



KERALA STATE ELECTRICITY BOARD LIMITED
(Incorporated under the Companies Act, 1956)
Reg. Office: Vidyuthi Bhavanam, Pattom, Thiruvananthapuram – 695 004
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ABSTRACT

TransGrid 2.0 - NRHTLS package – Uprating of Nallalam – Kakkayam & upgrading of Nallalam – Koyilandy 110 kV lines in Northern Region – Excess quantity & Extra items – Sanction accorded – Orders issued.

Corporate Office(SBU-T)

B.O.(FTD)No.203/2021/D(T&SO)/ T6/TransGrid 2.0- NRHTLS/2020-21 dated, Thiruvananthapuram,
16.03.2021

- Read :
1. B.O No.672/2016(D(T&SO)/T3/NRTDT-HTLS Package/2015-16 dated 29/02/2016
 2. Work Order No.20/2017-18/DCE/TGN/SRR dated 30/10/2017 of the Deputy Chief Engineer with full powers of Chief Engineer (TransGrid North), Shornur
 3. Note No. FA/Tender II/03/2021 dated 25.02.2021 of the Financial Adviser
 4. Note No. D(T&SO)/T6/TransGrid/NRHTLS/2020-21/261 dated. 09.03.2021 of the Director (T&SO) (Agenda. 37/3/21)

ORDER

KSEBoard Ltd has accorded Administrative Sanction as per BO read as 1st above for an amount of Rs.81.6 Crore for up-rating the existing 110 kV DC line from Kakkayam (HEP) to Nallalam & upgrading Nallalam – Koyilandy 110kV feeders in Northern region using HTLS (High Temperature Low Sag) conductor. The project was funded under PSDF scheme by Ministry of Power under innovative scheme with 75% Grant (Rs.66.85 Crore) against the approved project cost of Rs. 89.13 Cr. The Deputy Chief Engineer with full powers of Chief Engineer, TransGrid (North) accorded Technical Sanction for an amount of Rs. 81.09 Cr .

The subject work was awarded to M/s Sterlite Power Transmission Ltd (SPTL) as per letter read as 2nd above for an amount of Rs. 66.57 Cr including taxes after inviting limited tenders according to EoI substations. During the course of execution of the work, some of the BOQ items exceeded the agreed quantity and some extra items were also necessitated for satisfactory completion of the project.

Particulars	Amount (Rs) incl GST	% variation
Excess/Less/Extra Material	1.17 Cr	+2.42%
Excess/Less/Extra Labour	-3.72 Cr	-18.85%
Dismantled materials	1.195 Cr	-0.3%
Overall deviation	-1.35	-2.13 %

After detailed discussions in the Project Monitoring Committee (PMC), the details of the subject work with deviation statement was referred to the Financial Adviser for remarks and the FA has recommended to sanction the excess quantity/extra item subject to the clarification by the Chief Engineer, TransGrid on certain points. The Chief Engineer, TransGrid clarified the same. The deviations from the original schedule was necessary to accomplish the project successfully. Without executing the additional works necessitated, the full potential and benefits envisaged by the project could not have been achieved. Even though executing the extra items (supply and labour) there is a reduction of Rs.1.35 Cr including GST which 2.13% below the contract amount. The deviation statement is attached as Annexure.

The matter of this deviations due to under/over executed items and extra items carried out for the subject work was placed before the Full Time Directors for sanction as per note read as 4th above.

Having considered the matter in detail, the Full Time Directors in the meeting held on 09.03.2021,

Resolved to accord sanction for the excess quantities and extra items as per the deviation statement attached as Annexure.

Further resolved to authorize the Chief Engineer(TransGrid) to issue necessary revised Technical Sanction of subject work and proceed for closure of work so as to settle the PSDF account.

Orders are issued accordingly.

By Order of the Full Time Directors,

Sd/-

Lekha G.

Company Secretary (In- Charge)

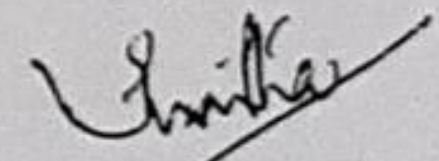
To

The Chief Engineer (TransGrid), Shornur

Copy to:

The Deputy Chief Engineer, TransGrid North/South
The Financial Adviser/ The Chief Internal Auditor
The RCAO/ RAO
The TA to Chairman & MD/ D(T&SO)/ D(D ,T&HRM)/ D(G-C)/ D(G-E&SCM)/D(P&S).
The PA to Director (Finance)/CA to Company Secretary
Fair Copy Superintendent/Library/Stock File.

