

**LABOUR RATES FOR COMMON SR 2016-17 for 33 kV SYSTEM**

Sl No	Item No	Description	Unit	Common SR 2014-15 in Rs FORD Rates inclusive of duties taxes & F&I	Common SR 2016-17 in Rs FORD Rates inclusive of duties taxes & F&I
	<b>1</b>	<b><u>Detailed Surveying on Turn-Key:</u></b>			
1	i)	Reconnaissance Survey-cum-walk over Survey along with Departmental Staff to determine the feasible route of the line on topo sheet. An alternate route if available should be indicated. The route of the line is to be indicated and got approved by the competent authority (Rates include the cost of Toposheet and Transportation)			
2	a)	Hilly terrain	km	795	898
3	b)	Plain terrain	km	773	873
4	ii)	Detailed Survey, fixing anchor points and taking levels at 20 mtrs intervals drawing route profile on Graph paper indicating geographical features like Nalas, Rivers, Gardens, P&T Lines, Railway-crossings etc., and enroute villages.			
5	a)	Hilly terrain	km	3934	4445
6	b)	Plain terrain	km	2626	2968
7	iii)	Fixing marking stones of size 200X200 x 1000 mm with approved marks including painting above the ground level and Yellow Lettering and marking the direction of incoming line and out going lines are to be clearly marked on the top with red colour. If the distance between two anchor points is more than I km, one more directional stone is to be fixed. So also for the road crossing, railway crossing ,River crossing , HT crossing and nala crossing for all on both the sides.	Per Stone	391	442
8	iv)	Burgie details for identification for all Anchor towers with existing permanent marks like poles, telephone lines, buildings, etc.,	Per Anchor Tower	354	400
9	v)	v) Conducting soil resistivity tests	Per Test	678	766
	vi)	<b>Clearing of bushes, tree branches of trees crops and shrubs wherever encountered for detailed survey to enrout the corridor width of 3 mtrs (including viewing for fixing anchor towers etc.,)</b>			
10	a)	Hilly terrain	KM	1174	1326
11	b)	Plain terrain	KM	784	886
12	vii)	a) Submission of reports in the form of good binding including the preparation of sketches for burgie details for each anchor points, scheduling of line details, S.R. values, soil classification reports, tower schedule, abstract of towers etc., complete.	Per set	239	270

13	viii)	b) Drawing the route profile on graph sheet, including geographic feature like Nalas, rivers, gardens, P&T lines railway crossing etc, inclusive of all stationaries. (Normal requirement is 5 Sets)	Per set	239	270
	xi)	<b>Preparing the Schedules:</b>			
14	a)	PTCC Proposal : Containing PTCC questionnaire, topo sheet extracts with marking of the proposed line, SR Report, tower sketch, station single line diagram etc., (30 Copies/Sets)	Set	946	1069
15	b)	Railway Crossing proposal with drawing are inclusive of graph sheets and other stationery materials, labour etc., (10 Sets)	Per crossing	946	1069
16	c)	Tree Schedule Containing the details like name of tree, girth size of tree, distance from central line of the alignment, approximate height of the tree etc., complete	Per Hectare	678	766
	d)	<b>Forest proposals:</b> Inclusive of all works like fixing of stones at every 20 mtrs in the centre line and both ends of the corridor, painting of each tree after chipping, writing the numbers on the tree, taking girth size of all the trees coming in the corridor at 1 mtr height from GL, approximate height of the tree and forest clearance proposals etc., complete (10 Sets). <b>Note:</b> This applies to forest area only.	Km	4411	4985
	<b>2</b>	<b><u>Check Survey by using their own Equipment</u></b>			
17	a)	Hilly terrain	KM	2034	2298
18	b)	Plain Terrain	KM	1361	1538
	<b>3</b>	<b><u>Taking block levels for Sub-stations:</u></b>			
19	a)	Running Peripheral Theodolite traverse along periphery and coordinating and heightening of all corners/turning points, establishing permanent co-ordinate axis formation of grids at 50m intervals for northing and easting with reference to already established permanent co-ordinate axis levels at 50m grid intersection for preparing plot plan of the entire area with contours. Including existing structure location.	Acre	1309	1479
20	b)	Establishing datum level and bench marks at every 100m/50m intervals both longitudinal and laterally and all corners/turning points with stone pillars of size not less than 0.2mx2mx1.0m buried on the ground and exposed top engraved for painting RL, and coordinates of that point.	No	1309	1479
21	c)	Taking level at 5M suitable grid interval in the sub-station area for plotting block levels, contour map.	No	29	32

