

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED
VIDYUT SOUDHA :: VIJAYAWADA

APTRANSCO – Standard Schedule of Rates for material items for adoption in construction and O&M works pertaining to 400 KV,220kV & 132kV Transmission lines and substations for the year 2022-23 -Communicated – Reg.

T.O.O. No. Chief Engineer (Transmission) Ms. No. 2538

Dt. 19.08.2022

Read the following: -

Ref :-T.O.O .(CE-Transmission) M.S. No.2220, dated 29.07.2021

<<<>>>

APTRANSCO is periodically communicating Standard Schedule of rates for material items for construction and O&M works pertaining to 400kV, 220kV & 132kV Transmission lines and substations for adoption in preparation of estimates. Accordingly, the SSR communicated earlier in the above reference is revised for material rates and communicated herewith.

ORDER

Standard Schedule of Rates for material items for construction and O&M works pertaining to 400kV, 220kV & 132kV Transmission lines and substations for the year 2022-23 approved by Transmission Corporation of Andhra Pradesh is communicated herewith for adoption in preparation of estimates.

The standard scheduled of Rates for the year 2022-23 will come into force from the date of issue of this T.O.O and shall be valid till further orders. The SSR 2022-23 (Material) is available in the APTRANSCO website.

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

Sd/-

(AKV Bhaskar)

Director (Grid, Transmission & Management)

To

All

The Chief Engineers

The FA&CCA/VS/APTRANSCO

The Superintending Engineers.

The SAOs.

The Executive Engineers.

PS to Chairman and Managing Director/APTransco/VS/ Vijayawada.

PS to Joint Managing Director/ APTransco/VS/Vijayawada

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

PS to Director/Grid , Transmission & Management / APTransco/VS/Vijayawada

PS to Director/Finance/APTransco/VS/Vijayawada

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED



**MATERIAL RATES FOR 400kV, 220kV & 132kV
TRANSMISSION LINES AND SUBSTATIONS
FOR THE YEAR 2022-23**

INDEX**EQUIPMENT/MATERIAL RATES**

Sl. No.	Description	Page No
1	Preamble:	4
2	Equipment/Material rates for 220kV &132kV Substations & Lines	5
3	Equipment/Material rates for 400kV Substations & Lines	12
4	Equipment/Material rates for Telecom Equipment	31
5	Auto/Power Transformers and Reactors	39
6	SAS Equipment/Material	40
7	XLPE Power Cable rates	43
8	Visual Monitoring system	45
9	GIS Equipment /Material rates	47

PREAMBLE

1. Steel rates for structural steel and Tower parts are to be taken from monthly steel rates issued by APTRANSCO. The steel rates are FADS Price which are added with transportation charges from Manufacturer site (Hyderabad) to destination site store in preparation of estimates.
2. The rates of other material are exclusive of freight & Insurance and hence 2.5% Freight & Insurance shall be added to the material rates in preparation of estimate.
3. The other taxes are applicable as per latest government taxation rules.
4. The SSR 2022-23 Material rates are in force until new SSR for materials issued.
5. The MS and GI flats rates shall be kept as Schedule-A item.

MATERIAL/EQUIPMENT RATES FOR 220KV & 132KV SUBSTATIONS & LINES				
Sl.No.	SAP Code	Description of material	Unit	SSR2022-23 in Rs.
1	10001372	220kV Circuit Breakers, SF6, 3pole, 3150A, 50KA	Nos	13,60,000
2	10001377	132kV Circuit Breakers, SF6, 3pole, 3150A, 40KA	Nos	5,70,000
3	10001380	132kV Circuit Breakers, SF6, 2Pole, 3150A, 40KA	Nos	4,86,605
4	10001358	33kV, 2000A, 20KA, Vaccum outdoor circuit breaker	Nos	2,57,500
5	10001198	220kV CT (1600-800-500/1-1-1-1A)	Nos	3,06,250
6	10001250	132kV CT (800-600-500/1-1-1A)	Nos	1,58,978
7	10001100	33 kV CTs(2000-1200-800/1-1-1-1A)	Nos	77,650
8	10001108	33 kV CTs (400/1-1 A)	Nos	34,450
9	10001326	220kV PTs	Nos	2,91,303
10	10001329	132kV PTs	Nos	1,23,500
11	10001320	33kV PTs	Nos	32,500
12	10001301	220kV CVTs-3 core	Nos	1,60,000
13	10001303	132kV CVTs	Nos	1,35,000
14 (a)	10003102	220kV LAs(Porcelene)	Nos	56,250
14 (b)		220kV LAs(Polymer)	Nos	75,900
15(a)	10003105	132kV LAs(Porcelene)	Nos	40,000
15 (b)		132kV LAs(Polymer)	Nos	48,500
16 (a)	10003108	33kV LAs(Porcelene)	Nos	4,210
16 (b)	10003109	33kV LAs(Polymer)	Nos	9,060
17	10002590	220kV 1600A Isolators without E/S (Metallic Portion)	Nos	2,08,875
18	10002588	220kV 1600A Isolators with E/S (Metallic Portion)	Nos	2,71,875

File No.ENE51-TRM0MISC/61/2022-EETR

19	10002594	220kV 800A Isolators without E/S (Metallic Portion)	Nos	1,50,375
20	10002593	220kV 800A Isolators with E/S(Metallic Portion)	Nos	2,13,375
21	10002631	132kV 800A Isolators with E/S(Metallic Portion)	Nos	1,56,265
22	10002632	132kV 800A Isolators without E/S(Metallic Portion)	Nos	1,06,246
23	10002501	33 kV Isolators-2000 A(Metallic Portion)	Nos	58,049
24	10002503	33 kV Isolators-1200A(Metallic Portion)	Nos	41,702
25	10002504	33 kV Isolators-800 A(Metallic Portion)	Nos	37,854
26	10007518	220kV Solid core insulators (with creepage 25 mm/KV)	Nos	17,800
27	10007517	220kV Solid core insulators (with creepage 31 mm/KV)	Nos	26,000
28	10007528	132kV Solid core insulators (with creepage 25mm/KV)	Nos	8,200
29	10007528	132kV Solid core insulators (with creepage 31mm/KV)	Nos	9,676
30	10007535	33kV Solid core insulators (with creepage 25mm/KV)	Nos	2,050
31	10005213	220V,200AH Battery set (VRLA)	Nos	3,85,990
	10005214	220V, 200AH Battery set (Tubular)	Nos	5,25,000
32	10005218	220V, 100 AH Battery set(VRLA)	Nos	2,40,350
	10005254	220V,100AH Battery set (Tubular)	Nos	3,83,250
33	10005302	220V, 200AH Battery charger W/O DCDB	Nos	2,66,546
	10005303	220V, 200AH Battery charger with DCDB	Nos	3,16,546
34	10005306	220V, 100AH Battery charger without DCDB	Nos	2,61,305
	10005306	220V, 100AH Battery charger with DCDB	Nos	3,11,305
35	10000704	250KVA 33/0.415 KV Station Transformer	Nos	4,47,443

File No.ENE51-TRM0MISC/61/2022-EETR

36	10000705	100KVA 33/0.415 KV Station Transformer	Nos	3,00,713
37	10004150	LTAC panel	Nos	2,06,250
38	10004155	220kV PTDB panel	Nos	66,688
39	10004156	132KV PTDB Panel	Nos	58,483
40	10003211	2CX2.5 Sq.mm unarmoured copper control cable	Km	60,129
41	10003217	4CX2.5 Sq.mm unarmoured copper control cable	Km	92,842
42	10003223	6CX2.5 Sq.mm unarmoured copper control cable	Km	1,37,721
43	10003228	10CX2.5 Sq.mm unarmoured copper control cable	Km	2,19,776
44	10003230	12CX2.5 Sq.mm unarmoured copper control cable	Km	2,58,492
45	10003389	3.5CX120 Sq.mm Al. power cable	Km	3,56,980
46	10007604	220kV 70KN SRC Insulators	Nos	4,100
47	10007603	220kV 120KN SRC Insulators	Nos	4,300
48	10007607	132kV 70KN SRC Insulators	Nos	2,600
49	10007605	132kV 120KN SRC Insulators	Nos	2,900
50	10007514	70KN Porcelain normal Disc Insulators	Nos	369
51	10007512	120KN Porcelain normal Disc Insulators	Nos	688
52	10007508	160KN Porcelain Antifog Disc Insulators with Zinc Sleeve 470mm creepage	Nos	1,288
53	10010101	ACSR Panther conductor	Km	1,81,250
54	10010103	ACSR Moose Conductor	Km	4,06,250
55		ACSS(TW)Zebra Conductor	Km	4,88,551
56		ACSS(RW)Zebra Conductor	Km	4,70,737
57		ACSS(TW) Moose Conductor	Km	6,05,440
58		ACSS(RW) Moose Conductor	Km	5,83,455
59	10010115	AL-59 Zebra Conductor	Km	4,02,593
60	New Item	AL-59 Moose Conductor	Km	4,86,233

File No.ENE51-TRM0MISC/61/2022-EETR

61	10010176	7/3.15mm HTGS wire	Km	31,875
62	10007650	Bolts &Nuts	MT	98,421
		ACSR Panther Conductor		
63	10007079	Double suspension H/W (AGS type) for Panther conductor	Nos	4,579
64	10007106	Single Suspension H/W for Panther (Pilot)	Nos	1,466
65	10007102	Single Suspension H/W (AGS-FAH) Panther ACSR	Nos	2,079
66	10007103	Single Suspension H/W (AGS -AAH) for Panther ACSR	Nos	2,300
67	10007032	Double Tension H/W for Panther ACSR	Nos	3,940
68	10007052	Single Tension H/W for Panther ACSR	Nos	1,989
69	10007205	Mid Span Compression joints for Panther	Nos	453
70	10007278	Vibration dampers for Panther ACSR	Nos	525
71	10007223	Repair sleeves for Panther conductor	Nos	243
		ACSR Moose Conductor		
72	10007089	Single Suspension H/W (AAH type) for Moose Conductor	Nos	4,286
73	10007028	Double Tension H/W suitable for Moose	Nos	6,101
74	10007037	Single Tension H/W suitable for Moose	Nos	3,400
75	10007074	Double suspension h/w (AGS type) for moose conductor	Nos	5,675
76	10007090	Single Suspension H/W (FAH) for Moose	Nos	3,830
77	10007085	Single Suspension H/W suitable for Moose (Pilot)	Nos	1,385
78	10007083	220kV Single suspension hardware for Twin moose	Nos	3,872
79	10007073	220kV Double suspension hardware for twin moose	Nos	5,536
80	10008562	Spacer clamps with 400mm spacing for twin moose	Nos	558
81	10008788	T clamps for twin moose to single moose with 400mm spacing	Nos	884
82	10007235	Suspension clamps suitable for twin Moose conductor for 220kV and 132kV	Nos	694
83	10007200	Mid Span Compression joints for Moose	Nos	1,054
84	10007218	Repair sleeves for Moose conductor	Nos	433