Forwarded / By Order



Assistant Engineer

Annexure

KERALA STATE ELECTRICITY BOARD LIMITED
Revised Estimate Cum Deviation Statement

Name of Work:- Transgrid 2.0 project- NRHTLS Package
Sanctioned Estimate No.....BO(DB)No-672/2016 (DGASO)T3NRHTD-HTLS Package/2015-16, Thiruvananthapuram...dtd 29-02-16
Agreement No...Work order 30/17-18 DCE TG (N) SRR dtd 10-11-17 ... (Revised 09/19-20 CE TG SRR dtd 20-06-19)
Agreement No...Supply order 31/17-18 DCE TG (N) SRR dtd 10-11-17 ... (Revised 08/19-20 CE TG SRR dtd 20-06-19)

NORTHERN REGION HTLS PACKAGE - uprating of Nallalam - Kakkayam & Upgrading of Nallalam - Koyilandy 110kV lines in Northern Region using High Temperature Low Sag (HTLS) Conductors on Turnkey basis

Contractor- Sterlite Power Transmission Ltd

Sl No	Description of Item	Unit	Quantity			Quoted Rate (Rs)			Amount as per Agt	Rate (including GST)			Revised Amount based on KSEBL rates	Deviation	Revised Amount based on Contractor's rates	Remarks	
			Agreed Qty	Revised Qty	Deviation	Basic rate	GST @ 18.4%	Agreed Rate		DSR rate	Rate negotiated at CE's level	Rate proposed by KSEBL					
			Supply														
1	220 and 110kV DC Galvanized Lattice towers with Bolt and Nut and all accessories.	MT	500	500.00	0.00	115908.61	20863.55	136772.16	68,386,080.00				68,386,080.00				
2	STACIR Wolf Equivalent	km	580	568.21	-11.79	540391.88	97270.54	637662.42	369,844,203.60				362,326,163.67	-7,518,039.93	0.00%	Actual length	
3	Dead End Fitting	Nos	1075	1936.00	861.00	1261.02	226.98	1488.00	1,599,600.00				2,880,768.00	1,281,168.00		Nos of tension towers increased at Mankavu Tap location where special	
4	Suspension Clamp	Nos	954	962.00	8.00	3957.23	712.30	4669.53	4,454,721.62				4,492,087.86	37,366.24		actual qty including spares	
5	Mid Span Joint	Nos	232	26.00	-206.00	425.98	76.68	502.66	116,817.12				13,069.16	-103,747.96		actual qty including spares	
6	Repair Sleeve	Nos	110	49.00	-61.00	275.16	49.53	324.69	35,715.90				15,909.81	-19,806.09		actual qty including spares	
7	Pilot Suspension Clamp	Nos	204	117.00	-87.00	1456.99	262.26	1719.25	350,727.00				201,152.25	-149,574.75		actual qty including spares	
8	Vibration Damper	Nos	1390	4146.00	2756.00	1441.42	259.46	1700.88	2,364,223.20				7,051,848.48	4,687,625.28		Vibration Dampers as per design chart is provided	
9	70 kN Long Rod Composite Insulator	Nos	988	1212.00	224.00	714.28	128.57	842.85	832,725.80				1,021,534.20	188,798.40			
10	120 kN Long Rod Composite Insulator	Nos	1075	2337.00	1262.00	3493.38	628.81	4122.19	4,431,354.25				9,633,558.03	5,202,203.78		actual qty including spares	
11	Suspension Fitting	Nos	954	969.00	15.00	5081.44	914.66	5996.10	5,720,279.40				5,810,220.90	89,941.50		actual qty including spares	
12	Tension Fitting	Nos	1075	1944.00	869.00	2991.61	538.49	3530.10	3,794,857.50				6,862,514.40	3,067,656.90		Nos of tension towers increased at Mankavu Tap location where special towers were provided	
13	Pilot Suspension Fitting	Nos	194	141.00	-53.00	2756.72	496.21	3252.93	631,068.42				458,663.13	-172,405.29		actual qty including spares	
14	Tee-Taps with Connectors	Nos	200	115.00	-85.00	769.65	138.54	908.19	181,638.00				104,441.85	-77,196.15		actual qty including spares	
15	OPGW 24Fiber with accessories	km	93	97.18	4.18	103411.76	18614.12	122025.88	11,348,406.84				11,858,475.02	510,068.18		actual qty including spares	
16	Single Tension/Dead End Fitting	Nos	10	20.00	10.00	3190.69	574.32	3765.01	37,650.10				75,300.20	37,650.10		Nos of tension towers increased at Mankavu Tap location where special towers were provided	
17	Suspension Clamp	Nos	148	180.00	32.00	3467.41	624.13	4091.54	605,547.92				736,477.20	130,929.28		actual qty including spares	
18	Double tension set for pass through location	Nos	80	155.00	75.00	5854.2	1053.76	6907.96	552,636.80				1,070,733.80	518,097.00		Nos of tension towers increased at Mankavu Tap location where special towers were provided	
19	Double tension set for Joint Box location	Nos	41	44.00	3.00	6101.34	1098.24	7199.58	295,182.78				316,781.52	21,598.74		actual qty including spares	