22	d)	Preparation of CAD drawings, generating the contours using appropriate software and submission of 6 sets of blue prints and one tracing sheet (original) and one soft copy etc. Complete.	Per Project	13080	14780
23	e)	Furnishing cutting and filling quantities using appropriate software for earth work calculation.	Per Project	3924	4434
24	f)	Super imposing GA drawings on contour maps in Co-ordination with departmental engineers and supply of 12 sets of blue print drawings etc., complete.	Per Project	10463	11823
	<b>4</b>	<b><u>Geo Technical Investigations:</u></b>			
25	a)	Making 150mm nominal diameter bore holes at various locations in soil using suitable approved method of boring including, cleaning providing Bore holes at interval and at change of strata, collections of water samples, observation such as ground water etc., Collection of undisturbed soil samples at ever 2.0m/3.0m interval and at change of strata, transportation of all the collected samples to the laboratory and back filling of bore holes on completion of the work, complete as per specification and instruction of the engineers, for depths up to 6.0 m below natural ground level or refusal strata.	Mtrs	1958	2212
26	b)	Conducting various laboratory tests on soil samples at approved laboratory including preparation of soil samples for determination of soil, Properties etc., Complete as per specification. <b>Note:</b> Laboratory identified shall be approved by ESCOM Engineers not below the rank of EE(Civil).			
27	i)	Bulk density and moisture content	Each	784	886
28	ii)	Sieve analysis	Each	784	886
29	iii)	Hydrometer Analysis	Each	784	886
30	iv)	Liquid limit and plastic limit	Each	784	886
31	v)	Shrinkage limits	Each	916	1035
32	iv)	Specific gravity	Each	916	1035
33	vii)	Standard proctor density test	Each	916	1035
34	viii)	Swell pressure	Each	1050	1187
35	ix)	Free swell index	Each	1050	1187
36	x)	Uncombined Compressive strength	Each	1050	1187
37	xi)	Triaxial shear test	Each	1050	1187
38	xii)	One dimensional consolidation test	Each	1050	1187
39	xiii)	California bearing ratio	Each	1050	1187
40	C)	Submitting final report in 6 copies including all field records and laboratory test results, graphs and recommendations etc., complete as per specifications.	Per Job	15698	17738

41		<b>Note:</b> The above rates are inclusive of mobilization of Plant Equipment & Materials for, Topographical survey, block leveling and Geotechnical investigation works, and Demobilization. No extra rate is admissible for mobilization & Demobilization			
	<b>5</b>	<b><u>Excavation for station structure:</u></b>			
42		Excavation of pits as per specifications for lattice type of station structures, Tr. Plinth, control panels, mounting structures for breakers, CT's, PT's Isolators, LA's etc., Excavation of trenches for control cables, U.G. Cables, Groundmat etc.,		<p>1) Corresponding rates in KPWD SR as mentioned against each classification below shall be adopted.</p> <p>2) Area weightages applicable for the respective areas as per latest KPWD SR shall be allowed to arrive at Final Rate.</p> <p>3) Extra for excavation under water conditions and/or foul conditions including bailing/pumping out, removing slush add 20% of the rate of the respective rate on account of slow progress of work under these conditions. (The extra percentage indicated here shall be as indicated in the relevant KPWD SR)</p>	<p>1) Corresponding rates in KPWD SR as mentioned against each classification below shall be adopted.</p> <p>2) Area weightages applicable for the respective areas as per latest KPWD SR shall be allowed to arrive at Final Rate.</p> <p>3) Extra for excavation under water conditions and/or foul conditions including bailing/pumping out, removing slush add 20% of the rate of the respective rate on account of slow progress of work under these conditions. (The extra percentage indicated here shall be as indicated in the relevant KPWD SR)</p>
43	i)	Normal Soil	Cmt	Latest KPWD SR Rates for hard soil	Latest KPWD SR Rates for hard soil
44	ii)	B.C. Soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil

45	iii)	Partially Submerged soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
46	iv)	Fully submerged soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
47	v)	Wet black cotton soil	Cmt	Rate for ordinary rock (Without blasting) of latest KPWD SR	Rate for ordinary rock (Without blasting) of latest KPWD SR
48	iv)	Dry fissured/Ordinary rock	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
49	vii)	Latterite soil	Cmt	Rate for ordinary rock (Without blasting) of latest KPWD SR	Rate for ordinary rock (Without blasting) of latest KPWD SR
50	viii)	Hard rock with blasting/Hard latterite	Cmt	Rate for ordinary rock (With blasting) of latest KPWD SR	Rate for ordinary rock (With blasting) of latest KPWD SR
		<b>Note 1:</b> For Excavation purposes measurement shall be as per actuals. <b>2:</b> For foundation purposes predominant soil shall be considered.			
	<b>6</b>	<b><u>Excavation (For Tr. Line Tower)</u></b>			
51	i)	Normal Soil	Cmt	Rates as per item 5 + 50% extra	Rates as per item 5 + 50% extra
52	ii)	B.C. Soil	Cmt		
53	iii)	Partially Submerged soil	Cmt		
54	iv)	Fully submerged soil	Cmt		
55	v)	Wet black cotton soil	Cmt		
56	vi)	Dry fissured/Ordinary rock	Cmt		
57	vii)	Latterite soil	Cmt		
58	viii)	Hard rock with blasting/Hard latterite	Cmt		
	<b>7</b>	<b><u>Back Filling :</u></b>			
59	i)	Back filling with excavated earth available near the tower and consolidation layer by layer of 150 mm depth with adequate quantity of water.	Cmt	Rates as per KPWD SR applicable to respective area +10% extra	Rates as per KPWD SR applicable to respective area +10% extra
60	ii)	Supplying and back filling with external hard murrum soil with proper consolidation including lead and lift.	Cmt	Rates as per KPWD SR applicable to repective area +10% extra	Rates as per KPWD SR applicable to repective area +10% extra
		<b>Note:</b> This item is applicable only when Black cotton, soil, wet black cotton soil, dry fissured rock, ordinary rock, Hard rock are encountered.			
	<b>8</b>	<b><u>Concreting and curing (For Both Transmission lines and station structures)</u></b>			

