



# KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

Corporate Office, 'Kaveri Bhavan' Bangalore-560 009.  
Bangalore: 080-22212343

KPTCL/B9/30791/12-13

dated

24 JUN 2015

## OFFICIAL MEMORANDUM

**Sub:** - Adopting Modern Survey Techniques for conducting detailed survey of new Transmission Lines of KPTCL -regarding unit rates for preparation of estimates.

**Ref:** - KPTCL/B9/30791/12-13 dated 04/03/2014.

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### **Preamble:**

In Corporate O.M dated 04/03/2014, approval was accorded for adopting Modern Survey Techniques for all Transmission Line surveys of all voltage class, with immediate effect. Further, the standard technical specification and bill of quantities required for conducting Transmission Line surveys of all voltage class, using Modern Survey Techniques was also issued along with the said order.

Since, there are no rates available in the current KPTCL SR for major items of transmission line surveying using Modern Survey Techniques, the field officers had requested to provide rates to be adopted for preparation of estimates and tender evaluation. In this regard, the tender rates received for transmission line surveying using Modern Survey Techniques in the last 6-8 months and the rates adopted by other transmission utilities were analyzed. Considering all these, a proposal for adoption of computed rates for various items of transmission line surveying works for which there are no rates available in the current KPTCL SR, was put up in Corporate note dated 28/04/2015. The proposal has been approved and hence this order.

EEG(JT)  
25/6/15

**Orders there on:**

1. Approval is accorded for adopting the computed rates annexed with this order for various items of transmission line surveying using Modern Survey Techniques with immediate effect. The said rates shall be adopted for the purpose of preparation of estimates and tender evaluation, till such time new schedule of rates for these items are issued.
2. Approval is also accorded to use Google maps instead of NRSA imageries in respect of transmission lines of all voltage class where the length of transmission line is less than or equal to 5 Kms in order to save time in establishing substations with short transmission lines. However, NRSA imageries may be used, if required, to accommodate slight change, if any, during construction stage.
3. In respect of transmission lines where the length of the line is more than 5 Kms, the NRSA imageries shall be used for route identification and to finalise the most feasible and economical alignment.

*Sudha 23/6/15*  
Deputy General Manager (Tech)  
KPTCL, Bengaluru.

**Copy to:**

1. All Chief Engineers (Ele), KPTCL.
2. All Financial Advisers, KPTCL.
3. All Superintending Engineers (Ele), KPTCL.
4. The Superintending Engineer (Civil), KPTCL, Kaveri Bhavan, Bengaluru.
5. The Superintending Engineer (Ele), (IT&MIS) to publish the same in KPTCL website.
6. All Executive Engineers (Ele)/ MW and TL & SS Divisions, KPTCL.
7. All Executive Engineers (Civil), Transmission Zones, KPTCL.
8. PS to MD/ Director (Finance)/ Director (Transmission)/ Director (A&HR)/ Director (RA) & CS, KPTCL, Bengaluru.

**Unit rates for the purpose of preparation of estimates and tender evaluation for  
Transmission line Surveying using Modern Survey Techniques.**

Sl. No.	Description of item	Unit	Rate per unit		
			400 KV	220KV	110KV/ 66KV
1A	Preliminary survey for identification of 3 alternative routes using low resolution satellite imageries (1:25,000 PAN + LISS merged) of NRSA. Google Images and Survey of India maps and finalization of most economical, optimum route showing the topographical and other features upto ____ Kms. on either side and indicating final selected route alignment and digital modeling in undulated hilly terrain along the proposed route using contour data from topographical map and submission of preliminary survey reports for approval as detailed in technical specifications with usage of NRSA imageries.				
	Plain terrain	Kms.	4700.00	4465.00	4240.00
	Hilly terrain	Kms.	5170.00	4912.00	4664.00
1B	Preliminary survey for identification of 3 alternative routes using Google Images and Survey of India maps and finalization of most economical, optimum route showing the topographical and other features upto ____ Kms. on either side and indicating final selected route alignment and digital modeling in undulated hilly terrain along the proposed route using contour data from topographical map and submission of preliminary survey reports for approval as detailed in technical specifications without usage of NRSA imageries.				
	Plain terrain	Kms.	3415.00	3280.00	3120.00
	Hilly terrain	Kms.	3757.00	3608.00	3432.00
2	Detailed survey along the approved route alignment approved after conducting the preliminary survey by using Modern Survey equipments like GPS/DGPS/Total stations/Digital theodolites including profiling, tower spotting and optimization of locations by using computer aided techniques like ALTM as well as other activities as detailed in the scope of work using PLS-CADD software and submission of draft report for approval. a) Drawing the route profile including Geographical features like Nalas, Rivers, Gardens, P&T Lines, Railways crossing etc., b) leveling of the profile with reference to Survey of India bench marks (MSL). c) Tower Schedule. d) Line Schedule. e) Burgie details by using Modern Survey techniques and providing GPS, Co-ordinates at each anchor points for identification of anchor locations including permanents marks like poles, telephones lines, buildings etc.,				
	Plain terrain	Kms.	7960.00	7560.00	7180.00
	Hilly terrain	Kms.	9552.00	9072.00	8616.00