20	Vibration Damper	Nos	896	1146.00	250.00	824.14	148.35	972.49	871,351.04				1,114,473.54	243,122.50		Vibration dampers provided as per design chart	
21	Down Lead clamp	Nos	467	364.00	-103.00	298.52	53.73	352.25	164,500.75				128,219.00	-36,281.75		actual qty including spares	
22	Joint Box 24 Fiber	Nos	36	38.00	2.00	8009.22	1441.66	9450.88	340,231.68				359,133.44	18,901.76		actual qty including spares	
23	Reinforcing Rod for damper	Nos	450	1242.00	792.00	16.92	3.05	19.97	8,986.50				24,802.74	15,816.24		Vibration dampers provided as per design chart	
24	Fibre optic approach cable and associated hardware	Nos	4	12.00	8.00	333865.08	60095.71	393960.79	1,575,843.16				4,727,529.48	3,151,686.32			
25	Fibre optic approach cable	Nos	4	0.00	-4.00	91630.77	16492.54	108124.31	432,497.24				-	-432,497.24			
26	FOOP	Nos	4	12.00	8.00	110599.84	19907.97	130507.81	523,031.24				1,566,093.72	1,044,062.48		FOOP provided at all the end stations	
27	Pipe earthing set 3 m with all accessories	Nos	200	196.00	-4.00	10795.64	1943.22	12738.86	2,547,772.00				2,496,816.56	-50,955.44		actual qty including spares	
TOTAL SUPPLY									482,046,470.00				493,732,847.96	11,686,377.96			
Labour																	
1	Detailed profile survey and Line design using Total station and submit drawings in UTM coordinates in PLSCAD and Global mapper and Google earth (Soft and Hard copy) showing the route profile including Geographical features like, Rivers, Wet land, Dry land, P&T Lines, Railway crossing etc., marking levels of the profile with reference to Survey of India bench marks (MSL). The work shall be carried out as per requirement and as per instruction of Engineer-in-charge and as per the specifications mentioned in the tender document, width of the line route, plotting of tower locations with details of types and extensions to towers, preparation of tower schedule using PLSCAD, calculations involving sag and tension of conductors, preparation and supply of two paper print copies approved profile drawing and route map with the final tower locations marked.	km	100	98.00	-2.00	30098.142	5417.67	35515.81	3,551,581.00								-71,031.62
2	Tension stringing as per standard of 3 line HTLS conductors with the other circuit under live condition and limited working hours including attaching polymeric insulator strings with arcing horns or rings on to the tower cross arms, clamping the conductor to the insulator strings using suspension clamps, with armour rods and tension clamps, jumpering the conductors at tension points, jointing the conductors and pilot wires wherever necessary, installation of vibration dampers, hire charges of tractor and stringing tools, all hire and labour for protective trestle works, providing suitable back stays at the time of dismantling, etc. complete.	km	100	120.69	20.69	313020.67	56343.72	369364.39	36,936,439.00								7,641,410.50
3	Tension stringing (24 Fiber, DW5M) OPGW on 110kV Live transmission line with limited working hours. Fixing of hardware set including cable fittings, splice boxes and accessories etc. Pre installation test (Drum test), Post installation test, Splicing and link test (end to end test)	km	50	66.29	16.29	84274.796	15169.46	99444.26	4,972,213.00								1,619,897.27
4	Dismantling as per standard of 3 line 'ACSR WOLF' conductors keeping the other circuit live and limited working hours including detaching insulator strings with arcing horns or rings from the tower cross arms, removing the clamps from the conductor, disconnecting the jumpers at tension points, removing the armour rods, vibration dampers and lowering the conductors, hire charges of tractor and stringing tools, all hire and labour for protective trestle work, providing suitable back stays at the time of dismantling, etc. complete.	km	95	122.00	27.00	84274.796	15169.46	99444.26	9,447,204.70								2,684,995.02
TOTAL LABOUR									482,046,470.00				493,732,847.96	11,686,377.96			
TOTAL																	