File No.ENE51-TRM0MISC/61/2022-EETR

85	10007276	Vibration dampers for Moose conductor	Nos	1,036
86	10007301	Armour Rods for Moose ACSR conductor	Nos	2,026
87	10007292	Arcing Horns for Single suspension Moose	Nos	327
88	10007306	Arcing Horns for Single V-Suspension Moose	Nos	273
	7/3.15 mm Earth Wire			
89	10007069	Tension hardware with earth bond	Nos	781
90	10007321	Suspension hardware with earth bond	Nos	836
91	10007209	Mid Span compression Joints for earth wire	Nos	114
92	67500060	Number plates with Bolts &Nuts and Washers	Nos	189
93	67500058	Phase Plates with Bolts &Nuts and Washers	Set	240
94	67500055	Circuit plate with Bolts &Nuts and Washers	Nos	300
95	67500061	Danger Boards with Bolts &Nuts and Washers	Nos	210
96	67500042	Bird guards	Nos	250
97	67500028	Anti-Climbing devices	Set	3,251
98	10007787	U Bolts 16mm	Nos	175
99	10007790	U Bolts 20mm	Nos	234
100	67500046	Hangers 132 KV	Nos	676
101	67500076	Hangers 220 KV	Nos	750
102	10008844	Armour Rods for Panther ACSR conductor	Nos	680
103	10007289 10007290	Arcing Horns for Panther ACSR conductor	Nos	550
104	10007039	5 bolted type single tension h/w for single moose or zebra conductor for 220kV & 132kV	Nos	2,375
105	10007029	5 bolted twin zebra / moose tension h/w 400mm spacing for 132/220kV bus	Sets	4,875
106	10007038	3 bolted type single tension h/w for single moose or zebra conductor for 33KV	Nos	1,566
107	10007036	3 bolted tension hardware for twin moose with 150mm spacing to 33KV bus	Nos	3,870
108	10008276	T Clamps for single Moose all three ways	Nos	750
109	10008918	T clamps for twin Moose T off single Moose with 150mm spacing	Nos	678
110	10008576	Spacer clamps with 150mm spacing for twin moose	Nos	375

File No.ENE51-TRM0MISC/61/2022-EETR

111	10008933	Post type insulators clamps for twin conductor for 220kV & 132kV	Nos	880
112	10008932	Post type insulators clamps for single conductor for 220kV & 132kV	Nos	688
113	10007526	Post type insulators clamps for twin conductor for 33KV	Nos	875
114	10008740	Post type insulators clamps for single conductor for 33KV	Nos	638
115	10008105	Pad type compressor clamp for GS Earth wire to 75/12 flat	Nos	100
116	10008106	Cleat type clamp for G.S. Earth wire	Nos	98
117	10008104	T clamp for GS Earth wire	Nos	375
118	10008865	Bolted earth wire tension clamp	Nos	738
119	10002935	Supply and fixing GI flexible earth bonds	Nos	330
120	10006608	Supply and erection of LED lamps (120W) with fixture	Nos	7,136
121	10009201	Marshalling Kiosk	Nos	25,820
122	10009209 10009210	CT Marshalling boxes(220/132/33KV)	Nos	4,981
123	10009214	PT Marshalling boxes(220/132/33KV)	Nos	6,638
124	10009228	LT Distribution box with MCCB	Nos	13,911
125	10009221 10009222	Lighting Pillar Box	Nos	10,029
126	10009701	CO2 portable fire extinguishers of 15 Lbs capacity without trolley and hose pipe	Nos	5,625
127	10009702	CO2 portable fire extinguishers of 50 Lbs capacity and hose pipe	Nos	23,125
128	10009713	DCP type fire extinguishers with horn and hose pipe 50Kg capacity, Trolley mounted	Nos	17,980
129	10009723	CO2 type portable fire extinguishers of 9 kgs capacity with trolley mounted	Nos	10,440
130	10009957 10009958	15KVA DG set (CGL/Kirloskar)	Nos	2,28,625
131	10009956	25KVA DG set (CGL/Kirloskar)	Nos	2,94,875
132	10000712	33KV HG fuse set with insulators	Nos	16,056

File No.ENE51-TRM0MISC/61/2022-EETR

133	70002757	MDF Board with 12mm thick 3x4 size with teak wood	Nos	7,160
134	10009464	Portable Twin Tube 20W emergency portable Lamp of make Philips or Bajaj	Nos	1,625
135	10006558	SF6 gas cylinder of 50Kg capacity	Nos	37,800
136	10001937	SF6 gas cylinder of 25Kg capacity	Nos	22,250
137	10001940	SF6 gas cylinder of 11Kg capacity	Nos	11,650

AKV Bhaskar
Director (Grid, Transmission & Management)

EQUIPMENT/MATERIAL RATES FOR 400KV SUBSTATIONS & LINES WORKS				
Sl. No.	SAP Code	Description	Unit	SSR2022-23
A)		ISOLATORS		
I		420kV 3 pole outdoor type horizontal centre break Isolators 3 phases 50 c/s of 3150 Amps and fault level of 50KA per second A.C. Motor operated with all accessories, auxiliaries marshalling boxes, Terminal Connectors other essentials as specified.		
a)		With single earth switch		
	10002550	(i) Metallics	Sets	4,65,608.93
	10007507	(ii) Insulators (1 set = 6 Nos. Insulators)	Sets	3,30,332.37
b)		With double earth switch		
	10002551	(i) Metallics	Sets	6,24,125.10
	10007507	(ii) Insulators (1 set = 6 Nos Insulators)	Sets	3,30,332.37
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		
	10002586	(i) Metallics	Sets	3,20,508.00
	10007517	(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	2,01,992.00
b)		With single earth switch		
		(i) Metallics	Sets	2,49,324.00
		(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	1,96,375.00
c)		Without earth switch		
		(i) Metallics	Sets	1,76,220.00
		(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	1,96,375.00
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		

	10002580	(i) Metallics	Sets	2,95,186.00
	10007517	(ii) Insulators (1 set = 9 Nos. Insulators)	Sets	1,96,375.00
B)		CIRCUIT BREAKERS		
1	10001370	420kV 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 420kV Circuit Breakers.	Sets	29,45,210.4
2	10001442	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	4,68,254
C)		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)	10003100	390kV Lightening Arrestor	Nos	1,33,219
D)		Battery and Battery Charger		
1	10005209	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	14,42,320
2	10005318	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	9,70,283
F)		Design, Manufacture, Shop testing, Supply of AC & DC Distribution Boards as per the specification.		
1	10004160	415V AC Main Board (Sub-Boards-I & II) as per Specn. & Drawing as detailed below	set	18,04,945.00
		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) - 1No.		
		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.		
		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)	10004167	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	5,38,954.00
2	10004161	415V AC Distribution Board (Sub-Boards-I & II) as per Specn. & Drawing as detailed below	set	16,32,949
		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 - 12Nos.		
		ix)' F1' Type Module with a rating of 16 A - 4 Nos.		
		x)' V2 ' Type Module with a rating of 0 - 500 V - 2Nos.		
		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	10004162	415V AC Lighting Board (Sub-Boards-I & II) & Emergency Lighting Board as per Specn. & Drawing as detailed below.	set	3,52,500
		i)' F1' Type Module with a rating of 63 A - 2 Nos.		

		ii) ' F1 (BC) ' Type Module with a rating of 63 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 0-500V - 3 Nos.		
		vi) ' F1' Type Module with a rating of 125 A - 1 No.		
		vii) ' F1' Type Module with a rating of 32 A - 4 Nos.		
		viii) Cost of the panel with all other required accessories etc. as per specification - 1 set		
		ix) Cost of all Busbars, Cabling, Wiring meters etc. & all other required accessories etc. as per specification - 1 set		
E)		INSTRUMENT TRANSFORMERS		
1	10001158	Design, Engineering, manufacture, assembly, shop testing, supply and delivery at site including packing forwarding handling transportation to project site, unloading, of 420kV, 3000-2000-1000-500/1-1-1-1A , 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 specified 400kv technical specification.	No.	5,49,400
2	10001187	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 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 marshaling boxes and terminal connectors for CTs as specified in 400kv technical specification.	No.	3,25,461.63
3	10001300	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 specified in 400kv technical specification.	No.	3,31,867
F)		EARTHING AND EARTHMAT		
1	10006901	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.	Set	11,081

File No.ENE51-TRM0MISC/61/2022-EETR

2	70004306	Electrical safety hand gloves suitable for the operation in 400/220kV switchyard of ISI Quality.	Set	3,399
3	70004363	2 Mtr x 1 Mtr, 10mm thick Neoprine Rubber mats of ISI Quality.	No.	3,483
4	10000650	Stainless container of 2 litres capacity for collection of oil samples with cock arrangements at both ends.	No.	1,478
5	70000511, 70004303, 70004303	Electrical safety Belts, Shoes and Helmets suitable for the operation in 400/220kV switchyard of ISI Quality.	Set	3,650
G)		BUS BAR MATERIAL		
1	10007505	400 kV Bus Post Insulators.	Nos	50,093.00
2	10008687	220 kV Bus Post Insulators.	Nos	27,755.00
3	10010128	4.5" IPS Aluminum tube of electrical grade including welding sleeves.	Mtrs	2,842
4	10009058	4" IPS Aluminum tube of electrical grade including welding sleeves.	Mtrs	2,332
5	10009246	Bay Marshalling Boxes for 400KV, 220 and 132 KV Bays with 3mm Aluminum sheet.	Nos.	61,598.00
6	10007014	400 KV Single suspension hardware suitable for Twin Moose.	sets	7,166.77
7	10007009	400 KV Double Suspension hardware suitable for Quad Moose.	Sets	9,375.00
8	10007002	400 KV Double Tension hardware suitable for Twin Moose.	Sets	13,987.37
9	10007005	400 KV Double Tension hardware suitable for Quad Moose.	Sets	20,000
10	10007083	220 KV / 132kV Single suspension hardware suitable for Twin Moose.		4,375.00
11	10007073	220 KV double suspension hardware suitable for Twin Moose.	Sets	5,625.00
12	10007071	220 KV Double suspension hardware suitable for Quad Moose.	Sets	8,100
13	10007021	220 KV / 132kV Double tension hardware suitable for Twin Moose.	Sets	7,778.00
14	10007020	220 KV Double tension hardware suitable for Quad Moose	Sets	14,797.19
15	10008085	400 KV Conductor Spacers for Quad moose	Nos	1,500.00
16	10008086	400 KV Conductor Spacers for Twin moose	Nos	562.00
17	10008096	220 KV Conductor Spacers for Twin moose	Nos.	562.00
18	10008095	220 KV Conductor Spacers for Quad moose	Nos.	1,250.00

