

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

APTRANSCO – Standard Schedule of Rates for 400kV Substations & Transmission line works for three years 2016-17, 2017-18 and 2018-19 – Communicated – Regarding.

T.O.O. No. CE (400kV Construction)/ Ms.No.925, Dt.27.09.2018

Read the following:-

Ref:- 1. T.O.O. No. CE (Construction/400kV)/ Ms.No.01, Dt. 21.10.2016

The Standard Schedule of Rates for **400kV Substations & Transmission line works** for three years 2016-17, 2017-18 and 2018-19 approved by Transmission Corporation of Andhra Pradesh Limited in respect of item of works pertaining to 400kV Transmission lines and Substations are communicated herewith for adoption in preparation of estimates.

The Standard Scheduled of Rates for **400kV Substations & Transmission line works** for three years 2016-17, 2017-18 and 2018-19 will come into force from date issue of T.O.O.

Encl: As above.

(BY ORDER AND IN THE NAME OF TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED)

Sd/-
DIRECTOR
(Grid & Transmission Management)

To


1. The Chief Engineer/ 400kV Construction/APTRANSCO/ VS/Vijayawada.
2. The Chief Engineer/ Construction /APTRANSCO/VS/Vijayawada.
3. The Chief Engineer/ Transmission /APTRANSCO/VS/Vijayawada.
4. The Chief Engineer/ LI & EA /APTRANSCO/VS/Vijayawada.
5. The Chief Engineer/ IPC & PS /APTRANSCO/VS/Vijayawada.
6. The Chief Engineer/ HRD & Plg /APTRANSCO/VS/Vijayawada.
7. The Chief Engineer /Civil/ APTRANSCO /VS/Vijayawada.
8. The Chief Engineer/Telecom & IT / APTRANSCO /VS/Vijayawada
9. The Executive Director /SLDC / APTRANSCO /VS/Vijayawada
10. All Chief Engineers/Zone/APTRANSCO.
11. All Superintending Engineers/400kV/OMC/APTRANSCO.
12. All Superintending Engineers/OMC /APTRANSCO
13. All Superintending Engineers/Telecom/ APTRANSCO.
14. All Superintending Engineers/Civil/ APTRANSCO.
15. The Superintending Engineer/PM/400 KV /APTRANSCO / VS/Vijayawada.
16. The Superintending Engineer/LIS / APTRANSCO /VS/Vijayawada.
17. The Superintending Engineer/O&M//Transmission/ APTRANSCO/ VS/Vijayawada.
18. The Superintending Engineer/P&MM/VS/APTRANSCO /Vijayawada.
19. The Superintending Engineer/IT & ERP/VS/APTRANSCO /Vijayawada.

P.T.O

- 20 All Executive Engineers O/o.Chief Engineer /400kV Construction/APTRANSCO VS/ Vijayawada
- 21 All Executive Engineers O/o.Chief Engineer/Construction/APTRANSCO / VS /Vijayawada
- 22 All Executive Engineers O/o.Chief Engineer/Transmission/APTRANSCO/Vs/ Vijayawada.
- 23 All Executive Engineers O/o. Chief Engineer/ LI & EA/ APTRANSCO /VS/ Vijayawada.
- 24 All Executive Engineers O/o.Chief Engineer /Civil /APTRANSCO / VS/Vijayawada.
- 25 All Executive Engineers/Telecom O/o.Chief Engineer/ Telecom & IT/APTRANSCO VS/ Vijayawada
- 26 The Executive Engineer/QA& QC/ APTRANSCO / VS/Vijayawada.
- 27 The Executive Engineer/Designs/Construction/ APTRANSCO /VS/Vijayawada.
- 28 All Executive Engineers/O&M /400kV/APTRANSCO
- 29 All Executive Engineers/400kV /MRT /APTRANSCO
- 30 All Executive Engineers/ O&M/ APTRANSCO
- 31 All Executive Engineers/Construction/APTRANSCO
- 32 All Executive Engineers/MRT & Trns/APTRANSCO
- 33 All Executive Engineers/Technical, O/o CE/Zone/ APTRANSCO
- 34 All Executive Engineers/Transmission, O/o SE/OMC/ Circle/ APTRANSCO
- 35 All Executive Engineers/Civil/APTRANSCO
- 36 All Executive Engineers/Telecom/APTRANSCO
- 37 All Executive Engineers/Hotlines/APTRANSCO