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Sl No	Description of Item	Unit	Quantity			Quoted Rate (Rs)			Amount as per Agt	Rate (including GST)			Revised Amount based on KSEBL rates	Deviation	Revised Amount based on Contractor's rates	Remarks
			Agreed Qty	Revised Qty	Deviation	Basic rate	GST @ 18%	Agreed Rate		DSR rate	Rate negotiated at CE's level	Rate proposed by KSEBL				
5	Recoiling the dismantled Wolf conductor on to serviceable conductor drums including all hire charges for tools & plants necessary for rewinding including cost of drums.	km	285	0.00	-285.00	18058.885	3250.60	21309.48	6,073,201.80					-6,073,201.80		
6	Transport of old Line conductor and Earth conductor (up to 20km) after dismantling back to the departmental stores loading and unloading charges etc complete.	MT	360	0.00	-360.00	3009.8142	541.77	3551.58	1,278,568.80					-1,278,568.80		
7	Transport of old Dismantled Insulators and accessories, power conductor accessories, Earth conductor accessories etc.back to the departmental stores (up to 20km) loading and unloading charges etc	MT	120	0.00	-120.00	3009.8142	541.77	3551.58	426,189.60					-426,189.60		Not Executed Since the dismantled materials were not taken back to department store
8	Dismantling as per standard of one 7/9 standard steel earth including winding to conductor drum without damage from existing DC towers without causing much interruption to the Substation feeding arrangement, hence at each time work must be completed strictly within the time frame for scheduled shut down period of permit work, observing all safety measures including detaching the conductor from the lower tap the tension clamp and suspension clamp jumpering the conductor at tension point, taking down the earth wire wherever necessary earth bonds, hire charges of tractor and stringing tools all hire and labour protective trestle works providing suitable back stays at the time of dismantling including keeping the dismantled earth wire and all accessories under full responsibility of the contractor etc complete as per the direction of departmental staffs.	km	45	66.29	21.29	30098.142	5417.67	35515.81	1,598,211.45					756,113.84		Due to system constraints, OPGW pulling along with dismantling of earth wire for west hill tap, Quilandy Tap and Quilandy Meppayur were done in live line condition. Hence this item is increased and Qty for item no 49 got decreased
9	Lorry conveyance of Line and Earth conductor (New) upto 5km including loading, unloading, head load in plains upto 500m and 300m head load in hilly.	MT	110	0.00	-110.00	3009.8142	541.77	3551.58	390,673.80			2,354,325.29		-390,673.80		Not Executed Since the dismantled materials were not taken back to department store
10	Clearing jungle including uprooting of thick vegetation, grass, small trees and saplings of girth upto 30 cm measured at a height of 1m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.	M2	10000	840.00	-9160.00	54.1767	9.75	63.93	639,300.00			53,701.20		-585,598.80		as per actuals
11	Earth work excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.	M3	4400	2300.64	-2099.36	457.4918	82.35	539.84	2,375,296.00					-1,133,318.50		As per actuals. Due to site issues, Piling works necessitated at many location and this made reduction in excavation
12	Earth work in excavation by mechanical means/ manual means in all classes of soil, lift above 1.5 m and below 3m and disposal of excavated soil as directed within a lead of 50 m.	M3	4100	1170.83	-2929.17	240.7851	43.34	284.13	1,164,933.00			1,241,977.50		-832,264.50		As per actuals. Due to site issues, Piling works necessitated at many location and this made reduction in excavation
13	Earth work in excavation by mechanical means/ manual means in all classes of soil, lift above 3 m and upto 4.5 m and disposal of excavated soil as directed within a lead of 50 m.	M3	1650	219.38	-1430.62	577.8843	104.02	681.90	1,125,135.00			332,668.50		-975,540.46		As per actuals. Due to site issues, Piling works necessitated at many location and this made reduction in excavation
14	Earth work excavation in Ordinary rock by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled	M3	85	300.00	215.00	939.062	169.03	1108.09	94,187.65			149,594.54		238,239.35		Executed as per the design drawing for some locations with site constraints