19		400 kV clamps & connectors including jumper sleeves		
(a)	10008040	BPI Clamp for Twin moose through/expansion type	Nos.	1,511.00
(b)	10008698	BPI Clamps for 4.5" IPS Rigid /sliding /expansion type	Nos.	2,954.00
(c)	10008041	BPI Clamps for 4" IPS Rigid /sliding type/expansion	Nos.	2,880.00
(d)	10008042	T Connectors SM to SM	Nos.	1,139.21
(e)	10008043	T Connectors TM to SM	Nos.	1,909.00
(f)	10008032	Inter connector TM to 4.5" IPS Al. Tube	Nos.	2,332.98
(g)	10008030	Inter connector QM to 4.5" IPS Al. Tube	Nos.	4,664.90
(h)	10008037	Inter connector TM to 4" IPS Al. Tube	Nos.	806.00
(i)	10008089	Corona spheroid	Nos.	865.00
(j)	10008092	PG Clamps Moose to Moose	Nos.	638.00
20		220 kV /132kV Clamps & connectors		
a)	10008026	BPI Clamp for Single moose	Nos.	878.00
b)	10008097	BPI Clamp for Twin moose through/expansion type	Nos.	1,511.00
c)	10008098	BPI Clamps for 4" IPS Rigid/sliding/expansion type	Nos.	2,880.00
d)	10008100	T Connector SM to SM	Nos.	942.00
e)	10008931	T Connector TM to SM	Nos.	1,605.00
f)	10008080	Isolator connecting Clamps suitable to Twin Moose	Nos.	2,649.00
g)	10008102	Corona spheroid	Nos.	692.00
h)	10008103	PG Clamps Moose to Moose	Nos.	600.00
i)	10008101	Inter connector TM to 4" IPS Al. Tube	Nos.	1,405.00
j)	10008761	Inter connector QM to 4" IPS Al. Tube	Nos.	2,834.00
21	10008105	Pad type Compressor clamp for GS Earth wire to 75 x 12 Flat	Nos.	184.00
22	10008106	Cleat type clamp for G.S Earth wire	Nos.	71.32
23	10008104	T clamp for GS Earth wire with flexible jumpers	Nos.	350.37
H)		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	10003381	Single core, 630 Sq.mm, 1100V XLPE, FRLS insulated PVC sheathed, Aluminium wire/ strip armoured, stranded aluminum conductor cable.	Km	6,08,057.05

2	10003383	Single core, 300 Sq.mm, 1100V XLPE, FRLS insulated PVC sheathed, Aluminium wire/strip armoured, stranded aluminium conductor cable.	Km	368125.57
3	10003385	3 ½ core 300 Sq.mm, 1100V XLPE, FRLS insulated PVC sheathed, galvanized steel wire / strip armoured, stranded aluminium conductor cable.	Km	10,44,036.13
4		1100V, PVC, FRLS insulated PVC sheathed, galvanised steel wire/strip armoured, stranded aluminium conductor cable.		
(a)	10003391	3.5 core, 35 Sq.mm.	Km	1,85,873.00
(b)	10003392	4 core, 16 Sq.mm.	Km	1,06,615.00
(c)	10003395	4 core, 6 Sq.mm.	Km	80,672.00
(d)	10003396	2 core, 6 Sq.mm.	Km	61,472.00
5		1100 V, PVC, FRLS insulated PVC sheathed, galvanized steel wire / strip armoured, stranded copper conductor cable		
(a)	10003299	3 core 2.5 Sq.mm.	Km	98,599
(b)	10003221	5 core 2.5 Sq.mm.	Km	1,16,181
(c)	10003300	7 core 2.5 Sq.mm.	Km	1,50,929
(d)	10003278	10 core 2.5 Sq.mm.	Km	2,05,421
(e)	10003280	14 core 2.5 Sq.mm.	Km	2,75,628
(f)	10003281	19 core 2.5 Sq.mm.	Km	3,59,098
(g)	10003597	27 core 2.5 Sq.mm.	Km	4,94,434
6		Galvanized cable trays with 2mm thick perforated CRC sheet		
(a)	10003603	200 mm size	Mtrs	393.00
(b)	10003531	450 mm size	Mtrs	659.00
7		GI Pipe for entry into cable trench		
(a)	10003548	4" Dia 3 mm thick GI Pipe Including Socials, Bends etc.,	Mtrs	790
(b)	10003549	6" Dia 3 mm thick GI Pipe Including Socials, Bends etc.,	Mtrs	1,119
D)		INDOOR & OUTDOOR ILLUMINATION		
1		Indoor Lighting Fixtures.		
(a)		Control room lighting fixtures -make-CGL-LCBOR-40- CDLor equivalent model in Philips/Bajaj.	Nos	5,000.00
(b)		Decorative Pendent mounting lighting fixtures make-CGL- LCLR66-60-CDL or equivalent model in Philips/Bajaj.	Nos	7,022.97
(c)		Pendent mounting lighting fixtures -make CGL-LCLP54- 36-CDL or equivalent model in Philips/Bajaj.	Nos	4,800.00

(d)		Lighting fixtures-make CGL-LHBL-60-CD or equivalent model in Philips/Bajaj.	Nos	6,222.88
(e)		Lighting fixtures-make CGL-LPLLA-18-CDL or equivalent model in Philips/Bajaj.	Nos	699.00
(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	1,125.00
(g)		Decorative type lighting fixtures with 4 Nos 18 watts CFL Lamp for Portico, main gate etc, make Bajaj / Philips / CGL are equivalent.	Nos	1,967.92
(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)	10009106	40 mm dia - 2mm thick	Mtrs	95
b)	10011978	32mm dia - 2mm thick	Mtrs	76
c)		25mm dia - 2mm thick	Mtrs	66
d)	10011982	12mm dia - 1.5mm thick	Mtrs	47.2
3	10009303	Indoor Modular Main distribution board suitable for wall insert with 1No 63A TP MCB for I/C and 6 Nos 32A SPMCB, 8 Nos 10A SPMCB & 10 Nos 16A SPMCB with neutral link for O/G complete make Havells /LEGRAND or MDS or equivalent.	Nos	10,703
4	10004170	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	19,834
5	10009466	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/Havels)	Nos	18,141
6		Out Door street Lighting Fixtures		
a)	10009389	Street lighting fixtures -make CGL-LSTN1-150-CDL-A or equivalent model in Philips/Bajaj	Nos	9,375
b)		Decorative Post Lantern-make CGL-LPTO-60-CDL/M or equivalent model in Philips/Bajaj.	Nos	7,500
7		Lighting Masts / Poles with junction boxes, earthing materials and all accessories as per drawing enclosed.		
a)		Type A1 with junction box	Nos	14,021
b)		Type E1 with junction box	Nos	7,958

8	10009407	Lighting Panels for Control house	Nos	15,718.22
		I/C 63A TPN SFU - 1 No.		
		O/G 16A-32A SPMCB - 24 Nos.		
9	10009434	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	4,868.00
10	10009412	415V, 63A - Interlocked Switch and Socket outdoor Power Recepticle.	Nos	4,145
11	10009465	Decorative Type Six panel Switch boards with 5A switches - 5 Nos., 5 & 15A plug-2 No with 2 No 15A Switch.(Anchor/Havels).	Nos	1,084.00
12	10009466	Decorative Type Ten panel Switch boards with 5A switches - 7 Nos., 5 & 15A plug-3 Nos with 3 No 15 A Switch.(Anchor/Havels).	Nos	1,314.40
13	10009444	Decorative Type Three panel Switch boards with 5A switches - 3 Nos, 5A Plug - 1No(Anchor/Havels)	Nos	569
14	10009445	Decorative Type Three panel Switch boards with 15A switches - 2 Nos.&15A plug-2 No .(Anchor/Havels)	Nos	952
15		Telephone Junction Boxes		
(a)	10010965	MDF box suitable for 50 pair Telephones with crones and surge protection complete.	Nos	1,958
(b)	10010967	MDF box suitable for 10 pair Telephones with crones and surge protection complete.	Nos	1,460
(c)	10011014	Single socket outlet comprising RJ-45 Socket.	Nos	195.11
(d)	10011015	Dual socket outlet comprising RJ-45 Socket.	Nos	389.17
16	10009418	1400 mm sweep ceiling fans with Electronic regulator CGL/Bajaj/Usha/Khaitan make.	Nos.	1,351.00
17	10009346	Wall mounted Fans with 400 mm sweep with Electronic regulator CGL/Bajaj/Usha/Khaitan make.	Nos.	2,147.00
18	10004152	Outdoor AC Distribution Board with 2 Nos Incomings, 3 Phase, 440V, 300 Amps, with Cu Bar and 300 Amps Fuse units & Neutral link complete and outgoing 2 Nos, 3P, 125A, MCBs including all accessories including CT meter arrangement (200/1 ratio).	No.	38,236.05
19	10009420	Wheel Mounted ladders (10 Mtrs Height)	No.	26,171.00
20	70000965	Aluminium ladders (12ft Height)	No.	13,426.00
21	70000977	Telescopic aluminium ladder (18feet)	No.	27,535.20
22	70000966	Aluminium ladders (8ft Height)	No.	10,426.00
J)		AIR CONDITIONING AND VENTILLATION SYSTEM		
A		Air Conditioning.		
1	10009818	Wall mounted Split air conditioners 2.0 Ton capacity with cooling capacity of 24000 BTU/Hr & 6000 K.Cal/Hr with stabilisers, receptacles including all support structures and all other accessories with MCB	No.	54,085.00