61	a)	Concreting & curing as per specifications including the cost of materials, T&P materials and labour charges with all lead and lift, for lattice type station structures, Tr. Plinth, control panels, mounting structures for Breakers, CT's PT's Isolators, LA's, etc.,		1) Corresponding rates in latest KPWD SR as mentioned against each classification shall be adopted. 2) For the above basic rate add applicable area weightage as per latest KPWD SR.	1) Corresponding rates in latest KPWD SR as mentioned against each classification shall be adopted. 2) For the above basic rate add applicable area weightage as per latest KPWD SR.
62	i)	1:4:8 concrete (M 7.5)	Cmt	Rates under plain concrete for foundation of latest KPWD SR	Rates under plain concrete for foundation of latest KPWD SR
63	ii)	1:3:6 concrete (M-10)	Cmt	Rates under basement of latest KPWD SR	Rates under basement of latest KPWD SR
64	iii)	1:2:4 concrete (M-15)	Cmt	Rates under raft foundation of latest KPWD SR	Rates under raft foundation of latest KPWD SR
65	iv)	1:1.5: 3 concrete (M-20)	Cmt	Rates under raft foundation of latest KPWD SR	Rates under raft foundation of latest KPWD SR
66	b)	Concreting and curing as per specifications including the cost of materials, T&P materials and labour charges with all lead and lift, for Tr. line towers.	Cmt	For arriving at the rates for concrete items for transmission lines add 25% weightage to the basic rates of different proportion of concrete proposed above.	For arriving at the rates for concrete items for transmission lines add 25% weightage to the basic rates of different proportion of concrete proposed above.
		<b>Note :</b> a) Extra as indicated in the relevant KPWD SR may be allowed for providing concrete in watery situation including cost of bailing out water and removing slush. b) Only machine mixing is to be used for concreting. c) Jelly to be used is 20mm and down size for 1:1.5:3, 1:2:4 and 1:3:6 concrete and 40mm and down size for CC 1:4:8.			
	<b>9</b>	<b>Towers</b>			

67	a)	Sorting of tower parts made of fabricated angle iron	MT	306	346
68	b)	Setting up of stubs templates and from one location to another location	Per Location	398	450
69	c)	Assembling and erection of towers including tightening of bolts and nuts including loading,unloading at store and site (Including the Wt. of stubs)	MT	2224	2513
70	d)	Rivetting of tower bolt ends by heating using dry-Acetylene gas and hammering to destroy threads so as to make the tower members theft - proof (Bolts at nodal points only to be selected and rivetted up to height of bottom cross arm, as per the directions of the field engineer)	Per Bolt	10	12
71	e)	Welding of bolts and nuts	Per Bolt	9	12
		<b>Note:</b> For tower erections requiring shutdown 25% above S.R. for item 5c to 5e only are to be adopted.			
		<b>10 Supplying and fixing AC devices:</b>			
72	a)	Supplying and fixing G.I. Angle iron 45x45x5 mm (1mtr length) with cleats, bolt & nuts as per specification and fixing above 0.5 mtrs length each at inner and outer surface of the tower to facilitate running of barbed wire.	Per Set	2176	2459
73	b)	Supplying and fixing barbed wire as per specification	Rmtr	41	47
		<b>11 Fixing of Boards</b>			
74	a)	Fixing Danger Board	Nos	43	48
75	b)	Fixing Number Plate	Nos	43	48
76	c)	Fixing Phase plate	Set (3 Nos)	125	141
77	d)	Fixing Circuit Plates	Nos	43	48
		<b>12 Stringing conductor with out allowing the conductor to touch the ground and damaging the conductor</b>			
	A	Paving out the conductor from anchor to anchor normally spaced at 5 spans with 4 tangent towers in between, including providing stays at each anchor points and jointing of conductors, hositing anf fixing of insulator string, armour rods,vibration dampers, including the cost of TY&P materials like comealong, wire ropes, pulley, rollers, suspesnion, clamps, compression jointing machines with bits , drum stands, manila ropes, truckker and jeep etc(Rate of 1 route KM of single conductor)			
78	i	For hilly tarrian	KM	9088 With Coyote ACSR	10269 With Coyote ACSR
79	ii			9088 with Rabbit on towers	10269 with Rabbit on towers
80	i	For plain Tarrian	KM	6662 With Coyote ACSR	7528 With Coyote ACSR

81	ii			3330 with Rabitt on towers	3763 with Rabitt on towers
		<b>Stringing of Ground Conductor as above</b>			
82		For hilly tarrian	KM	4447	5025
83		For plain Tarrian	KM	3331	3764
		<b>Note:</b>			
84		II) For shut down works 50% more than the above rates of the Work (This is applicable to shutdown of 33 kV and above lines only. 11 kV and LT lines shutdown not included).		50% more above the rates specified for normal works is admissible for shutdown works of 33 kV and above lines, CTs, PTs, Las only. This is not applicable for 11 kV and LT Line shut down works.	50% more above the rates specified for normal works is admissible for shutdown works of 33 kV and above lines, CTs, PTs, Las only. This is not applicable for 11 kV and LT Line shut down works.
85		III) (A) River Crossing works (B) Railway Crossing Works (C) Breakdown works in substations & lines		100% extra	100% extra
86		IV) 2nd Circuit stringing with 1st circuit under live condition		75% extra	75% extra
87		V) (A) National highway and State highway crossing works (B) Works under shutdown condition in both substation and lines (Pre-programed works)		50% extra	50% extra
	<b>13</b>	<b><u>Stringing Conductors for short lengths: These Rates are applicable only when total Length of the entire Line is less than 3 spans (River crossing, railway crossing Etc.,).</u></b>			
		<b>A) Stringing of conductors in special conditions where normal 5 spans between anchor to anchor are not encountered, whereas anchors are provided at single/ two/ three spans with average span intervals of 267/320 Mtrs, (rate for spans of single conductor)</b>			
		<b>i) For hilly terrian</b>			
88		<b>a) Anchoring single span upto 320 mtrs.</b>	1 Span	5128 With Coyote	5795 With Coyote
89				2511 With Rabitt	2837 With Rabitt
90		<b>b) Anchoring 2 span interval upto 640 mtrs with 1 tangent tower only</b>	2 Spans	6358 With Coyote	7185 With Coyote
91				3037 With Rabitt	3432 With Rabitt
92		<b>c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only</b>	3 Spans	7456 With Coyote	8425 With Coyote
93				3588 With Rabitt	4054 With Rabitt
		<b>ii) For plain terrian</b>			



