
3.21	LT 3-Ph Cross arm (for 5 Wire line) without back clamp	Each	407	18%	480.26
3.22	LT 3-Ph Cross arm (for 5 Wire line) with back clamp	Each	610.32	18%	720.18

3.23	LT 3-Ph Cross arm (for 4 Wire line) without back clamp for 200 KG PSCC Pole	Each	334	18%	394.12
3.24	LT 3-Ph Cross arm (for 4 Wire line) with back clamp for 200 KG PSCC Pole	Each	325	18%	383.5
3.25	LT S-Ph Cross arm (for 3 Wire line) without back clamp for 200 KG PSCC Pole	Each	176	18%	207.68
3.26	LT S-Ph Cross arm (for 3 Wire line) with back clamp for 200KG PSCC Pole	Each	277	18%	326.86
3.27	LT S-Ph Cross arm (for 2 Wire line)	Each	152	18%	179.36
3.28	LT Top Cleat with Clamp	Each	192.49	18%	227.14
3.29	LT Side arm with Strut including back clamp and stay clamp set	set	1422	18%	1677.96
3.30	LT T-Raiser with 75x40MS Channel 2sets of stay clamps with 50x6mm MS Flat	set	1286.13	18%	1517.63
3(d) STAY SETS					
3.31	33KV MS Stay set complete without base plate and without stay clamps	Each	756.14	18%	892.25
3.32	33KV MS Stay set complete with base plate and stay clamps	Each	1145.73	18%	1351.96
3.33	11 KV / 6.3 KVMS Stay set complete without base plate and without stay clamps	Each	379.92	18%	448.31
3.34	11KV / 6.3 KV MS Stay set complete with base plate and stay clamps	Each	597.21	18%	704.71
3.35	LT Stay set complete without base plate and without stay clamps	Each	379.92	18%	448.31
3.36	LT Stay set complete with base plate and stay clamps	Each	571.98	18%	674.94

3(e) Back Clamps					
3.37	Back Clamp for Spun poles with 75X8mm MS Flat at HT	Each	125	18%	147.5
3.38	Back Clamp for Spun poles with 75X8mm MS Flat at LT	Each	134	18%	158.12
3.39	Back Clamp for 11.0 Mts PSCC pole with 75X8mm MS Flat	Each	125	18%	147.5
3.40	Back Clamp for 11.0 Mts PSCC pole with 50X6mm MS Flat	Each	59.95	18%	70.74
3.41	Back Clamp for 9.1 Mts PSCC pole with 75X8mm MS Flat	Each	125	18%	147.5
3.42	Back Clamp for 9.1 Mts PSCC pole with 50X6mm MS Flat	Each	59.95	18%	70.74
3.43	Back Clamp for 8 Mts PSCC pole with 50X6mm MS Flat	Each	47.45	18%	55.99
3(f) Stay Clamp Set					
3.44	Stay Clamps for Spun poles with 75X8mm MS Flat at Top	Set	322.14	18%	380.13
3.45	Stay Clamps for Spun poles with 75X8mm MS Flat at Bottom	Set	381.58	18%	450.26
3.46	Stay Clamps for 11.0 Mts PSCC pole with 75X8mm MS Flat	Set	253.16	18%	298.73
3.47	Stay Clamps for 11.0 Mts PSCC pole with 50X6mm MS Flat	Set	129	18%	152.22
3.48	Stay Clamps for 9.1Mts PSCC Pole with 75X8mm MS Flat	Set	218.41	18%	257.72
3.49	Stay Clamps for 9.1Mts PSCC Pole with 50X6mm MS Flat	Set	89	18%	105.02
3.50	Stay Clamps for 8 Mts PSCC polewith 50X6mm MS Flat	Set	76	18%	89.68
3.51	D Clamp for 8.0 M RS Joist poles	Each	60	18%	70.8
3 (g) WINDING WIRE					
3.52	DPC aluminium Winding Wire 1.25 mm	Kg	198	18%	233.64
3.53	DPC aluminium Winding Wire 1.6 mm	Kg	189.49	18%	223.6

3.54	SE alluminium Winding wire 19 SWG	Kg	236	18%	278.48
3.55	SE Copper Winding Wire 22 SWG	Kg	594	18%	700.92
3.56	SE Copper Winding Wire 25 SWG	Kg	573	18%	676.14
	3(h) DTR STRUCTURE MATERIAL				
3.57	11KV DP Sets (For DTRs) with 100x50mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat	Set	3698.29	18%	4363.98
3.58	SP Structure Material Total Set for mounting of TT AB switch with 75x40mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat	Set	1152.09	18%	1359.47
3.59	SP Structure Material Total Set with Mounting Arrangement for (16/25 KVA DTRS) with 75x40mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat	Set	2250	18%	2655
3.60	SP Structure Material Total Set with Mounting Arrangement for (16/25 KVA DTRS) with 50x50x6mm MS Angle and 50x6mm MS Flat	Set	1782.33	18%	2103.15
3.61	SP Structure Material Total Set with Mounting Arrangement for (40KVA) with 100x50mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat	Set	3048	18%	3596.64
3.62	SP Structure Material Total Set with Mounting Arrangement for S-Ph 16KVA with 75x40mm MS Channel, 50x50x6mm MS Angle and 50x6mm MS Flat	Set	549	18%	647.82
3.63	SP Structure Material Total Set for mounting of S-ph TT AB switch with 75x40mm MS Channel and 50x6mm MS Flat	Set	767.69	18%	905.87

3.64	HT Service, 2Nos DP Sets with 100x50 Channel, 75x40 Channel 50x50x6 MS Angle and 50x6 MS Flat		25904.28	18%	30567.05
3.65	LT Cat III A and HT metering Services 1No DP Set&1No SP Set with 100x50 Channel, 75x40 Channel 50x50x6 MS Angle and 50x6 MS Flat		16318.58	18%	19255.92
	SUB HEAD - 4 : CONDUCTORS				
4.1	ACSR Conductor Zebra	KM	199131	18%	234974.58
4.2	ACSR Conductor Panther 200 sq.mm.	KM	135860	18%	160314.8
4.3	AAA Conductor 150 Sq.mm	KM	70000	18%	82600
4.4	AAA Conductor 100 Sq.mm or (7/4.26 AAAC Dog)	KM	48206	18%	56883.08
4.5	AAA Conductor 55 Sq.mm or (7/3.15 AAAC/RABBIT)	KM	26503	18%	31273.54
4.6	34 Sq.mm AAA Conductor or (7/2.50 AAAC/Weasel)	KM	16420	18%	19375.6
4.7	11KV 70 Sqmm AAA Covered conductor	KM	443750	18%	523625
	Accessories for 11KV 70sqmm AAA covered conductor				
4.8	11KV Tension Insulator	Each	805.5	18%	950.49
4.9	11KV Tension Insulator Hardware	Each	320.5	18%	378.19
4.10	IPC (Insulating Piercing Connectors)	Each	1038.28	18%	1225.17
4.11	Ties	Each	421.2	18%	497.02
4.12	NDA Silicon/Surge Arrestor	Each	2151.3	18%	2538.53
4.13	11KV Mid span Jointing Kit	Each	4452.3	18%	5253.71
4.14	11KV Termination Kit	Each	2263.83	18%	2671.32
4.15	11KV 5KN Polymer Pin Insulator with GI Pin	Each	320.56	18%	378.26
	SUB HEAD-5 : CABLES				
	5(a) LT XLPE SINGLE CORE CABLES (Al)				
5.1	2.50 Sq.mm	KM	2224	18%	2624.32
5.2	4.00 Sq.mm	KM	3532	18%	4167.76
5.3	6.00 Sq.mm	KM	4447	18%	5247.46

5.4	10.00 Sq.mm	KM	7063	18%	8334.34
5.5	25.00 Sq.mm	KM	19532	18%	23047.76
5.6	50.00 Sq.mm	KM	36016.95	18%	42500
5.7	70.00 Sq.mm	KM	53000	18%	62540
5.8	95.00 Sq.mm	KM	65238.98	18%	76982
5.9	120.00 Sq.mm	KM	80194.92	18%	94630.01
5.10	150.00 Sq.mm	KM	98000	18%	115640
5.11	185.00 Sq.mm	KM	124000	18%	146320
	5(b) LT PVC SINGLE CORE CABLES (Al)				
5.12	25.00 Sq.mm	KM	18712	18%	22080.16
5.13	50.00 Sq.mm	KM	34268	18%	40436.24
5.14	70.00 Sq.mm	KM	44731	18%	52782.58
5.15	120.00 Sq.mm	KM	65397	18%	77168.46
	5(c)LT CONTROL CABLES				
5.16	2 X 2.5 Sq.mm Multi Strand (Cu)	KM	37100	18%	43778
5.17	4 X 2.5 Sq.mm Multi Strand(Cu)	KM	68211	18%	80488.98
5.18	4 x 4.0 Sq.mm Multi Strand(AL)	KM	22011	18%	25972.98
5.19	10 x 2.5 Sq.mm Multi Strand(Cu)	KM	161500.02	18%	190570.02
	5(d) LT XLPE CABLES (Al)				
5.20	3 1/2 X 300 sqmm LT XLPE cable	KM	558403	18%	658915.54
5.21	3 1/2 X 185 sqmm LT XLPE cable	KM	417816	18%	493022.88
5.22	3 1/2 X 150 sqmm LT XLPE cable	KM	303434	18%	358052.12
5.23	3 1/2 X 120 sqmm LT XLPE cable	KM	328474.57	18%	387599.99
5.24	3 1/2 X 95 sqmm LT XLPE cable	KM	254000	18%	299720
5.25	3 1/2 X 70 sqmm LT XLPE cable	KM	161693	18%	190797.74
5.26	3 1/2 X 50 sqmm LT XLPE cable	KM	121731	18%	143642.58
5.27	3 1/2 X 25 sqmm LT XLPE cable	KM	74279	18%	87649.22
	5(e) LT AERIAL BUNCHED CABLES (Al)				
5.28	1 x 16+25 Sq.mm LT AB Cable	KM	22011	18%	25972.98

5.29	2 x 16+25 Sq.mm LT AB Cable	KM	31900	18%	37642
5.30	3 x 16+25 Sq.mm LT AB Cable	KM	37800	18%	44604
5.31	3 x 70 + 1x16 +1x50 Sqmm LT AB Cable	KM	179600	18%	211928
	5(f) LT AERIAL BUNCHED CABLE FITTINGS				
5.32	Suspension Clamp with eye hook	Each	148	18%	174.64
5.33	LT Connector with Insulator Cover	Each	69	18%	81.42
5.34	Dead-end Clamp with eye hooks	Each	96	18%	113.28
	5(g) 11 KV XLPE POWER CABLES (Al)				
5.35	11KV 3 x 35 Sq.mm XLPE UG Cable	KM	457580	18%	539944.4
5.36	11KV 3 x 95 Sq.mm XLPE UG Cable	KM	565016	18%	666718.88
5.37	11KV 3 x 120 Sq.mm XLPE UG Cable	KM	654700	18%	772546
5.38	11KV 3 x 185 Sq.mm XLPE UG Cable	KM	874559	18%	1031979.62
5.39	11KV 3 x 300 Sq.mm XLPE UG Cable	KM	1175000	18%	1386500
	5(h) 11 KV AB Cable (Al)				
5.40	11KV 3x35+35 Sqmm. AB Cable	KM	224421	18%	264816.78
5.41	11KV 3x70+70 Sqmm. AB Cable	KM	291310	18%	343745.8
5.42	11KV 3x120+70 Sqmm. AB Cable	KM	435158	18%	513486.44
5.43	11KV 3x185+70 Sqmm. AB Cable	KM	645700.28	18%	761926.33
	5(i) 33 KV XLPE POWER CABLES (Al)				
5.44	33KV 3 x 400 Sq.mm XLPE UG Cable	KM	2095200	18%	2472336
5.45	33KV 3 x 300 Sq.mm XLPE UG Cable	KM	1569470	18%	1851974.6
5.46	33KV 3 x 185 Sq.mm XLPE UG Cable	KM	1287805	18%	1519609.9

	5(j) CABLE JOINTING KITS				
5.47	LT 3 1/2 CX300 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	978	18%	1154.04
5.48	LT 3 1/2 CX185 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	815	18%	961.7
5.49	LT 3 1/2 CX120 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	782.48	18%	923.33
5.50	LT 3 1/2 CX95 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	714	18%	842.52
5.51	LT 3 1/2 CX70 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	714	18%	842.52
5.52	LT 3 1/2 CX300 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Out door type.	Each	978	18%	1154.04
5.53	LT 3 1/2 CX185 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Out door type.	Each	815	18%	961.7
5.54	LT 3 1/2 CX95 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Out door type.	Each	714	18%	842.52
5.55	LT 3 1/2 CX70 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Out door type.	Each	714	18%	842.52
5.56	LT 3 1/2 CX30 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Out door type.	Each	664	18%	783.52
5.57	LT Single core 630 Sqmm heat shrinkable cable Straight through Termination Kits	Each	2034.72	18%	2400.97

5.58	LT 3 1/2 CX300 Sqmm heat shrinkable cable Straight through Termination Kits	Each	2187	18%	2580.66
5.59	LT 3 1/2 CX185 Sqmm heat shrinkable cable Straight through Termination Kits	Each	1573	18%	1856.14
5.60	LT 3 1/2 CX120 Sqmm heat shrinkable cable Straight through Termination Kits	Each	1427.7	18%	1684.69
5.61	LT 3 1/2 CX95 Sqmm heat shrinkable cable Straight through Termination Kits	Each	1346	18%	1588.28
5.62	LT 3 1/2 CX70 Sqmm heat shrinkable cable Straight through Termination Kits	Each	1346	18%	1588.28
5.63	LT 3 1/2 CX30 Sqmm heat shrinkable cable Straight through Termination Kits	Each	875	18%	1032.5
5.64	LT 25 sq.mm, 4Core Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	912.65	18%	1076.93
5.65	LT 16 sq.mm, 4Core Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	694.75	18%	819.81
5.66	LT 25 sq.mm, 2Core Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	754.18	18%	889.93
5.67	LT 10 sq.mm, 2Core Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	674.94	18%	796.43
5.68	11KV 3CX35 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	462.48	18%	545.73
5.69	11KV 3CX35 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Outdoor type.	Each	582.4	18%	687.23

5.70	11KV 3CX95 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Outdoor type.	Each	721.78	18%	851.7
5.71	11KV 3CX95 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	721.78	18%	851.7
5.72	11KV 3X95Sqmm heat shrinkable cable Straight through Termination Kits	Each	9091.15	18%	10727.56
5.73	11KV 3CX185 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Indoor type.	Each	3312.43	18%	3908.67
5.74	11KV 3CX185 Sq.mm Heat shrinkable Cable End Termination Kits suitable for Outdoor type.	Each	3312.43	18%	3908.67
5.75	11KV 3X185Sqmm heat shrinkable cable Straight through Termination Kits	Each	9091.15	18%	10727.56
5.76	11KV 3x300 Sqmm Heat shrinkable cable End Termination Kits suitable for Indoor type.	Each	3768.05	18%	4446.3
5.77	11KV 3x300 Sqmm Heat shrinkable cable End Termination Kits suitable for Outdoor type.	Each	4866.07	18%	5741.96
5.78	11KV 3X300Sqmm heat shrinkable cable Straight through Termination Kits	Each	9525.55	18%	11240.15
5.79	33KV 3X400Sqmm heat shrinkable cable End Termination Kits suitable for Indoor type.	Each	7937.95	18%	9366.78
5.80	33KV 3X400Sqmm heat shrinkable cable End Termination Kits suitable for Outdoor type.	Each	8569.03	18%	10111.46
5.81	33KV 3X400Sqmm heat shrinkable cable Straight through Termination Kits	Each	9525.55	18%	11240.15

