

LABOUR RATES FOR COMMON SR 2018-19 for 33 kV SYSTEM

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
	1	<u>Detailed Surveying on Turn-Key:</u>			
	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)			
1	a)	Hilly terrain	km	898	1781
2	b)	Plain terrain	km	873	1687
	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 furnishing Geo- coordinates of each location with survey Nos of the lands through which the line is passing duly covering the corridor proposed to be cleared.			
3	a)	Hilly terrain	km	4445	8601
4	b)	Plain terrain	km	2968	5748
5	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 1 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	442	486
6	iv)	Burgie details for identification for all Anchor towers with existing permanent marks like poles, telephone lines, buildings, etc.,	Per Anchor Tower	400	440
7	v)	v) Conducting soil resistivity tests	Per Test	766	843
	vi)	Clearing of bushes, tree branches of trees crops and shrubs wherever encountered for detailed survey to enroute the corridor width of 3 mtrs (including viewing for fixing anchor towers etc.,)			
8	a)	Hilly terrain	KM	1326	1459
9	b)	Plain terrain	KM	886	975
10	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	270	297
11		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)		270	297
12	Viii) a)	Preparing the Schedules: 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	1069	1176
13	b)	Railway Crossing proposal with drawing are inclusive of graph sheets and other stationery materials, labour etc., (10 Sets)	Per crossing	1069	1176
14	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	766	843
15	d)	Forest proposals: 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). Note: This applies to forest area only.	Km	4985	5484
	2	<u>Check Survey by using their own Equipment</u>			
16	a)	Hilly terrain	KM	2298	4290
17	b)	Plain Terrain	KM	1538	2864
	3	<u>Taking block levels for Sub-stations:</u>			

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18	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	1479	1627
19	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	1479	1627
20	c)	Taking level at 5M suitable grid interval in the sub-station area for plotting block levels, contour map.	No	32	35
21	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	14780	16258
22	e)	Furnishing cutting and filling quantities using appropriate software for earth work calculation.	Per Project	4434	4877
23	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	11823	13005
4	Geo Technical Investigations:				
24	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	2212	2433
	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. Note: Laboratory identified shall be approved by ESCOM Engineers not below the rank of EE(Civil).			
25	i)	Bulk density and moisture content	Each	886	975
26	ii)	Sieve analysis	Each	886	975
27	iii)	Hydrometer Analysis	Each	886	975
28	iv)	Liquid limit and plastic limit	Each	886	975
29	v)	Shrinkage limits	Each	1035	1139
30	iv)	Specific gravity	Each	1035	1139
31	vii)	Standard proctor density test	Each	1035	1139
32	viii)	Swell pressure	Each	1187	1306
33	ix)	Free swell index	Each	1187	1306
34	x)	Uncombined Compressive strength	Each	1187	1306
35	xi)	Triaxial shear test	Each	1187	1306
36	xii)	One dimensional consolidation test	Each	1187	1306
37	xiii)	California bearing ratio	Each	1187	1306
38	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	17738	19512
		Note: 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			
5	Excavation for station structure:				

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		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.,		1) Corresponding rates in KPWD SR as mentioned against each classification below shall be adopted. 2) Area weightages applicable for the respective areas as per latest KPWD SR shall be allowed to arrive at Final Rate. 3) Extra for excavation under water conditions and/or foul conditions including bailing/pumping out, rempving	1) Corresponding rates in KPWD SR as mentioned against each classification below shall be adopted. 2) Area weightages applicable for the respective areas as per latest KPWD SR shall be allowed to arrive at Final Rate. 3) Extra for excavation under water conditions and/or foul conditions including bailing/pumping out, rempving slush add 20% of the rate of the respective rate on account of
39	i)	Normal Soil	Cmt	Latest KPWD SR Rates for hard soil	Latest KPWD SR Rates for hard soil
40	ii)	B.C. Soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
41	iii)	Partially Submerged soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
42	iv)	Fully submerged soil	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary soil
43	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
44	iv)	Dry fissured/Ordinary rock	Cmt	Latest KPWD SR Rates for Ordinary soil	Latest KPWD SR Rates for Ordinary rock
45	vii)	Latterite soil	Cmt	Rate for ordinary rock (Without blasting) of latest KPWD SR	Rate for ordinary rock (Without blasting) of latest KPWD SR