3	Providing and fixing marking stones of size 200 x 200 x 1000 mm, with approved marks including painting above the ground level and yellow lettering and marking the direction of incoming and outgoing lines are to be marked clearly on the top with red color. If the distance between such anchors points is more than 1KM one more directional stone is to be fixed. So also for the road crossings, railway crossing and nala crossings on both the sides.	Each Stone.	Prevailing KPTCL SR		
4	Conducting Soil resistivity test along the selected route and submitting the test results in the form of draft report as detailed in the technical specifications.	Per Test.	Prevailing KPTCL SR		
5	Making 150mm nominal diameter bore holes at various locations in soil using suitable approved method of boring including cleaning the bore holes, collection of samples, observation of ground water level, collection of undisturbed/disturbed sample and back filling of bore holes on completion of work as per specification and instruction of engineer in charge of work. The scope also includes the submission of final report containing the bore log details with classification of soil for the purpose of providing foundation along with GPS co-ordinates of each boreholes.	Rmtr.	Prevailing KPTCL SR		
6	<b>Digitized contouring</b> at undulated/hilly tower locations as detailed in technical specifications for assessing the quantum of benching and revetment required and submission of draft report on the work done.(As per number of points of levels taken). *Note: The unit per location mentioned in the approved bill of quantities may be changed to per Nos. as the rates are available in KPTCL SR for taking spot levels.	Nos*	Prevailing KPTCL SR		
7	<b>Preparation of Schedules.</b>				
	a) PTCC Proposal: containing PTCC questionnaires, toposheet extracts with marking of the proposed line, SR report, tower sketch, station single line diagram etc.,(30 copies/set)	Per set.	Prevailing KPTCL SR,		
	b) Railway Crossing proposal with drawing inclusive of graph sheets and other stationery materials, labour etc., (10 sets/per crossing)	Per Crossing.	Prevailing KPTCL SR		
	c) Tree schedule containing the details like name of trees, girth size, distance from central line of the alignment, approximate height of tree etc., complete and submission of draft report for approval. The details shall be survey no. wise.	Per Hectare.	Prevailing KPTCL SR		
	d) Forest proposals: inclusive of all works like fixing of stones of size 0.20 x 0.20 x 1.00m buried in the ground at every 20 mts 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 including submission of report/proposal in 10 sets. The work shall be carried out as per requirement and as per instruction of Engineer-in-charge & as per latest circular of Forest Department.	Per Km.	Prevailing KPTCL SR		
8	Preparation of Detailed land schedule along the Right of Way. Plotting of line route on the digitized revenue village maps to show details of land along the line corridor with survey nos. along with its associated name of the land owner through RTC.	Kms.	600.00	570.00	540.00

9	<p>Submission of Detailed consolidated report on the surveying work done appending all approved draft reports including all relevant information collected during survey, calibration certificates of the instruments used for the work, photos taken at site and submitting soft copies of all documents and reports in 6 sets. The detailed report shall contain following approved draft reports.</p> <p>Preliminary Report / Detailed Survey Report / Soil Resistivity Report / Soil classification report with location wise / Tree Schedule / Line Schedule / Land schedule / Burgie details / Digitized contours /Digitized village map geo referenced and superimposed on the line corridor</p>	Job.	10000.00	8000.00	5000.00
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*Sudha 28/6/15*  
 Deputy General Manager (Tech),  
 KPTCL, Bengaluru.