94		<b>a)</b> Anchoring single span up to 320 Mtrs	1 Span	3847 With Coyote	4347 With Coyote
95				1853 With Rabitt	2094 With Rabitt
96		<b>b)</b> Anchoring 2 span interval upto 640 Mtrs with 1 tangent tower only	2 Spans	4926 With Coyote	5566 With Coyote
97				2272 With Rabitt	2567 With Rabitt
98		<b>c)</b> Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	5519 With Coyote	6236 With Coyote
99				2665 With Rabitt	3011 With Rabitt
	<b>14</b>	<b><u>Rates for Short span stringing in Normal length of the line of more than 3 spans comprising of short spans</u></b>			
		<b>A)</b> Stringing of conductors in special conditions where normal 5 spans between anchor to anchor are not encountered, where as anchors are provided at single/ two/ three spans with average span intervals of 275/320 Mtrs (Rate for spans of Single Conductor)			
		<b>i) For hilly terrian</b>			
100		<b>a)</b> Anchoring single span upto 320 Mtrs	1 Span	764 With Coyote	863 With Coyote
101				374 With Rabbit	423 With Rabbit
102		<b>b)</b> Anchoring 2 span interval upto 640 Mtrs with 1 tangent tower only	2 Spans	1270 With Coyote	1435 With Coyote
103				612 With Rabbit	692 With Rabbit
104		<b>c)</b> Anchoring 3 Span interval up to 960 Mtrs with two tangent towers only	3 Spans	1862 With Coyote	2104 With Coyote
105				898 With Rabbit	1015 With Rabbit
		<b>ii) For Plain terrian</b>			
106		<b>a)</b> Anchoring single span upto 320 Mtrs	1 Span	573 With Coyote	647 With Coyote
107				278 With Rabbit	314 With Rabbit
108		<b>b)</b> Anchoring 2 span interval upto 640 Mtrs with 1 tangent tower only	2 Spans	935 With Coyote	1057 With Coyote
109				458 With Rabbit	518 With Rabbit
110		<b>c)</b> Anchoring 3 Span interval upto 960 Mtrs with two tangent towers only	3 Spans	1383 With Coyote	1563 With Coyote
111				697 With Rabbit	788 With Rabbit
	<b>15</b>	<b><u>Grounding of Towers/Equipments</u></b>		Material + Labour	Material + Labour
112		<b>a)</b> Grounding of towers including cost of 40mm dia 2.5 mm thick, class 'C' G.I. Pipe of 3 Mtrs length as per specifications, with 50X6 mm GI Flats 3 Mtr long, salt charcoal, including excavation charges.	Set	3471	3010+832

113		<b>b)</b> Grounding of towers/Equipments excluding the cost of G.I. Pipe/C.I. Pipe as per specifications with 50X6 mm G.I. Flat 3 Mtr Long (to be supplied departmentally). But salt & Charcoal to be supplied by contractor. The rates include excavation charges.	Set	1670	789+832
114		<b>c)</b> Grounding of equipments by providing cast iron pipe of 100mm ID 13mm thickness, 2.75 Mtrs long with 2 part clamp out of G.I.Flat 50X6mm continuously welded around the pipe using cast iron welding electrodes as per drawing including the cost of excavation (All materials to be supplied by the contractor)	Set	2334	1582+1055
		<b>Note : All the leads from earthmat &amp; equipment should be connected to earth electrode through the GI Flat 50 x 6 mm of suitable length and welded as per specifications.</b>			
115	<b>16</b>	Supplying and fixing of counter poise earthing with GI Stranded wire where hard rock is encountered as per specifications. (including excavation charges).	Per Loc	4585	2143+1916
	<b>17</b>	<b><u>Station Structures</u></b>			
116	a)	Errrection, assembly and alignment of Station structure as per the directions of site Engineer.	MT	2099	2372
117	b)	Erection, alignment & assembly of fabricated steel lattice structure, pedestal structures & Mounting structures, for G.O.S., CT's, PT's LA's etc.,	MT	1956	2210
	<b>18</b>	<b><u>Erection of Transformers</u></b>			
118	a)	Moving the Transformer on to the plinth (Maximum allowable distance is 50 mtrs.) more than 50 mtrs. approval of the CEE, O&M Zone has to be obtained)	Per MT/ Mtr	41	47
119	b)	Assembly of Transformer parts like bushings, radiators, filling oil into Tr. etc., (for the total wt. of the Tr.)	MT	938	1059
	c)	<b>Filling oil to the power Tr., Conservator and radiator (for maintenance purpose only).</b>			
120	i)	For 5 MVA to 20 MVA Tr.	Litre	2	2
121	d)	Filtration of oil using filter set of the contractor, to bring the insulation value to I.E. Specifications.	Litre	4	4
122	e)	Filtering Oil as above but with the filter set supplied by the ESCOM	Litre	2	2
	<b>19</b>	<b><u>Wiring of Transformer marshalling box, bucholtz relay, fixing Thermometer, OLTC upto control panel and assisting in testing and commissioning by RT/MT/Firm Engineers.</u></b>			
123	i)	5 MVA to 6.3/8 MVA Tr.	LS	4314	4875