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46	viii)	Hard rock with blasting/Hard latterite	Cmt	Rate for ordinary rock (With blasting) of latest KPWD SR	Rate for Hard rock (With blasting) of latest KPWD SR
		Note 1: For Excavation purposes measurement shall be as per actuals. 2: For foundation purposes predominant soil shall be considered.			
	6	<u>Excavation (For Tr. Line Tower)</u>			
47	i)	Normal Soil	Cmt	Rates as per item 5 + 50% extra	Rates as above per item 5 + 50% extra
48	ii)	B.C. Soil	Cmt		
49	iii)	Partially Submerged soil	Cmt		
50	iv)	Fully submerged soil	Cmt		
51	v)	Wet black cotton soil	Cmt		
52	vi)	Dry fissured/Ordinary rock	Cmt		
53	vii)	Latterite soil	Cmt		
54	viii)	Hard rock with blasting/Hard latterite	Cmt		
	7	<u>Back Filling :</u>			
55	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
56	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 respective area +10% extra	Rates as per KPWD SR applicable to respective area +10% extra
		Note: This item is applicable only when Black cotton, soil, wet black cotton soil, dry fissured rock, ordinary rock, Hard rock are encountered.			
	8	<u>Concreting and curing (For Both Transmission lines and station structures)</u>			
	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.
57	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

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58	ii)	1:3:6 concrete (M-10)	Cmt	Rates under basement of latest KPWD SR	Rates under basement of latest KPWD SR
59	iii)	1:2:4 concrete (M-15)	Cmt	Rates under raft foundation of latest KPWD SR	Rates under raft foundation of latest KPWD SR
60	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
61	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 50% weightage to the basic rates of different proportion of concrete proposed above.
		<p>Note :</p> <p>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.</p> <p>b) Only machine mixing is to be used for concreting.</p> <p>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.</p> <p>d) 50% above KPWD SR is proposed only for Tr line works from 2016.</p>			
		<p>Providing and fabricating TMT Steel reinforcement including straightning, cutting, bending, hooking, lapping and / or welding wherever required placing in position tying with binding wire and anchoring to the adjoining members wherever necessary including laps and wastages etc., complete as per design, and specification and directions (Laps and wastages not to be measured and paid)</p>	kgs	New Item	For sub - station works, rate as per KPWD SR and for Transmission line works, add 10% extra
	9	Towers			
62	a)	Sorting of tower parts made of fabricated angle iron	MT	346	381
63	b)	Setting up of stubs templates and from one location to another location	Per Location	450	495
64	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	2513	2764
65	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	12	13
66	e)	Welding of bolts and nuts	Per Bolt	12	13
		Note: For tower erections requiring shutdown 25% above S.R. for item 5c to 5e only are to be adopted.			
	10	Supplying and fixing AC devices:			
67	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	2459	2705
68	b)	Supplying and fixing barbed wire as per specification	Rmtr	47	52

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	11	<u>Fixing of Boards</u>			
69	a)	Fixing Danger Board	Nos	48	53
70	b)	Fixing Number Plate	Nos	48	53
71	c)	Fixing Phase plate	Set (3 Nos)	141	155
72	d)	Fixing Circuit Plates	Nos	48	53
	12	<u>Stringing conductor with out allowing the conductor to touch the ground and with out damaging the conductor</u>			
	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 T & 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)			
73	i	For hilly tarrian	KM	10269 With Coyote ACSR	11296
74	ii			10269 with Rabbit on towers	proposed for deletion
75	i	For plain Tarrian	KM	7528 With Coyote ACSR	8281
76	ii			3763 with Rabitt on towers	proposed for deletion
		<u>Stringing of Ground Conductor as above</u>			
77		For hilly tarrian	KM	5025	5528
78		For plain Tarrian	KM	3764	4140
		Note:			
79		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.
80		III) (A) River Crossing works (B) Railway Crossing Works (C) Breakdown works in substations & lines		100% extra	100% extra
81		IV) 2nd Circuit stringing with 1st circuit under live condition		75% extra	75% extra
82		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
	13	<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>			
		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)			