5.82	33KV 3X185Sqmm heat shrinkable cable End Termination Kits suitable for Outdoor type.	Each	7937.95	18%	9366.78
5.83	33KV 3X185Sqmm heat shrinkable cable End Termination Kits suitable for Outdoor type.	Each	7937.95	18%	9366.78
5.84	33KV 3X185Sqmm heat shrinkable cable Straight through Termination Kits	Each	9525.55	18%	11240.15
	SUB HEAD -6: POWER TRANSFORMERS, CAPACITORS, SECTIONALIZERS, RMU, AUTO-RECLOSURES AND TRASFORMER OIL				
	6(a) POWER TRANSFORMERS				
6.1	33/11 KV 3.15 MVA Power Transformer	Each	2417939	18%	2853168.02
6.2	33/11 KV 5 MVA Power Transformer	Each	2801550	18%	3305829
6.3	33/11 KV 8 MVA Power Transformer	Each	3917288	18%	4622399.84
6.4	33/11 KV 10 MVA Power Transformer	Each	5100003	18%	6018003.54
6.5	33/11 KV 12.5 MVA Power Transformer	Each	6000003	18%	7080003.54
	6(b) CAPACITORS				
6.6	11 KV 2 MVAR Capacitor banks with associated equipment(auto switched) Type A (incl Capacitor bank, Equipment Structure, Capacitor Switch, LA, RVT, C&R panel with ACU & Earthing Material)	Each	1429237	18%	1686499.66

6.7	11 KV 2 MVAR Capacitor banks with associated equipment (Normal) Type A (incl Capacitor bank, Equipment Structure, Capacitor Switch, LA, RVT, C&R panel & Earthing Material)	Each	663051	18%	782400.18
6.8	11 KV 1 MVAR Capacitor banks with associated equipment (auto switched) Type A (incl Capacitor bank, Equipment Structure, Capacitor Switch, LA, RVT, C&R panel with ACU & Earthing Material)	Each	1340254	18%	1581499.72
6.9	11 KV 1 MVAR Capacitor banks with associated equipment (Normal) Type A (incl Capacitor bank, Equipment Structure, Capacitor Switch, LA, RVT, C&R panel & Earthing Material)	Each	584362	18%	689547.16
6.10	11KV 600KVR Auto Switched Line Capacitor with associated equipment (Automated Power Factor controller pannel, 200A AB Switch & Single Pole Structure for mounting)	Each	414019	18%	488542.42
6.11	11KV Capacitor Bank Cells 220.4 KVAR	Each	11610.17	18%	13700
6.12	11KV Capacitor Bank Cells 293.3 KVAR	Each	14745.76	18%	17400
6.13	11KV Capacitor Bank Cells 440.7 KVAR	Each	22125	18%	26107.5
6.14	11KV Capacitor Bank Cells 110 KVAR	Each	8550	18%	10089
	LT Switched capacitors	Each			
6.15	1x9 KVAR	Each	2157	18%	2545.26
6.16	1x10 KVAR	Each	2213	18%	2611.34

	6(c) SECTIONALIZER				
6.17	Sectionalizers	Each	501718	18%	592027.24
	6(d) RMUS				
6.18	33KV 3-way RMU without VCB	Each	863585.2	18%	1019030.54
6.19	33KV 3-way RMU with VCB	Each	1223556	18%	1443796.08
6.20	33KV 3-way RMU with VCB SCADA compatible	Each	3583033	18%	4227978.94
6.21	33KV switch Fuse unit (SFU)	Each	169312	18%	199788.16
6.22	11 KV 3 Way RMU (Conventional)	Each	145319	18%	171476.42
6.23	11 KV SF6 3 Way RMU without SCADA	Each	375615.2	18%	443225.94
6.24	11 KV SF6 5 Way RMU without SCADA	Each	631934.89	18%	745683.17
6.25	11 KV SF6 3 Way RMU (SCADA Compatable wiring with FRTU dummy panel) - without FRTU	Each	515400	18%	608172
6.26	11 KV SF6 3 Way RMU (SCADA Compatable with FRTU)	Each	736950	18%	869601
6.27	11 KV SF6 5 Way RMU (SCADA Compatable wiring with FRTU dummy panel) - without FRTU	Each	813600	18%	960048
6.28	11 KV SF6 5 Way RMU (SCADA Compatable with FRTU)	Each	1124550	18%	1326969
6.29	11KV switch Fuse unit (SFU)	Each	84656	18%	99894.08
	6(e) FRTU				
6.30	FRTU (Feeder Remote Teriminal Unit) for 3 way RMU	Each	210000	18%	247800
6.31	FRTU (Feeder Remote Teriminal Unit) for 5 way RMU	Each	230000	18%	271400
6.32	RTU (Remote Teriminal Unit) for Sub-Station	Each	938125	18%	1106987.5
6.33	IED RELAY: Intelligent Electronic Device (Feeder)	Each	75000	18%	88500

6.34	IED RELAY: Intelligent Electronic Device (LV Differential)	Each	125000	18%	147500
6.35	Numerical Relay 3 Phase 4 Element IDMT	Each	6525	18%	7699.5
	6(f) AUTO-RECLOSURE				
6.36	Auto - Reclosures	Each	879628	18%	1037961.04
	6(g) TRANSFORMER OIL				
6.37	Transformer Oil	KL	58500	18%	69030
	SUB HEAD -7: DISTRIBUTION TRANSFORMERS (CRGO)				
7.1	S-Ph 15 KVA DTR 6.3 KV/0-240 V	Each	31764.8	18%	37482.46
7.2	1-Phase 10kVA 11kV/250V (CSP) (Aluminium)	Each	23281	18%	27471.58
7.3	S-Ph 16 KVA CSP DTR 6.3 KV/0-240V (Cu)	Each	48389.84	18%	57100.01
7.4	S-Ph 15 KVA CSP DTR 6.3 KV/230-0-230V (Al)	Each	31764.8	18%	37482.46
7.5	S-Phase 25 KVA (CSP) (Al)	Each	46228.73	18%	54549.9
7.6	S-Ph 50KVA DTR CRGO conventional	Each	92500	18%	109150
7.7	S-Ph 75KVA DTR CRGO CSP	Each	128531	18%	151666.58
7.8	3-Ph 16 KVA Amorphous/CRGO core conventional type copper wound DTR with BEE 5 star rating Conventional DTR (Cu)	Each	69745.76	18%	82300
7.9	3-Ph 16KVA DTR CRGO conventional 3 star rating	Each	54308	18%	64083.44
7.10	3-Ph 16KVA DTR CRGO CSP	Each	56850	18%	67083
7.11	3-Ph 25 KVA Amorphous/CRGO core conventional type copper wound DTR with BEE 5 star rating (Cu)	Each	60624	18%	71536.32
7.12	3-Ph 25 KVA Amorphous/CRGO core conventional type Aluminum wound DTR with BEE 5 star rating	Each	58813.56	18%	69400

7.13	3-Ph 40 KVA Amorphous/CRGO core conventional type copper wound DTR with BEE 5 star rating Conventional DTR (Cu)	Each	106567.8	18%	125750
7.14	3-Ph 63 KVA Amorphous/CRGO core conventional type Al wound DTR with BEE 5 star rating (Al)	Each	110593.22	18%	130500
7.15	3-Ph 100 KVA Amorphous/CRGO core conventional type Al wound DTR with BEE 5 star rating (Al)	Each	130068.65	18%	153481.01
7.16	3-Ph 160 KVA Amorphous/CRGO core conventional type Al wound DTR with BEE 5 star rating (Cu)	Each	218092.71	18%	257349.4
7.17	3-Ph 250 KVA CSP DTR (Cu)	Each	384746	18%	454000.28
7.18	3-Ph 315 KVA CSP DTR (Cu) Conventional with BEE 5 star rating Conventional DTR (Cu)	Each	508331	18%	599830.58
7.19	3-Ph 500 KVA Conventional (Cu) with BEE 5 star rating Conventional DTR	Each	856167.32	18%	1010277.44
7.20	3-Ph 500 KVA Conventional (Cu) LEVEL-3	Each	673002	18%	794142.36
7.21	3-Ph 16 KVA Amorphous/CRGO core conventional type copper wound DTR with BEE LEVEL-3 rating Conventional DTR (Cu)	Each	69745.76	18%	82300
7.22	3-Ph 25 KVA Amorphous/CRGO core conventional type Aluminum wound DTR with BEE LEVEL-3 rating Conventional DTR (Al)	Each	49635	18%	58569.3
7.23	3-Ph 25 KVA Amorphous/CRGO core conventional type Aluminum wound DTR with BEE LEVEL-3 rating	Each	52813	18%	62319.34

7.24	3-Ph 40 KVA Amorphous/CRGO core conventional type copper wound DTR with BEE LEVEL-3 rating Conventional DTR (Cu)	Each	104913	18%	123797.34
7.25	3-Ph 63 KVA Amorphous/CRGO core conventional type Al wound DTR with BEE LEVEL-3 rating Conventional DTR (Al)	Each	91109	18%	107508.62
7.26	3-Ph 100 KVA Amorphous/CRGO core conventional type Al wound DTR with BEE LEVEL-3 rating Conventional DTR (Al)	Each	101959	18%	120311.62
7.27	3-Ph 160 KVA Amorphous/CRGO core conventional type Cu wound DTR with BEE LEVEL-3 rating Conventional DTR (Cu)	Each	179797	18%	212160.46
7.28	3-Ph 315 KVA Conventional DTR (Cu) Conventional with BEE LEVEL-3 rating DTR (Cu)	Each	498063	18%	587714.34
7.29	3-Ph 315 KVA CSP DTR (Cu) with BEE LEVEL-3 rating DTR (Cu)	Each	535001	18%	631301.18
	SUB HEAD -8: SWITCH CONTROL AND PROTECTIVE GEAR				
	8(a) 33KV & 11KV VCBs				
8.1	33 KV VCB with CTs & CR panels with differential protection (HV)	Each	398305	18%	469999.9
8.2	33 KV VCB with CTs & CR panels without differential protection	Each	345805	18%	408049.9
8.3	33KV Feeder VCBs with CTs & CR panels	Each	345805	18%	408049.9
8.4	33KV 220V VCBs with CTs Without CRP	Each	290000	18%	342200
8.5	33KV 220V DC VCB with Twin Feeder C&R Panel	Each	513266.61	18%	605654.6
8.6	33KV 220V DC Twin Feeder C&R Panel	Each	185000	18%	218300

8.7	11KV Pole Assembly with Vacuum interrupter	Each	25938.14	18%	30607.01
8.8	11KV Vacuum interrupter	Each	9915.25	18%	11700
8.9	33KV Pole Assembly with Vacuum interrupter	Each	45650.85	18%	53868
8.10	33KV Vacuum interrupter	Each	27333.05	18%	32253
8.11	33KV VCB Indoor Type Switchgear Transformer Control (HV control)	Each	825000	18%	973500
8.12	33KV VCB Indoor Type Switchgear for Feeder Control	Each	815000	18%	961700
8.13	33KV VCB Indoor Type Switchgear for Bus coupler	Each	855000	18%	1008900
8.14	33KV GIS Indoor Type Switchgear Transformer Control (HV control)	Each	2495000	18%	2944100
8.15	33KV GIS Indoor Type Switchgear for Feeder Control	Each	1745000	18%	2059100
8.16	33KV GIS Indoor Type Switchgear for Bus coupler	Each	3045000	18%	3593100
8.17	11 KV VCB with CTs & Panels (Feeder Control)	Each	220648	18%	260364.64
8.18	11 KV VCB with CTs & Panels (LV Control) with differential protection	Each	232820	18%	274727.6
8.19	11 KV VCB with CTs & Panels (LV Control) without differential protection	Each	248250	18%	292935
8.20	11KV VCB Indoor Type Switchgear Transformer (LV Control)	Each	400322	18%	472379.96
8.21	11KV VCB Indoor Type Switchgear for Feeder Type	Each	395836	18%	467086.48
8.22	11KV VCB Indoor Type Switchgear for Bus coupler	Each	656013	18%	774095.34
	8(b) 33KV & 11KV CTs				
8.23	33KV CTs 400-200-100/1-1-1A ratio 0.2s CL	Each	15976	18%	18851.68
8.24	33KV CTs 400-200-100/1-1-1A ratio 0.5s CL	Each	20850	18%	24603
8.25	33KV CTs 400-200-100/1-1A ratio 0.5 CL	Each	15976	18%	18851.68

8.26	33KV CTs 400-200-100/1-1A ratio 0.2s CL	Each	19100	18%	22538
8.27	33KV CTs 600-300/1-1A ratio 0.2s	Each	18400	18%	21712
8.28	33KV CTs (200-100/1-1A) 0.2 CL	Each	19894.18	18%	23475.13
8.29	33KV CTs (100-50/1-1A) 0.2 CL	Each	19804.44	18%	23369.24
8.3	33KV Metering CTs 10/1A, 0.2CL	Each	12915	18%	15239.7
8.31	33KV Metering CTs 50/1A 5VA 0.2CL	Each	13500	18%	15930
8.32	33KV Metering CTs 100/1A, 150/1A, 200/1A 5VA 0.2s CL	Each	22534.58	18%	26590.8
8.33	33KV Metering CTs 25/1A 5VA 0.2s CL	Each	12915	18%	15239.7
8.34	33KV Metering CTs 50/1A 5VA 0.2s CL	Each	13500	18%	15930
8.35	33KV Metering CTs 100/1A,5VA 0.2s CL	Each	13700	18%	16166
8.36	33KV Indoor Epoxy Resign Cast CTs 400-200-100/1-1-1A ratio 0.2s CL	Each	20676.07	18%	24397.76
8.37	33KV Indoor Epoxy Resign Cast CTs 400-200-100/1-1A ratio 0.5 CL	Each	20676.07	18%	24397.76
8.38	33KV Indoor Epoxy Resign Cast CTs (200-100/1-1A) 0.2 CL	Each	22621.32	18%	26693.16
8.39	11 KV feeder CTs (400-200-100/1-1A) (0.5 class)	Each	14050	18%	16579
8.4	11 KV CTs (50-25/1-1A)	Each	12393.65	18%	14624.51
8.41	11 KV CTs (400-200-100/5-5A)	Each	12243.81	18%	14447.7
8.42	11 KV CTs (600-300/5-5A) 0.5 CL	Each	12162.66	18%	14351.94
8.43	11 KV CTs (600-300/1-1A) 0.5 CL	Each	12162.66	18%	14351.94
8.44	11KV CTs 400-200-100/1-1A 0.2s CL	Each	14050	18%	16579
8.45	11 KV CTs 200-100/1-1A	Each	11111.11	18%	13111.11
8.46	11 KV CTs (600-300/1-1-0.577A) of 0.2s class	Each	15039.83	18%	17747