		of 25KA--.5 star model		
2	10009869	Under deck insulation for the roof exposed to sunlight with 50 mm thick TF quality expanded poly styreneincluding GI washers and wire for fixing.	Sft	451.00
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)	10009835	3ph, 24" Sweep 1440 RPM, 3000 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	5,343
b)	10009836	3ph, 18" Sweep 960 RPM, 2000 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	4,988
c)	10009837	3ph, 12" Sweep 960 RPM, 500 cum/hr, exhaust fan or equivalent with 3- ph MCBs.	Nos.	2,713
K)		DIESEL GENERATOR SET		
1	10009973	<p>DG Set 250KVA (with acoustic insulation), 1500RPM, 0.8 PF, 415 V, 3 phase, 50 Hz with the following :-</p> <p>(1) Diesel Engine complete with all accessories as specified.</p> <p>(2) Alternator directly coupled to the engine through coupling complete with all accessories.</p> <p>(3) Automatic voltage Regulator.</p> <p>(4) Complete starting arrangement including two Nos. Batteries & chargers and Power and Control Cables and cable glands and lugs etc.</p> <p>(5) Base Frame and Foundation bolts.</p> <p>(6) Day Tank of 990 litre capacity with all the accessories and fittings.</p> <p>(7) Oil pump for transferring to Day Tank as per specification.</p> <p>(8) Engine cooling and Lubricating system.</p> <p>(9) Engine Air filtering System.</p> <p>(10) Exhaust silencer package with flexible coupling and thermal Insulator.</p> <p>(11) Set of GI Pipes, Valves, Strainers, unloading hose pipes as required.</p> <p>(12) All lubricants, diesel oil, consumables, touch up paints etc, for the first filling, testing & commissioning at site.</p> <p>(13) AMF panel for Control & Metering, and alarm as per specification including all power and control cables, with</p> <p>Cable glands & lugs etc suitable to Substation Automation System.</p>	set	17,02,508

		(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.		
L)		FIRE PROTECTION, DETECTION & ALARM SYSTEMS		
1	10009618	(a) Horizontal centrifugal Electric Driven Hydrant/HVW Spray, pump of capacity 410M3/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	7,45,000
2	10009617	(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	9,18,500
3	10009619	(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	2,25,978
4	10009620	Air vessels with vent valves etc. as per specification and system requirement.	No.	3,40,715
5	10009621	Sump pumps of capacity 10M3 /hr. MWC with motor starter and all accessories.	Nos.	38,133
6	10009629	Basket strainer 300 NB.	Nos.	1,19,500
7	10009605	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	1,95,800
8	10009607	Control Panel for Diesel Engine driven fire water pumps as per specification.	Set	1,88,400
9	10009613	(a) Annunciation panel at fire water pump house as per specification.	Set	1,79,800

	10009614	(b) Annunciation panel in Control Room as per specification.	Set	1,36,188
10		Supply of the following Hydrant and HVWS system Accessories		
a)	10009134	Single headed Hydrants.	Nos.	10,836
b)	10009135	Landing Valves.	No.	4,684
c)	10009033	Hose cabinets.	Nos.	5,418
d)	10009034	Hoses of 15.0m length with coupling.	Nos.	4,576
e)	10009035	Hoses of 7.5m length with coupling.	Nos.	3,487
f)	10009036	Branch pipe with Nozzles.	Nos.	3,050
11		Supply of the following Mild steel black pipes and Mild steel galvanized pipes as per specifications		
a)	10009037	300 NB	Mtrs	3,940
b)	10009038	250 NB	Mtrs	3,365
c)	10009039	200NB	Mtrs	2,498
d)	10006447	150NB	Mtrs	2,288
e)	10009084	100NB	Mtrs	1,923
f)	10009085	80NB	Mtrs	1,339
g)	10009074	50NB	Mtrs	1,050
h)	10009075	25NB	Mtrs	243
i)	10009076	15NB	Mtrs	171
12	10006448	Set of GI & MS Piping beyond deluge valves for transformer including detection piping and pipe supports including all accessories complete.	Sets	2,45,900
13		Supply of the following valves :-		
a)	10006450	300 NB Gate	Nos.	36,018.46
b)	10006451	250 NB Gate	Nos.	35,044.99
c)	10009136	250 NB Check	Nos.	22,389.86
d)	10009137	200 NB Gate	Nos.	28,230.69
e)	10009138	150 NB Gate	Nos.	15,575.55
f)	10009139	100 NB Gate	Nos.	15,222
g)	10009140	80 NB Gate	Nos.	12,399
h)	10009141	80 NB Check	Nos.	10,208
i)	10009142	50 NB Gate	Nos.	7,109.00
j)	10009143	50 NB Check	Nos.	4,380.62
k)	10009144	25 NB Gate	Nos.	2,433.68
l)	10009009	15 NB Gate	Nos.	1,849.39

m)	10009145	Float operated valve 100NB	Nos.	22,389.86
14a)	10009146	Float operated Level guage	Nos	18,083
14b)	10009147	Level switch	Nos	18,920
15	10009148	Pressure Gauge	Nos	2,150
16	10009149	Pressure Switch	Nos	6,128
17	10009150	Differential Pressure Gauge	Nos	3,929
18	10009151	Deluge valve with motor gounge, pr. switch, pr.guage, solenoid valve to drain - size 150 NB	Sets	1,21,684.00
19	10009615	Local control panel for Deluge valve	Nos.	12,345
20	10009616	Strainer Y type, 150 NB	Nos.	32,271
21	10009622	Quartzoid bulb detectors	Nos	530.00
22	10009623	HVW spray nozzles	Nos	1,290.00
23		Supply of Detection and Alarm system including all hardware and all other accessories		
a)	10006637	Multi criteria detectors	Nos	2,911.00
b)	10009626	Heat detector	Nos	2,467.00
c)	10009627	Response indicator	Nos	329
d)	10009628	Manual call point	Nos	2,069
e)	10009604	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	1,44,284.00
f)	10010267	Water pressure transducer with input of 0-16 bars and with 2nos ports as output of range 4-20mA for integrating in SAS.	Nos	79,615
g)	10010267	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	54,249
24		Supply of the following Portable Fire Extinguishers with all accessories as per specification		
a)	10009711	Dry chemical powder type Fire extinguishers of 9 kgs. Capacity.	Nos	2,716
b)	10009712	Dry chemical powder type Fire extinguishers of 25 kgs. Capacity (trolley mounted).	Nos	11,243
c)	10009713	Dry chemical powder type Fire extinguishers of 50 kgs.Capacity (trolley mounted).	Nos	15,089
d)	10009714	Dry chemical powder type Fire extinguishers of 150 kgs. Capacity (trolley mounted).	Nos	49,500
e)	10009726	CO2 type portable Fire extinguishers of 45 kgs. Capacity (trolley mounted).	Nos	34,558.26

File No.ENE51-TRM0MISC/61/2022-EETR

f)	10009725	CO2 type portable Fire extinguishers of 22.5 kgs. Capacity (trolley mounted).	Nos	16,014.03
g)	10009724	CO2 type portable Fire extinguishers of 9 kgs. Capacity (trolley mounted).	Nos	8,761.25
h)	10009719	CO2 type portable Fire extinguishers of 2 kgs. Capacity.	Nos	3,602.27
i)	10009735	9 liters capacity Mechanical foam type fire extinguishers.	Nos	2,822.86
j)	10009715	Sand / water Buckets 9 liters capacity with stand.	Nos	450
25	10009602	Fire Alarm Panel for the above detectors with 24V (12+12) Batteries for supply to be installed in AC Kiosk	Nos.	4,579
26		Mandatory spares		
a)	10009044	Self starter of HVW Pumps	No	53,105
b)	10009046	Fuel oil filter elements of Diesel engine drive	No	12,017.00
c)	10009048	Gland packing of jockey pumps	No	6,117.00
d)	10009622	Quartzoid bulb detector	Nos	530.00
e)	10009049	Projectors (Nozzles)	Nos	1,285.00
f)	10009626	Heat detectors	No	2,677.05
g)	10009149	Pressure switch	No	6,941.00
h)	10009154	Flaps for check valves 250NB	Nos	13,367.00
i)	10009153	Flaps for check valves 80NB	Nos	5,058
j)	10009152	Flaps for check valves 50NB	Nos	6,521.00
k)	70003320	Set of bearings for HVW pumps	Set	11,194.93
l)	70003321	Set of bearings for Jockey pumps	Set	6,953.00
m)	10009148	Pressure Gauge	No	2,780
M)		33kV STATION POWER SUPPLY FACILITIES		
1	10000702	33kV/433V, 630 KVA Station supply transformers with all accessories and fittings as per specifications.	Nos.	7,37,991
2	10009247	HT Trivector Meter box.	Nos.	7,660
3	10000712	33 KV HG Fuse sets with Insulators.	Set	16,056
4	10012509.	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.	MT	73,575.81
5	10007320	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.	Set	1,10,769.64