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		i) For hilly terrian			
83		a) Anchoring single span upto 320 mtrs.	1 Span	5795 With Coyote	6375
84				2837 With Rabitt	proposed for deletion
85		b) Anchoring 2 span interval upto 640 mtrs with 1 (ONE) tangent tower only	2 Spans	7185 With Coyote	7904
86				3432 With Rabitt	proposed for deletion
87		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	8425 With Coyote	9268
88				4054 With Rabitt	proposed for deletion
		ii) For plain terrian			
89		a) Anchoring single span up to 320 Mtrs	1 Span	4347 With Coyote	4782
90				2094 With Rabitt	proposed for deletion
91		b) Anchoring 2 span interval upto 640 Mtrs with 1 (ONE) tangent tower only	2 Spans	5566 With Coyote	6123
92				2567 With Rabitt	proposed for deletion
93		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	6236 With Coyote	6860
94				3011 With Rabitt	proposed for deletion
		Stringing Ground Conductor			
		i) For Hilly terrian			
		a) Anchoring Single span upto 320 mtrs	1 span	New Item	2822
		b) Anchoring 2 span interval upto 640 mtrs with one tangent tower only	2 Spans	New Item	3364
		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	New Item	3999
		ii) For plain terrian			
		a) Anchoring Single span upto 320 mtrs	1 span	New Item	2124
		b) Anchoring 2 span interval upto 640 mtrs with one tangent tower only	2 Spans	New Item	2583
		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	New Item	3041
		NOTE: 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. 11kV & LT line shutdown works not included).			
	14	<u>Rates for Short span stringing in Normal length of the line of more than 3 spans comprising of short spans</u>			
		A) 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)			
		i) For hilly terrian			
95		a) Anchoring single span upto 320 Mtrs	1 Span	863 With Coyote	949
96				423 With Rabbit	Proposed for deletion
97		b) Anchoring 2 span interval upto 640 Mtrs with 1 tangent tower only	2 Spans	1435 With Coyote	1579
98				692 With Rabbit	Proposed for deletion
99		c) Anchoring 3 Span interval up to 960 Mtrs with two tangent towers only	3 Spans	2104 With Coyote	2314
100				1015 With Rabbit	Proposed for deletion
		ii) For Plain terrian			

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101		a) Anchoring single span upto 320 Mtrs	1 Span	647 With Coyote	712
102				314 With Rabbit	Proposed for deletion
103		b) Anchoring 2 span interval upto 640 Mtrs with 1 tangent tower only	2 Spans	1057 With Coyote	1163
104				518 With Rabbit	Proposed for deletion
105		c) Anchoring 3 Span interval upto 960 Mtrs with two tangent towers only	3 Spans	1563 With Coyote	1719
106				788 With Rabbit	Proposed for deletion
		Stringing Ground Conductor			
		i) For Hilly terrain			
		a) Anchoring Single span upto 320 mtrs	1 span	New Item	427
		b) Anchoring 2 span interval upto 640 mtrs with one tangent tower only	2 Spans	New Item	677
		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	New Item	1000
		ii) For plain terrain			
		a) Anchoring Single span upto 320 mtrs	1 span	New Item	323
		b) Anchoring 2 span interval upto 640 mtrs with one tangent tower only	2 Spans	New Item	521
		c) Anchoring 3 span interval up to 960 mtrs with two tangent towers only	3 Spans	New Item	760
	15	Grounding of Towers/Equipments		Material + Labour	
107		a) 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	3010+832	3010+832
108		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	789+832	789+832
109		c) 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	1582+1055	7370+2011
		Note : All the leads from earthmat & equipment should be connected to earth electrode through the GI Flat 50 x 6 mm of suitable length and welded as per specifications.			
110	16	Supplying and fixing of counter poise earthing with GI Stranded wire where hard rock is encountered as per specifications. (including excavation charges).	Per Loc	2143+1916	2143+1916
	17	Station Structures			
111	a)	Erection, assembly and alignment of Station structure as per the directions of site Engineer.	MT	2372	2609
112	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	2210	2431
	18	Erection of Transformers			
113	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	47	51
114	b)	Assembly of Transformer parts like bushings, radiators, filling oil into Tr. etc., (for the total wt. of the Tr.)	MT	1059	1165
	c)	Filling oil to the power Tr., Conservator and radiator (for maintenance purpose only).			
115	i)	For 5 MVA to 20 MVA Tr.	Litre	2.26	2.49
116	d)	Filtration of oil using filter set of the contractor, to bring the insulation value to I.E. Specifications.	Litre	4.24	4.66
117	e)	Filtering Oil as above but with the filter set supplied by the ESCOM	Litre	2.26	2.49
	19	Wiring of Transformer marshalling box, bucholtz relay, fixing Thermometer, OLTC upto control panel and assisting in testing and commissioning by RT/MT/Firm Engineers.			