- 38 PS to Chairperson & Managing Director/APTRANSCO/Vs/Vijayawada.
- 39 PS to Joint Managing Director/Vigilance & Security/APTRANSCO/Vs/Vijayawada.
- 40 PS to Joint Managing Director (Finance, Comml.,IPC,HRD&IT) /APTRANSCO / VS/ Vijayawada.
- 41 PS to Director / Grid & Transmission Management / APTRANSCO/ VS/Vijayawada
- 42 PS to Director /Technical/ APTRANSCO /VS/Vijayawada.
- 43 The FA & CCA (Accounts)/ APTRANSCO /VS/Vijayawada.
- 44 The Dy. CCA (Accounts)/ APTRANSCO /VS/Vijayawada.
- 45 The Senior Accounts Officer/AUDIT / APTRANSCO /VS/Vijayawada
- 46 ADE/Tech to Chief Engineer/400KV Construction/ APTRANSCO /VS/Vijayawada.

//FORWARD BY ORDER //


 EXECUTIVE ENGINEER - 2
 O/o Chief Engineer (400KV Construction)
 APTRANSCO, Vidyut Soudha,
 Vijayawada.

ANNEXURE – I
SSR RATES FOR ERECTION OF 400KV TRANSMISSION LINES

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4L1	1(a)	Preliminary Survey with GPS survey, theodilite & total station, marking route on topo sheets represents actual field conditions	kM	3403.89	3603.36	3682.99	3829.20
C4L 2	1(b)	Detailed Survey with GPS, total stations, Digital theodolite etc., along the approved alignments preparation of profiles, tower spotting, tower schedules and soil resistivity	kM	17682.57	18718.77	19132.45	19892.01
C4L 3	2(a)	Excavation of trail pit (1mt x 1 mt x 4mt)	No.	2680.91	2838.01	2900.73	3015.89
	2(b)	Excavation of Trial Pit by Auguring & Boring of holes of 300mm Dia x 4 RM	No.	2237.64	2368.77	2421.12	2517.24
C4L 4	3	Check Survey, peg marking the tower positions on ground, conforming to the approved Profile and tower schedules using GPS, Total stations, Digital theodolites etc.	kM	6620.5	7008.46	7163.35	7447.73
C4L 5	4	Setting with stub for all types of towers with stub setting template which includes erection of stubs, fixing of jacks for supporting template, alignment and leveling excluding cost of excavation and concrete (excluding transportation charges)	Set	14348.58	15189.41	15525.10	16141.45
C4L 6	5(a)	Super structure erection of all type of towers including extensions except RC towers including fitting of step bolts, danger plates, number plates, phase plates, circuit plates, bird guards, anti-climbing devices etc., and tack welding of all bolts & nuts (upto bottom cross arm level) (excluding transportation charges).	MT	7700.6	8151.86	8332.02	8662.80
C4L 7	5(b)	Erection of all types of Anchor Towers and their extensions (complete), including fitting of step bolts, danger plates, number and phase plates, circuit plates, bird guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level)	MT	6821.92	7221.68	7381.28	7674.32
C4L 8	5(c)	Super structures erection of 400kV Multi circuit towers including Auxiliary cross arms (complete), including fitting of step bolts, danger plates numbers and phase plates, circuit plates, birds guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level) etc.	MT	13707.17	14510.41	14831.09	15419.88