6	10001112	33 kV CTs with junction box and terminal connectors and all accessories as per specification, 25-15/1-1-1A.	Sets	20,864
N)		CONTROL HOUSE FURNITURE AND MONITORING SYSTEM		
1	70002812	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.	6,767.10
2	70002813	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.	1,995.00
3	70002727	Self Containing 12 Nos Racks with safety locker make Godrej or Wipro or equivalent.	Set	16,556.00
4	70002591	Junior Executive table (1365 x 680 x 7350) mm with decolam Model No.T-9 make Godrej or Wipro or equivalent.	Nos.	8,982.00
5	70002589	Steel Table (1199 x 590 x 735) mm with single drawer and Decolam Top Model. T-111 make Godrej or Wipro or equivalent.	Nos.	5,399.00
6	70002668	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	5,204.09
7	70002669	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	3,122.87
8	70002666	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	2,602.57
9	70002711	Steel store well plain (900 x 507 x 1950) mm Make Godrej, Model: Slimline 4S Text purple colour or Wipro make model Endura.	Nos	7,440.00
10	70002787	Plastic file trays (16" x 11"x3")	Nos	332
11	70002703	Steel Stools (15"x15"x18") with MS top sheet thickness 20mm 1" square pipe 16 gauge make Godrej or equivalent.	Nos	1,120.00
12	70002788	Steel waste paper baskets (12"x10"x10")	Nos	465.00
13	70002726	Steel rack (6'x3'x16") with 6 shelves making 5 compartments (22 Gauge)	Nos.	3,500.0
14	70002745	Short bench (4'x14"x1/2') with laminated Top.	Nos.	3,360.00
15		Display Board for Substation Layout		

a)	70002814	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.	5,859
b)	70002815	Aluminium Floor stand for the above.	No.	10,815.00
16	70002816	3' x 2' Wooden key board suitable for holding 30 Nos Key chains	No.	1,351.00
17	70001850	Brother P-Touch Sticker lable printer with Software and all accessories (Model PT-2700) / Latest Model.	No.	18,234
18		Sticker lables, printer cartridges suitable for (Brother P make) Touch sticker Lables, Printer.		
a)	70001851	24 mm size.	No.	495.00
b)	70001852	18 mm size.	No.	406.00
c)	70001853	12 mm size.	No.	315.00
19	70004318	Supply and fixing of teak wood name boards with enamel painting letters of size 12"x4" for rooms in control room.	Nos.	3,968.00
20	70002817	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.	2,292.07
21	70004411	Supply and fixing of name board indicating 400/220kV SS, APTRANSCO, XXXXXXXXXX, XXXXXXXXXX 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.	24,535
22	70004412	Supply and fixing of notice board of size 2x2.5feet.	No.	905
23	70004414	Pictograph of size 2x4feet with letters.	No.	6,786
24		Personal computer (with the following configuration)		
a)	70001915	Intel core i-7-3920XM Process 512KB level-8M cache upto 3.80 GHz, 8GB RAM , 128bit graphic accelerator with 4MB SG RAM,160GB Ultra DMA-HDD,1.44MBFDD,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.	67,712.0
b)	70001867	10/100 MBPS Ethernet Card	Nos.	24,449.00

File No.ENE51-TRM0MISC/61/2022-EETR

c)	70005269	Windows-10 or later version of OS and latest MS OFFICE software - preloaded along with Media & Manuals, Power management software, ACPI and windows 10 / Latest.	Nos.	40,736.00
d)	70005258	Latest updated versions of Antivirus software kit - Norton, macfee, hill view etc alongwith Media & Manuals	Nos.	10,585.00
25	70002246	HP laser jet printer 101 0 to 1015 series.(1020 series)		13,974.00
26	70002240	Laser Jet Printer with Fax, Scan, and Photostat along with 2sets of Spare cartridges and Scanner.	Nos.	27,791.00
27	70002092	2 kVA inverter (input 220V DC, output 220V AC)	Nos.	18,213.79
28	70001712	Laptop of latest version with all software, multimedia and manuals of make Dell or equivalent etc.	Nos.	61,209.15
29	70005310	Latest AutoCAD software licensed copy	No.	43,660
30	70000505	Binoculars(latest version)	No.	5,204.09
31	70001856	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.	1,05,000.00
32	70004448	Water -Purifier ISI standard make.	Nos.	9,739.00
33		Furniture consisting of a table and revolving chair for PC and a table for printer	Nos.	6,810.00
O)		400KV LINE MATERIALS		
1	67500060	Number plates with Bolts &Nuts and Washers	No	188.75
2	67500052	Danger plates with Bolts &Nuts and Washers	No	210
3	67500058	Phase plates with Bolts &Nuts and Washers(Set of Three)	Sets	248.75
4	67500055	Circuit plates with Bolts &Nuts and Washers (Set of Two)	Sets	300
5		Anti climbing devices		
a)	67500033	Tangent towers	Nos	4900
b)	67500034	Small angle towers	Nos	6,533.75
c)	67500035	Medium angle towers	Nos	8,166.25
d)	67500036	Large angle towers	Nos	8,166.25
6	67500042	Bird guards(saw tooth)	Nos	250
7		Earthing of the towers		
a)	10006927	Pipe type Earthing Sets	Sets	1,588.75
b)	10003006	Counter poise earthing	Sets	3,811.25
8		Insulator Hardware & Accessories for conductor and earth wire.		
(a)		For Quad Moose ACSR conductor		

File No.ENE51-TRM0MISC/61/2022-EETR

i)	10007009	Double Suspension Hardware for Quad ACSR Moose Conductor	Sets	12,371.25
ii)	10007001	Quadruple tension Hardware for ACSR Moose conductor	Sets	46,250
iii)	10007011	Pilot string Hardware for Quad ACSR Moose conductor	Sets	12,866.25
iv)	10007274	Quadruple spacer dampers for ACSR Moose Conductor	No.	1,716.25
v)		Bundle spacers for ACSR Moose conductor	No.	346.25
vi)	10007319	Rigid spacers (Quadruple ACSR Moose conductor) for jumpers.	No.	1,283.75
vii)	10007201	Mid span compression joints for ACSR Moose conductor	No.	1,051.25
viii)	10007218	Repair Sleeves	No.	432.5
(b)		For Twin Moose ACSR conductor		
i)	10007027	Double tension Hardware for ACSR Moose conductor	Sets	12,525
ii)	10007010	Double T Suspension Hardware for ACSR/ INVAR Moose Conductor	Sets	13,838.75
iii)	10007083	Single Suspension Hardware for ACSR/ INVAR Moose Conductor	Sets	7,500
iv)	10007501	Single Suspension Pilot string Insulator Hardware for Twin Moose ACSR Conductor complete	Sets	12,866.25
v)	10007276	Vibration dampers for ACSR Moose Conductor	No.	1,128.75
vi)	10008569	Rigid spacers (Twin ACSR Moose conductor) for jumpers.	No.	883.75
vii)	10007275	Spacer Dampers for ACSR Moose conductor	No.	1,172.5
(c)		For 7/3.66 mm GSS Earth wire		
(i)	10007112	Suspension clamps for HTGS Earth Wire	Sets	528.75
(ii)	10007063	Tension clamps for HTGS Earth Wire	Sets	522.5
(iii)	10007279	Vibration dampers for HTGS Earth wire	Nos	462.5
(iv)	10007210	Mid span compression joints for earth wire	Nos	275
(v)	10006923	Flexible copper bonds for earth wire.	Nos	637.5
(vi)	10007228	Repair Sleeves	Nos	185
P)	10010175	High Tension Galvanized Stranded Steel Earth wire 7/3.66 mm	KM	51,265
Q)		INSULATORS		
(a).i	10007510	120KN Disc Insulators (Antifog type with Zinc Sleeve) 460mm creepage	No.	637.5
ii.	10007523	120kN Long Rod Insulators(one set= 23 No.s Disc insulators	Set	20,422.5
iii.	10007601	120KN SRC Insulators -13020mm creepage	No.	6,000

File No.ENE51-TRM0MISC/61/2022-EETR

(b).i	10007508	160KN Disc Insulators (Antifog type with Zinc Sleeve) 470mm creepage	No.	1,287.5
ii.	10007524	160kN Long Rod Insulators(one set= 24 No.s Disc insulators	Set	23,023.5
iii.	10007600	160KN SRC Insulators -13020mm creepage	No.	7,293.75

AKV Bhaskar
Director (Grid, Transmission & Management)

TELECOM Material rates					
Sl.No.	SAP Code	Category	Name of the Item	UOM	SSR 2022-23 in Rs.
1	New Item	OPGW	OPGW 96F Capacity DWSM type Cable	Km	3,00,000
2	New Item	OPGW	Suspension Assembly suitable for 96F OPGW cable (Grounding clamps are part of suspension assembly)	No.	6,697
3	New Item	OPGW	Tension Assembly suitable for 96F OPGW cable (Dead End clamps and Grounding clamps are part of suspension assembly)	No.	7,000
4	New Item	OPGW	Vibration dampers suitable for 96F OPGW cable	No.	1,000
5	10011470	OPGW	OPGW 48 Fiber capacity DWSM type cable	Km	1,63,539
6	New Item	OPGW	Suspension Assembly suitable for 48F OPGW cable (Grounding clamps are part of suspension assembly)	No.	4,200
7	New Item	OPGW	Tension Assembly suitable for 48F OPGW cable (Dead End clamps and Grounding clamps are part of suspension assembly)	No.	4,000
8	New Item	OPGW	Vibration dampers suitable for 48F OPGW cable	No.	800
9	10011407	OPGW	OPGW 24 Fiber capacity DWSM type cable	Km	1,23,393
10	10011471	OPGW	Suspension Assembly (Grounding clamps are part of suspension assembly)	Set	4,200
11	10011423	OPGW	Tension Assembly (Dead end Clamps and Grounding clamps are part of Tension Assembly)	Set	4,000
12	10011422	OPGW	Vibration Dampers	No.	800
13	New Item	OPGW	96F Splice box (OPGW-OFAC)	No.	15,000
14	New Item	OPGW	96F Splice box (OPGW-OPGW)	No.	15,000

File No.ENE51-TRM0MISC/61/2022-EETR

15	New Item	OPGW	96F 3 way Splice box (OPGW-OPGW-OPGW)		18,000
16	New Item	OPGW	48F Splice Box (OPGW-OFAC)	No.	10,444
17	New Item	OPGW	48F Splice Box (OPGW-OPGW)	No.	10,444
18	10011473	OPGW	48F 3 way Splice Box (OPGW-OPGW-OPGW)	No.	11,024
19	10011479	OPGW	24F Splice box (OPGW-OFAC)	No.	6,448
20	10011482	OPGW	24F Splice box (OPGW-OPGW)	No.	6,448
21	10011421	OPGW	Down Lead Clamps	No.	345
22	10011442	ADSS	Fibre Optic Cable of ADSS type with DWSM, 24 fibre capacity	Km	1,25,198
23	10011461 10011471	ADSS	Suspension clamp sets (grounding clamps are part of suspension assembly) for ADSS cable	No.	4,200
24	10011462 10011472	ADSS	Tension clamp sets (dead end clamps and grounding clamps are part of tension assembly) for ADSS cable	No.	4,000
25		ADSS	Splice boxes (ADSS-OFAC)	No.	8,000
26	10011431	ADSS	Splice boxes (ADSS-ADSS)	No.	8,000
27	10011439	ADSS	Vibration Dampers Assembly for ADSS cable	No.	800
28	10011469	UG-OFC	UG O.F.Cable unarmoured 48 F DWSM type	Km	97,000
29	10011469	UG-OFC	UG O.F.Cable armoured 48 F DWSM type	Km	1,11,250
30	10011408	UG-OFC	UG O.F.Cable armoured 24 F DWSM type	Km	75,668
31	New Item	UG-OFC	UG O.F.Cable unarmoured 24F DWSM type	Km	87,000
32	10011432	UG-OFC	Splice boxes 48 F U/G (Joint closures)	No.	8,125
33	10011432	UG-OFC	Splice boxes 24 F U/G (Joint closures)	No.	7,889
34	10011971	UG-OFC	HDPE DUCT of 40/33 mm dia of standard Make for UG cable	km	81,726
35	10011972	UG-OFC	RCC Chambers (120/76/5)cm W/L/T with base and top plates for every 0.5Km	Each	6,771
36	10011593	OLTE	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 100Km in all directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	17,50,000