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118	i)	5 MVA to 6.3/8 MVA Tr.	LS	4875	5363
		10 MVA to 12.5 MVA Tr.	LS	New Item	9414
119	20	Fabrication of Transformer railing and embedding in Transformer plinth. (Rails to be supplied by the ESCOMs)	LS	979	1077
120	21	Fixing of H.T. fuse units & wiring	Per Set (3 Nos)	1138	1252
	22	Wiring Testing & Commissioning of 5 MVA 33/11 kV Power Transformers			
121		a) Wiring: Identification of wires, Ferruling crimping and termination of wires. Wiring of Protective Devices, Cooling fans, Oil flow Pumps, OLTC, RTCC			
		5/6.3 MVA		5917	6509
		8/10 MVA		New Item	6575
		Above 10 MVA		New Item	9862
122		b) Testing: Ratio Test 3. Excitation test Magnetic Balance test group test. voltage test. 8. Protective devices operation checks. stability checks:- for differential and REFR protection	Each	23668	26035
	23	Erection of Breakers / 11 kV Kiosks with CTs on Mounting Structures			
	a)	BREAKERS			
123	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	6654	7319
124	ii)	Assisting in Testing and Commissioning	Each	1333	1466
		Testing & Commissioning:			
125		Wiring: Identification, of wires Ferruling crimping and termination of wires in Breaker & Wiring up to control panel / Relay panels.	Set	5917	6509
126		Testing: 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	26035
	24	Erection of CTs and PTs			
127	a)	Erection of CTs and PTs and wiring including movement from the point of unloading to the point of erection.	Set (3 Nos)	1729	1902
128	b)	Assisting in Testing and Commissioning	Set	520	572
	c)	Testing & Commissioning			
		Current transformers:			
		Wiring: Identification of wires Ferruling Crimping of lugs Connections up to marshalling box and Control panel. Current transformers: Tests: Insulation, Polarity, Ratio, Excitation		1972	2169
129	i)	Testing & Commissioning of CTs : Tests: Insulation, Polarity, Ratio, Excitation	Set (3 Nos)	7888	8677
130	ii)	Potential Transformers:			
		Wiring: Identification of wires Ferruling Crimping of lugs Connections up to marshalling box.	Set (3 Nos)	1972	2169
		Testing & Commissioning of PTs: Tests: Insulation, Polarity, Ratio,excitation.	Set (3 Nos)	7888	8677
	25	Erection of NCTs			
131	a)	Erection of NCTs with ground including movement from the point of unloading to the point of erection	Set	500	550
132	b)	Assisting in Testing and Commissioning	Set	64	70
	26	Erection of Isolators			
133	a)	Assembly, Erection alignment and wiring including movement from the point of unloading to the point of erection. (Upright)	Set	1040	1144
134	b)	Assisting in Testing and Commissioning (Upright)	Set	106	117

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		Note : 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. 2) Testing & Commissioning in item 13 & 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.			
	27	Erection of Lightning Arrestors			
135		Erection of Lightning arrestors and wiring including movement from the point of unloading to the point of erection	Set	260	286
136	28	Fixing of Solid Core insulator	Per Stack	86	95
137	29	Testing & Commissioning: Capacitor Bank with reactors	Each	15325	16858
		Control Cables and U.G. Cables			
	30	Formation of Cable Duct			
138	a)	(i) Burnt brick/size stone/RCC Cable duct 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.
139		(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.
140	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.
141	i)	25 mm dia (outer) 2mm to 2.5mm thick	Mtr		
142	ii)	32 mm dia (outer) 2mm to 2.5mm thick	Mtr		
143	ii)	63 mm dia (outer) 2mm to 2.5mm thick	Mtr		
144	iv)	75 mm dia (outer) 2mm to 2.5mm thick	Mtr		
145	v)	90 mm dia (outer) 2mm to 2.5mm thick	Mtr		
146	vi)	110 mm dia (outer) 2mm to 2.5mm thick	Mtr		
147	vii)	140 mm dia (outer) 2mm to 2.5mm thick	Mtr		
148	vii)	160 mm dia (outer) 2mm to 2.5mm thick	Mtr		
	d)	Supplying & Laying cable trays including welding fixing of supports		Material+Labour	
149	i)	Cable tray of 600mm width (suitable for cable ducts of A,B & C type)	Rmtr	302+209	302+230
150	ii)	Cable tray of 300mm width (suitable for cable ducts of A,B & C type)	Rmtr	221+141	221+155
151	e)	Laying of control cables from equipments to control panels.	Rmtr	10	11
	31	Control Panels			
152	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	3452	3797
153	b)	Wiring & assisting in testing and commissioning of panels.	Per Panel	5394	5933
154	C)	Test & Commissioning: Panels Wiring & Testing:			
		Wiring: Identification, Ferruling, Crimping, termination of wires in C&R panels.	Per Panel	5917	6509
		Testing: Testing for insulation level, Testing of relays, control operations for closing tripping etc., interlocks Alarm, Annunciation and Indication Checks.	Per Panel	23668	26035
	32	11 kV Switchgear			