8.47	11 KV CTs (600-300-150/1-1-0.577A) of 0.2s class	Each	14872.38	18%	17549.41
8.48	11KV Metering CTs 200/1A,5VA 0.2s CL	Each	13700	18%	16166
8.49	11KV Indoor Epoxy Resign Cast CTs 400-200-100/1-1-1A ratio 0.2s CL	Each	21523	18%	25397.14
8.5	11KV Indoor Epoxy Resign Cast CTs 400-200-100/1-1A ratio 0.5 CL	Each	21523	18%	25397.14
8.51	11KV Indoor Epoxy Resign Cast CTs (200-100/1-1A) 0.2 CL	Each	9665	18%	11404.7
	8(c) 33KV & 11KV PTs				
8.55	33 KV PT (Single Phase) class 0.5,100VA	Each	17279.66	18%	20390
8.56	33 KV PT (Single Phase) class 0.2,100VA	Each	17281.91	18%	20392.65
8.57	33 KV PT (Single Phase) class 0.2S,10VA	Each	19500	18%	23010
8.58	33 KV PT (Three Phase) class 0.5	Each	20008	18%	23609.44
8.59	11 KV PT (3 Phase)	Each	17646	18%	20822.28
8.60	11 KV PT (Single Phase) class 0.2S,10VA	Each	19500	18%	23010
	8(d) AB Switches, LAs, HG Fuse sets, Batteries, Capacitors, RMUs etc.				
	(i). AB Switches				
8.61	33 KV 800 Amps AB Switch Double break with solid core insulator(Pipe/Knife)Type	Each	24923.5	18%	29409.73
8.61	11 KV 800 Amps AB Switch Double break with insulator(Pipe/Knife)Type	Each	15593.22	18%	18400
8.61	11 KV 400 Amps AB Switch Double break without insulators	Each	10845.61	18%	12797.82
8.62	11 KV 400 Amps AB Switch Single break with insulators	Each	7245	18%	8549.1
8.63	11 KV 400 Amps AB Switch Double break with insulators	Each	14650	18%	17287

8.64	11 KV 200 Amps AB Switch Single break with insulators	Each	6551.7	18%	7731.01
8.65	11 KV 200 Amps AB Switch (Tilting) Porcelain type insulators	Each	7455.18	18%	8797.11
8.66	11 KV 200 Amps AB Switch (Tilting) polymer type insulators	Each	5388	18%	6357.84
8.67	6.3KV Single Phase 100A TT AB switches with insulators	Each	2359	18%	2783.62
	(ii). Lighting Arresters				
8.68	30 KV 10 KA Metal Oxide Lightning Arrester (station type)	Each	2793	18%	3295.74
8.69	30 KV 10 KA Metal Oxide Lightning Arrester (Line type)	Each	1941.39	18%	2290.84
8.70	9 KV 10 KA Metal Oxide Lighting Arrester (station type)	Each	1781.19	18%	2101.8
8.71	9 KV 5 KA Metal Oxide Lighting Arrester (line type)	Each	292	18%	344.56
	(iii). HG Fuse Sets				
8.72	33 KV HG Fuse set with insulators	Set	8000	18%	9440
8.73	11 KV HG Fuse Set with insulators with MS	Set	1432.21	18%	1690.01
8.74	11 KV HG Fuse Set with insulators with GI	Set	1798.31	18%	2122.01
8.75	6.3 KV HG Fuse Set with insulators	Set	693.33	18%	818.13
8.76	LT HG Fuse Set with insulators	Set	1071	18%	1263.78
	(iv). Batteries & Chargers				
8.77	24V, 40 AH Battery set including Battery charger	Each	16000	18%	18880
8.78	24 Volts 40 AH Battery set without Battery charger	Each	5100	28%	6528
8.79	12 V, 42 AH SMF Batteries cells	Each	3382.5	28%	4329.6
8.80	12 V, 26 AH SMF Batteries cells	Each	1730	28%	2214.4
8.81	12 V, 7AH SMF Batteries cells	Each	631.4	28%	808.19

8.82	12 V, 100AH SMF Batteries cells	Each	3382.5	28%	4329.6
8.83	12 V, 80 AH SMF Batteries cells	Each	4600	28%	5888
8.84	220 V, 80 AH SMF Batteries and Chargers & DCDB	Each	262715	18%	310003.7
8.85	220 V, 80 AH SMF Batteries	Each	168998	28%	216317.44
	SUB HEAD -9: ENERGY METERS , METERING EQUIPMENT AND BOXES				
	9(a) Energy Meters				
9.1	1-Ph 5-20A High quality Meter Class 1	Each	636.61	18%	751.2
9.2	1 Ph 5-30A IRDA Meter, Sup Capacitor with PP Box	Each	589.75	18%	695.91
9.3	1 Ph 5-30A IRDA Meter, Sup Capacitor without PP Box	Each	457.43	18%	539.77
9.4	1-Ph 2.5-10A Electronic Energy Meter	Each	378.42	18%	446.54
9.5	1-Ph 5-30A IrDA Net meter with PP Box	Each	1042.37	18%	1230
9.6	3-Ph 5-30A IrDA Net meter with PP Box	Each	2135.59	18%	2520
9.7	3-Ph 3x(5-30)A IrDA Electronic Meter with P P Box	Each	1267.68	18%	1495.86
9.8	3-Ph 3x(5-30)A IrDA Electronic Meter without P P Box	Each	1443.29	18%	1703.08
9.9	3-Ph 3x(10-40)A Electronic Meter with P P Box	Each	1667.88	18%	1968.1
9.10	3-Ph 10-60A Net meter with PP Box	Each	5582	18%	6586.76
9.11	200/5A 3-Ph CT Operated Electronic LT TVR Meter Class 0.5 with PP Box	Each	6186.44	18%	7300
9.12	125/5A 3-Ph Ir.DA CT Operated Electronic LT TVR Meter Class 0.5 with PP Box	Each	6186.44	18%	7300
9.13	125/5A 3-Ph CT Operated Electronic LT TVR Meter Class 0.5s with DLMS Class C with PP Box.	Each	4592	18%	5418.56

9.14	125/5A 3-Ph CT Operated Electronic LT TVR Meter Class 0.5s with DLMS without CTs and PP Box.	Each	1991.53	18%	2350.01
9.15	100/5A 3-Ph CT Operated Electronic LT TVR Meter Class 0.5s with DLMS without CTs and PP Box.	Each	2570	18%	3032.6
9.16	200/5A 3-Ph CT Operated Electronic LT TVR Meter Class 0.5s with DLMS without CTs and PP Box.	Each	2570	18%	3032.6
9.17	10/5A,20/5A,30/5A,40/5A,50/5A,60/5A,75/5A HT TVR Meter Class 0.5	Each	4406.78	18%	5200
9.18	200/1A,100/1A HT TVR Meter Class 0.2	Each	4576.27	18%	5400
9.19	HTTVR 3Ph 4W 11KV/110V 10/5A 0.5S 30Min DLMS-C	Each	4406.78	18%	5200
9.20	HTTVR 3Ph 4W 11KV/110V 200/1A 0.2S DLMS-A	Each	4576.27	18%	5400
9.21	HTTVR 3Ph 4W 11KV/110V, -/1A 0.2S DLMS-A	Each	4576.27	18%	5400
9.22	HTTVR 3Ph 4W 11KV/110V, -/5A 0.2S DLMS-A	Each	4576.27	18%	5400
9.23	HTTVR 3Ph 4W 33KV/110V 200/1A,100/1A 0.2S 15Min IP DLMS	Each	4964.37	18%	5857.96
9.24	HTTVR 3Ph 4W 33KV/110V 50/1A, 0.2S 15Min IP DLMS	Each	4576.27	18%	5400
9.25	HTTVR 3Ph 4W 33KV/110V 200/1A,100/1A 0.2S 30Min IP DLMS-C	Each	4576.27	18%	5400
9.26	HTTVR 3Ph 4W 132KV/110V 200/1A,100/1A 0.2S 15Min IP DLMS	Each	4576.27	18%	5400
9.27	HTTVR 3Ph 4W 132KV/110V 200/1A,100/1A 0.2S 30Min IP DLMS	Each	14256.93	18%	16823.18
9.28	HTTVR 3Ph 4W 200KV/110V 100/1A 0.2S 15Min IP DLMS	Each	14256.93	18%	16823.18
9.29	11KV-400KV/110V,(40A-1000A) ABT Energy meters 0.2S Class	Each	56453.75	18%	66615.43

9.30	AMR Unit for DTRs, Feeders and High Load services	Each	2620	18%	3091.6
	9(b) 11KV Metering Cubicles				
9.31	11KV Metering Panel with CTs & PTs (Indoor)	Each	126984.13	18%	149841.27
9.32	33KV Metering Panel with CTs & PTs (Indoor)	Each	253968.25	18%	299682.54
9.33	11KV C.T.P.T. set 5/5A	Each	30708.47	18%	36235.99
9.34	10/5 A class 0.2S (Outdoor Type)	Each	27373.73	18%	32301
9.35	10/5 A class 0.2S (Indoor Type)	Each	29886	18%	35265.48
9.36	20/5 A class 0.2S (Outdoor Type)	Each	27373.73	18%	32301
9.37	20/5 A class 0.2S (Indoor Type)	Each	29431	18%	34728.58
9.38	30/5A class 0.2S (Outdoor Type)	Each	28264	18%	33351.52
9.39	40/5A class 0.2S (Outdoor Type)	Each	29173.73	18%	34425
9.40	40/5A class 0.2S (Indoor Type)	Each	29425	18%	34721.5
9.41	60/5 A class 0.2S (Outdoor Type)	Each	28578	18%	33722.04
9.42	60/5 A class 0.2S (Indoor Type)	Each	28577.65	18%	33721.63
9.43	75/5 A class 0.2S (Outdoor Type)	Each	28577.65	18%	33721.63
9.44	75/5 A class 0.2S (Indoor Type)	Each	28577.65	18%	33721.63
	9(c) Meter Boxes, A-Type Distribution Boxes & B-Type Distribution Box				
9.45	1-Ph Moulded Meter Box	Each	322.54	18%	380.6
9.46	1-Ph SMC Meter Box with fixing clamps	Each	345.4	18%	407.57
9.47	3-Ph Moulded Meter Box	Each	448.68	18%	529.44
9.48	3-Ph SMC Meter Box with fixing clamps	Each	619.69	18%	731.23
9.49	CT Operated Moulded Meter box	Each	1656.72	18%	1954.93
9.50	HT Meter Box	Each	3389.83	18%	4000

9.51	A Type Distribution Box with 300A,500V Knife type Fuse Units for 2-Feeders	Each	6084.75	18%	7180.01
9.52	A Type Distribution Box with 200A,100A 500V Knife type Fuse Units for 1-Feeders	Each	2475	18%	2920.5
9.53	A Type Distribution Box with 200A, 100A, 500V Knife type Fuse Units for 1-Feeders(SMC)	Each	4504.24	18%	5315
9.54	A Type Distribution Box with 300A, 500V Knife type Fuse Units for 2-Feeders (SMC)	Each	12068.64	18%	14241
9.55	B Type Distribution Box for Street Light	Each	1693.12	18%	1997.88
9.56	Fuse Unit with knife type 100A,500V	Each	488	18%	575.84
9.57	Fuse Unit with knife type 200A,500V	Each	200.64	18%	236.76
9.58	Fuse Unit with knife type 300A,500V	Each	539.1	18%	636.14
	SUB HEAD -10: EARTHING MATERIALS				
10.1	GI Earth pipe 40 mm (2.5 mts. Length)	Each	467	18%	551.06
10.2	CI Earth pipe 50mm dia, (2.0 mts. Length)	Each	1343.23	18%	1585.01
10.3	CI Earth pipe 80mm dia, (2.5 mts. Length)	Each	2245	18%	2649.1
10.4	CI Earth pipe 150mm dia, (2.75 mts. Length)	Each	6300	18%	7434
10.5	Fire Extinguisher 5kg	Each	3450	18%	4071
	SUB HEAD -11: OTHER MATERIALS				
11.1	11KV CT Through Clamp	Each	137.15	18%	161.84
11.2	100sq.mm.conductor Pad-Clamp for AB Switch Fixed Contact	Each	127.45	18%	150.39
11.3	Pipe-Panther T-Clamp	Each	127.45	18%	150.39
11.4	Panther-Panther T-Clamp	Each	98	18%	115.64
11.5	Dead-end Clamp for pipe type bus (single end)	Each	99	18%	116.82
11.6	Dead-end Clamp for pipe type bus (Double end)	Each	167.6	18%	197.77

11.7	11KV 200A Fixed Contacts for Tilting Type AB Switch	Each	230	18%	271.4
11.8	11KV 200A Moving Contacts for Tilting Type AB Switch	Each	227.31	18%	268.23
11.9	11KV 200A Fixed Contacts for Horizontal Type AB Switch	Each	335	18%	395.3
11.10	11KV 200A Moving Contacts for Horizontal Type AB Switch	Each	473	18%	558.14
11.11	11KV 400A Fixed Contacts for Horizontal Type AB Switch	Each	386.01	18%	455.49
11.12	11KV 400A Moving Contacts for Horizontal Type AB Switch	Each	552	18%	651.36
11.13	11KV 800A Fixed Contacts for Horizontal AB Switch (Pipe Type)	Each	1050	18%	1239
11.14	11KV 800A Moving Contacts for Horizontal AB Switch (Pipe Type)	Each	1809	18%	2134.62
11.15	33KV 800A Fixed Contacts for Horizontal AB Switch (Pipe Type)	Each	1122	18%	1323.96
11.16	33KV 800A Moving Contacts for Horizontal AB Switch (Pipe Type)	Each	2197.31	18%	2592.83
11.17	Hand Held Computers with Printer Spot Billing Machine	Each	10508.47	18%	12399.99
11.18	Hand Held Computers with Printer Spot Collection Machine	Each	9915.25	18%	11700
11.19	CMRI	Each	26769.1	18%	31587.54

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

**MATERIAL RATES
for TRANSMISSION SYSTEM**

FOR THE YEAR 2019-20

INDEX

VOLUME-II, PART-2

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MATERIAL RATES FOR 220 KV & 132 KV SUBSTATIONS & LINES WORKS			
S.NO	Description of material	Unit	Ex-works Price without GST and F&I
1	220 kV SF6 Circuit Breaker	Nos	1054734
2	132KV SF6 CircuitBreaker-3 Pole	Nos	458580
3	132KV SF6 CircuitBreaker-2 Pole	Nos	389284
4	33 kV Vaccum outdoor circuit breaker	Nos	173106
5	220 kV CTs(800-600-400A/1-1-0.5,1-0.5,1-1A)	Nos	230807
6	220KV CT (800-500-300/1-0.66,1-0.375,0.5,0.625,0.83,1-0.375,1-1A)	Nos	233276
7	132 kV CT(800-500/1-0.5775,0.66,1-1A)	Nos	100870
8	132KV PTR HV CTs 800-500-300/1-0,5775,0.66,1-1A	Nos	100870
9	132 kV CTs(600-300/1-1-1A)	Nos	95392
10	132 kV CTs(300-200-100/1-0.5775,1-1A)	Nos	96689
11	132KV 0.2S Class metering CT of ratio 600/1 A	Nos	91891
12	132KV CT of ratio 300/1A (metering)	Nos	91880
13	132KV 0.2S Class metering CT of ratio 150/1 A	Nos	78599
14	33 kV CTs(2000/1-0.5775,1-1A)	Nos	55800
15	33kV CTs (1600-1200-800/1-0.5775,1-1-190.2S)A)	Nos	53100
16	33 kV CTs 1200 A	Nos	37800