15	Earth work excavation in Hard rock (requiring blasting) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled	M3	85	0.00	-85.00	12280.042	2210.41	14490.45	1,231,688.25			332,427.00		-1,231,688.25		Actual Executed quantity
16	Earth work excavation in Hard rock (blasting prohibited) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled	M3	85	9.58	-75.42	11076.116	1993.70	13069.82	1,110,934.70					-985,725.82		Actual Executed quantity
17	Earth work excavation in Ordinary rock by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift above 1.5 m and below 3m, disposed earth to be levelled	M3	85	306.57	221.57	1119.6509	201.54	1321.19	112,301.15			125,208.88		292,729.46		Actual Executed quantity
18	Earth work excavation in Hard rock (requiring blasting) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift above 1.5 m and below 3m disposed earth to be levelled	M3	85	0.00	-85.00	12520.827	2253.75	14774.58	1,255,839.30			405,030.61		-1,255,839.30		Actual Executed quantity
19	Earth work excavation in Hard rock (blasting prohibited) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift above 1.5 m and below 3m disposed earth to be levelled	M3	85	8.92	-76.08	11377.098	2047.88	13424.98	1,141,123.30					-1,021,372.48		Actual Executed quantity
20	Earth work excavation in Ordinary rock by mechanical means (Hydraulic excavator) of excavated earth, lead upto 50 m and lift 3 m to 4.5m, disposed earth to be levelled	M3	85	147.79	62.79	1300.2397	234.04	1534.28	130,413.80			119,750.82		96,343.58		Actual Executed quantity
21	Earth work excavation in Hard rock (requiring blasting) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift 3 m to 4.5m, disposed earth to be levelled	M3	85	0.00	-85.00	12701.416	2286.25	14987.67	1,273,951.95			226,757.38		-1,273,951.95		Actual Executed quantity
22	Earth work excavation in Hard rock (blasting prohibited) by mechanical means (Hydraulic excavator) including disposal of excavated earth, lead upto 50 m and lift 3 m to 4.5m, disposed earth to be levelled	M3	85	0.00	-85.00	11557.686	2080.38	13638.07	1,159,235.95					-1,159,235.95		Actual Executed quantity
23	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering 1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size)	M3	800	330.00	-470.00	11765.337	2117.76	13883.10	11,106,480.00					-6,525,057.00		Actual Executed quantity
24	Providing and laying in position 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size) grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level.	M3	200	800.00	600.00	12709.469	2287.70	14997.17	2,999,434.00			4,581,423.00		8,998,302.00		Special designs for foundation was necessitated at Mankavu tap and other water logged areas and hence this variation
25	Back filling of pits after stub setting with the original excavated soil including consolidation and watering.	M3	9000	3620.00	-5380.00	144.4711	26.00	170.47	1,534,230.00			11,997,736.00		-917,128.60		Concrete pile foundations were done at Mankavu tap and other waterlogged locations
26	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with Cement mortar 1:6 (1 cement : 6 coarse sand)	M3	1250	460.00	-790.00	10288.618	1851.95	12140.57	15,175,712.50			617,101.40		-9,591,050.30		
27	Pointing on stone work with CM 1:3 (1 cement:3 fine sand) Flush/ruled pointing	M2	1650	500.00	-1150.00	314.7106	56.65	371.36	612,744.00			5,584,662.20		-427,064.00		work executed as per approved drawings
28	De watering mechanical: Bailing out water with engine and pump set including conveyance to site and erection cost of fuel, lubricating oil and other stores, pay of staff etc.complete.	HpHr	5000	7000.00	2000.00	180.5888	32.51	213.10	1,065,500.00			185,680.00		426,200.00		There were more water logged locations which necessitated an increase in this item.
29	Open timbering in case of shafts, wells, cesspits, manholes and the like including strutting and shoring complete (Measurements to be taken of the face area timbered).	M2	1000	0.00	-1000.00	632.061	113.77	745.83	745,830.00			1,491,700.00		-745,830.00		not executed
30	Form Work - Shuttering, Centering - Columns, Pillars, Piers, Abutments, Posts and Struts	M2	2900	2700.00	-200.00	588.4014	105.91	694.31	2,013,499.00					-138,862.00		
													1,874,637.00			