	<b>20</b>	<b><u>Fabrication of Transformer railing and embedding in Transformer plinth. (Rails to be supplied by the HESCOM)</u></b>	LS	866	979
	<b>21</b>	<b><u>Fixing of H.T. fuse units &amp; wiring</u></b>	Per Set (3 Nos)	1008	1138
	<b>22</b>	<b><u>Wiring Testing &amp; Commissioning of 5 MVA 33/11 kV Power Transformers</u></b>			
124		<b>a) Wiring:</b> Identification of wires, Ferruling crimping and termination of wires. Wiring of Protective Devices, Cooling fans, Oil flow Pumps, OLTC, RTCC		8370	5917
125		<b>b) Testing:</b> Test 1. Ratio 2. SC test 3. Excitation test 4. Magnetic Balance test 5. Vector group test. 6. induced high voltage test. 7. OLTC operation. 8. Protective devices operation checks. 9. stability checks:- for differential and REFR protection	Each	33481	23668
	<b>23</b>	<b><u>Erection of Breakers / 11 kV Kiosks with CTs on Mounting Structures</u></b>			
	a)	<b>BREAKERS</b>			
126	i)	Erection, assembly, alignment & interpole wiring of breakers with its connected equipments including movement from the point of unloading to the point of erection.	Per Set	4966	6654
127	ii)	Assisting in Testing and Commissioning	Each	995	1333
		<b>Testing &amp; Commissioning:</b>			
128		<b>Wiring:</b> Identification, of wires Ferruling crimping and termination of wires in Breaker & Wiring up to control panel / Relay panels.	Set	41848	5917
129		<b>Testing:</b> Test for insulation level, gas leakage, Testing for travel time, Trip and close timings. Local Trip close Test, Remote trip and close test, Tripping through relays, operation of interlocks etc.,	Set		23668
	<b>24</b>	<b><u>Erection of CTs and PTs</u></b>			
130	a)	Erection of CTs and PTs and wiring including movement from the point of unloading to the point of erection.	Set (3 Nos)	1530	1729
131	b)	Assisting in Testing and Commissioning	Set	460	520
	c)	<b>Testing &amp; Commissioning</b>			

132	i)	<p><b>Current transformers:</b></p> <p><b>Wiring:</b>  Identification of wires Ferruling Crimping of lugs Connections up to marshalling box and Control panel. Current transformers:</p> <p>Tests:</p>	Set (3 Nos)	13947	9860
133	ii)	<p><b>Potential Transformers:</b></p> <p><b>Wiring:</b>  Identification of wires Ferruling Crimping of lugs Connections up to marshalling box.</p> <p><b>Potential Transformers:</b>  Tests: Insulation, Polarity, Ratio, excitation.</p>	Set (3 Nos)	13947	9860
	<b>25</b>	<b>Erection of NCTs</b>			
134	a)	Erection of NCTs with ground including movement from the point of unloading to the point of erection	Set	443	500
135	b)	Assisting in Testing and Commissioning	Set	56	64
	<b>26</b>	<b>Erection of Isolators</b>			
136	a)	Assembly, Erection alignment and wiring including movement from the point of unloading to the point of erection. (Upright)	Set	920	1040
137	b)	Assisting in Testing and Commissioning (Upright)	Set	94	106
		<p><b>note :</b></p> <p>1) Assisting in testing and commissioning for item No. 13 to 18 means contractors should provide labourers for testing and commissioning by RT/MT/Firm engineers.</p> <p>2) Testing &amp; Commissioning in item 13 &amp; 18 means the testing will be carried out by the firms themselves using their own testing equipments and staff in presence of the MRT staff who will witness the tests.</p>			
	<b>27</b>	<b>Erection of Lightning Arrestors</b>			
138		Erection of Lightning arrestors and wiring including movement from the point of unloading to the point of erection	Set	230	260
139	<b>28</b>	<b>Fixing of Solid Core insulator</b>	Per Stack	76	86
140	<b>29</b>	<b>Testing &amp; Commissioning: Capacitor Bank with reactors</b>	Each	18830	15325
		<b>Control Cables and U.G. Cables</b>			
	<b>30</b>	<b>Formation of Cable Duct</b>			
141	a)	(i) Burnt brick/size stone/RCC <b>Cable duct</b> including form box, back filling the sides, removing the excess excavated soil, duct covering with RCC slabs.	Cmt	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.