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4L 9	5(d)	Super structure erection of River crossing towers and their extensions (complete), including all the associated works such as, earthing of all the four legs as per the approved drawing(including the cost of material),fitting of step bolts, danger plates, number and phase plates, circuit plates, bird guards, and anti climbing devices etc and tack welding of all bolts & nuts (upto bottom cross arm level)	MT	19238.42	20365.79	20815.87	21642.26
C4L 10	6	Mounting of Insulators and stringing of double circuit with twin bundled ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges).					
	6(a)	Double Circuit Stringing	kM	306500.97	324461.93	331632.54	344798.35
	6(b)	Single circuit Stringing	kM	204333.99	216307.96	221088.37	229865.58
C4L 11	7	Mounting of Insulators and stringing of double circuit with Quadruple ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges).					
	7(a)	Double Circuit Stringing	kM	459752.71	486694.22	497450.16	517198.93
	7(b)	Single circuit Stringing	kM	306500.97	324461.93	331632.54	344798.35
C4L 12	8	Mounting of Insulators and stringing of double circuit with twin bundled ACSR Moose Power Conductor including laying, jointing, tensioning, sagging clamping and fixing spacers (excluding transportation charges) for River crossing tower.					
C4L 13	8(a)	Double Circuit Stringing	KM	765655.57	810522.99	828435.55	861324.44
C4L 14	9(a)	Stringing of two (2) nos. 7/3.66 mm galvanized steel earthwire, including laying jointing, tensioning etc., with necessary accessories upto the pinnacle (excluding transportation charges).	kM	14401.03	15244.93	15581.84	16200.44
C4L 15	9(b)	Stringing of one (1) no. 7/3.66 mm galvanized steel earthwire, including laying jointing, tensioning etc., with necessary accessories (excluding transportation charges).	KM	9601.1	10163.72	10388.34	10800.76
C4L 16	9(c)	Stringing of two (2) nos. 7/3.66 mm galvanized steel earthwire, including laying jointing, tensioning etc., with necessary accessories upto the pinnacle (excluding transportation charges) for River crossing towers.	KM	35975.73	38083.91	38925.56	40470.90

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4L 17	9(d)	Stringing of two (2) nos. OPG Wire, including laying jointing, tensioning etc., with necessary accessories. (excluding transportation charges).	KM	70900.04	75054.78	76713.49	79759.02
C4L 18	9(e)	Stringing of one (1) no. OPG Wire, including laying jointing, tensioning etc., with necessary accessories. (excluding transportation charges).	KM	47266.28	50036.08	51141.88	53172.21
	10	Earthing of transmission towers:					
C4L 19	10(a)	Providing of Pipe type earthing including of cost of BH coke & salt but excluding cost of earthing set	Each	3945.83	4177.06	4269.37	4438.86
C4L 20	10(b)	Counter poise earthing sets excluding cost of all materials (4sides of tower)	Each location	3307.75	3501.58	3578.96	3721.04
C4L 21	10(c)	Counter poise earthing sets using Bentoinite and salt (4 sides of tower)	Each location	4962.26	5253.05	5369.14	5582.29

Page 3 of 18

Sd/-
DIRECTOR
(Grid & Transmission Management)

//FORWARD BY ORDER //


EXECUTIVE ENGINEER - 2
O/o Chief Engineer (400KV Construction)
APTRANSCO, Vidyut Soudha,
Vijayawada.

ANNEXURE – II
ERECTION OF 400kV SUBSTATIONS

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
C4S1	1	Total cost of receipt from site/stores, storage, handling, erection, testing & commissioning of 400/220kV, 315MVA Transformers 50/63/80/125 MVAR Shunt reactor with all accessories and fittings including storage cum erection insurance as per specification. The charges include AC power for oil filter machines and all other supplier supervision charges including oil testing charges in a third party lab for complete erection, testing and commissioning.	Nos	2007877.32	2125538.93	2172513.34	2258762.12	
C4S2	2(a)	Hoisting of insulators & hardware, paving conductor and stringing of 400kV main bus for three phases with quadruple moose conductor to a tension of 1000kgs for single moose conductor, bus section length is 54mtrs.	Bus Section	34282.50	36291.45	37093.49	38566.10	
C4S 3	2(b)	Hoisting of insulators & hardware, paving conductor and stringing of 400kV Jack bus for three phases with twin moose conductor to a tension of 1000kgs for single moose conductor, bus section length is 60mtrs.	Bus Section	17387.87	18406.80	18813.59	19560.49	
C4S 4	3	Erection of 7/3.66 GSS Earth wire from top of peak tower and LMs to ground and connecting to untreated earth pits including cutting, clamping and fixing of all hardware like Pad type compression clamp, cleat type clamp and T clamp etc.	RM	51.20	54.20	55.40	57.60	
C4S 5	4(a)	Connecting equipment to equipment through 4"/4.5" IPS AI tube including cutting, bending, welding, testing, clamping etc., for each meter including both side connections.	Meter	221.01	233.96	239.13	248.62	
	4(b)	Connection of equipment to bus and other equipments with Quad Moose conductor where ever necessary	Each	811.14	858.67	877.65	912.49	
Page 4 of 18								