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SI No	Description of Item	Unit	Quantity			Quoted Rate (Rs)			Amount as per Agt	Rate (including GST) (Rs)			Revised Amount based on KSEHL rates	Deviation	Revised Amount based on Contractor's rates	Remarks
			Agreed Qty	Revised Qty	Deviation	Basic rate	GST @ 18, %	Agreed Rate		DSR rate	Rate negotiated at CE's level	Rate proposed by KSEBL				
31	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level +70.71	kg	1000	81000.00	80%:30.60	69.4523	12.50	81.95	81,950.00					6,556,000.00		The original Estimate was prepared anticipating D Type towers for all locations with Normal foundations. But, while execution, it necessitated special type foundations and concrete pile foundations at Manjiv lap and other water logged areas.
32	Pipe Earthing : Excavation of earth pit of size 3.6x0.3x0.3m including over excavation on account of sloping the banks and necessary hire for planks for filling of charcoal, earthing of tower by means of a 50mm dia, 3m long pipe and a double run 7/9 SWG galvanized steel wire or GI tape including cost of charcoal but excluding cost of pipes, steel wire or copper tape with connecting lugs, nuts etc.	No	200	184.00	-16.00	8451.5582	1521.28	9972.84	1,994,568.00				6,637,950.00	-159,565.44		
33	Filling the relevelment portion by using red earth. (red earth also to be supplied by contractor)	M3	2600	450.00	-2150.00	780.1438	140.43	920.57	2,393,482.00				1,835,002.56	-1,979,225.50		as per actual tower schedule
34	Driving down coconut wood pile 200mm to 300mm dia. to approved line and levels through various strata including cost of piles, including conveyance charge of piles, all hire and labour for fixing, staging platform and other appliances necessary for pile driving after pointing the bottom and upto 8m depth below ground level etc. Complete.	RH	400	0.00	-400.00	2426.6374	436.79	2863.43	1,145,372.00				414,256.50	-1,145,372.00		as per actuals
35	Driving down leak wood pile 150mm to 200mm dia. to approved line and levels through various strata including cost of piles including conveyance charge of leak wood piles, all hire and labour for fixing, staging platform and other appliances necessary for pile driving after pointing the bottom and upto 8m depth below ground level etc. Complete.	RH	1500	832.14	-666.86	6091.2705	1240.43	8131.70	12,167,550.00				6,774,844.54	-5,422,705.46		The original Estimate was prepared anticipating D Type towers for all locations with Normal foundations. But, while execution, it necessitated special type foundations and concrete pile foundations at Manjiv lap and other water logged areas.
36	Stub setting of D3 Towers towers - Surveying for marking and pegging of tower locations at site as per the approved tower schedule, stub setting in correct alignment using template of all types of 110kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	Set	39	34.00	-5.00	10233.368	1842.01	12075.38	4,70,939.82				410,562.92	-60,376.90		
37	Stub setting of D30 Towers towers - Surveying for marking and pegging of tower locations at site as per the approved tower schedule, stub setting in correct alignment using template of all types of 110kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	Set	42	50.00	8.00	10233.368	1842.01	12075.38	507,145.96				603,769.00	96,603.04		
38	Stub setting of D60 Towers towers - Surveying for marking and pegging of tower locations at site as per the approved tower schedule, stub setting in correct alignment using template of all types of 110kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	Set	8	5.00	-3.00	10233.368	1842.01	12075.38	96,603.04				60,376.90	-36,226.16		Variation as per approved Tower schedule
39	Stub setting of 220kV P Towers towers - Surveying for marking and pegging of tower locations at site as per the approved tower schedule, stub setting in correct alignment using template of all types of 110kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	Set	11	0.00	-11.00	10233.368	1842.01	12075.38	132,829.18				40,376.90	-132,829.18		