142		(ii) Supplying 300 mm dia 1.5" to 2" thick RCC Hume pipes including loading unloading, and transportation charges and laying at required level and gradient as per the direction of field engineer	Rmtr	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.
143	b)	Providing, laying and jointing PVC pipes conforming to IS 4085-1960, & 7634-1975, and approved makes with necessary specials such as collars, bends, Elbows, Tee, nipples, plugs with cuts and threads using jointing ring with solutions, wherever necessary as per the directions of the field Engineer including all lead and lift.		As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.
144	i)	25 mm dia (outer) 2mm to 2.5mm thick	Mtr	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.
145	ii)	32 mm dia (outer) 2mm to 2.5mm thick	Mtr		
146	ii)	63 mm dia (outer) 2mm to 2.5mm thick	Mtr		
147	iv)	75 mm dia (outer) 2mm to 2.5mm thick	Mtr		
148	v)	90 mm dia (outer) 2mm to 2.5mm thick	Mtr		
149	vi)	110 mm dia (outer) 2mm to 2.5mm thick	Mtr		
150	vii)	140 mm dia (outer) 2mm to 2.5mm thick	Mtr		
151	vii)	160 mm dia (outer) 2mm to 2.5mm thick	Mtr		
152	d)	<b>Supplying &amp; Laying cable trays including welding fixing of supports</b>		Material+Labour	Material+Labour
153	i)	Cable tray of 600mm width (suitable for cable ducts of A,B & C type)	Rmtr	537	302+209
154	ii)	Cable tray of 300mm width (suitable for cable ducts of A,B & C type)	Rmtr	383	221+141
155	e)	Laying of control cables from equipments to control panels.	Rmtr	8	10
	<b>31</b>	<b><u>Control Panels</u></b>			
156	a)	Erection of control panels, auxiliary panels, carrier cabinets etc., alignment and fixing properly to foundation base including movement from the point of unloading to the point of erection.	Per Panel	3055	3452
157	b)	Wiring & assisting in testing and commissioning of panels.	Per Panel	4774	5394
158	C)	<b>Test &amp; Commissioning:</b> <b>i) C&amp; R Panels</b> <b>Wiring &amp; Testing:</b> <b>Wiring:</b> Identification, Ferruling, Crimping, termination of wires in C&R panels. <b>Testing:</b> Testing for insulation level, Testing of relays, control operations for closing tripping etc., interlocks Alarm, Annunciation and Indication Checks.	Each	41848	29585
	<b>32</b>	<b><u>11 kV Switchgear</u></b>			
159	a)	Erection, alignment and fixing to the foundation, indoor/outdoor 11kV switchgear Panel/unit including movement from the point of unloading to the point of erection.			
160		i) 11kV Indoor/out door switchgear	Per Panel	1839	2078

161		ii) 11kV Kiosk	Per Panel	1530	1729
	b	<b>Wiring &amp; assisting in testing &amp; Commissioning</b>			
162		i) 11 kV indoor/ outdoor switchgear	Per Panel	610	689
163		ii) 11kV Kiosk	Per Panel	610	689
	c	<b>Testing &amp; Commissioning:</b> <b>Wiring:</b> Identification of wires, Ferruling Crimping & Termination of wires for annunciation, etc., Testing of Relays, CTs, PTs, & Breaker for operation			
164	i)	For indoor/outdoor panel comprising of 2I+8F+1BC+1AP3	Per Set	69753	65503
165	ii)	For single 11kV panel indoor/outdoor type /Kiosk	Nos	13950	13098
166	iii)	For additional 11kV panel indoor	Nos	6975	6549
167	iv)	For each additional 11kV panel out door type/Kiosk	Nos	10661	10009
		<b>Note:</b> Assisting in testing & Commissioning for item 19,20 & 21 mean contractors should provide labourers for wiring & Commissioning by RT/MT/Firm Engineers.			
	<b>33</b>	<b>Busbar Formation</b>			
168		Main bus/cross bus (all the three phases in a segment) of using Coyote-single/double conductors with fixing of insulator spacers, levelling of string conductors to the required height above the equipment, including providing jumps to interconnect different segments of the main bus.			
169	a)	Main Bus/Cross Bus as above using Single Lynx Conductor		2961	6152
170	b)	Main Bus/Cross Bus as above using Single Coyote Conductor		2961	6152
171	b)	Formation of cross bus in each individual bay using Lynx/Coyote - Single/Double conductor with fixing of insulators, spacers, levelling the strung conductors to the required height above the equipment including providing jumps to interconnect different segments of the main bus.	Per Bay	5640	Deleted
172	<b>34</b>	Faradays Cage Formation as per specification:	Per Bay	225	254
	<b>35</b>	<b>Groundmat</b>			
173	a)	Laying of M.S. Flats, welding, applying ACB paint to welded portion and covering with sodium bentonite clay	Rmtr	25	33
174	b)	Supplying and laying of MS flats, of various sizes, welding and applying ACB paint to welded portion and covering with sodium bentonite clay, as per the drawing/standard specifications and consolidation.	Rmtr	50x6mm - 262 50x8mm - 280 75x6mm - 486 75x8mm - 514 75x12mm - 545	50x6mm - 273 50x8mm - 291 75x6mm - 566 75x8mm - 505 75x12mm - 535