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
	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.			
155		i) 11kV Indoor/out door switchgear	Per Panel	2078	2286
156		ii) 11kV Kiosk	Per Panel	1729	1902
	b	Wiring & assisting in testing & Commissioning			
157		i) 11 kV indoor/ outdoor switchgear	Per Panel	689	758
158		ii) 11kV Kiosk	Per Panel	689	758
	c	Testing & Commissioning: Identification of wires, Ferruling Crimping & Termination of wires for annunciation, etc., Testing of Relays, CTs, PTs, & Breaker for operation Wiring:			
159	i)	For indoor/outdoor panel comprising of 2I+8F+1BC+1AP3	Per Set	65503	72053
160	ii)	For single 11kV panel indoor/outdoor type /Kiosk	Nos	13098	14408
161	iii)	For additional 11kV panel indoor	Nos	6549	7204
162	iv)	For each additional 11kV panel out door type/Kiosk	Nos	10009	11010
		Note: Assisting in testing & Commissioning for item 19,20 & 21 mean contractors should provide labourers for wiring & Commissioning by RT/MT/Firm Engineers.			
	33	Busbar Formation			
		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.			
163	a)	Main Bus/Cross Bus as above using Single Lynx Conductor		6152	6767
	b)	Main Bus/Cross Bus as above using Single Coyote Conductor		6152	6767
164	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 inter-connect different segments of the main bus.	Per Bay	Deleted	Deleted
165	34	Faradays Cage Formation as per specification:	Per Bay	254	279
	35	Groundmat			
166	a)	Laying of M.S. Flats, welding, applying ACB paint to welded portion and covering with sodium bentonite clay	Rmtr	33	36
167	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 - 273 50x8mm - 291 75x6mm - 566 75x8mm - 505 75x12mm - 535	50x6mm - 314 50x8mm - 335 75x6mm - 651 75x8mm - 581 75x12mm - 615
168	c)	Same as above but without sodium bentonite clay	Rmtr	50x6mm - 135 50x8mm - 152 75x6mm - 367 75x8mm - 395 75x12mm - 429	50x6mm - 155 50x8mm - 175 75x6mm - 422 75x8mm - 454 75x12mm - 493

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
169	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 - 226 50x8mm - 253 75x6mm - 541 75x8mm - 571 75x12mm - 618	50x6mm - 260 50x8mm - 296 75x6mm - 633 75x8mm - 656 75x12mm - 710
170	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	260	299
171	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	864	994
	36	<u>Providing Deep Bore earthing</u>			
		"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".			
172	a)	Drilling 150mm dia bore	Rmtr	687	687
173	b)	40 mm dia MS rod	Rmtr	541	638
174	c)	Bentonite Clay	Kgs	15	15
175	d)	Cost of GI flat for joining two rods by welding to obtain continuous length	Per joint	572	682
	37	<u>Spreading of Jelly</u>			
		Supplying and spreading 100mm thick with 20/25mm jelly with all lead and lifts.			
176	i)	20/25 mm Jelly	Cmt	1427	1038
		Note : Only 20/25mm jelly shall be used.			
	38	<u>Station Yard Lightning</u>			
177	a)	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.
178	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.
179	c)	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.
180	d)	Erection of RCC poles with stringing of O.H. conductor/Laying of cable for yard lights.		Furnished in 11kV Works	Furnished in 11kV Works
	39	<u>Painting of structures</u>		Material+Labour	
181	a)	Supplying and painting of two coats of good quality Red Oxide primer after cleaning and scrapping the surface.	Sq Mtr	23+46	23+51
182	b)	As above with 2 coats of good quality Aluminium paint after 2 coats of good quality Red Oxide primer.	Sq Mtr	50+70	50+77