37	10011586	OLTE	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul in two directions that can drive upto 100Km in two directions and shot haul that can drive upto 60Km in one direction, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	17,10,000
38	New Item	OLTE	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 40Km in one direction and 80Km in two directions, STM-16 OLTE with Primary Multiplexer	No.	16,50,000
39	10011584	OLTE	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.	42,49,240
40	10011594	OLTE	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.	20,00,000
41	10011592	OLTE	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.	16,86,310
42	10011582	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 120Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	14,45,085
43	New Item	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, short/long haul which can drive upto 60Km in both directions, STM-4 upgradable to STM-16 OLTE with Primary Multiplexer	No.	13,50,000
44	10011826	OLTE	Uni directional short haul PDH type 8 Mbps capacity OLTE equipment with primary MUX and MDF	No.	4,20,618
45	10011589	OLTE	Spares for Long Haul OLTE and MUX	No.	9,50,000
46	10011590	OLTE	Spares for Short Haul OLTE and MUX	No.	7,00,000

File No.ENE51-TRM0MISC/61/2022-EETR

47	10011590	OLTE	Spares for OLTE and MUX of PDH	Set	2,10,309
48	10011051	OLTE	Digital Tele Protection Signalling equipment	No.	2,35,000
49	10011692	OLTE	Spares for Digital Tele Protection equipment	Set	1,90,000
50	New Item	OLTE	Fibre distribution panels for termination of Fibres of 96 F capacity	No.	41,540
51	10011692	OLTE	Fibre distribution panels for termination of Fibres of 48 F capacity	No.	23,954
52	10011469	OLTE	Fibre approach cable (DWSM) of 48 Fibre capacity with HDPE pipe	Km	1,33,898
53	10011408	OLTE	Fibre approach cable (DWSM) of 24 Fibre capacity with HDPE pipe	Km	98,000
54	New Item	OLTE	Fibre approach cable (DWSM) of 96 Fibre capacity with HDPE pipe	Km	2,00,000
55	10011694	OLTE	Digital Access Cross Connect Switch (DACs) 16 x 16 ports switching matrix, fully equipped for minimum 16 E-1 ports	No.	1,38,129
56	10011696	OLTE	Network Management system for SDH and MUX along with software and configuration tool (PC- 1No, Chair- 1 No,Table-1No, Printer- 1 No)	No.	12,46,189
57	10011640	OLTE	Laptop PC for configuration of remote OLTE, MUX, Digital Tele protection equipment with necessary software	No.	68,523
58	New Item	OLTE	Supply of Optical Interface Cards		
i			S4.1	No.	6,402
ii			L4.1	No.	10,000
iii			L4.2	No.	10,383
iv			L4.2 e	No.	25,000
v			S 16.1	No.	16,000
vi			L 16.1	No.	18,000
vii			L 16.2	No.	28,000
viii			Optical line interface solution to support min. 150km	No.	1,04,078
ix			Optical line interface solution to support min. 175km	No.	2,75,000
59	New Item	OLTE	Optical Patch cords		
i			Patch Cord (10mtrs. length) (LC-LC, FC-LC, FC-SC, SC-LC, LC-LC, FC-FC)	No.	350

File No.ENE51-TRM0MISC/61/2022-EETR

ii			Patch Cord (20mtrs. length) (LC-LC, FC-LC, FC-SC, SC-LC, LC-LC, FC-FC))	No.	650
60	10011694	OLTE	SDH STM-4/16 analyzer with optical and electrical interfaces	No.	7,89,768
61	70000317	OLTE	Fusion Splicing Machine (FSM) along with standard accessories	No.	4,10,000
62	10012199	OLTE	Optical Time Domain Reflector (OTDR)	No.	4,81,154
63	10004917	OLTE	Optical Power Meter	No.	91,334
64	10011802	OLTE	Optical Laser Source	No.	1,70,000
65	10011655	OLTE	OFC tool kit consisting of Fibre stripping tool and tools for cutting and stripping of sheathing, jacket armouring of OFAC/ADSS/ OPGW cables including two binoculars	Set	1,95,000
66	100010924	Battery Chargers	48V/150A(1+0) Float cum Boost Charger	No.	2,33,000
67	10005317	Battery Chargers	48V/100 A(1+0) Float cum Boost charger	No.	1,96,105
68	10005321	Battery Chargers	48V/50A(1+0) Float cum Boost Charger	No.	1,55,614
69	10005326	Battery Chargers	48V/35A(1+0) Float cum Boost Charger	No.	1,47,068
70	10005347	Battery Sets	48V/400 AH (1+0) SMF VRLA Battery set	Set	1,47,000
71	10005551	Battery Sets	48V/300AH (1+0) SMF VRLA Battery set	Set	1,10,250
72	10005228	Battery Sets	48V/250AH (1+0) SMF VRLA Battery set	Set	96,300
73	10005230	Battery Sets	48V/200AH (1+0) SMF VRLA Battery set	Set	78,000
74		EPAX	EPAX (32/32) with 2E1 cards wired for 128 ports	No.	2,29,522
75		EPAX	EPAX (32/32), 128 universally wired ports	No.	2,06,435
76	10010924	EPAX	EPAX (16/16) with 2 E1 cards wired for 128 ports	No.	1,82,221
77	10010952	EPAX	EPAX (16/16), 128 universal ports fully wired	No.	1,44,445
78	10010907	EPAX	EPAX (8/8), 128 universal ports fully wired.	No.	1,08,333
79		EPAX	Spares for EPAX (32/32) with 2E1 cards wired for 128 ports	Set	69,750

File No.ENE51-TRM0MISC/61/2022-EETR

80		EPAX	Spares for EPAX (32/32), 128 universally wired ports	Set	59,750
81	10010926	EPAX	Spares for EPAX (16/16) with E1	No.	66,666
82	New Item	EPAX	Spares for EPAX (16/16) without E1	Set	59,750
83	10010939	EPAX	Spares for EPAX (8/8)	No.	45,000
84	10010989	EPAX	EPB Telephone	No.	786
85	10011902	Cables	125 Ohms Co-axial Cable	Km	99,104
86	10005696	Cables	25 Sq.mm Battery cable	Km	3,84,127
87	10011907	Cables	20 pair Armoured jelly filled copper telephone Cable	Km	1,74,760
88	10011913	Cables	10 pair Armoured jelly filled copper telephone Cable	Km	73,713
89	10011919	Cables	6 pair PVC copper telephone Cable	Km	37,637
90	10011925	Cables	Single pair PVC copper telephone Cable	Km	7,111
91	10003217	Cables	2.5 Sq.mm, 4 Core Un-armoured Copper cable	Km	92,842
92	10003211	Cables	2.5 Sq.mm, 2 Core Un-armoured Copper cable	Km	60,129
93	10011965	Cables	Cat 6 cable (305 mtrs each box)	Box	5,654
94	10010701	PLCC	Twin channel PLCC terminal (40W)	No.	2,85,000
95	10010705	PLCC	Single channel PLCC terminal (20 W)	No.	1,45,436
96	10011058	PLCC	Analog protection coupler	No.	99,639
97	10010738	PLCC	Phase to Phase coupling unit	No.	80,000
98	10010744	PLCC	Phase to Ground coupling unit	No.	51,614
99	10010709	PLCC	Digital PLCC terminal	No.	7,85,054
100	10011027	PLCC	Digital protection coupler for DPLCC	No.	2,58,279
101	10010601	PLCC	2000A/1.0 mH Wavetrap along with pedestal mounting and insulator stack.	No.	5,20,062
102	10010605	PLCC	1250A/0.5 mH Wavetrap along with mounting Pedastal and insulator stack.	No.	1,94,200
103	10010613	PLCC	630A/0.2 mH Wavetrap along with accessories suitable for suspension mounting.	No.	1,26,644
104	10010713	PLCC	Spare set for Twin channel PLCC Terminal	Set	2,26,959
105	10010720	PLCC	Spares for single channel PLCC terminal	Set	97,715
106	10011059	PLCC	Spares for analog protection coupler	Set	88,004

File No.ENE51-TRM0MISC/61/2022-EETR

107	10010732	PLCC	Spares for Digital PLCC terminal	Set	6,00,096
108	10011053	PLCC	Spares for digital protection coupler for DPLCC	Set	1,92,075
109	70001996	PLCC	FSK Modem	No.	82,000
110	70001525	PLCC	Earth Megger	No.	17,485
111	10012162	PLCC	Selective Level Oscillator	No.	2,92,399
112	10012151	PLCC	Selective Level meter	No.	3,83,500
113	10009859	AC unit	2 Ton 3 Star Split AC unit alongwith 5 KVA Stabilizer including stand for outdoor unit and copper kit with cable (Inverter Type)	No.	45,313
114	10009812	AC unit	1.5 Ton 3 Star Split AC unit alongwith 4 KVA Stabilizer including stand for outdoor unit and copper kit with cable (Inverter Type)	No.	40,258
115	New Item	AC unit	4HP VRV type AC units with 2No. Split Indoor units	No.	1,04,617
116	10005121	Tool Kit	4 1/2 Digit true RMS digital Multimeter	No	41,490
117	10012175	Tool Kit	Medium Size Tool kit 1)Screw Driver with detachable bits (Taparia) 2) Spnner 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.	28,160
118	10012211	Walkie Talkie	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 & User Manual	No.	19,800
119	10012212	Walkie Talkie	Spare batterie 1650 mAH High capacity battery for Walkie - talkies	No.	3,000
120	New Item	OLTE	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	1 No.	12,50,000.00