40	Stub setting of 220kV Q Towers towers - Surveying for marking and pegging of tower locations at site as per the approved tower schedule, stub setting in correct alignment using template of all types of 220kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	Set	5	4.00	-1.00	10233.368	1842.01	12075.38	60,376.90				60,376.90	-12,675.38		
41	Sorting of tower parts, bolts, nuts of various sizes at site etc complete.	MT	500	451.84	-48.16	601.9628	108.35	710.31	355,155.00				48,301.52			
42	Erection of tower superstructure above ground level including erection of normal and special template of all types of 110kV DC towers in concrete foundation /rock foundation excluding excavation, concreting and backfilling but including grouting, anchoring etc in case of rock foundation and removing the stub setting template after the expiry of the predetermined time etc. complete.	MT	500	451.84	-48.16	10233.368	1842.01	12075.38	6,037,690.00				329,943.63	-34,211.37		
43	Using Tension pulling machine stringing and tensioning as per standard of SIX LINE HTLS conductors using tension stringing technique including attaching polymeric insulator strings with arcing horns or rings on to the tower cross arms, clamping the conductor to the insulator strings using suspension clamps, with armour rods and tension clamps, jumpering the conductors at tension points, jointing of conductors and pilot wires wherever necessary, installation of vibration dampers, hire charge of tractor and stringing tools, all hire and labour for protective trestle works, providing suitable back stays at the time of stringing etc. complete.	km	50	31.44	-18.56	599169.72	107850.55	707020.27	35,351,013.50				5,456,691.40	-581,598.60		Actual Executed quantity
44	Using Tension pulling machine stringing (24 fiber,DWSM) OPGW on 110kv transmission line, fixing of hardware set including cable fittings, splice boxes and accessories etc, Pre installation test (Drum test), Post installation test, Splicing and link test (end to end test) etc. complete.	km	50	31.44	-18.56	84274.796	15169.46	99444.26	4,972,213.00				22,225,424.31	-1,845,486.58		Remarks in item no 2
45	Lorry conveyance of New Line and Earth conductor upto 5km including loading , unloading, head load in plains upto 500m and 300m head load in hilly.	MT	120	0.00	-120.00	6019.6283	1083.53	7103.16	852,379.20				3,126,726.42	-852,379.20		Remarks in item no 3
46	Lorry conveyance of New Insulators upto 5km including loading ,unloading, head load in plains upto 500m and 300m head load in hilly.	MT	40	0.00	-60.00	6019.6283	1083.53	7103.16	426,189.60					-426,189.60		Not Executed Since the dismantled materials were not taken back to departmental store
47	Lorry conveyance of New GI tower parts (old) upto 5km including loading , unloading, head load in plains upto 500m and 300m head load in hilly.	MT	250	0.00	-250.00	6019.6283	1083.53	7103.16	1,775,790.00					-1,775,790.00		
48	Dismantling as per standard of 3 line ACSR WOLF/TIGER conductors including detaching insulator strings with arcing horns or rings from the tower cross arms, removing the clamps from the conductor, disconnecting the jumpers at tension points, removing the armour rods, vibration dampers and lowering the conductors, hire charges of tractor and stringing tools, all hire and labour for protective trestle work, providing suitable back stays at the time of dismantling, etc. complete.	km	50	32.44	-17.56	84274.796	15169.46	99444.26	4,972,213.00				3,226,270.13	-1,745,942.87		
49	Dismantling as per standard of one 7/9 standard steel earth including winding to conductor drum without damage from existing single circuit towers including detaching the earth wire from the tower top like tension clamp and suspension clamp jumpering the earth wire at tension point , taking down the earth wire wherever necessary earth bonds , hire charges of tractor and stringing tools all hire and labour protective trestle works providing suitable back stays at the time of dismantling including keeping the dismantled conductor and all accessories under full responsibility of the contractor etc complete as per the direction of departmental staffs.	km	50	31.57	-18.43	30098.142	5417.67	55515.81	1,775,790.50					-654,652.93		Remarks in item no 4
													1,121,127.57			Remarks in item no 8