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
183		c) Supplying and painting two coats of aluminium paint after cleaning and scraping the surface without applying Red Oxide primer	Sq Mtr	24+39	24+44
184		d) As per (b) but with synthetic enamel paint	Sq Mtr	60+77	60+85
185		e) Supplying and painting two coats of Synthetic enamel paint after cleaning and scraping the surface without applying red oxide primer.	Sq Mtr	32+37	35+41
	40	Battery Set and charger			
	a)	Installing, assembling, filling of acid, wiring, assisting, test-charging and discharging Battery set.			
186	i)	110 Volts	Set	8632	8632
187	ii)	48/24 Volts	Set	3456	3456
	b)	Erection of Battery Charger and wiring			
188	i)	110 Volts	Set	1379	1379
189	ii)	48/24 Volts	Set	1379	1379
190	c)	Testing & Commissioning of Battery Charger: Wiring: Identification, Ferruling, Crimping & connecting i) AC Supply cable upto 2 sources ii) Load cables, connection at charger end upto 10 load points			
191		Testing: supply Voltage Phase Sequence. Testing of Output DC Voltages in Boost/Float/Trickle/Variations as per the order/requirement . Testing for Ripple Factor. Commissioning: i) Fixing of Boost Voltage level ii) Fixing of Float Voltage level iii) Fixing of Trickle Voltage level iv) Testing of alarm, indication and load ckts, Auto /Manual change overs etc. v) Full load test in Boost & Trickle modes.	i) AC ii) iii) i) Fixing ii) Fixing of		
192	i)	110V DC: (1 set for 33kV Stations)	Per Set	17042	17042
	41	Fencing :			
		Colony and Station yard Boundary fencing including erection of supports			
193	a)	Security fencing using 8SWG chainlink/50mm Mesh		As per KPWD SR applicable to respective area	As per KPWD SR applicable to respective area
194	b)	Barbed wire fencing		As per KPWD SR applicable to respective area	As per KPWD SR applicable to respective area
	42	PLCC Equipments			
195	a)	Erection of mounting structures for coupling capacitors	Set	4912	5403
196	b)	Erection of Coupling capacitors/wave traps/LMU.	Set	1846	1846
197	c)	Wiring , testing and commissioning	Set	486	486
	43	Yard Levelling			
198		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
	44	Watch and Ward			
201		Emoluments for watch and ward including pay and DA for 8 hours duty	Per shift	276	304
	45	Transportation			
	a)	Transportation of Transformer, CT's, PT's, Breakers, C&R Panels, 11KV Switchgears and EHT LA's only.			
199	i)	Using 10 MT Lorry 1 to 50 KMs		Rs. 60/- per KM, subject to a Min. of Rs.10000/-	Proposed for deletion as KPTCL SR format is adopted

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
200		ii) 51 to 100 KMs		Min + Rs.45/- per KM	Proposed for deletion as KPTCL SR format is adopted
201		iii) 101 to 150 KMs		Min + Rs.34/- per KM	Proposed for deletion as KPTCL SR format is adopted
202		iv) Beyond 150 KMs		Min + Rs.21/- per KM	Proposed for deletion as KPTCL SR format is adopted
	b)	Using 10 MT Truck & Tractor			Proposed for deletion as KPTCL SR format is adopted
203		i) 1 to 50 KMs		Rs. 60/- per KM, subject to a Min. of Rs. 2000/-	Proposed for deletion as KPTCL SR format is adopted
204		ii) 51 to 100 KMs		Min + Rs.45/- per KM	Proposed for deletion as KPTCL SR format is adopted
205		iii) 101 to 150 KMs		Min + Rs.34/- per KM	Proposed for deletion as KPTCL SR format is adopted
206		iv) Beyond 150 KMs		Min + Rs.21/- per KM	Proposed for deletion as KPTCL SR format is adopted
	c)	Using 20 MT Truck & Tractor.			Proposed for deletion as KPTCL SR format is adopted
207		i) 1 to 50 KMs		Rs. 475/- per KM, subject to a Min. of Rs. 25000/-	Proposed for deletion as KPTCL SR format is adopted
208		ii) 51 to 100 KMs		Min + Rs 396 /- per KM	Proposed for deletion as KPTCL SR format is adopted
209		iii) 101 to 150 KMs		Min + Rs 215/- per KM	Proposed for deletion as KPTCL SR format is adopted
210		iv) Beyond 150 KMs		Min + Rs 192/- per KM	Proposed for deletion as KPTCL SR format is adopted