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
	5	Laying of earth mat including excavation & backfilling, welding, connecting to all equipment, structures, Junction boxes, and connecting lightning shield to earth mat and earthing of fence posts, drilling and connecting earth rods including connecting to cast iron pipes as per approved drawings with the following sizes:						
C4S 6	5.1	M.S. Rod 40 mm dia.	RM	132.35	140.11	143.21	148.90	
	6	Fabrication and connecting to risers from earth mat to structures, equipment, marshalling boxes, electrical panels, PLCC panels, fencing posts etc.,.						
C4S 7	6.1	M.S./ G.S. Flat 75 x 12 mm	RM	116.13	122.94	125.66	130.65	
C4S 8	6.2	M.S./ G.S. Flat 50 x 8 mm (Above ground)	RM	48.69	51.54	52.68	54.77	
C4S 9	6.3	Un-Treated Earth pits including installation of 40 mm dia rod electrode, disconnecting links, and all required materials and RCC collar/ chambers with bricks, cement mortar 1:4 and completion of related civil works as specified for LMs, LAs, Carrier couplings and CVTs. (Cost of RCC Collar included)	Each	1854.28	1962.94	2006.32	2085.97	
	7.0	Laying including termination and providing suitable ferrules & lugs etc of armoured control cables of size 2 core, 2.5 sq.mm to 27 core, 2.5 sq.mm including cost of cable glands, lugs, ferrules.						
C4S 10	7.1	2 to 12 core	RM	44.96	47.59	48.64	50.57	
C4S 11	7.2	14 to 19 core	RM	51.20	54.20	55.40	57.60	
C4S 12	7.3	27 core	RM	59.95	63.46	64.86	67.43	
	7.4	Laying including termination and providing suitable ferrules & lugs, jointing kits etc of armoured power cables of the following size including cost of cable glands, lugs, ferrules etc complete.						
C4S 13	7.4(a)	Upto 50 sq.mm	RM	77.42	81.96	83.77	87.10	
C4S 14	7.4(b)	Above 50 sq.mm to 300 sq.mm	RM	98.65	104.43	106.74	110.98	
C4S 15	7.4(c)	Above 300 sq.mm to 700 sq.mm	RM	124.86	132.18	135.10	140.46	
Page 5 of 18								

Sl. No.	Item No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
	8	Buried cable trench – Excavation for cable trench providing 100mm thick sand layer before and after laying the cable & providing 4” thick brick cover over sand, refilling, consolidation and leveling of surplus earth including the cost and conveyance of all materials, route markers, labour charges etc.,complete for finished item of work.						
C4S 16	8.1	Size: 300 X 300 mm	RM	214.77	227.36	232.38	241.61	
C4S 17	8.2	Size: 300 X 600 mm	RM	214.77	227.36	232.38	241.61	
C4S 18	8.3	Size: 1500 X 800 mm	RM	573.14	606.73	620.14	644.76	
C4S 19	9	Erection of Galvanised cable trays with 2 mm thick perforated CRCA sheet. Size: 200 and 600mm	RM	51.20	54.20	55.40	57.60	
C4S 20		Erection of following equipment with Crane/Derrick at site including handling the material/equipment carefully at site including labour charges for all incidental and operational items of work.(excluding cost of transport charges from Dept. stores to the site). Note:- In 400 kV substations only, 25% extra charges for Testing and Commissioning of switchgear equipment where ever applicable).						
C4S 21	10	420 KV SF6 Circuit breaker with support structure & marshalling boxes	Set	20827.98	22048.50	22535.77	23430.44	
C4S 22	11	420 KV Single phase current transformers with secondary terminal box	Each	5936.23	6284.09	6422.97	6677.96	
C4S 23	12	390 KV Lightning Arrestors	Each	5726.45	6062.02	6195.99	6441.97	
C4S 24	13	420kV Single phase Capacitive Voltage transformers with secondary terminal box (with/without carrier coupling device)	Each	5936.23	6284.09	6422.97	6677.96	
C4S 25	14.1	400 KV Isolators, 3 pole Horizontal centre break/Pantograph with Single earth switch including solid core insulators, interpole cable laying and connections for electrical ganging, fixing of MOMs etc.,	Set	12059.76	12766.46	13048.60	13566.63	
C4S 26	14.2	400 KV Isolators, 3 pole Horizontal centre break With Double earth switches including solid core insulators, interpole cable laying and connections for electrical ganging, fixing of MOMs etc.,	Set	14472.21	15320.28	15658.86	16280.52	
Page 6 of 18								