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
17	33 kV CTs (400-200/1-1 A)	Nos	28000
18	33KV NCT of ratio (240-120/1-1A)	Nos	28167
19	33kV NCTs 10/1A	Nos	23473
20	220 kV PTs	Nos	183583
21	132 kV PTs	Nos	92307
22	33 kV PTs	Nos	26000
23	220 kV CVTs-3 core	Nos	128920
24	132 kV CVTs	Nos	108293
25	220 kV LAs	Nos	36271
26	132 kV LAs	Nos	30065
27	33 kV LAs	Nos	3186
28	220 kV 1600A Isolators without E/S	Nos	160014
29	220 kV 1600A Isolators with E/S	Nos	204644
30	220 kV 800A Isolators without E/S	Nos	114296
31	220 kV 800A Isolators with E/S	Nos	158926
32	132 kV 800A Isolators with E/S	Nos	106676
33	132 kV 800A Isolators without E/S	Nos	68457
34	33 kV Isolators-2000 A	Nos	43033

S.NO	Description of material	Unit	EX works Price without GST and F&I
35	33 kV Isolators-1200 A	Nos	33362
36	33 kV Isolators-800 A	Nos	30283
37	220 kV Solid core insulators (with creepage 25 mm/KV)	Nos	16901
38	220 kV Solid core insulators (with creepage 31 mm/KV)	Nos	23500
39	132 kV Solid core insulators (with creepage 31mm/KV)	Nos	12000
40	132 kV Solid core insulators (with creepage 25mm/KV)	Nos	8000
41	33kV Solid core insulators (with creepage 25mm/KV)	Nos	1750
42	220V,200AH Battery set (VRLA)	Nos	274494
43	220V,100 AH Battery set (VRLA)	Nos	170500
44	a) 220V,200AH Battery charger	Nos	208000
	b) 220V,80AH Battery charger	Nos	170000
45	250KVA 33/0.4KV Station Transformer	Nos	324175
46	100KVA 33/0.4KV Station Transformer	Nos	218776
47	220/132KV HV &LV Transformer C&R panel	Nos	708306
48	220KV feeder C&R panel	Nos	708306
49	a)220KV bus bar protection panel (16 Bays)	Nos	1190000
	b) 220KV bus bar protection panel (24 Bays)	Nos	1250000
50	220KV Bus Coupler C&R panel	Nos	523080
51	132 KV feeder C&R panel	Nos	368500
52	132/33KV transformer C&R panel	Nos	748500
53	a) 33KV twin feeder C&R panel	Nos	353000
	b) 33KV Capacitor Bank C&R Panels	Nos	348000

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
54	LTAC panel	Nos	134980
55	220KV PTDB panel	Nos	50180
56	132 PT Distribution Panel	Nos	43355
57	2CX2.5 Sq.mm	Km	39045
58	4CX2.5 Sq.mm	Km	60287
59	6CX2.5 Sq.mm	Km	89429
60	10CX2.5 Sq.mm	Km	142712
61	12CX2.5 Sq.mm	Km	167852
62	3.5CX70/95 Sqmm Al. power cable	Km	249132
63	3.5CX120 Sqmm Al. power cable	Km	285584
64	220KV 70KN SRC Insulators	Nos	3087
65	220KV 120KN SRC Insulators	Nos	3474
66	132KV 70KN SRC Insulators	Nos	1742
67	132KV 120 KN SRC Insulators	Nos	1841
68	70 kN Disc Insulators	Nos	295
69	120 kN Disc Insulators	Nos	475
70	ACSR Panther conductor	Km	126407
71	ACSR Zebra Conductor	Km	211394
72	ACSR Moose conductor	Km	257655
73	7/3.15 mm HTGS wire	Km	25500
74	Bolts & Nuts	MT	72963
	Hardware for Panther Conductor		
75	Double suspension H/W (AGS type) for Panther conductor	Nos	3465

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
76	Single Suspension H/W for Panther (Pilot)	Nos	1280
77	Single Suspension H/W (AGS-FAH) Panther ACSR	Nos	1425
78	Single Suspension H/W (AGS -AAH) for Panther ACSR	Nos	1425
79	Double Tension H/W for Panther ACSR	Nos	3100
80	Single Tension H/W for Panther ACSR	Nos	1567
81	Mid Span Compression joints for Panther	Nos	325
82	Vibration dampers for Panther ACSR	Nos	468
83	Repair sleeves for Panther conductor	Nos	178
	Hardware for Moose Conductor		
84	Single Suspension H/W (AAH type) for Moose Conductor	Nos	3064
85	Double Tension H/W suitable for Moose	Nos	4578
86	Single Tension H/W suitable for Moose	Nos	2621
87	Double suspension h/w (AGS type) for moose conductor	Nos	5054
88	Single Suspension H/W (FAH) for Moose	Nos	3064
89	Single Suspension H/W suitable for Moose (Pilot)	Nos	1498
90	220 KV Single suspension hardware for Twin moose	Nos	3180
91	220 KV Double suspension hardware for quadruple moose	Nos	6584
92	Spacer clamps with 400mm spacing for twin moose	Nos	513
93	T clamps for twin moose to single moose with 400mm spacing	Nos	707

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
94	Suspension clamps suitable for twin Moose conductor for 220KV and 132KV	Nos	555
95	Mid Span Compression joints for Moose	Nos	841
96	Repair sleeves for Moose conductor	Nos	317
97	Vibration dampers for Moose conductor	Nos	832
98	Armour Rods for Moose ACSR conductor	Nos	1431
99	Arcing Horns for Single suspension Moose	Nos	429
100	Arcing Horns for Single V-Suspension Moose	Nos	218
	Hardware for Earth wire (7/3.15mm)		
101	Tension hardware with earth bond	Nos	625
102	Suspension hardware with earth bond	Nos	625
103	Midspan compression Joints for earthwire	Nos	91
	Tower Accessories		
104	Number Plates	Nos	151
105	Phase Plates	Nos	56
106	Danger Boards	Nos	63
107	Bird guards	Nos	154
108	Anti Climbing devices	Set	2601
109	U Bolts 16mm	Nos	157
110	U Bolts 20mm	Nos	180
111	Hangers 220 KV	Nos	531
112	Armour Rods for Panther ACSR conductor	Nos	630
113	Arcing Horns for Panther ACSR conductor	Nos	439

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
	Hardware		
114	5 bolted type single tension h/w for single moose or zebra conductor for 220KV & 132KV	Nos	1720
115	5 bolted twin zebra / moose tension h/w 400mm spacing for 132/220KV bus	Sets	3813
116	3 bolted type single tension h/w for single moose or zebra conductor for 33KV	Nos	1253
117	3 bolted tension hardware for twin moose with 150mm spacing to 33KV bus	Nos	2685
118	T Clamps for single Moose all three ways	Nos	644
119	T clamps for twin Moose T off single Moose with 150mm spacing	Nos	542
120	Spacer clamps with 150mm spacing for twin moose	Nos	342
121	post type insulator support clamps for twin conductor for 220KV & 132KV	Nos	704
122	Post type insulator support clamps for single conductor for 220KV & 132KV	Nos	565
123	Post type insulator support clamps for twin conductor for	Nos	620
124	Post type insulator support clamps for single conductor for 33KV	Nos	494
125	Pad type compressor clamp for GS Earth wire to 75/12 flat	Nos	113
126	Cleat type clamp for G.S. Earth wire	Nos	78
127	T clamp for GS Earth wire	Nos	299
128	Bolted earth wire tension clamp	Set	645
129	Supply and fixing GI flexible earth bonds	Nos	283
130	Supply and erection of LED lamps (120W) with fixture	Nos	5709
131	Marshalling Kiosk	Nos	20656
132	CT Marshalling boxes(220/132/33KV)	Nos	3985
133	PT Marshalling boxes(220/132/33KV)	Nos	5310
134	LT Distribution box with MCCB	Nos	11129

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
135	Lighting Pillar Box	Nos	8023
136	CO2 portable fire extinguishers of 15 Lbs capacity without trolley and hose pipe	Nos	7014
137	CO2 portable fire extinguishers of 50 Lbs capacity and hose pipe	Nos	15829
138	DCP type fire extinguishers with horn and hose pipe 50Kg capacity, Trolley mounted	Nos	2466
139	Foam type portable fire extinguishers with horn and hose pipe 50 Lts capacity	Nos	2313
140	CO2 with water type portable fire extinguishers with horn and hose pipe	Nos	2180
141	15KVA DG set (CGL/Kirloskar)	Nos	182900
142	25KVA DG set (CGL/Kirloskar)	Nos	235900
143	HG fuse set with insulators	Nos	8194
144	Rubber mats	Nos	1035
145	MDF Board with 12mm thick 3x4 size with teak wood	Nos	4406
146	Portable Twin Tube 20W emergency portable Lamp of make Philips or bajaj	Nos	1087
	SAS Automation Panels		
147	220 kV Feeder Control & Relay Panels with BCUs as per BOM	Nos	900000
	a) Spare Distance relay (same type as offered in the tender)	Nos	160000
	b) Spare BCU + Spare Directional Over Current and Earth fault Relay / BCPUs (same type as offered in the tender)	Nos	70000
148	220/132kV Power Transformer Control & Relay Panels with BCUs as per BOM	Nos	900000
	a) Spare BCU + Spare Directional Over Current and Earth fault Relay / BCPUs (same type as offered in the tender)	Nos	70000
	b) Spare Differential relay (same type as offered in the tender)	Nos	250000
149	220kV Bus Bar Scheme Panel (for 16 Bays) for double bus system as per BOM	Nos	1400000
150	220kV Bus Coupler Panel with BCUs as per BOM	Nos	550000
151	132 kV feeder Control & Relay Panel with BCUs as per BOM.	Nos	700000

S.NO	Description of material	Unit	Ex-works Price without GST and F&I
	a) Spare Distance relay (same type as offered in the tender)	Nos	160000
	b) Spare BCU + Spare Directional Over Current and Earth fault Relay / BCPU (same type as offered in the tender)	Nos	70000
152	132 /33 KV Power Transformer Control & Relay Panel with BCUs as per BOM	Nos	900000
	a) Spare BCU + Spare Directional Over Current and Earth fault Relay / BCPU (same type as offered in the tender)	Nos	70000
	b) Spare Differential relay (same type as offered in the tender)	Nos	250000
153	33 kV Twin feeder Control & Relay Panel with BCUs as per BOM.	Nos	400000
	a) Spare BCU + Spare Directional Over Current and Earth fault Relay / BCPU (same type as offered in the tender)	Nos	70000
154	132 kV Feeder Control & Relay Panel with BCUs with Line Differential relay (with 2-phase, for railway) (which shall communicate other end line differential relay through FO Cable) without Distance Scheme as per BOM.	Nos	750000
	a) Spare line differential relay (which shall communicate other end line differential relay through FO Cable) (3- phase) (same type as offered in the tender)	Nos	200000
155	Industrial grade desktop PC with 24" (TFT) Monitor with software & furniture as per BOM.	Nos	200000
156	132 Column Dot Matrix Printer: USB port with furniture as per BOM.	Nos	40000
157	A4 Laser color printer with furniture as per BOM	Nos	80000
158	GPS clock, antenna & Associated equipment for time synchronization.	Nos	200000
159	3 KVA Inverters as per Appendix – II of Specification.	Nos	80000
160	Data Concentrator for Energy Meters interface with IEC61850.	Nos	83500
161	Gateway consists of chassis, mother board, power supply, processor with communication ports: a) IEC 60870-5- 101 and b) IEC 60870-5-104. *	Nos	300000
	XLPE Cables		
162	33KV 400Sqmm 1 core copper XLPE cable	Km	2226409
163	33KV 400Sqmm 3core Al XLPE cable	Km	1619931

MATERIAL RATES FOR 400KV SUBSTATIONS & LINES WORKS

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
A	ISOLATORS		
I	420 KV 3 pole outdoor type horizontal centre break Isolators 3 phases 50 c/s of 3150 Amps and fault level of 50 KA per second A.C. Motor operated with all accessories, auxiliaries marshalling boxes, Terminal Connectors other essentials as specified.		
a)	With single earth switch		
	(i) Metallics	Sets	463802.00
	(ii) Insulators (1 set = 6 Nos. Insulators)	Sets	197640.00
b)	With double earth switch		
	(i) Metallics	Sets	589783.00
	(ii) Insulators (1 set = 6 Nos. Insulators)	Sets	197640.00
II	245 KV 3 pole outdoor type horizontal double break Isolators 3 phases 50 c/s of 1600 Amps and fault level of 40 KA per second A.C. Motor operated with all accessories, auxiliaries marshalling boxes, Terminal connectors other essentials as specified. (creepage distance of 31mm/kV)		
a)	With Double earth switch		
	(i) Metallics	Sets	249274.00
	(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	157100.00
b)	with Single earth switch		
	(i) Metallics	Sets	199459.00
	(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	157100.00
c)	without earth switch		
	(i) Metallics	sets	140976.00
	(ii) Insulators (1 set = 9 Nos. Insulators)	sets	157100.00
III	245 KV 3 pole outdoor type horizontal double break Isolators 3 phases 50 c/s of 2500 Amps and fault level of 40 KA per second ,A.C. Motor operated with all accessories, auxiliaries marshalling boxes, Terminal connectors other essentials as specified.(creepage distance of 31mm/kV)		
a)	with Single earth switch		
	(i) Metallics	sets	236149.00
	(ii) Insulators (1 set = 9 Nos. Insulators)	sets	157100.00
iv)	Mandatory Spares for 420kV Isolators		60179.00
a)	Support insulator stack for one phase of Isolator	Set	
b)	Female contact assembly (for main and Earth switch of one isolator)	Set	
c)	Rotary bearings for Isolators (for one phase of Isolator)	Set	
d)	Male contact assembly(for main and Earth switch of one isolator)	Set	
e)	Limit switch and auxiliary switch (for one phase of Isolator) - 3Nos	Sets	