175	c)	Same as above but without sodium bentonite clay	Rmtr	50x6mm - 129 50x8mm - 146 75x6mm - 353 75x8mm - 380 75x12mm - 413	50x6mm - 135 50x8mm - 152 75x6mm - 367 75x8mm - 395 75x12mm - 429
176	d)	Grounding of equipment with various sizes, G.I. Flat and connecting Equipment to the earthmat/ground pit. Each point of earthing with all formation works like bending, twisting, drilling of holes and connecting by welding (inclusive of all T&P and consumables) to the earthmat/ ground pit/ point of earth connection,all the materials supplied by the contractor.	Per point	50x6mm - 217 50x8mm - 242 75x6mm - 520 75x8mm - 549 75x12mm - 594	50x6mm - 226 50x8mm - 253 75x6mm - 541 75x8mm - 571 75x12mm - 618
177	e)	Providing 25mm dia M.S.rod 1.05 Mtr. Long earthmat spikes including heating, bending top 50mm over lap flattening and making spike edge at one end driving into the earth below the ground level and welding the rod with ground mat flat.	Each	239	260
178	f)	Supplying & Providing 450 mm dia 450 mm height 1.5" to 2" thick hume pipe collar (non pressure type) for earth pits including all lead and lifts etc.,	Each	689	864
	<b>36</b>	<b><u>Providing Deep Bore earthing</u></b>			
179		"Sinking bore of 150mm clear dia using fast rig including fixing of 40mm dia MS rod, including jointing the pipes as per KPTCL standard and providing sodium bentonite treatment in the annular space, including transportation of rig and other supporting vehicles etc., complete, as per the directions of engineer in charge, including cost of MS rod & sodium bentonite".			
180		<b>a)</b> Drilling 150mm dia bore	Rmtr	547	687
181		<b>b)</b> 40 mm dia MS rod	Rmtr	432	541
182		<b>c)</b> Bentonite Clay	Kgs	14	15
183		<b>d)</b> Cost of GI flat for joining two rods by welding to obtain continuous length	Per joint	525	572
	<b>37</b>	<b><u>Spreading of Jelly</u></b>			
184		Supplying and spreading 100mm thick with 20/25mm jelly with all lead and lifts.			
185		i) 20/25 mm Jelly	Cmt	1156	1427
		<b>Note</b> : Only 20/25mm jelly shall be used.			
	<b>38</b>	<b><u>Station Yard Lightning</u></b>			
186		<b>a)</b> Supplying and erection of fabricated supporting structures including foundation.	Per Set	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.

187		<b>b)</b> Supplying and fixing of Sodium Vapour lamp fittings of 250 watts.	Per Fitting	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.
188		<b>c)</b> Supplying and laying of 1.1KV, 6 Sqmm PVC cable or any other specified size, testing and commissioning of yard lights.	Rmtr	As per Latest KPWD electrical SR applicable to respective areas.	As per Latest KPWD electrical SR applicable to respective areas.
189		<b>d)</b> Erection of RCC poles with stringing of O.H. conductor/Laying of cable for yard lights.		Furnished in 11kV Works	Furnished in 11kV Works
	<b>39</b>	<b><u>Painting of structures</u></b>		Material+Labour	Material+Labour
190		<b>a)</b> Supplying and painting of two coats of good quality Red Oxide primer after cleaning and scrapping the surface.	Sq Mtr	62	23+46
191		<b>b)</b> As above with 2 coats of good quality Aluminium paint after 2 coats of good quality Red Oxide primer.	Sq Mtr	106	50+70
192		<b>c)</b> Supplying and painting two coats of aluminium paint after cleaning and scraping the surface without applying Red Oxide primer	Sq Mtr	55	24+39
193		<b>d)</b> As per (b) but with synthetic enamel paint	Sq Mtr	121	60+77
194		<b>e)</b> Supplying and painting two coats of Synthetic enamel paint after cleaning and scraping the surface without applying red oxide primer.	Sq Mtr	62	32+37
	<b>40</b>	<b><u>Battery Set and charger</u></b>			
195	a)	Installing, assembling, filling of acid, wiring, assisting, test-charging and discharging Battery set.			
196	i)	110 Volts	Set	7639	8632
197	ii)	48/24 Volts	Set	3059	3456
198	b)	Erection of Battery Charger and wiring			
199	i)	110 Volts	Set	1220	1379
200	ii)	48/24 Volts	Set	1220	1379
	c)	<b>Testing &amp; Commissioning of Battery Charger:</b> <b>Wiring:</b> Identification, Ferruling, Crimping & connecting i) AC Supply cable upto 2 sources ii) Load cables, connection at charger end upto 10 load points			



		<p><b>Testing:</b></p> <p>i) AC supply Voltage Phase Sequence.</p> <p>ii) Testing of Output DC Voltages in Boost/Float/Trickle/Variations as per the order/requirement .</p> <p>iii) Testing for Ripple Factor.</p> <p><b>Commissioning:</b></p> <p>i) Fixing of Boost Voltage level</p> <p>ii) Fixing of Float Voltage level</p> <p>iii) Fixing of Trickle Volage level</p> <p>iv) Testing of alarm, indication and load ckts, Auto /Manual change overs etc.</p> <p>v) Full load test in Boost &amp; Trickle modes.</p>			
201	i)	110V DC: (1 set for 33kV Stations)	Per Set	21300	17042
	<b>41</b>	<b>Fencing :</b>			
		<b>Colony and Station yard Boundary fencing including erection of supports</b>			
202		a) Security fencing using 8SWG chainlink/50mm Mesh		As per KPWD SR applicable to respective area	As per KPWD SR applicable to respective area
203		b) Barbed wire fencing		?	?
	<b>42</b>	<b>PLCC Equipments</b>			
204	a)	Erection of mounting structures for coupling capacitors	Set	4347	4912
205	b)	Erection of Coupling capacitors/wave traps/LMU.	Set	1634	1846
206	c)	Wiring , testing and commissioning	Set	486	486
	<b>43</b>	<b>Yard Levelling</b>			
207		Yard Levelling and filling up of soil and consolidation.	Cmt	As per KPWD SR applicable to respective area	As per KPWD SR applicable to respective area
	<b>44</b>	<b>Watch and Ward</b>			
208		Emoluments for watch and ward including pay and DA for 8 hours duty	Per shift	244	276
	<b>45</b>	<b>Transportation</b>			
209		Transportation of Transformer, CT's, PT's, Breakers, C&R Panels, 11KV Switchgears and EHT LA's only.			
	a)	<b>Using 10 MT Lorry</b>			
210	i)	1 to 50 KMs		Rs. 53/- per KM, subject to a Min. of Rs.10000/-	Rs. 60/- per KM, subject to a Min. of Rs.10000/-
211	ii)	51 to 100 KMs		Min + Rs.40/- per KM	Min + Rs.45/- per KM
212	iii)	101 to 150 KMs		Min + Rs.30/- per KM	Min + Rs.34/- per KM
213	iv)	Beyond 150 KMs		Min + Rs.19/- per KM	Min + Rs.21/- per KM
	b)	<b>Using 10 MT Truck &amp; Tractor</b>			