Sl. No.	Item. No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4S 27	14.3	220 KV Isolators, 3 pole Horizontal Double break/staggered with Double earth switches including solid core insulators, MOMs/BOMs etc.,	Set	8068.97	8541.81	8730.58	9077.18
C4S 28	15	400 KV Bus post insulators	Set	5726.45	6062.02	6195.99	6441.97
C4S 29	16(a)	Erection of Marshalling kiosk	Each	809.15	856.57	875.50	910.26
C4S 29	(b)	Erection of Marshalling boxes	Each	393.34	416.39	425.59	442.49
C4S 30	17.1	Fabrication of Main and Auxiliary structures, stub setting templates, foundation bolts, 'U' bolts etc.,using raw steel such as M.S.Angles, Plates, Channels, R.S.Joists, M.S.rounds, excluding cost of Mild Steel and transport charges to substation site.	MT	9601.10	10163.72	10388.34	10800.76
C4S 30	17.2	Galvanization of Main and Auxiliary structures, stub setting templates, foundation bolts, 'U' bolts etc.,using raw steel such as M.S.Angles, Plates, Channels, R.S.Joists, M.S.rounds, excluding cost of zinc and transport charges to substation site.(Cost of zinc should be followed as per IEEMA rates.).The average quantity of Zinc required for all angles of tower parts is 60 Kgs.	MT	5621.55	5950.97	6082.49	6323.96
C4S 30	17.2	Galvanization of Main and Auxiliary structures, stub setting templates, foundation bolts, 'U' bolts etc.,using raw steel such as M.S.Angles, Plates, Channels, R.S.Joists, M.S.rounds, excluding cost of zinc and transport charges to substation site.(Cost of zinc should be followed as per IEEMA rates.).The average quantity of Zinc required for all angels of tower parts is 60 kgs.	MT	5621.55	5950.97	6082.49	6323.96

Page 7 of 18

Sd/-
DIRECTOR
(Grid & Transmission Management)

//FORWARD BY ORDER //


EXECUTIVE ENGINEER - 2

O/o Chief Engineer (400KV Construction)
APTRANSCO, Vidyut Soudha,
Vijayawada.

ANNEXURE – III

ERECTION OF ILLUMINATION, LIGHTING, FIRE FIGHTING, AIRCONDITIONING, D.G Set & 33kV STATION SUPPLY SYSTEMS IN 400kV SUBSTATIONS.

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)		
1	2	3	4	5	6	7	8		
C4F1	A	Erection of indoor and out door illumination for 400/220 KV Substation, Control House, Auxiliary Buildings, 33 KV Switch yard, street lighting, erection and commissioning of following items as per the approved design and drawings, including indoor/out door Junction Boxes, Conduits, Lighting wires, lugs, ferules etc for complete finished item of work.							
		1.0	Fixing Buzzer anchor make or equivalent approved make with ISI mark with necessary bell and switches etc.	Each	243.49	257.76	263.46	273.92	
		C4F 2	2	Providing and fixing concealed in roof and walls with PVC Conduit piping of ISI standards with necessary GI wire of of suitable guage to draw wires at later date including cost of junction Box etc. cost of conveyance of all materials etc complete for finished item of work for Guest House, store building, pump house building & security room as approved and directed by the Engineer-in-charge at site.					
				(i)	32 mm dia - 2mm thick	RM	97.4	103.11	105.39
(ii)	25 mm dia - 2 mm thick			RM	84.91	89.89	91.88	95.53	
(iii)	12 mm dia - 1.5mm thick	RM	57.44	60.81	62.15	64.62			
C4F 3	3	Modular for Main distribution board with 1 No. 63A, TPMCB for I/C and 2 Nos. 32A SPMCB & 6 Nos. SPMCB with neutral link for O/G complete make Havells or MDS or equivalent.	Each	1776.88	1881.01	1922.58	1998.91		
	3(i)	Fixtures for 36W lamps BJLM-236 type, Fixtures for 36W lamps BJSM-236 type , Fixtures for 36W lmaps BJIV-236 type, Fixtures for energy saving tube light 2x36W or equivalent LED lamps.	Each	485.73	514.19	525.55	546.41		
Page 8 of 18									

