

BILL OF QUANTITY FOR ETC WORKS

Project	ETC of 400/33 kV Transmission line at Nabinagar				
Customer	NABINAGAR POWER GENERATION CO. LTD.				
Notes					
A	The scope in brief is as follows :				
	The scope involves construction of 400kV D/C (Double Circuit) lines from Nabinagar STPP to existing Nabinagr TPP substation at BRBCL. The approximate distance between two substn is 10.5 km. i.e. total route length of the double circuit line to be constructed by the bidder.				
	The scope also involves construction of 33 kV D/C (Double Circuit) and Single Circuit (S/C) lines from Nabinagar Main Plant to Make Up water Pump house. The approximate distance between each line is 3.0 km. i.e. total route length of the each double circuit/single circuit line to be constructed by the bidder.				
B	The quantities mentioned in the BOQ are tentative and may vary to any extent for individual items.				
	Any material/services required for successful completion of the project but not covered in the BOQ shall be deemed to be included in the scope of contractor without any cost implications to BHEL. <u>The bidder is advised to visit Nabinagar site before submission of bid.</u>				
C	Make of items to be supplied/used under this contract shall be subject to acceptance by customer/BHEL at contract stage.				
D	Unloading & Storage of all items except for item no. 3.2 is in the scope of bidder.				
E	Handling, shifting to & from stores at Nabinagar STPP proper storage are also included in the scope of the bidder.				
F	Bidder may note that owner (NTPC/BHEL) shall not pay any compensation for any loss or damage to the properties during work of execution of transmission line job or for tree cutting due to bidder's work.				
S. No.	Item / Work description	Unit	Quantity	Unit Rate	Amount (Rs.)
1	Supply of tower accessories of 400 kV and 33 kV lines				
1.1	Tower accessories (for 400 kV lines)				
	i) Danger Plate	Nos.	32.00		
	ii) Number Plate	Nos.	32.00		
	iii) Phase Plate (Set of three)	Sets	26.00		
	iv) Circuit Plate (Set of two)	Sets	13.00		
	v) Anti-Climbing Device	Nos.	32.00		
	vi) Bird - Guard (Set of six)	Sets	19.00		
1.2	Tower accessories (for 33 kV lines)				
	i) Danger Plate	Nos.	44.00		
	ii) Number Plate	Nos.	44.00		
	iii) Phase Plate (Set of three)	Sets	52.00		
	iv) Circuit Plate (Set of two)	Sets	36.00		
	v) Anti-Climbing Device	Nos.	44.00		
	vi) Bird - Guard (Set of six)	Sets	26.00		
1.3	Earthing material of towers (for 400 kV lines)				
	i) 3 m , 40 NB pipe electrode	Nos.	64.00		
	ii) Counterpoise type (120 m long)	Nos.	6.00		
1.4	Earthing material of towers (for 33 kV lines)				
	i) 3 m , 40 NB pipe electrode	Nos.	88.00		
	ii) Counterpoise type (120 m long)	Nos.	12.00		
2	Survey				
2.1	Check survey of 400 kV D/C transmission line	kM	10.50		
2.2	Check survey of 33 kV S/C transmission line	kM	3.196		
2.3	Check survey of 33 kV D/C transmission line	kM	3.25		
3	ETC (Erection , Testing and Commissioning) of 400 kV lines				
3.1	Erection of various type of tower angles , tower parts and tower body / leg (equal & unequal) extensions (complete) including bolts and nuts, step bolts, hangers, D-Shackles, tower accessories etc., including tack welding and supply and application of zinc rich primer and two coats of enamel paint for both Tension and Suspension type towers for 400 kV Double Circuit Transmission Line	MT	800.00		
3.2	ACSR Moose Conductor complete with rigid/bundle spacers, preformed armour rod, Mid span compression joint, Repair sleeves , vibration dampers , etc. to complete (for entire route length of lines of approximate 10.5 km)	kM	132.00		
3.3	Shield Wires(7/3.66) with Tension Clamps, Down lead clamp, PG clamp, flexible copper bond etc),Mid span compression joint,Repair sleeves , vibration dampers , etc to complete (for entire route length of lines of approximate 10.5 km)	kM	11.00		
3.4	OPGW conductor (Tension Clamps, Suspension clamp, grounding and parallel groove clamps, Preformed armour rod , vibration dampers , etc.) for OPGW wire (for entire route length of lines of approximate 10.5 km) including testing of Fibre Optic Cable	kM	11.00		
3.5	String hardware compression /tension type (Twin tension with 2x23 nos. 160 kN disc in each string) , etc. to complete.	Nos	168.00		
3.6	String hardware suspension type (Single suspension with 1x 23 nos. 120kN disc in each string) -For tension tower	Nos	39.00		

3.7	String hardware suspension type (Single suspension with 1x 23 nos. 120 kN disc in each string)- For suspension tower	Nos	114.00		
3.8	Complete earthing of all towers as per approved drawings (Scope includes complete work includes testing to show that the tower resistance meets the acceptable limits.)				
3.8.1	3 m long , 40 NB pipe electrode	Nos.	64.00		
3.8.2	Counterpoise type (120 m long)	Nos.	6.00		
4	ETC (Erection , Testing and Commissioning) of 33 kV lines				
4.1	Erection of various type of tower angles , tower parts and tower body / leg (equal & unequal) extensions (complete) including bolts and nuts, step bolts, hangers, D-Shackles, tower accessories etc., including tack welding and supply and application of zinc rich primer and two coats of enamel paint for both Tension and Suspension type towers for 33 kV Double and Single Circuit Transmission Line.	MT	110.00		
4.2	ACSR Dog Conductor complete with rigid/bundle spaces, preformed armour rod, Mid span compression joint, Repair sleeves , vibration dampers , etc. to complete (for entire route length of lines of approximate 3.0 km)	kM	27.00		
4.3	Shield Wires(7/3.66) with Tension Clamps, Down lead clamp, PG clamp, flexible copper bond etc),Mid span compression joint,Repair sleeves, vibration dampers , etc to complete (for entire route length of lines of approximate 3.0 km)	kM	6.00		
4.4	String hardware compression /tension type (Single tension with 1x3 nos. 120 kN disc in each string) , etc. to complete.	Nos	198.00		
4.5	String hardware suspension type (Single suspension with 1x3 nos. 120 kN disc in each string) -For tension tower	Nos	54.00		
4.6	String hardware suspension type (Single suspension with 1x3 nos. 120 kN disc in each string) -For suspension tower	Nos	78.00		
4.7	Complete earthing of all towers as per approved drawings (Scope includes complete work includes testing to show that the tower resistance meets the acceptable limits.)				
4.7.1	3 m , 40 NB pipe electrode	Nos.	88.00		
4.7.2	Counterpoise type (120 m long)	Nos.	12.00		
	Total Amount (Rs.)				
Notes :					
1	MS welding - apply red lead paint then aluminium paint then bitumen after welding.				
2	GI welding - apply 2 coats of cold galvanising anti corrosive paint after welding.				
3	10% welding joints in earthing shall be tested for dye penetration test.				
4	Equipment labels to be painted as per requirement.				
5	Quoted rates are deemed to be inclusive of miscellaneous works, viz.. erection of clamps and connectors, phase colour discs etc.				
6	Right of way shall be as per special terms & conditions of contract.				
7	All associated items, though specifically not mentioned but required for safe and satisfactory execution and commissioning of transmission line will also be treated as included and same shall be supplied, ETC to be done at no extra cost to BHEL/ NTPC.				