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
f)	Terminal pad and connectors -9Nos	Sets	
g)	Operating mechanism box complete set(for one isolator with one earth switch)	set	
v)	Mandatory Spares for 245kV Isolators.		60179.00
a)	Support insulator stack for one phase of Isolator	set	
b)	Female contact assembly (for main and Earth switch of one isolator)	set	
c)	Rotary bearings for Isolators (for one phase of Isolator)	set	
d)	Male contact assembly(for main and Earth switch of one isolator)	set	
e)	Limit switch and auxiliary switch (for one phase of Isolator) - 3Nos	sets	
f)	Terminal pad and connectors -9Nos	sets	
g)	Operating mechanism box complete set(for one isolator with one earth switch)	set	
B)	CIRCUIT BREAKERS		
1	420 KV 3 pole SF6 Gas filled out door circuit breakers without closing resistors of 3 phases 50 c/s of 3150Amps and fault level of 50 KA for one second either spring charged motor operated or pneumatically operated with all accessories, auxiliaries including terminal connectors and marshalling boxes and first fill of SF6 Gas with additional 10% gas and others as specified including Support structures complete as specified for the 420 kV Circuit Breakers	Sets	2101000.00
2	In the above breakers, Main and Tie 400kV Circuit Breakers of 125 MVAR Bus Reactor shall be supplied with CSDs. The rate for Control Switching Device in CB	Nos	374603.00
3	245 KV 3 pole SF6 Gas filled out door circuit breakers of 3 phases 50 c/s of 1600 Amps and fault level of 40 KA for one second either spring charged motor operated or pneumatically operated with all accessories, auxiliaries including terminal connectors and marshalling boxes and first fill of SF6 Gas with additional 10% gas and others as specified including Support structures complete as specified for the 245 KV Circuit Breakers.	Sets	1054734.00
4	245 KV 3 pole SF6 Gas filled out door circuit breakers of 3 phases 50 c/s of 2500 Amps and fault level of 40 KA for one second either spring charged motor operated or pneumatically operated with all accessories, auxiliaries including terminal connectors and marshalling boxes and first fill of SF6 Gas with additional 10% gas and others as specified including Support structures complete as specified for the 245 KV Circuit Breakers.	Set	1197800.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
5 (a)	<p>420kV Circuit Breakers Mandatory Spares.</p> <p>a.1 One pole of Circuit Breaker with grading Capacitor (if applicable)complete with pole column and interrupter with M.B but without support structure and operating mechanism-1No.</p> <p>2. SF6 Gas @ 40% of main order.-LS</p> <p>3. Trip coils with resistor- 6nos.</p> <p>4. Closing coils with resistor – 3 nos</p> <p>5. Terminal pad & connectors – 2 nos</p> <p>6. Molecular filter – 2 nos</p> <p>7. Density / Pressure monitoring system -1no</p> <p>8. Corona rings -1no.</p> <p>9. Relays, Power contactors, switch fuse units, limit switches, push buttons, TNC, timers & MCB etc.(one for each item for control cubicle) – 1 set</p> <p>10. Pressure switches/ spring charge motor – 1 set</p> <p>11. Pressure Gauges & Coupling.- 1set</p> <p>12. Aux. Switch assembly. – 1 set</p> <p>13. Operation counter– 1 no</p> <p>14. Magnetic Ventile(if applicable) – 1no.</p> <p>15. Actuator rings (If applicable) – 1 no</p> <p>16. Control valves (If applicable) – 1no</p> <p>17. Gas filling nipples with pipe – 2 sets</p> <p>a.2. Pneumatic Operating mechanism (If Applicable) (INDIVIDUAL COMPRESSOR UNIT)</p> <p>1. Complete compressor assembly along with motor, accessories & coupling along with regenerating unit (wherever applicable) - 1 set.</p> <p>2. Valves & reducers (including safety valve) – 1 set</p> <p>3. Coupling for compressed air– 1 set</p> <p>4. Micro Filters– 1 set</p> <p>5.Pressure switches– 1 set</p> <p>6. Pressure Gauges– 1 set</p> <p>7. Gaskets 'O' rings & seals– 1 set</p> <p>8. Dowty seal– 1 set</p> <p>a.3. Spring operating mechanism</p> <p>1. Complete spring operated mechanism - 1no.</p> <p>a.4. 4-20 mA of SF6 gas Transducers with PS and accessories – 2 sets.</p> <p>a.5. Tools (Ratchet spanners(big size) reputed make, Cutting plier, Nose plier, Circlip pliers (straight, bent), L keys set, 5-32mm ring, flat spanners(Taparia make), Nut drivers, Screw drivers set, Table wise, Hammer, Digital Multi meter) – 1 set</p>	Set	1165200.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
5(b)	<p>245kV CB Mandatory Spares</p> <p>b.1 One pole of Circuit Breaker with grading Capacitor (if applicable) complete with pole column and interrupter with M.B but without support structure and operating mechanism- 2No.s</p> <p>2. SF6 Gas @ 40% of main order.- 2 LS</p> <p>3. Trip coils with resistor- 12 nos.</p> <p>4. Closing coils with resistor – 6 nos</p> <p>5. Terminal pad & connectors – 4 nos</p> <p>6. Molecular filter – 4 nos</p> <p>7. Density / Pressure monitoring system -4nos</p> <p>8. Corona rings -2nos.</p> <p>9. Relays, Power contactors, switch fuse units, limit switches, push buttons, TNC, timers & MCB etc.(one for each item for control cubicle) – 2 sets</p> <p>10. Pressure switches/ spring charge motor – 2 sets</p> <p>11. Pressure Gauges & Coupling.- 2sets</p> <p>12. Aux. Switch assembly. – 2 sets</p> <p>13. Operation counter– 2 nos</p> <p>14. Magnetic Ventile(if applicable) – 2 nos</p> <p>15. Actuator rings (If applicable) – 2 nos</p> <p>16. Control valves (If applicable) – 2 nos</p> <p>17. Gas filling nipples with pipe – 2 sets</p> <p>b.2. Pneumatic Operating mechanism (If Applicable) (INDIVIDUAL COMPRESSOR UNIT)</p> <p>1. Complete compressor assembly along with motor, accessories & coupling along with regenerating unit (wherever applicable) - 2 sets.</p> <p>2. Valves & reducers (including safety valve) – 2 sets</p> <p>3. Coupling for compressed air– 2 sets</p> <p>4. Micro Filters– 2 sets</p> <p>5. Pressure switches– 2 sets</p> <p>6. Pressure Gauges– 2 sets</p> <p>7. Gaskets 'O' rings & seals– 2 sets</p> <p>8. Dowty seal– 2 sets</p> <p>b.3. Spring operating mechanism</p> <p>1. Complete spring operated mechanism - 2Nos.</p> <p>b.4. 4-20 mA of SF6 gas Transducers with PS and accessories – 2 sets.</p> <p>b.5. Tools (Ratchet spanners(big size) reputed make, Cutting plier, Nose plier, Circlip pliers (straight, bent), L keys set, 5-32mm ring, flat spanners(Taparia make), Nut drivers, Screw drivers set, Table wise, Hammer, Digital Multi meter) – 2 sets</p>	Set	846000.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
5 (c)	Mandatory Maintenance Equipment for Circuit Breakers 1. Gas leakage detector – 1no. 2. Gas filling and evacuating equipment portable with necessary union couplings, house pipes etc., -1no 3. Operation analyzer along with Portable Dynamic contact resistance meter (6 channels) – 1 set 4. SF6 Gas filtering, drying, storage and recycling plant –1 no 5. Contact Resistance Meter -1no. 6. SF6 Dew Point meter – 1 no.	Set	6472212.00
C)	CONTROL & RELAY PANELS		
	Design, engineering, manufacture, assembly, shop testing, supply and delivery at sites including packing forwarding handling and unloading at site of complete set of the following control and relay and protection panels and other equipment with all equipment accessories and others as per specification.		
1	Common Control and Busbar Protection Panels for 400kV side As per 400KV Specification for Control & Relay Panels	Set	3977200.00
2	Common Control and Busbar Protection Panels for 220kV side As per 400KV Specification for Control & Relay Panels	Set	3005200.00
3	400kV Line CB Control and Relay Panels As per 400KV Specification for Control & Relay Panels	Nos.	435555.00
4	400kV Line Protection Panels As per 400KV Specification (without Line Reactor)	Nos.	950000.00
5	400kV Tie CB Control and Relay panels As per 400KV Specification for Control & Relay Panels	Nos.	572492.00
6	400kV side of 400/220kV 315 MVA ICT CB Control and Relay Panels as per 400KV Specification for Control & Relay Panels	Nos.	392537.00
7	400kV side of 400/220kV , 500 MVA ICT CB Control and Relay Panels with SAS as per 400KV Specification for Control & Relay Panels		392537.00
8	400/220kV 315MVA ICT Protection Panels As per 400KV Specification for Control & Relay Panels	Nos.	756098.00
9	400/220kV , 500 MVA Transformer Protection Panels as per 400KV Specification for Control & Relay Panels		756098.00
10	220kV side of 400/220kV 315 MVA ICT CB Control and Relay Panels as per 400KV Specification for Control & Relay Panels	Nos.	453015.00
11	220kV side of 400/220kV, 500 MVA ICT CB Control & Relay panel with SAS		453015.00
12	220kV Line CB Control and Relay Panels As per 400KV Specification for Control & Relay Panels	Nos.	435555.00
13	220kV Line Protection Panels As per 400KV Specification for Control & Relay Panels	Nos.	792488.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
14	220kV Bus Coupler Control, Relay and Protection Panels As per 400KV Specification for Control & Relay Panels	Nos.	480015.00
15	220kV Transfer Bus Coupler Control, Relay and Protection Panels 400KV Specification for Control & Relay Panels	Nos.	459221.00
16	132kV feeder Control, Relay and Protection panels with IEC 61850 with Automation features as per 400KV Specification	Sets	684746.00
17	Sub-Station Automation System as per As per 400KV Specification including Software for Sub-Station Automation System along with Visual monitoring system	Set	12171390.00
18	Relay Test kit and Testing Instruments as per 400KV Specification for Control& Relay Panels	Lot	2954255.00
19	Mandatory Spares for Control and Relay Panels as per 400KV Specification	Lot	2127744.00
20	Scientific Instruments as per 400KV Specification for Control & Relay Panels		
a)	Thermo vision Camera	Lot	842489.00
b)	Transformer oil Breakdown Voltage Test Kit	No.	177778.00
c)	12kV Automatic Capacitance Tan Delta Test Kits	No.	1598222.00
d)	Earth resistance testers	No.	44444.00
e)	10kV Heavy duty Mains-cum-Battery operated insulators tester (Induction compensated in 400kV Switchyard)	No.	214667.00
f)	Transformer winding Resistance Measurement Kits	No.	288889.00
g)	Sweep Frequency Response Analyzer Kits	No.	922726.00
h)	Turns Ratio Measurement Kits	No.	71111.00
i)	Line Fault Locaters	No.	1925689.00
j)	Primary Injection Kit	No.	133333.00
k)	Secondary Injection Kit	No.	133333.00
l)	Knee point voltage test kit 5kV reputed	No.	170000.00
m)	Third Harmonic Resistive Current Measurement test kit (Double/Scope make)	No.	858105.00
n)	CT, PT analyzer Kits	No.	444444.00
o)	Battery AH Capacity Meters	No.	1450000.00
p)	Battery Discharge Resistor	No.	225000.00
q)	Fusion splicing machine	No.	434246.00
D)	Lightening Arrestors		
1	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing, forwarding, handling at port of disembarkation, transportation to project site, unloading of the following surge arrestors complete with surge counters, insulating bays and all associated accessories and auxiliaries in accordance with specification including terminal connectors.		
i)	390kV Lightening Arrestor	Nos	101834.00
ii)	216kV Lightening Arrestor	Nos	38283.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
E)	Battery and Battery Charger		
1	220V, 400AH, capacity sealed maintenance free valve regulated lead acid 2 Nos. Battery banks supplied in factory charged condition along with all other required accessories (i.e) connectors etc.	Sets	1079234.00
2	2 Nos., 40/100 A FC & Float-Cum-Boost charger with communication interface suitable for SAS IEC 61850 and for SMF VRLA Battery banks along with all required accessories etc. with centre zero DC earth leakage ammeter.	Sets	808530.00
2	<p>Mandatory Spares for Battery and Battery Charger as listed below</p> <p>Battery Battery cells complete with separators, support insulators and connectors and ductable 1 No. battery charger 0-15volts adjustable (smmps), batteries - 5 Nos Thermometer for measuring room temperature (wall mountable type) - 1 No Cell testing voltmeter (3-0-3V) - complete with leads - 2 Nos Digital cell testing multimeter- 1 No Tool Box - 1 Set Battery Chargers Rectifier fuses - 10 Nos Filter condenser fuses - 6 Nos Control fuses - 10 Nos SCRs - 4 Nos ,Diodes - 4 Nos Indicating lamps - 5 Nos for each Charger blocking diode - 2 Nos MCBs- one per model - 1set Contactor of each rating & type -one per module- 1 Set Selector switch - 3 Nos Potentiometer - 2 Nos Micro switches - 2 Nos Set of control cards (Firing card,sensing card, AVR card power supply cards, Amplifier card, Earth fault defective card,if any used etc..)- 1 Set Shunts for DC Ammeter -1 No. Micro controller Display with modbus RS 485.- 1 no.</p>	Set	337605.00
F	Design, Manufacture, Shop testing, Supply of AC & DC Distribution Boards as per the specification.		
1	415V AC Main Board (Sub-Boards-I & II) as per Specn. & Drawing as detailed below	set	1270132.00
	i) ' I ' Type Module with a rating of 1250 A (ACB) - 2 Nos.		
	ii) 'I (BC) ' Type Module with a rating of 1250 A(ACB) -1 No.		
	iii)' F1 ' Type Module with a rating of 800 A - 2 Nos.		
	iv) ' F1 ' Type Module with a rating of 400 A - 7 Nos.		
	v)' I ' Type Module with a rating of 1250 A (ACB) - 1 No.		
	vi)' F1' Type Module with a rating of 630 A - 3 Nos.		
	vii) ' E1' Type Module suitable for incoming feeder - 2 Nos.		
	viii) ' V1 ' Type Module with a rating of 0 - 500 V - 2 Nos.		

