

ETC/ SERVICES PART (ANNEXURE-III)

Project	400/33 kV Transmission lines at Nabinagar				
Customer	NABINAGAR POWER GENERATION CO. LTD.				
S. No.	Item / Work description	Unit	Quantity	Unit Rate	Total Amount (Rs.)
A	Design of 33kV Transmission line tower				
1.1	Providing of detailed structure assembly drawing of type tested transmission line tower of 33kV single circuit and Double Circuit along with extensions of 3m,6m and 9m including BOM and Type Test Report, Foundation drawing for all conditions (Dry, Wet, Partially submerged, Fully submerged, Dry Fissured rock, Wet Fissured Rock, Wet Black Cotton & Submerged Fissured Rock), stub drg, stub setting templates drg, SAG Tension Calculation, SAG Template Drawing, Tower Spotting Data for single project use at Nabinagar Site. The tower drawings shall be suitable as per detailed route survey report and other inputs issue by BHEL. The tower and foundation drawings and type test report should be acceptable to Customer.				
(a)	33kv SA Type tower with extensions	Set	1		
(b)	33kv SC Type tower with extensions	Set	1		
(c)	33kv DA Type tower with extensions	Set	1		
(d)	33kv DC Type tower with extensions	Set	1		
1.2	Additional cost on and above the quoted price in item no 1.1, if type tested tower design and drawing are not available/meeting the customer requirement and hence vendor has to design and submit the design (Only additional cost over above item is to be quoted): Preparation & submission of design documents & drawing for 33 kV Normal Tower (single/double circuit) and foundations based on approved loads on foundations & soil data all complete as per project specific specification & directions of BHEL including their approval from BHEL/Customer and Type testing of tower including Destructive testing including supply of all materials required for tower to be tested. All necessary arrangements(proto assembly,transportation etc.) complete in all respect for conducting the tests are included in the scope of vendor.All tower materials after testing shall be property of bidder.				
(a)	33kv SA Type tower with extensions	Set	1		
(b)	33kv SC Type tower with extensions	Set	1		
(c)	33kv DA Type tower with extensions	Set	1		
(d)	33kv DC Type tower with extensions	Set	1		
B	Check Survey				
1	Execution of Check survey during execution on the basis of the alignment profile drawing and tower schedule approved by the Owner. If during check survey necessity arises for minor change in route to eliminate way leave or other unavoidable constraints or any instruction from customer, change in the said alignment is to be done alongwith formal approval from BHEL/customer.				
1.1	Check survey of 400 kV D/C transmission line	kM	10.50		
1.2	Check survey of 33 kV S/C transmission line	kM	3.000		
1.3	Check survey of 33 kV D/C transmission line	kM	3.00		
C	ETC (Erection , Testing and Commissioning) of 400 kV lines				
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	850.00		
2	ACSR Moose Conductor alongwith accessories (rigid/bundle spaces, preformed armour rod, Mid span compression joint, Repair sleeves , vibration dampers , etc. to complete)	kM	132.00		
3	Shield Wires (7/3.66) alongwith accessories (Tension Clamps, Down lead clamp, PG clamp, flexible copper bond etc).Mid span compression joint,Repair sleeves, vibration dampers , etc to complete	kM	11.00		
4	OPGW alongwith accessories (Tension Clamps, Suspension clamp, grounding and parallel groove clamps, Preformed armour rod , vibration dampers , etc.) for OPGW wire including testing of Fibre Optic Cable	kM	11.00		
5	String hardware compression /tension type (Twin tension with 2x23 nos. 160 kN disc in each string) , etc. to complete.	Nos	168.00		
6	String hardware suspension type (Single suspension with 1x 23 nos. 120kN disc in each string) -For tension tower	Nos	39.00		
7	String hardware suspension type (Single suspension with 1x 23 nos. 120 kN disc in each string)- For suspension tower	Nos	114.00		
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.)				
a	3 m long , 40 NB pipe electrode	Nos.	64.00		
b	Counterpoise type (120 m long)	Nos.	6.00		

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S. No.	Item / Work description	Unit	Quantity	Unit Rate	Total Amount (Rs.)
D	ETC (Erection , Testing and Commissioning) of 33 kV lines				
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		
2	AAAC Conductor alongwith accessories (rigid/bundle spaces, preformed armour rod, Mid span compression joint, Repair sleeves , viabration dampers , etc. to complete)	kM	27.00		
3	Shield Wires(7/3.66) alongwith accessories (Tension Clamps, Down lead clamp, PG clamp, flexible copper bond etc),Mid span compression joint,Repair sleeves, viabration dampers , etc to complete)	kM	6.00		
4	String hardware compression /tension type (Single tension with 1x3 nos. 120 kN disc in each string) , etc. to complete.	Nos	198.00		
5	String hardware suspeision type (Single suspension with 1x3 nos. 120 kN disc in each string) -For tension tower	Nos	54.00		
6	String hardware suspeision type (Single suspension with 1x3 nos. 120 kN disc in each string) -For suspension tower	Nos	78.00		
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.)				
a	3 m , 40 NB pipe electrode	Nos.	88.00		
b	Counterpoise type (120 m long)	Nos.	12.00		
	Total Amount (Rs.)				
Notes :					
1	The quantities mentioned in the BOQ are tentative and Quantity of any item may vary upto any extent but the overall contract value may vary by $\pm 30\%$.				
2	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. The bidder is advised to visit Nabinagar site before submission of bid.				
3	Make of items to be supplied/used under this contract shall be subject to acceptance by customer/BHEL at contract stage.				
4	Handling, storage, transportation, loading, unloading, shifting etc. of all materials to required locations shall be in the scope of the bidder.				
5	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.				
6	MS welding - apply red lead paint then aluminium paint then bitumen after welding.				
7	GI welding - apply 2 coats of cold galvanising anti corrosive paint after welding.				
8	10% welding joints in earthing shall be tested for dye penetration test.				
9	Equipment labels to be painted as per requirement.				
10	Quoted rates are deemed to be inclusive of miscellaneous works, viz.. erection of clamps and connectors, phase colour discs, Anti climbing devices etc.				
11	Right of way is not in Bidder scope, but tree cutting (if any) is in the scope of bidder. Please refer special conditions of contract and customer technical specification.				
12	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.				
13	Complete earthing of all towers shall be as per approved drawings (Scope includes complete work including testing to show that the tower resistance meets the acceptable limits.)				
14	For scope of supply items in contractor scope following should be followed . (1) The approval of makes shall be obtained from BHEL/Customer . (2) Drawings and MQP shall be submitted for approval in line with specification and relevant IS. (3) Quality -Inspection & dispatch clearance shall be given by BHEL/Customer.				