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
211		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.		30	Proposed for deletion as KPTCL SR format is adopted
212		b) Transportation of other materials		27% of the above	Proposed for deletion as KPTCL SR format is adopted
213		c) 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	Proposed for deletion as KPTCL SR format is adopted
		Transportation:			
		a) Transportation of Transformer, CTs PTs, Breakers, C & R Panels, 11kV Switchgears and EHT LA's only			
		1. Using 10 MT Lorry			
		Upto 250kms	km	New Item	40
		greater than 250kms	km	New Item	35
		2. Using 10 MT Truck & Tractor			
		Upto 250kms	km	New Item	70
		greater than 250kms	km	New Item	55
		3. Using 11MT to 20MT Truck & Tractor			
		Upto 250kms	km	New Item	90
		greater than 250kms	km	New Item	70
		4. Using 21 MT to 40 MT Truck & Tractor			
		Upto 250kms	km	New Item	135
		greater than 250kms	km	New Item	110
		5. Using 41 MT to 80 MT Truck & Tractor			
		Upto 250kms	km	New Item	575
		greater than 250kms	km	New Item	500
		6. Using 81 MT to 120 MT Truck & Tractor			
		Upto 250kms	km	New Item	1400
		greater than 250kms	km	New Item	1100
		b) Crane hiring charges for substation works			
		1. Up to 5 hours	hour	New Item	1500
		2. Greater than 5 hours	hour	New Item	1200
		NOTE : 1. The rates are for up and down journey and for a minimum distance of 300kms. 2. Detention charges are Rs. 5000.00 per day for vehicles upto 40MT trailer and Rs. 15000.00 for vehicles greater than 40Mt trailer.			
	46	Loading and Unloading			
214		a) 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	1824	2006
215		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	1824	2006
216		c) Loading of other materials like structural steel, building materials etc.,	MT	323	355
217		d) Unloading of other materials like structural steel, building materials etc.,	MT	323	355
	47	Benching, Revetment and Pitching			
218		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
	48	Labour for 33KV lines using 9/9.5 Mtrs Long RCC Poles			

Sl No	Item No	Description	Unit	Labour charges Common SR 2016-17 in Rs.	Proposed Labour charges Common SR 2018-19 in Rs.
219		a) 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	1374	1511
220		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	3250	3575
221		c) Fixing of V-Shape cross arms, single top supports and insulators.	Set	96	106
222		d) Fixing of spiral earth electrodes	Nos	35	39
223		e) Road/P&T Guarding	Set	949	1044
224		f) Stringing Rabbit conductor, fixing disc insulator to cross arms etc.,	KM	2608	2869
225		g) Stringing Coyote conductor, fixing disc insulator to cross arms etc.,	KM	4031	4434
226		h) Supplying and fixing of AC devices as per specification	Rmtr	As provisioned in 11 kV works	As provisioned in 11 kV works
	49	<u>Dismantling</u>			
227		i) Dismantling of Power Transformer		Same rate as that of erection of Power Transformer	Same rate as that of erection of Power Transformer
228		ii) Dismantling charges for concrete with steel reinforcement	Cmt	799	879
229		iii) Dismantling of concrete only	Cmt	390	429
230		iv) Dismantling charges in all other cases		75% of erection charges in general	75% of erection charges in general

Annexure -1

**Transportation by Head Load wherever there is no accessibility for transportation by vehicle
transmission line works only**

Sl. No.	Total distance	Steel, Cement,per Ton in Rs.	Earth, Gravel, Sand, Lime & other Str.Mat.Rate per Cmt. In Rs.	Rough, size, cut latterite stones, Concrete Blocks Rate per Cmt in Rs.
1	Up to 50 Mtrs initial lead	Included in the item Rate		
2	Beyond 50Mtrs and upto 100Mtrs	19	24	31
3	Beyond 100 Mtrs and upto 150Mtrs	31	39	48
4	Beyond 150 Mtrs and upto 200Mtrs	42	53	66
5	Beyond 200 Mtrs and upto 250 Mtrs	52	66	82
6	Beyond 250 Mtrs and upto 300 Mtrs	66	82	103

icle for

**RCC Pole
300Kg WL
Rate per
pole in Rs.**

379

545

605

696

696