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
	ix) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set		
	x) Cost of the panel with all other required accessories etc. as per specification - 1 set		
1 (b)	COMPACT OUT DOOR ACMB incl. disconnecter-1000 amps- 1 Nos,MCCB-630 A- 2 Nos,MCCB-400 A- 2 Nos,MCCB-63 A- 4 Nos	sets	493019.00
2	415V AC Distribution Board (Sub-Boards-I & II) as per Specn. & Drawing as detailed below	set	1356583.00
	i) ' F1' Type Module with a rating of 800 A - 2 Nos.		
	ii) ' F1 (BC)' Type Module with a rating of 800 A - 1 No.		
	iii) ' DG' Type Module with a rating of 1250 A (ACB) - 1 No.		
	iv) ' F1' Type Module with a rating of 200 A - 4 Nos.		
	v) ' F1' Type Module with a rating of 150 A - 2 Nos.		
	vi) ' F1' Type Module with a rating of 125 A - 4 Nos.		
	vii) ' F1' Type Module with a rating of 63 A - 67 Nos.		
	viii) ' F1' Type Module with a rating of 32 A - 12 Nos.		
	ix) ' F1' Type Module with a rating of 16 A - 4 Nos.		
	x) ' V2' Type Module with a rating of 0 - 500 V - 2 Nos.		
	xi) Cost of the panel with all other required accessories etc. as per specification - 1 set		
	xii) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set		
3	415V AC Lighting Board (Sub-Boards-I & II) including 2No.s 300KVA 0.415/0.415kV Lighting transformer as per Specn. & Drawing as detailed below.	set	353653.00
	i) ' F1' Type Module with a rating of 630 A - 2 Nos.		
	ii) ' F1 (BC)' Type Module with a rating of 630 A - 1 No		
	iii) ' F1' Type Module with a rating of 63 A (ACB) - 16 Nos.		
	iv) ' F1' Type Module with a rating of 125 A - 4 Nos.		
	v) ' V2' Type Module with a rating of 0-500 V - 2 Nos.		
	vi) Cost of the panel with all other required accessories etc. as per specification - 1 set		
	vii) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set		
4	415V Emergency Lighting Board including 1No 100KVA 0.415/0.415kV Lighting transformer as per Specn. & Drawing as detailed below.	set	81125.00
	i) ' V2' Type Module with a rating of 0-500 V - 1 No.		
	ii) ' F1' Type Module with a rating of 125 A - 1 No.		
	iii) ' F1' Type Module with a rating of 32 A - 4 Nos.		
	iv) Cost of the panel with all other required accessories etc. as per specification - 1 set		
	v) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set		

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
	v) ' PM' Type Module with a rating of 0-300 V - 2 Nos.		
	vi) Cost of the panel with all other required accessories etc. as per specification-1 set		
	vii) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set.		
	viii) Centre zero DC earth leakage ammeter-2nos		
5	Mandatory Spares for AC & DC Distribution Boards as listed below- Mandatory spares for 1250A ACB(ACMB). 1 No. Air Circuit Breaker 1250A with motor operated mechanism(complete) Control Switch - 1 No over current, earth fault relay - 1 No MFM/EM- 1 No Voltmeter,ammeter- 1 set transducers- 1 set Closing coil- 1 No Opening Coil - 1 No Busbar seal off insulator as percentage of total quantity -5%No Busbar support insulator as percentage of the total quantity - 10% No MANDATORY SPARES FOR 1250A ACBs(DG) Air Circuit Breaker with motor operated mechanism(complete) Control Switch - 1 No over current, earth fault relay - 1 No MFM/EM- 1 No Voltmeter,ammeter- 1 set transducers- 1 set Closing coil - 1 No Opening Coil - 1 No Busbar seal off insulator as percentage of total quantity-5% No Busbar support insulator as percentage of the total quantity-10% No		296046.00
G)	INSTRUMENT TRANSFORMERS		
1	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling transportation to project site, unloading, of 420kV, 3000-2000-1000-500/1-1A Single Phase current Transformers in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for CTs as per specification	No.	480000.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
2	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding, handling, transportation to project site, unloading, of 245kV , 40kA 1600-1200-800/1-1-1-1A Single Phase Current Transformers in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for CTs as per specification.	No.	237719.00
3	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling, transportation to project site, unloading, of 245kV, 2400A Single Phase current Transformers in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for CTs as per specification.	No.	305000.00
4	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling transportation to project site, unloading, of 420kV Single Phase CVT in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for CVTs as per specification.	No.	275000.00
5	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling transportation to project site, unloading, of 245kV Single Phase CVT in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for CVTs as per specification.	No.	128919.00
6	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling transportation to project site, unloading, of 245kV Single Phase PT in accordance with specification, including first fill of transformer oil and all accessories, auxiliaries including marshalling boxes and terminal connectors for VTs as per specification.	No.	183580.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
H)	EARTHING AND EARTHMAT		
1	Discharge rod 10 ft long with suitable screw type clamp suitable for moose conductor & 15 Mtrs long 25 sqmm. Copper lead with heavy duty crocodile clamp.		10074.00
2	Electrical safety hand gloves suitable for the operation in 400/220kV switchyard of ISI Quality.		2472.00
3	2 Mtr x 1 Mtr, 10mm thick Neoprine Rubber mats of ISI Quality.		2786.00
4	Stainless container of 2 litres capacity for collection of oil samples with cock arrangements at both ends.		1137.00
5	Electrical safety Belts, Shoes and Helmets suitable for the operation in 400/220kV switchyard of ISI Quality.		3318.00
I)	BUS BAR MATERIAL		
1	400 kV Bus Post Insulators	Nos	32940.00
2	220 kV Bus Post Insulators	Nos	22204.00
3	4.5" IPS Aluminum tube of electrical grade including welding sleeves	Mtrs	2548.00
4	4" IPS Aluminum tube of electrical grade including welding sleeves	Mtrs	2267.00
5	Bay Marshalling Boxes for 400KV , 220 and 132 KV Bays with 3mm Aluminum sheet	Nos.	49278.00
6	400 KV Single suspension hardware suitable for Twin Moose	sets	5741.00
7	400 KV Double Suspension hardware suitable for Quad Moose	Sets	9897.00
8	400 KV Double Tension hardware suitable for Twin Moose	Sets	10652.00
9	400 KV Double Tension hardware suitable for Quad Moose	Sets	15974.00
10	220 KV / 132kV Single suspension hardware suitable for Twin Moose		3180.00
11	220 KV double suspension hardware suitable for Twin Moose	Sets	4757.00
12	220 KV Double suspension hardware suitable for Quad Moose	Sets	6584.00
13	220 KV / 132kV Double tension hardware suitable for Twin Moose	Sets	6955.00
14	220 KV Double tension hardware suitable for Quad Moose	Sets	10740.00
15	400 KV Conductor Spacers for Quad moose	Nos.	1260.00
	400 KV Conductor Spacers for Twin moose		513.00
16	220 KV Conductor Spacers for Twin moose	Nos.	439.00
17	220 KV Conductor Spacers for Quad moose	Nos.	1023.00
18	400 kV clamps & connectors including jumper sleeves		
(a)	BPI Clamp for Twin moose through/expansion type	Nos.	980.00
(b)	BPI Clamps for 4.5" IPS Rigid /sliding /expansion type	Nos.	2363.00
(c)	BPI Clamps for 4" IPS Rigid /sliding type/expansion	Nos.	2304.00
(d)	T Connectors SM to SM	Nos.	746.00
(e)	T Connectors TM to SM	Nos.	1527.00
(f)	Inter connector TM to 4.5" IPS Al. Tube	Nos.	1809.00
(g)	Inter connector QM to 4.5" IPS Al. Tube	Nos	3244.00
(h)	Inter connector TM to 4" IPS Al. Tube	Nos	1124.00
(i)	Corona spheroid	Nos.	692.00
(j)	PG Clamps Moose to Moose	Nos	480.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
19	220 kV /132kV Clamps & connectors		
a)	BPI Clamp for Single moose	Nos	804.00
b)	BPI Clamp for Twin moose through/expansion type	Nos.	980.00
c)	BPI Clamps for 4" IPS Rigid/sliding/expansion type	Nos.	1985.00
d)	T Connector SM to SM	Nos.	690.00
c)	T Connector TM to SM	Nos.	1283.00
d)	Isolator connecting Clamps suitable to Twin Moose	Nos.	2119.00
e)	Corona spheroid	Nos.	450.00
f)	PG Clamps Moose to Moose	Nos.	480.00
g)	Inter connector TM to 4" IPS Al. Tube	Nos.	1124.00
h)	Inter connector QM to 4" IPS Al. Tube	Nos.	2061.00
20	Pad type Compressor clamp for GS Earth wire to 75 x 12 Flat	Nos.	113.00
21	Cleat type clamp for G.S Earth wire	Nos.	70.00
22	T clamp for GS Earth wire with flexible jumpers	Nos.	320.00
J)	POWER AND CONTROL CABLES		
	Design of complete cabling system for the entire substation, preparation of cable scheduling , manufacture, shop testing, packing and forwarding , transportation to site/stores, providing conduits,cable termination kits, cable lugs and glands of the following Power & Control Cables as per requirement.		
1	Single core, 630 Sq.mm, 1100 V XLPE, FRLS insulated PVC sheathed, Aluminium wire/strip armoured, stranded aluminium conductor cable.	Km	587337.00
2	Single core, 300 Sq.mm, 1100 V XLPE, FRLS insulated PVC sheathed, Aluminium wire/strip armoured, stranded aluminium conductor cable.	Km	262336.00
3	3 ½ core 300 Sq.mm, 1100 V, XLPE, FRLS insulated PVC sheathed, galvanized steel wire / strip armoured, stranded aluminium conductor cable.	Km	914675.00
4	1100 V, PVC, FRLS insulated PVC sheathed, galvanised steel wire / strip armoured, stranded aluminium conductor cable.		
(a)	3.5 core, 35 Sq.mm.	Km	150887.00
(b)	4 core, 16 Sq.mm.	Km	102718.00
(c)	4 core, 6 Sq.mm.	Km	72094.00
(d)	2 core, 6 Sq.mm.	Km	46658.00
5	1100 V, PVC, FRLS insulated PVC sheathed, galvanized steel wire / strip armoured, stranded copper conductor cable		
(a)	3 core 2.5 Sq.mm.	Km	82042.00
(b)	5 core 2.5 Sq.mm.	Km	113092.00
(c)	7 core 2.5 Sq.mm.	Km	150929.00
(d)	10 core 2.5 Sq.mm.	Km	189000.00
(e)	14 core 2.5 Sq.mm.	Km	252683.00
(d)	19 core 2.5 Sq.mm.	Km	333452.00
(e)	27 core 2.5 Sq.mm.	Km	487770.00
(f)	50 Sq. mm Multistrand flexible copper cable	Mtrs	178.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
6	Galvanized cable trays with 2mm thick perforated CRCA sheet		
(a)	200 mm size	Mtrs	393.00
(b)	450 mm size	Mtrs	659.00
7	GI Pipe for entry into cable trench		
(a)	4" Dia 3 mm thick GI Pipe Including Socials, Bends etc.,	Mtrs	632.00
(b)	6" Dia 3 mm thick GI Pipe Including Socials, Bends etc.,	Mtrs	895.00
K)	INDOOR & OUTDOOR ILLUMINATION		
1	Indoor Lighting Fixtures.		
(a)	Control room lighting fixtures -make-CGL-LCBOR-40-CDL or equivalent model in Philips/Bajaj	Nos	4000.00
(b)	Decorative Pendant mounting lighting fixtures make-CGL-LCLR66-60-CDL or equivalent model in Philips/Bajaj	Nos	6695.00
(c)	Pendant mounting lighting fixtures -make CGL-LCLP54-36-CDL or equivalent model in Philips/Bajaj	Nos	4068.00
(d)	Lighting fixtures-make CGL-LHBL-60-CD or equivalent model in Philips/Bajaj	Nos	5000.00
(e)	Lighting fixtures-make CGL-LPLLA-18-CDL or equivalent model in Philips/Bajaj	Nos	592.00
(f)	1 x 11W CFL lamp Emergency light with Battery operated portable fixtures with built in chargeable batteries and battery charger suitable for a lighting period of six hours of make Bajaj/Philips/CGL/BPL.	Nos	900.00
(g)	Decorative type lighting fixtures with 4 Nos 18 watts CFL Lamp for Portico, main gate etc, make Bajaj / Philips / CGL are equivalent.	Nos	1800.00
(h)	Wireless Buzzer anchor make or equivalent approved make with ISI mark.	Nos	100.00
2	Following items for providing and fixing concealed in roof and walls with PVC Conduit piping of ISI standards with necessary GI wire of suitable gauge to draw wires at later date including cost of junction boxes etc.cost and conveyance of all materials		
a)	40 mm dia - 2mm thick	Mtrs	76.00
b)	32mm dia - 2mm thick	Mtrs	76.00
c)	25mm dia - 2mm thick	Mtrs	66.00
d)	12mm dia - 1.5mm thick	Mtrs	45.00
3	Indoor Modular Main distribution board suitable for wall insert with 1No 63A TP MCB for I/C and 6 Nos 32A SPMCB , 8 Nos 10 A SPMCB & 10 Nos 16A SPMCB with neutral link for O/G complete make Havells /LEGRAND or MDS or equivalent.	Nos	8562.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
4	Distribution board with 1No., 63A TP MCB for I/C and 15 Nos 16A SP MCB with terminal block arrangement complete make Havells or Schneider MDS or equivalent.	Nos	28045.00
5	AC Distribution Boards Mains for usage in AC Kiosks for supply (indoor wall inserted/mounted) with SP 16A MCBs - 3 Nos., 6A SP MCBs-2Nos., 2A SP MCBs 3 Nos.	Nos	19834.00
6	Decorative Type Ten panel Switch boards in AC Kiosks with 5A switches - 5/ 7 Nos.& 5/15A plug-1 No with 1 No 15 A Switch.(Anchor/Havells)	Nos	18141.00
7	Out Door street Lighting Fixtures		
a)	Flood Light fixtures -make-CGL-LSFO-350-CDL/60 or equivalent model in Philips/Bajaj	Nos	24000.00
b)	Street lighting fixtures -make CGL-LSTN1-150-CDL-A or equivalent model in Philips/Bajaj	Nos	7500.00
c)	Street lighting fixtures -make CGL-LSTN-250-CDL-A or equivalent model in Philips/Bajaj	Nos	15000.00
d)	Decorative Post Lantern-make CGL-LPTO-60-CDL/M or equivalent model in Philips/Bajaj	Nos	6000.00
e)	Lighting Masts / Poles with junction boxes, earthing materials and all accessories as per drawing enclosed.		
f)	Type A1 with junction box	Nos	11896.00
g)	Type E1 with junction box	Nos	6366.00
h)	Lighting Panels for Control house I/C 63A TPN SFU - 1 No O/G 16A-32A SPMCB - 24 Nos.	Nos	13336.00
8	Outdoor Junction Box with 32A-SP-MCB-2 Nos,10A-SP-MCB-4 Nos & terminal blocks (bolt type) for 6 circuits and neutral link	Nos	4868.00
9	415V, 63A - Interlocked Switch and Socket outdoor Power Recepticle	Nos	3316.00
10	Decorative Type Six panel Switch boards with 5A switches - 5 Nos., 5 & 15A plug-2 No with 2 No 15 A Switch.(Anchor/Havells)	Nos	1084.00
11	Decorative Type Ten panel Switch boards with 5A switches - 7 Nos., 5 & 15A plug-3 Nos with 3 No 15 A Switch.(Anchor/Havells)	Nos	1248.00
12	Decorative Type Three panel Switch boards with 5A switches - 3 Nos, 5A Plug - 1No(Anchor/Havells)	Nos	569.00
13	Decorative Type Three panel Switch boards with 15A switches - 2 Nos.&15A plug-2 No .(Anchor/Havells)	Nos	952.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
14	Telephone Junction Boxes		
(a)	MDF box suitable for 50 pair Telephones with crones and surge protection complete	Nos	1958.00
(b)	MDF box suitable for 10 pair Telephones with crones and surge protection complete	Nos	1460.00
(c)	Single socket outlet comprising RJ-45 Socket	Nos	181.00
(d)	Dual socket outlet comprising RJ-45 Socket	Nos	324.00
15	1400 mm sweep ceiling fans with Electronic regulator CGL/Bajaj/Usha/Khaitan make	Nos.	1081.00
16	Wall mounted Fans with 400 mm sweep with Electronic regulator CGL/Bajaj/Usha/Khaitan make	Nos.	2147.00
17	Oscillating air circulator (Pedestal Fan) Telescopically adjustable stand, with electronic regulator with 600 mm sweep CGL/Bajaj/Usha/Khaitan make.	Nos.	8020.00
18	Outdoor AC Distribution Board with 2 Nos Incomings, 3 Phase, 440 V, 300 Amps, with Cu Bar and 300 Amps Fuse units & Neutral link complete and outgoing 2 Nos , 3P, 125 A, MCBs including all accessories including CT meter arrangement (200/1 ratio)	No.	32441.00
19	Wheel Mounted ladders (10 mtrs Height)	No.	20937.00
20	Aluminium ladders (12ft Height)	No.	10741.00
21	Telescopic aluminium ladder (18feet)	No.	24696.00
22	Aluminium ladders (8ft Height)	No.	8341.00
L)	AIR CONDITIONING AND VENTILLATION SYSTEM		
A	Air Conditioning.		
1	Wall mounted Split air conditioners 2.0 Ton capacity with cooling capacity of 24000 BTU/Hr & 6000 K.Cal/Hr with stabilizers, receptacles including all support structures and all other accessories with MCB of 25KA--.5 star model	No.	43268.00
2	Under deck insulation for the roof exposed to sunlight with 50 mm thick TF quality expanded poly styrene including GI washers and wire for fixing.	Sft	361.00
B	Ventilation		
1	Supply of exhaust fans of propeller type/ axial type, each with a suitable drive motors, DOL starters, vain protection with screen, grouting bolts etc.,.		
a)	3ph, 24" Sweep 1440 RPM, 3000 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	4274.00
b)	3ph, 18" Sweep 960 RPM, 2000 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	3990.00
c)	3ph, 12" Sweep 960 RPM, 500 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	2147.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
M)	DIESEL GENERATOR SET		
(1)	DG Set 250 KVA (with acoustic insulation), 1500 RPM, 0.8 PF, 415 V, 3 phase, 50 Hz with the following :- (1) Diesel Engine complete with all accessories as specified. (2) Alternator directly coupled to the engine through coupling complete with all accessories. (3) Automatic voltage Regulator. (4) Complete starting arrangement including two Nos. Batteries & chargers and Power and Control Cables and cable glands and lugs etc. (5) Base Frame and Foundation bolts. (6) Day Tank of 990 litre capacity with all the accessories and fittings. (7) Oil pump for transferring to Day Tank as per specification. (8) Engine cooling and Lubricating system. (9) Engine Air filtering System. (10) Exhaust silencer package with flexible coupling and thermal Insulator. (11) Set of GI Pipes, Valves, Strainers, unloading hose pipes as required. (12) All lubricants, diesel oil, consumables, touch up paints etc, for the first filling, testing & commissioning at site. (13) AMF panel for Control & Metering, and alarm as per specification including all power and control cables, with cable glands & lugs etc suitable to Substation Automation System. (14) Acoustic insulation for DG Set as per the norms of Central Pollution Control Board. (15) All the equipment/material required for control/monitoring of DG set through Sub-Station Automation System.	set	1613741.00
2	Mandatory spares :(a) Current Transformers - 1 set. (b) Measuring Instruments on AMF panel - 1 Set. (c) Protection Relays and Timers - 1 Set. (d) Indicating Lamps with Resistors - 2 Sets. (e) Oil Filter packs 1 Set. (f) Fuses - 2 Sets. (g) Diesel filter packs - 1 Set. (h) V - belt for radiator fan - 1 No. (i) Diodes & Diode fuses - 1 Set.	set	314860.00
N)	FIRE PROTECTION, DETECTION & ALARM SYSTEMS		
1	(a) Horizontal centrifugal Electric Driven Hydrant/HVW Spray, pump of capacity 410M ³ /hr and total dynamic head of 88MWC with all accessories & fittings - 1 No. (b) Electric Induction Motor Squirrel cage type for the above with all accessories & fittings as per specifications - 1 No.	Set	657228.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
2	(a) Horizontal centrifugal Diesel Engine Driven Hydrant/HVW spray pump of capacity 410M3/hr and total dynamic head of 88MWC with all accessories and fittings. Both the HVW pumps, one motor driven and one diesel driven shall be of same model and their components interchangeable - 1 No. (b) Diesel Engine, multi cylinder type, four stroke cycle with mechanical airless injection cold starting type for the above with all accessories and fittings as per specification - 1 No. (c) Set of Batteries - 2 Nos. (d) Fuel tank having capacity to hold fuel oil for six hours of full load run - 1 No.	Set	747618.00
3	(a) Horizontal centrifugal Electric Driven jockey pump of capacity 10.8 m3/hr and Total dynamic head of 88MWC with all accessories and fittings. (b) Electric Motor for the above with all accessories and fittings as per specification.-	Sets	180782.00
4	Air vessels with vent valves etc. as per specification and system requirement	No.	260287.00
5	Sump pumps of capacity 10M3 /hr MWC with motor starter and all accessories	Nos.	38133.00
6	Basket strainer 300 NB	Nos.	92608.00
7	Control panel equipped with all accessories for motor drives of Fire water pumps and 2 Nos. jockey pumps as per specifications suitable for 2 sources supply and 2 Nos. Battery chargers	Set	147083.00
8	Control Panel for Diesel Engine driven fire water pumps as per specification	Set	155272.00
9	(a) Annunciation panel at fire water pump house as per specification. (b) Annunciation panel in Control Room as per specification	Set	154748.00
10	Supply of the following Hydrant and HVWS system Accessories		
a)	Single headed Hydrants	Nos.	9533.00
b)	Landing Valves	No.	4684.00
c)	Hose cabinets.	Nos.	4576.00
d)	Hoses of 15.0m length with coupling	Nos.	4576.00
e)	Hoses of 7.5m length with coupling	Nos.	3487.00
f)	Branch pipe with Nozzles.	Nos.	3050.00
11	Supply of the following Mild steel black pipes and Mild steel galvanized pipes as per specifications		
a)	300 NB	Mtrs	3395.00
b)	250 NB	Mtrs	2896.00
c)	200NB	Mtrs	2296.00
d)	150NB	Mtrs	1739.00
e)	100NB	Mtrs	1563.00
f)	80NB	Mtrs	998.00