214		<b>i)</b> 1 to 50 KMs		Rs. 53/- per KM, subject to a Min. of Rs. 2000/-	Rs. 60/- per KM, subject to a Min. of Rs. 2000/-
215		<b>ii)</b> 51 to 100 KMs		Min + Rs.40/- per KM	Min + Rs.45/- per KM
216		<b>iii)</b> 101 to 150 KMs		Min + Rs.30/- per KM	Min + Rs.34/- per KM
217		<b>iv)</b> Beyond 150 KMs		Min + Rs.19/- per KM	Min + Rs.21/- per KM
	c)	<b>Using 20 MT Truck &amp; Trailer.</b>			
218		<b>i)</b> 1 to 50 KMs		Rs. 420/- per KM, subject to a Min. of Rs. 25000/-	Rs. 475/- per KM, subject to a Min. of Rs. 25000/-
219		<b>ii)</b> 51 to 100 KMs		Min + Rs 350 /- per KM	Min + Rs 396 /- per KM
220		<b>iii)</b> 101 to 150 KMs		Min + Rs 190/- per KM	Min + Rs 215/- per KM
221		<b>iv)</b> Beyond 150 KMs		Min + Rs 170/- per KM	Min + Rs 192/- per KM
221		Mobilisation charges of IDLE Transportation applicable for places where heavy duty trucks are not available, is admissible in addition to: (a) as far as possible full load shall be transported.		26	30
222		<b>b)</b> Transportation of other materials		27% of the above	27% of the above
223		<b>c)</b> Using light vehicle including fuel, oil, lubricants and crew subject to a minimum of 100 Kms per day in case of break down/ subject to prior approval of CEE.	Per Set	Prevailing Board approved Rates	Prevailing Board approved Rates
	<b>46</b>	<b>Loading and Unloading</b>			
224		<b>a)</b> Loading of Power Trs, CT's. PT's Breakers, C&R Panels, 11KV Switchgears, wavetrap, coupling capacitors, HT UG Cables, Insulators, ACSR Conductor, Ground Conductors, etc.,	MT	1614	1824
225		<b>b)</b> Unloading of power Transformers, CT's PT's Breakers, C&R Panels, 11 KV Switchgears, Wavetrap, coupling capacitors, HT UG Cables, Insulators, ACSR conductor, Ground conductors, etc.,	MT	1614	1824
226		<b>c)</b> Loading of other materials like structural steel, building materials etc.,	MT	286	323
227		<b>d)</b> Unloading of other materials like structural steel, building materials etc.,	MT	286	323
	<b>47</b>	<b>Benching, Revetment and Pitching</b>			
228		Providing granite rough stone 30 to 50 cms thick dry packing of revetments and pitching side slopes of quadrant including providing the walls, jelly packing, 0.15 cms thick and wedging etc., Complete including cost of conveyance of all materials.	Cmt	For substation works as per KPWD SR and for Transmission line works Add 25% extra	For substation works as per KPWD SR and for Transmission line works Add 25% extra
	<b>48</b>	<b>Labour for 33KV lines using 9/9.5 Mtrs Long RCC Poles</b>			

229		<b>a)</b> Erection of 9/9.5 Mtrs RCC Poles 300 Kg working load, in the excavated pit as per the approved drawing specification including the cost of excavation, backfilling(Concreting charges extra)	Nos	1216	1374
230		<b>b)</b> Erection of DP structure including fixing of braces insulators etc., as per the approved drawings and specifications including the cost of excavation, backfilling (Concreting charges extra).	Set	2876	3250
231		<b>c)</b> Fixing of V-Shape cross arms, single top supports and insulators.	Set	85	96
232		<b>d)</b> Fixing of spiral earth electrodes	Nos	31	55
233		<b>e)</b> Road/P&T Guarding	Set	840	1059
234		<b>f)</b> Stringing Rabbit conductor, fixing disc insulator to cross arms etc.,	KM	2308	2608
235		<b>g)</b> Stringing Coyote conductor, fixing disc insulator to cross arms etc.,	KM	4031	4031
236		<b>h)</b> Supplying and fixing of AC devices as per specification	Rmtr	As provisioned in 11 kV works	As provisioned in 11 kV works
	<b>49</b>	<b><u>Dismantling</u></b>			
237		i) Dismantling of Power Transformer		Same rate as that of erection of Power Transformer	Same rate as that of erection of Power Transformer
238		ii) Dismantling charges for concrete with steel reinforcement	Cmt	707	799
239		iii) Dismantling of concrete only	Cmt	345	390
240		iv) Dismantling charges in all other cases		75% of erection charges in general	75% of erection charges in general