121	New Item	OLTE	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul in two directions that can drive upto 100 Km in two directions and shot haul that can drive upto 60Km in one direction, STM-4 upgradable to STM-16 OLTE	1 No.	12,00,000.00
122	New Item	OLTE	Three directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive upto 40 Km in one direction and 80Km in two directions, STM-16 OLTE	1 No.	11,50,000.00
123	New Item	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, Long Haul that can drive from 150km to 240Km in both directions, STM-4 upgradable to STM-16 OLTE	1 No.	15,50,000.00
124	New Item	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive from 120km to 150Km in both directions, STM-4 upgradable to STM-16 OLTE	1 No.	12,36,000.00
125	New Item	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, long haul which can drive from 60km to 120Km in both directions, STM-4 upgradable to STM-16 OLTE	1 No.	9,95,000.00
126	New Item	OLTE	Two directional Managed Synchronous Digital Hierarchy (SDH) type, short/long haul which can drive from 20km to 60Km in both directions, STM-4 upgradable to STM-16 OLTE	1 No.	9,00,000.00
127	New Item	OLTE	Drop and Insert Multiplexer	1 No.	4,00,000.00
128	New Item	OLTE	Spares for Long Haul OLTE (SDH) (one module for each type)	1 Set	6,50,000.00
129	New Item	OLTE	Spares for Short Haul OLTE (SDH)(one module for each type)	1 Set	4,00,000.00
130	New Item	OLTE	Spares for Multiplexer (one module for each type)	1 Set	3,00,000.00
131	New Item	OLTE	VO IP SIP enabled instrument	1 No.	5,850
132	New Item	OLTE	Uni directional Managed Synchronous Digital Hierarchy (SDH) type, Short/long haul which can drive upto 60 Km , STM-1 OLTE upgradable to STM-4	1 No.	10,00,000.00
133	New Item	OLTE	Spares for short/Long Haul uni directional STM-1 OLTE (One module for each type)	1 Set	4,50,000.00

Auto/ Power Transformers and Reactors Rates (For Estimate rates of EPC Contracts only)				
Sl.No.	SAP CODE	Description of Transformer/Reactor	Unit	SSR 2022-23
1	10000000	500MVA, 400/220/33KV Auto Transformer with all accessories.	No.	19,85,00,000
2	10000001	315MVA, 400/220/33KV Auto Transformer with all accessories.	No.	12,25,00,000
3	10000005	160MVA, 220/132/11KV Auto Transformer with all accessories.	No.	7,38,25,000
4	10000007	100MVA, 220/132/11KV Auto Transformer with all accessories.	No.	5,18,75,000
5	10000009	80MVA, 220/33KV Power Transformer with all accessories.	No.	5,60,00,000
6	10000023	80MVA, 132/33KV Power Transformer with all accessories.	No.	4,50,00,000
7	10000024	50MVA, 220/33KV Power transformer with all accessories.	No.	4,15,57,204
8	10000010	50MVA, 132/33KV Power transformer with all accessories.	No.	3,64,30,870
9	10000025	31.5MVA, 132/33KV Power transformer with all accessories.	No.	2,25,00,000
10	10012591	125MVAR, 400KV Shunt Reactor withh all accessories.	No.	7,80,00,000
11	10000821	80MVAR, 400KV Shunt Reactor withh all accessories.	No.	6,50,00,000

Control and Relay Panels along with SAS equipment for 400KV, 220KV AND 132KV SUBSTATIONS				
Sl.No.	SAP Code	Description of Equipment/ Material	Unit	SSR 2022-23
		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 APTRANSCO specification.		
1	10004002	Common Control and Busbar Protection Panels for 400kV side As per 400KV Specification for Control & Relay Panels.	Set	54,18,535.02
2	10004003	Common Control and Busbar Protection Panels for 220kV side As per 400KV Specification for Control & Relay Panels.	Set	37,56,500
3	10004004	400kV Line CB Control and Relay Panels As per 400KV Specification for Control& Relay Panels	Nos	5,44,444
4		400kV Line Protection Panels As per 400KV Specification(without Line Reactor).	Nos	11,26,706
5	10004007	400kV Tie CB Control and Relay panels As per 400KV Specification for Control & Relay Panels.	Nos	6,69,228
6	10004013	400kV side of 400/220kV 500/315 MVA ICT CB Control and Relay Panels as per 400KV Specification for Control & Relay Panels.	Nos	5,29,564
7	10004014	400/220kV 500/315MVA ICT Protection Panels As per 400KV Specification for Control & Relay Panels.	Nos	9,51,145
8	10004013	220kV side of 400/220kV 500/315 MVA ICT CB Control and Relay Panels as per 400KV Specification for Control & Relay Panels.	Nos	5,29,564
9		220kV Line CB Control and Relay Panels As per 400KV Specification for Control & Relay Panels.	Nos	5,44,487
10	10004022	220kV Line Protection Panels As per 400KV Specification for Control & Relay Panels.	Nos	10,42,546
11	10004023	220kV Bus Coupler Control, Relay and Protection Panels As per 400KV Specification for Control & Relay Panels.	Nos	5,56,996

File No.ENE51-TRM0MISC/61/2022-EETR

12	10004024	220kV Transfer Bus Coupler Control, Relay and Protection Panels 400KV Specification for Control & Relay Panels.	Nos	4,79,935
13	10004047	132kV feeder Control, Relay and Protection panels with IEC 61850 with Automation features as per 400KV Specification.	Nos	6,84,746
14	10010251	Sub-Station Automation System as per 400KV Specification including Software for Sub-Station Automation System along with Visual monitoring system.	Nos	1,52,14,238
15	70001502	Relay Test kit and Testing Instruments as per 400KV Specification for Control& Relay Panels.	Nos	36,92,819
16	10004011	125MVAR Bus Reactor Main CB Control & Relay Panel as per 400KV Specification.	Nos	6,66,253
17	10004009	125MVAR Bus Reactor CB Protection Panel as per 400KV Specification.	Nos	10,44,752
18	10004253	Mandatory Spares for Control and Relay Panels as per 400KV Specification.	Lot	21,27,744
19	10004035	220 kV Feeder Control & Relay Panels with BCUs	Nos	12,38,136
20	10004037	220/132kV Power Transformer Control & Relay Panels with BCUs	Nos	13,61,378
21	10004027	220kV Bus Bar Scheme Panel (for 16 Bays) for double bus system	Nos	16,19,012
22	10004023	220kV Bus Coupler Panel with BCUs.	Nos	6,14,625
23	10004047 10004048	132 kV feeder Control & Relay Panel with BCUs with Distance relay	Nos	6,89,579
24	10004048 10004049	132 kV Feeder Control & Relay Panel with BCUs with Line Differential relay	Nos	9,37,500
25	10004059	132 /33 KV Power Transformer Control & Relay Panel with BCUs as per BOM.	Nos	10,64,376
26	10004066	33 kV Twin feeder Control & Relay Panel with BCUs as per BOM.	Nos	6,28,429
27	10004069	33KV Capacitor bank C&R Panels with BCUs	Nos	5,70,652
28		Spare Transformer Differential relay (220/132KV)	Nos	2,00,000
29		Spare Line differential relay(220KV)	Nos	2,50,000
30		Spare Distance relay(220KV)	Nos	1,60,000
31	10010303	Industrial grade desktop PC with 24" (TFT) Monitor with software & furniture as per APTRANSCO BOM.	SET	1,89,885

File No.ENE51-TRM0MISC/61/2022-EETR

32	70002326	A4 Laser color printer with furniture as per BOM.	Nos	59,964
33	10010292	GPS clock, antenna along with Associated equipment for time synchronization with existing relays.	SET	1,44,912
34	70002094	3 KVA Inverters, Cabling & Installation as per aptransco Specification.	SET	94,942
35	10012127	Data Concentrator for Energy Meters interface with IEC61850.	SET	44,973
36	10011651	REMOTE Gateway consists of chassis, mother board, power supply, processor with communication ports: a) IEC 60870-5-101 and b) IEC 60870-5-104. (Suitable for 400kvSS, 220kv SS ,132 kV SS).	SET	1,74,894
37	10011665	Industrial grade Ethernet Switches & Accessories.	Nos	1,27,500
38	(10004065)	33kV Twin feeder C&R panel(Conventional)	Nos	4,95,248
39	(10011302)	Remote terminal unit along with interface cabinet, Relays, Transducers, Cabling, Switches etc., and necessary spares to provide data acquisition from 220kV & 132kV Substations	Nos	7,73,541

XLPE POWER CABLE AND ACCESSORRIES RATES FOR 400KV, 220KV and 132KV				
S.No.	SAP Code	Description of Equipment/ Material	Unit	SSR2022-23
		400KV		
1		Supply of 400 KV XLPE Underground Single Core 2500 Sq.mm. Copper Cable.	KM	3,89,39,067
2		400kv 2500Sq.mm Pre moulded joints without cross bonding arrangements with copper casing and coffin box.	Nos	20,48,148
3		400kV 2500Sq.mm Pre moulded joints with cross bonding arrangements (Insulated joints)with copper casing and coffin box.	Nos	20,48,148
4		Design, Supply of 400KV, 2500 Sq.mm outdoor type cable end terminations (sealing ends)with all materials complete in all respects.	Nos	24,85,000
5		Design, supply of 400KV, 2500Sqmm cable end terminations complete in all respects (SF6 type cable terminations).	Nos	17,89,637
6	10003662	3 Phase Link boxes With SVL to cross bond the sheath suitable for 400kV XLP UG cable.	Nos.	1,31,917
7	10003663	3 Phase Link boxes With out SVL to cross bond the sheath suitable for 400kV XLP UG cable.	Nos.	59,568.00
8	10003665	1 phase Link boxes without SVL suitable for 400kV XLP UG cable.	Nos.	23,700
9	New Item	1 phase Link boxes with SVL suitable for 400kV XLP UG cable.	Nos.	30,000
		220KV		
10	10003701	Supply of 220 KV XLPE Underground Single Core 1000 Sq.mm. Copper Cable.	KM	1,38,67,104
11	10003705	220kV 1000 Sq.mm Pre moulded joints without cross bonding arrangements with copper casing and coffin box.	Nos	5,85,000
12	10003707	220kV 1000Sq.mm Pre moulded joints with cross bonding arrangements (Insulated joints) with copper casing and coffin box.	Nos	5,95,000
13	10003709	Design, Supply of 220KV, 1000 Sq.mm outdoor type cable end terminations (sealing ends)with all materials complete in all respects.	Nos	9,65,569
14	10010457	Design, supply of 220 KV 1000Sqmm cable end terminations complete in all respects (SF6 type cable terminations).	Nos	7,14,285