g)	50NB	Mtrs	805.00
h)	25NB	Mtrs	241.00
i)	15NB	Mtrs	171.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
12	Set of GI & MS Piping beyond deluge valves for transformer including detection piping and pipe supports including all accessories complete.	Sets	196242.00
13	Supply of the following valves :-		
a)	300 NB Gate	Nos.	34336.00
b)	250 NB Gate	Nos.	33408.00
c)	250 NB Check	Nos.	21344.00
d)	200 NB Gate	Nos.	26912.00
e)	150 NB Gate	Nos.	14848.00
f)	100 NB Gate	Nos.	12064.00
g)	80 NB Gate	Nos.	10208.00
h)	80 NB Check	Nos.	8909.00
i)	50 NB Gate	Nos.	5568.00
j)	50 NB Check	Nos.	4176.00
k)	25 NB Gate	Nos.	2320.00
l)	15 NB Gate	Nos.	1763.00
m)	Float operated valve 100NB	Nos.	21344.00
14a)	Float operated Level guage	Nos	14466.00
14b)	Level switch	Nos	18234.00
15	Pressure Gauge	Nos	1720.00
16	Pressure Switch	Nos	4902.00
17	Differential Pressure Gauge	Nos	3143.00
18	Deluge valve with motor gounge, pr. switch, pr.guage, solenoid valve to drain - size 150 NB	Sets	98563.00
19	Local control panel for Deluge valve	Nos.	12345.00
20	Strainer Y type, 150 NB	Nos.	25817.00
21	Quartzoid bulb detectors	Nos	473.00
22	HVW spray nozzles	Nos	1047.00
23	Supply of Detection and Alarm system including all hardware and all other accessories		
a)	Multi criteria detectors	Nos	2911.00
b)	Heat detector	Nos	1911.00
c)	Response indicator	Nos	263.00
d)	Manual call point	Nos	1655.00
e)	Fire detection & Alarm panel for control room with 2 Nos hooters, 2 Nos. sirens and 2 Nos. relay modules with RS-485 communication port & all accessories for integrating in SAS.	Set	115427.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
f)	Water pressure transducer with input of 0-16 bars and with 2nos ports as output of range 4-20mA for integrating in SAS.	Nos	55227.00
g)	Temperature transducer in control room for measuring ambient temperature with input of 0-75 degree centigrade and with 2nos ports as output of range 4-20mA for integrating in SAS.(CR-1, ACK-10)	Nos	43399.00
24	Supply of the following Portable Fire Extinguishers with all accessories as per specification		
a)	Dry chemical powder type Fire extinguishers of 9 kgs. Capacity	Nos	2173.00
b)	Dry chemical powder type Fire extinguishers of 25 kgs. Capacity (trolley mounted)	Nos	10718.00
c)	Dry chemical powder type Fire extinguishers of 50 kgs. Capacity (trolley mounted)	Nos	14384.00
d)	Dry chemical powder type Fire extinguishers of 150 kgs. Capacity (trolley mounted)	Nos	39600.00
e)	CO2 type portable Fire extinguishers of 45 kgs. Capacity (trolley mounted)	Nos	32400.00
f)	CO2 type portable Fire extinguishers of 22.5 kgs. Capacity (trolley mounted)	Nos	15266.00
g)	CO2 type portable Fire extinguishers of 9 kgs. Capacity (trolley mounted)	Nos	8352.00
h)	CO2 type portable Fire extinguishers of 2 kgs. Capacity	Nos	3434.00
i)	9 liters capacity Mechanical foam type fire extinguishers	Nos	2691.00
j)	Sand / water Buckets 9 liters capacity with stand	Nos	360.00
27	Fire Alarm Panel for the above detectors with 24V (12+12) Batteries for supply to be installed in AC Kiosk	Nos.	3663.00
28	Mandatory spares		
a)	Gland packing of HVW Pumps	No	7993.00
b)	Self starter of HVW Pumps	No	42484.00
c)	Fuel oil filter elements of Diesel engine drive	No	9993.00
d)	Gland packing of jockey pumps	No	6117.00
e)	Quartzoid bulb detector	Nos	473.00
f)	Projectors (Nozzles)	Nos	1285.00
g)	Heat detectors	No	2384.00
h)	Pressure switch	No	7138.00
i)	Flaps for check valves 250NB	Nos	13367.00
j)	Flaps for check valves 80NB	Nos	4046.00
k)	Flaps for check valves 50NB	Nos	6521.00
l)	Set of bearings for HVW pumps	Set	7713.00
m)	Set of bearings for Jockey pumps	Set	6347.00
n)	Pressure Gauge	No	2159.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
O)	33kV STATION POWER SUPPLY FACILITIES		
1	33kV/433V, 630 KVA Station supply transformers with all accessories and fittings as per specifications.	Nos.	590393.00
2	33kV, 800 Amps Isolators with terminal connectors including support insulators complete	Sets	30283.00
3	HT Trivector Meter box	Nos.	6128.00
4	33 KV HG Fuse sets with Insulators	Km	12845.00
5	150 x 150 mm RS Joists, MS channels & Misc Structural Steel for 33KV Switchyard CT's, LA's, PT's, CB's, Isolators & HG Fuse sets	Nos.	69472.00
6	Hard ware, Clamps, connectors, galvanized bolts, nuts and washers and other miscellaneous items required for complete erection and commissioning of 33 KV /433 V facilities as per the specification.	Nos.	108142.00
7	33 kV CTs with junction box and terminal connectors and all accessories as per specification, 25-15/1-1-1A	Nos	16691.00
8	33kV VCB with all accessories complete integrated to the Sub-Station Automation System.	LS	174189.00
9	33 kV Control & Relay Panel with BCU suitable to SAS Control & Relay Panel with terminal connectors and all accessories incl. Ammeter, Voltmeter, MW Meter, Energy meter/Multi Function meter, TNC Switch, Indication Bulbs, 3 Nos Over Current, 1 No. Earth Fault Relay(IDMT Non Directional), Neutral Displacement Relay.	Nos.	400000.00
10	CT card for Differential Relay and all accessories	Nos	280050.00
C	Mandatory Spares for 33 kV/ 433V Station power supply Transformer.		
1	Bushings with metal parts set for each rating (HV-1 no. & LV-1 no.) .	Set	17405.00
2	Silica Gel Breather	Nos.	3382.00
P)	CONTROL HOUSE FURNITURE AND MONITORING SYSTEM		
1	Godrej make Tables (Model EARL Size 200 W x 1900 D x 750H mm) or Wipro make (Model Kingsley Premium Type-A main table).	No.	6353.00
2	Credenzas for above (Make Godrej, Model : EARL Size 2100 W x 350D x 1520H) or Wipro make, Model Wudsafe-LHS: size 750Lx425Dx740HT or equivalent as per approval of APTRANSCO M/s. Godrej make with revolving chair.	No.	1995.00
3	Self Containing 12 Nos Racks with safety locker make Godrej or Wipro or equivalent.	Set	16556.00
4	Junior Executive table (1365 x 680 x 7350) mm with decolam Model No.T-9 make Godrej or Wipro or equivalent.	Nos.	8400.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
5	Steel Table (1199 x 590 x 735)mm with single drawer and Decolam Top Model. T-111 make Godrej or Wipro or equivalent.	Nos.	5211.00
6	Steel revolving chair model No. CH - 1014 with heavy base seat and back in cane make Godrej or Wipro make model :That's it or equivalent.	Nos	4044.00
7	Steel Tubular `S Type chair (Continuous Arm) Model No. Chr-7 in 1" dia and 14 gauge pipe ,cane seat and back in teak wood with quality cane make Godrej or Wipro make model :That's it or equivalent.	Nos	2441.00
8	Steel Tubular `S` Type chair (without arm) Model No. Chr-4 in 1" dia and 14 SWG pipe, cane seat and back in teak wood with quality cane make Godrej Wipro make model :That's it or equivalent.	Nos	1930.00
9	Steel store well plain (900 x 507 x 1950) mm Make Godrej, Model : Slimline 4S Text purple colour or Wipro make model Endura.	Nos	7440.00
10	Plastic file trays (16" x 11"x3")	Nos	229.00
11	Steel Stools (15"x15"x18") with MS top sheet thickness 20mm 1" square pipe 16 gauge make Godrej or equivalent.	Nos	1120.00
12	Steel waste paper baskets (12"x10"x10")	Nos	393.00
13	Steel rack (6'x3'x16") with 6 shelves making 5 compartments (22 Gauge)	Nos.	2800.00
14	Short bench (4'x14"x1/2') with laminated Top.	Nos.	2739.00
15	Display Board for Substation Layout		
a)	6' x 5' Plywood Novapan finish with suitable border and computerized symbols, labels etc of single line diagram as directed by Site Engineer complete suitable for Wall/Floor stand mounted.	No.	4687.00
b)	Aluminium Floor stand for the above	No.	8652.00
16	3' x 2' Wooden key board suitable for holding 30 Nos Key chains	No.	1081.00
17	Brother P-Touch Sticker lable printer with Software and all accessories (Model PT-2700) / Latest Model.	No.	12229.00
18	Sticker lables, printer cartridges suitable for (Brother P make) Touch sticker Lables, Printer		
a)	24 mm size	No.	396.00
b)	18 mm size	No.	325.00
c)	12 mm size	No.	252.00
19	Supply and fixing of teak wood name boards with enamel painting letters of size 12"x4" for rooms in control room.	Nos.	3174.00
20	Supply and fixing of Bay Indicator boards of thickness 18" with MS sheet and MS angles of size 10"x26" including cost of letters.	Nos.	1587.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
21	Supply and fixing of name board indicating 400/220kV SS, APTRANSCO,RACHAGANNERI , CHITTOOR Dist.of size 4x8 feet with MS 18gauge sheet MS 1.5"angles.1.5"pipes and concreting foundation including cost of painting letters(1no. In English & 1no. In Telugu)	Nos.	19628.00
22	Supply and fixing of notice board of size 2x2.5feet	No.	668.00
23	Pictograph of size 2x4feet with letters	No.	5429.00
24	Personal computer (with the following configuration)		
a)	Intel core i-7-3920XM Process 512KB level-8M cache upto 3.80 GHz, 4GB RAM , 128bit graphic accelerator with 4MB SG RAM,160GB Ultra DMA-HDD,1.44MB FDD,52X Creative DVD-ROM,1x16550 fast serial ports & IEPP ECP parallel ports , 4X, universal serial bus (USB) ports, PS/2 compatible key board/mouse ports, 19" colour monitor, Internet ready multimedia key board, Optical scroll mouse and built in modem 128KBPS along with telephone instrument & other accessories and complete installation of the system, DVD writer with latest software. (HP / ACER make or equivalent reputed make	Nos.	67712.00
b)	10/100 MBPS Ethernet Card	Nos.	24449.00
c)	Windows-7 or later version of OS and latest MS OFFICE software - preloaded along with Media & Manuals, Power management software, ACPI and windows 7 / Latest.	Nos.	32589.00
d)	Latest updated versions of Antivirus software kit - Norton, macfee, hill view etc alongwith Media & Manuals	Nos.	6521.00
e)	Pen drives of 32GB/ Hard disc latest version	Nos.	1278.00
25	HP laser jet printer 1010 to 1015 series.(1020 series)		10749.00
26	Laser Jet Printer with Fax,scan, photostat along with 2 sets of Spare cartridges and Scanner.	Nos.	23159.00
27	2 kVA inverter (input 220V DC, output 220V AC)	Nos.	17564.00
28	Laptop of latest version with all software , multimedia and manuals of make Dell or equivalent etc..	Nos.	39448.00
29	Latest AutoCAD software licensed copy	No.	34928.00
30	Digital Camera(Make, Nikon, Model: coolpix P90/Latest Model)	No.	25292.00
31	Binoculars(latest version)	No.	4357.00
32	Xerox Machine (RICOH Digital Multi Functional Network Device Model MP 2001 SP / Latest model with RADF Network, Printer, Scanner, Fax Option (LP Printer latest version with 2Nos Spare cartridges)	Nos.	105000.00
33	Water -Purifier ISI standard make.	Nos.	9739.00
34	Furniture consisting of a table and revolving chair for PC and a table for printer	Nos.	6180.00
35	AC Cabin for site accommodation of APTRANSCO staff Office Cabin of size 20ftX10ft X8.6ft with 8 Nos. work stations as per approved drawing and specification.	Nos.	393000.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
Q)	400KV LINE MATERIALS		
1	Number plates with Bolts &Nuts and Washers	No	151.00
2	Danger plates with Bolts &Nuts and Washers	No	168.00
3	Phase plates with Bolts &Nuts and Washers(Set of Three)	Sets	190.00
4	Circuit plates with Bolts &Nuts and Washers (Set of Two)	Sets	190.00
5	Anti climbing devices		
a)	Tangent towers	Nos	3920.00
b)	Small angle towers	Nos	5227.00
c)	Medium angle towers	Nos	6533.00
d)	Large angle towers	Nos	6533.00
6	Bird guards(saw tooth)	Nos	389.00
7	Earthing of the towers		
a)	Pipe type Earthing Sets	Sets	1271.00
b)	Counter poise earthing	Sets	3049.00
8	Insulator Hardware & Accessories for conductor and earth wire		
(a)	For Quad Moose ACSR conductor		
i)	Double Suspension Hardware for Quad ACSR Moose Conductor	Sets	9897.00
ii)	Quadruple tension Hardware for ACSR Moose conductor	Sets	34451.00
iii)	Pilot string Hardware for Quad ACSR Moose conductor	Sets	10293.00
iv)	Quadruple spacer dampers for ACSR Moose Conductor	No.	1373.00
v)	Bundle spacers for ACSR Moose conductor	No.	277.00
vi)	Rigid spacers (Quadruple ACSR Moose conductor) for jumpers.	No.	972.00
vii)	Midspan compression joints for ACSR Moose conductor	No.	841.00
viii)	Repair Sleeves	No.	317.00
(b)	For Twin Moose ACSR conductor		
i)	Double tension Hardware for ACSR Moose conductor	Sets	10020.00
ii)	Double 'I' Suspension Hardware for ACSR/ INVAR Moose Conductor	Sets	12480.00
iii)	Single Suspension Hardware for ACSR/ INVAR Moose Conductor	Sets	5741.00
iv)	Single Suspension Pilot string Insulator Hardware for Twin Moose ACSR Conductor complete	Sets	10293.00
v)	Vibration dampers for ACSR Moose Conductor	No.	832.00
vi)	Rigid spacers (Twin ACSR Moose conductor) for jumpers.	No.	695.00
vii)	Spacer Dampers for ACSR Moose conductor	No.	938.00