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Sl No	Description of Work	Unit	Quantity		Quoted Rate (Rs)			Rate (including GST)			Revised Amount Based on Contractor's rates	Remarks			
			Actual Qty	Revised Qty	Rate	65T + 18% Marginal Rate	Amount	Rate	Rate	Revised Amount					
50	Supply of 110KV and 33KV conductors, including stacking, the tower parts, including stacking and keeping the tower parts and accessories for the contractor's use.	km	50	31.57	18.43	3009.142	5437.67	171515.81	1,71,515.81		-54,842.93				
51	Supply of 110KV and 33KV towers and accessories, including stacking and keeping the tower parts and accessories for the contractor's use.	MT	250	181.37	-68.83	14442.108	2600.48	17047.59	4,61,297.50		-11,73,385.62				
52	Supply of 110KV and 33KV towers and accessories, including stacking and keeping the tower parts and accessories for the contractor's use.	MT	250	0.00	-250.00	3009.8342	541.77	3551.58	8,87,895.00		8,87,895.00				
53	Supply of 110KV and 33KV towers and accessories, including stacking and keeping the tower parts and accessories for the contractor's use.	km	250	0.00	-250.00	17039.252	2167.07	14706.32	15,51,582.50		-36,51,582.50				
EXTRA ITEMS															
1	Boring with hydraulic piling rigs with power units, providing and installing end in situ single under reamed piles of specified diameter and length below pile cap in M 25 concrete, to carry a safe working load not less than specified, including the cost of steel reinforcement, but excluding the cost of boring with bentonite solution and the length of the pile to be embedded in the pile cap etc. All complete (length of pile for payment shall be measured up to the bottom of concrete). 400mm dia pile.			1290.03		1290.03			4186.47	6,425.00	4,186.47	54,00,675.17	8788442.75	Based on the site conditions and soil test results concrete pile foundations are anticipated at different locations. Hence all the works related to concrete piling, which was not included in the original estimate to be considered as extra items. The quantity of borrow and truck loads foundations will be considerably reduced.	
2	Extra for single under ream for providing additional piles in under reamed piles under specified diameter (only the nos. of extra piles are to be paid).			18.00		18.00			2728.98	2978.00	2,728.98	49,121.57	53604.00		
3	Providing and laying in position cement concrete of specified grade including the cost of formwork and shuttering. All work up to 100 mm level 1:4:8 (1 Cement : 4 coarse sand (M20) : 8 crushed stone aggregate) 400mm dia pile.			75.53		75.53			7009.07	11,800.00	7,009.07	5,29,401.92	891265.80		
4	Filling quarry with in bricks, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, load up to 50 in and lift upto 1.5 m (including the supply of quarry muck).			50.00		50.00			1519.49	4,694.00	1,519.49	75,974.30	234760.00		
5	Supplying, setting of 220/110KV and 110/33KV towers as per approved schedule including furnishing for marking and pegging of tower locations at site, slab setting in correct alignment using compasses of all types of towers in concrete foundation / rock foundation including excavation, concreting and back filling but including grading, anchoring, removing the top pile after concreting etc. Complete in all respects as per scope and specification of work.			2.00		2.00	10125.92	1822.87	11918.59		11,948.59	11,948.59	23,897.17	23897.18	As per tower schedule. Rate is as per the accepted rate for Extra line work.
TOTAL FOR EXTRA ITEMS															
TOTAL LABOUR INCLUDING EXTRA															
Dismantled materials															
1 Cost of Dismantled ACB conductor WLL/Taper															
2 Cost of Dismantled one 7/5 standard steel wire															
3 Cost of Shovelers and accessories, power conductor accessories, Earth conductor accessories etc.															
4 Dismantled Galvanized Tower parts - Scrap iron															
TOTAL of Dismantled Materials															
ABSTRACT															
1 Supply Including Spares															
2 Labour															
3 Total for Extra items															
Total															
4 Cost of Dismantled materials															
5 TOTAL															
TOTAL DEVIATION															
% DEVIATION															

Chief Engineer
TRECCLD, KSEBL
Pune, MH

DEPUTY CHIEF ENGINEER,
TRANSCRILOMTH, SHORANUR

COUNTERSIGNED

DIRECTOR
(T & S)