File No.ENE51-TRM0MISC/61/2022-EETR

	New Item	3 Phase Link boxes With SVL to cross bond the sheath suitable for 220kV XLP UG cable.	Nos	85,238
	New Item	3 Phase Link boxes Without SVL to cross bond the sheath suitable for 220kV XLP UG cable.	Nos	52,857
	New Item	1 phase Link boxes with SVL suitable for 220kV XLP UG cable.	Nos	28,095
	New Item	1 phase Link boxes without SVL suitable for 220kV XLP UG cable.	Nos	15,714
		132kV		
15	10003713	Supply of 132 KV XLPE Under ground Single Core 630Sq.mm. Copper Cable.	KM	82,27,473
16	10003721	132kV 630 Sq.mm Pre moulded joints without cross bonding arrangements with copper casing and coffin box.	Nos	3,33,333
17	10003720	132kV 630 Sq.mm Pre moulded joints with cross bonding arrangements (Insulated joints)with copper casing and coffin box.	Nos	3,33,333
18	10003722	Design, Supply of 132 KV, 630 Sq.mm outdoor type cable end terminations (sealing ends)with all materials complete in all respects.	Nos	4,76,190
19	10010456	Design, supply of 132 KV 630Sqmm cable end terminations complete in all respects (SF6 type cable terminations).	Nos	4,30,810
20	10003662	3 Phase Link boxes With SVL to cross bond the sheath.	Nos.	1,06,600
21	10003663	3 Phase Link boxes Without SVL to cross bond the sheath.	Nos.	59,568
22	10003665	1 phase Link boxes without SVL.	Nos.	19,987
23	New Item	1 phase Link boxes with SVL.	Nos	28,095
24	10003206	Supply of 240 sqmm coaxial copper cable conductor PVC insulated 6.6 KV grade with suitable lugs and glands for joint bays.	KM	50,00,000
25	10003209	Supply of 240 sqmm coaxial copper cable conductor PVC insulated 6.6 KV grade with sheath bonding without cross bonding joints to link box.	KM	26,50,000
26		33KV 400Sqmm 1 core copper XLPE cable	KM	36,17,875
27	10003361	33KV 400Sqmm 3core Al XLPE cable	KM	26,32,375

VISUAL MONITORING SYSTEM FOR 400KV , 220KV AND 132KV SUBSTATIONS			
S.No.	Description of Equipment/ Material	Unit	SSR 2022-23
1	4 MP IP Bullet Cameras, IP66, 50 Mtrs IR, Day & Night, with 16x digital zoom.	No.	7,500
2	4 MP IP Dome Cameras, IP66 & IK10 rated rugged, 50mtrs IR, Day&Night, with 16x digital zoom.	Nos	7,200
3	4 MP IP PTZ Cameras with 45x200(100mts) IR, IP66, with 30x digital zoom.	Nos	92,000
4	2 MP IP uncooled Thermal PTZ Camera.	Nos	4,65,000
5	64 Ch NVR with 4 sata.	Nos	75,500
6	8 Tb Surveillance Hard Disc.	Nos	19,500
7	17U Rack with fully loaded equipment and power manager, rodent proof	Nos	14,500
8	1 KVA UPS with 20 minutes backup	Nos	17,500
9	1 KVA UPS with surge protection	Nos	6,500
10	VMS Metal surface boxes with Power manger and termination box for OFC splicing and MCB connection with 1 KVA Surge protection.	Nos	6,500
11	10/100/1000 Gigabyte Mangeble layer 3 stackable managed switch with 24 fiber slots and 4 combination of LAN/fiber with physical stacking and fault torent topology with versatilw 10G slots support with physical stacking.	Nos	82,000
12	28 Port L2 Gigabyte + stacking & routing smart managed fiber switch with 24 port lan and 4 ports sfp slots with standaed mode or survilance mode.	Nos	10,200
13	1-Port Mini GBIC Module for 1000BaseLX (LC Duplex) high performance 1310nm single mode SFP (mini -GBIC) transceiver. Supporting full duplex, Gigabyte speeds on single mode fiber for distances of up to 10km on 9Um.	Nos	3,500
14	10-Port Gigabit smart managed PoE switch, advanced L2 switching and security features, L2+Static Routing optional "standard mode" or "surveillance mode" management user interface.	Nos	14,100
15	8 PORT Giga byte POE.	Nos	7,500
16	6U Fully loaded rack with Power manager.	Nos	4,200
17	Fiber Duplix patch card LC-LC or LC-SC as per the LIU functionality.	Nos	1,000
18	6 PORT loaded LIU with fiber pigtaills and adoptors.	Nos	3,500
19	6 Core single MODE armoured OFC cable.	Mtrs	42

File No.ENE51-TRM0MISC/61/2022-EETR

20	32 MM HDPE pipe for ducting purpose with anti rodandant and suitable T junctions/C Sections, reducers & couplers.	Mtrs	52
21	CAT 6 Out Door Armoured cable.	Bundles	12,500
22	Power cable 2 core 2.5 sqmm seoured.	Nos	41
23	55" LED TV with 2 HDMI slots.	Nos	62,000
24	HDMI Cable.	Nos	850
25	Wirless Mouses.	Nos	600
26	CAT 6A Jacks.	Nos	24
27	Other hardware accessories required for visual monitoring system.	Nos	50,000
28	VMA Software Licence	Nos	60,000
29	Complete Installation cost for commissioning of visual monitoring system of 220kV SS.	LS.	1,50,000
30	Complete Installation cost for commissioning of visual monitoring system of 132kV SS.	LS.	50,000

GIS EQUIPMENT RATES FOR 400KV, 220KV, 132KV and 33KV				
S.No.	SAP Code	Description of Equipment/ Material	Unit	SSR 2022-23
1	10010470	420kV, 4000 A, 63 kA, SF6 GIS transformer/feeder bay module.	SET	3,85,00,000
2	10010468	420kV, 4000A, 63 kA, SF6 GIS Auxiliary Bus module for Spare Transformer/feeder.	SET	1,85,00,000
3	10010469	420kV, 4000 A, 63 kA, SF6 GIS Line feeder bay module (with PIR).	SET	4,25,00,000
4		420kV, 4000 A, 63 kA, SF6 GIS Line Reactor bay module.	SET	3,60,00,000
5	10010471	420kV, 4000A, 63 kA, SF6 GIS Bus Reactor bay module.	SET	3,60,00,000
6		420kV, 4000 A, 63 kA, SF6 GIS Bus Sectionalizer module.	SET	5,49,24,550
7	10010472	420kV, 4000 A, 63 kA, SF6 GIS Tie bay module(with PIR).	SET	3,60,00,000
8		420kV, 4000 A, 63 kA, SF6 GIS Tie bay module (without PIR).	SET	3,20,00,000
9		420kV, 4000 A, 50 kA, SF6 GIS Bus Sectionalizer module.	SET	5,49,24,550
10	10010451	420kV, SF6/Air Bushing for connecting GIS to AIS# 4000A, 63kA.	SET	5,00,000
11	10010473	420kV, 3000 A, 40 kA, Single phase, SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall along with associated support structure.	mtrs	70,000
12		SF6 Gas processing Unit.	SET	65,00,000
13	70001118 70001119	EOT Crane for GIS Building.	SET	26,00,000
14	10010467	Online Partial Discharge Monitoring System for 400kV GIS station.	SET	2,50,00,000
15	10010477	400kv bus VT/CVT module.	SET	65,00,000
16	10010402	245kV, 4000 A, 40KA, SF6 GIS transformer/ feeder bay module.	SET	2,00,00,000
17	10010401	245kV, 4000 A, 50KA, SF6 GIS Line feeder bay module.	SET	2,00,00,000
18	10010440	245kV, 4000 A, 50KA, SF6 GIS Bus bar module suitable for double bus arrangement.	SET	1,50,00,000

File No.ENE51-TRM0MISC/61/2022-EETR

19	10010403	245kV, 4000 A, 50KA, SF6 GIS Bus coupler bay module suitable for double bus arrangement.	SET	1,90,00,000
20		245kV, 4000 A, 50 kA, SF6/Air Bushing for connecting GIS to AIS.	SET	12,00,000
21	10010442	245kV, 1600A, 40kA, Single phase, SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure.	mtrs	72,000
22		SF6 Gas processing unit for 220kV GIS station.	SET	84,00,000
23	70001118 70001119	EOT Crane for GIS Building (220kV bus Duct).	SET	21,00,000
24	10010467	Partial Discharge Monitor (220kV GIS) - OFFLINE.	SET	60,00,000
25	10010482	245kv bus VT/CVT module.	SET	77,00,000
26	10010405	145kV, 2500 A, 31.5 kA, SF6 GIS Line feeder bay module.	SET	1,00,00,000
27	10010483	145kV, 2500 A, 31.5 kA, SF6 GIS Bus bar module.	SET	60,00,000
28	10010407	145kV, 2500 A, 31.5 kA, SF6 GIS Bus bar coupler bay module as per Section-Project, Technical specification.	SET	90,00,000
29		145kV, 2500A, 31.5KA SF6 TO AIR BUSHING.	SET	3,85,000
30		145kV, 2500 A, 31.5 kA, 3 Phase, SF6 Gas Insulated Bus duct (GIB) outside GIS Hall alongwith associated support structure.	mtrs	1,05,000
31	10010408	132kv VT/CVT module	SET	50,00,000
32		SF6 Gas Processing Unit for 145kV GIS Station	SET	84,00,000
33	70001118 70001119	EOT Crane for GIS Building (132kV GIS station).	SET	17,00,000
34		Partial Discharge Monitoring system for 145kV GIS station.	SET	60,00,000
35	10010484	36kV, 2500A, 25KA for 1 second, SF6 GAS- Insulated metal enclosed bus bar module.	SET	30,00,000
36	10010443 10010453	36kV, 2500A, 25KA SF6 GIS transformer/ feeder bay module.	SET	35,00,000
37	10010447	36kV, 3 - phase, 2500A, 25KA SF6 for 1 second, 33kV SF6 GAS Insulated metal enclosed bus section bay module.	SET	35,00,000

A.K.V Bhaskar
DIRECTOR
Grid ,Transmission & Management