Sl. No.	Description	Unit	Rates without GST & F&I (in Rs.)
(c)	For 7/3.65 mm GSS Earthwire		
(i)	Suspension clamps for HTGS Earth Wire	Sets	423.00
(ii)	Tension clamps for HTGS Earth Wire	Sets	418.00
(iii)	Vibration dampers for HTGS Earth wire	Nos	329.00
(iv)	Midspan compression joints for earth wire	Nos	185.00
(v)	Flexible copper bonds for earth wire.	Nos	478.00
(vi)	Repair Sleeves	Nos	182.00
R)	ACSR Moose Conductor of size 54/7/3.53 mm confirming to IS 398	KM	257655.00
S)	High Tension Galvanized Stranded Steel Earthwire 7/3.66 mm	KM	41012.00
T)	INSULATORS		
(a).i	120KN Disc Insulators (Antifog type with Zinc Sleeve) 460mm creepage	No.	510.00
ii.	120kN Long Rod Insulators(10580mm min creepage)	Set	16338.00
iii.	120KN SRC Insulators -13020mm creepage	No.	4531.00
(b).i	160KN Disc Insulators (Antifog type with Zinc Sleeve) 470mm creepage	No.	819.00
ii.	160kN Long Rod Insulators(11280mm creepage)	Set	18419.00
iii.	160KN SRC Insulators -13020mm creepage	No.	5835.00

TELECOM WING

S.No	Description of material	Units	Unit Price (inclusive of F&I) Without GST(in Rs)
OPGW			
1	OPGW 24 Fiber capacity DWSM type cable	Km	101675
2	OPGW 48 Fiber capacity DWSM type cable	Km	134756
3	Suspension Assembly (Grounding clamps are part of suspension assembly)	Set	3798
4	Tension Assembly (Dead end Clamps and Grounding clamps are part of Tension Assembly)	Set	4079
5	Vibration Dampers	No.	990
6	24 F& 48F Splice Box (OPGW - OFAC)	No.	6002
7	24 F& 48F Splice Box (OPGW - OPGW)	No.	5975
8	48F 3 way Splice Box (OPGW-OPGW-OPGW)	No.	16827
9	Down Lead Clamps	No.	444
ADSS			
1	Fibre optic cable of ADSS type with DWSM, 24fibre capacity.	Km	101713
2	Suspension clamp sets (grounding clamps are part of suspension assembly)	No.	5192
3	Tension clamp sets(dead end clamps and grounding clamps are part of tension assembly)	No.	5630
4	Splice boxes (ADSS-OFAC)	No.	8860
5	Splice boxes (ADSS-ADSS)	No.	8860
6	Vibration Dampers Assembly	No.	1060
UG-OFC			
1	UG O.F.Cable unarmoured 48 F DWSM type	Km	85,400
2	UG O.F.Cable armoured 48 F DWSM type	Km	89,000
3	Splice boxes 48 F U/G (Joint closures)	No.	6500
4	HDPE DUCT of 40/33 mm dia of standard Make	km	70700
5	RCC Chambers (120/76/5)cm W/L/T with base and top plates for every 0.5 Km	Each	6974
6	UG O.F.Cable armoured 24 F DWSM type	Km	62350
7	Splice boxes 24 F U/G (Joint closures)	No.	6500

S.No	Description of material	Units	Unit Price (inclusive of F&I) Without GST (in Rs)
OLTE's & associated (SDH and PDH)			
1	Uni directional short haul PDH type 8 Mbps capacity OLTE equipment with primary MUX and MDF	No.	336494
	Spares for OLTE and MUX (One module for each type)	Set	168247
2	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 320 Km in one direction and 280Km in another direction, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	3421848
3	Two directional Managed Synchronous Digital Hierarchy (SDH) type, Long Haul that can drive upto 240 Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1955556
4	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 180 Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	2028215
5	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 150 Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1623972
6	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 120 Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1156068
7	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 120 Km in one direction and 60 Km in another direction, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1115485
8	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 100 Km in all directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1898895

S.No	Description of material	Units	Unit Price (inclusive of F&I) Without GST (in Rs)
9	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul in two directions that can drive upto 100 Km in two directions and short haul that can drive upto 60Km in one direction, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	1866689
10	Spares for Long Haul OLTE and MUX (One module for each type)	No.	1188160
11	Spares for Short Haul OLTE and MUX (One module for each type)	No.	734778
12	Digital Tele Protection Signalling equipment	No.	235887
13	Spares for Digital Tele Protection equipment (One module for each type)	Set	211078
14	Fibre distribution panels for termination of Fibres of 48 F capacity	No.	19381
15	Fibre approach cable (DWSM) of 24 Fibre capacity with HDPE pipe	Km	130159
16	Fibre approach cable (DWSM) of 48 Fibre capacity with HDPE pipe	Km	174757
17	Laptop PC for configuration of remote OLTE, MUX, Digital Teleprotection equipment with necessary software	No.	54818
18	Fusion Splicing Machine (FSM) along with standard accessories	No.	434246
19	Optical Time Domain Reflector (OTDR)	No.	495589
20	Optical Power Meter	No.	94074
21	Optical Laser Source	No.	156000
22	OFC tool kit consisting of Fibre stripping tool and tools for cutting and stripping of sheathing, jacket armouring of OFAC/ADSS/OPGW cables including twobinoculars	Set	191884
23	Network Management system for SDH and MUX along with software and configuration tool (PC- 1No, Chair- 1 No,Table-1No, Printer- 1 No)	No.	2348669
24	SDH STM-4/16 analyzer with optical and electrical interfaces	No.	648259
25	Digital Access Cross Connect Switch (DACS) 16 x 16 ports switching matrix, fully equipped for minimum 16 E-1 ports	No.	111255

S.No	Description of material	Units	Unit Price (inclusive of F&I) Without GST (in Rs)
Cables			
1	125 Ohms Co-axial Cable	Km	101116
2	6 pair PVC copper telephone Cable	Km	40121
3	single pair PVC copper telephone Cable	Km	7650
4	25 Sqmm Battery cable	Km	248523
5	2.5 Sq.mm, 2 Core Un-armoured Copper cable	Km	39900
6	Cat 6 cable (305 mtrs each box)	Box	5824
7	20 pair Armoured jelly filled copper telephone Cable	Km	174760
8	10 pair Armoured jelly filled copper telephone Cable	Km	78578
48V Battery Chargers and Batteries			
1	48V/200A(1+1)Float cum Boost Charger	No.	316411
2	48 V / 100 A(1+1) Float cum Boost charger	No.	246198
3	48V/400 AH SMF VRLA Battery set (1+1)	Set	218533
4	48V/50A(1+1) Float cum Boost Charger	No.	171242
5	48V/250AH SMF VRLA Battery set (1+1)	Set	151048
6	48V/35A(1+1)Float cum Boost Charger	No.	142676
7	48V/200AH SMF VRLA Battery set (1+1)	Set	105437
EPAX and EPB Telephones			
1	EPAX (16/16) with 2 E1 cards wired for 128 ports	No.	151771
2	Spares for EPAX (16/16) with E1 (One module for each type)	No.	56715
3	EPAX (16/16), 128 universal ports fully wired	No.	120178
4	EPAX (8/8), 128 universal ports fully wired.	No.	90295
5	Spares for EPAX (One module for each type)	No.	37440
6	EPB Telephone	No.	654

S.No	Description	Units	Unit Price (inclusive of F&I) Without GST (in Rs)
A.C.Unit			
1	1.5 Ton 3 Star Split AC unit along with 4 KVA Stabilizer including stand for outdoor unit and copper kit with cable	No.	40258
2	2 Ton 3 Star Split AC unit along with 5 KVA Stabilizer including stand for outdoor unit and copper kit with cable	No.	43220
Meters and Toolkit			
1	4 1/2 Digit true RMS digital Multimeter	No	34187
2	Medium Size Tool kit 1)Screw Driver with detachable bits (Taparia) 2) Spanner set 3) Cutting Piller 4) No.e plier 5) Wire Stripper 6) 25Watt Soldering Iron 8)50 Watt Soldering Iron 8) Crimping Tool 4/6/8 pin 9)3 1/2 Digit Multimeter with briefcase	No.	23204
Analog PLCC and Digital PLCC terminals & associated equipment			
1	Single channel PLCC terminal (20 W)	No.	177691
2	Twin channel PLCC terminal (40 W)	No.	242203
3	Spares for single channel PLCC terminal	Set	128357
4	Spare set forTwin channel PLCC Terminal	Set	185037
5	Analog protection coupler	No.	100599
6	Spares for analog protection coupler	Set	88754
7	Digital protection coupler for DPLCC	No.	209321
8	Spares for digital protection coupler for DPLCC (One module for each type)	Set	155687
9	Digital PLCC terminal	No.	749837
10	Spares for Digital PLCC terminal	Set	489334
11	Phase to Phase coupling unit	No.	71608
12	Phase to Ground coupling unit	No.	42110
13	2000A/1.0 mH Wave trap along with pedestal mounting and insulator stack.	No.	540062
14	1250A/0.5 mH Wave trap along with mounting Pedastal and insulator stack.	No.	158452
15	630A/0.2 mH Wave trap along with accessories suitable for suspension mounting.	No.	103344

S.No	Description	Units	Unit Price (inclusive of F&I) Without GST (in Rs)
16	FSK Modem	No.	129055
17	Earth Megger	No.	14407
18	Selective Level meter	No.	312440
19	Selective Level Oscillator	No.	238219
Walkie Talkie			
1	Motorola make, XIRP 8608i model walkie - talkies (UHF Handheld Sets) Trunked radio, non-keypad & without Display, 806-870 MHz frequency, Li-on High capacity battery of 1650 mAH , Belt Clip, Antenna, Battery Charger &	No.	20100
2	Spare battery 1650 mAH High capacity battery for Walkie - talkies	No.	3850