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
	3(ii)	Fixtures for 9W CFL Lamp, Fixtures for GLS DBD-10type, Fixtures for 2x18 W CFL Lamp, Fixtures for 1x36W CFL Lamp or equivalent LED lamps.	Each	243.49	257.76	263.46	273.92	
C4F 4	4	Erection, testing and commissioning of outdoor and street Lighting Fixtures including fixing of conduit, Junction boxes, wiring and terminations complete etc.(excluding cost of concrete)						
	1	Lighting Masts / Poles as per drawing enclosed including concreting in full shape.						
	(i)	Type A1	Each	4994.72	5287.41	5404.26	5618.81	
	(ii)	Type E1	Each	2668.43	2824.80	2887.23	3001.85	
	(iii)	All types of Lighting Panels	Each	1714.44	1814.91	1855.02	1928.66	
	(iv)	Junction Box with MCB and Terminal Blocks (Bolt Type)	Each	339.64	359.54	367.49	382.08	
	(v)	415V 63A Power Recepticle outdoor	Each	679.29	719.10	734.99	764.17	
	(vi)	5/15 A, 240 V sockets with swtich board	Each	44.96	47.59	48.64	50.57	
	(vii)	Decorative type switch Boards	Each	97.4	103.11	105.39	109.57	
	(viii)	Telephone Junction Boxes	Each	84.91	89.89	91.88	95.53	
	(ix)	Telephone Jacks for Telephones	Each	31.22	33.05	33.78	35.12	
	(x)	Celling Fans with Electronic regulators	Each	172.32	182.42	186.45	193.85	
	(xi)	Flood lighting fixtures for 400W sodium Vapour lamp or Equivalent LED Lamp	Each	318.41	337.07	344.52	358.20	
	(xii)	Street lighting fixtures for 150 W sodium Vapour lamp or Equivalent LED Lamp	Each	318.41	337.07	344.52	358.20	
	(xiii)	Street lighting fixtures for 250 W sodium Vapour lamp or Equivalent LED Lamp	Each	383.35	405.81	414.78	431.25	
	(xiv)	Industrial high bay lightining fixtures for 250 W HVSP lamp or Equivalent LED Lamp	Each	383.35	405.81	414.78	431.25	
	(xv)	Lighting fixtures for 125 HP MV lamp post lanterns or Equivalent LED Lamp	Each	238.5	252.48	258.06	268.30	
Page 9 of 18								

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4F 5	C	Erection, testing and commissioning of Fire Fighting, Detection and Alarm System :					
	1	Erection of Horizontal centrifugal Electric Driven Hydrant/HVW Spray pump of capacity 410 Cum/hr, total dynamic head of 88MWC with all accessories & fittings and Electric Induction Motor Squirrel cage type for the above with all accessories & fittings.	Each	61556.17	65163.36	66603.47	69247.63
	2	Erection of Horizontal centrifugal Diesel Engine Driven Hydrant/HVW spray pump of capacity 410 Cum/hr and total dynamic head of 88MWC with all accessories and fittings. Diesel Engine, multi cylinder type, four stroke cycle with mechanical airless injection cold starting type for the above with all accessories and fittings and a set of Batteries and battery chargers and fuel tank having capacity to hold fuel oil for six hours of full load run.	Each	65390.87	69222.77	70752.59	73561.47
	3	Erection of Horizontal centrifugal Electric Driven jockey pump of capacity 10.8 Cum/hr and Total dynamic head of 88MWC with all accessories and fittings along with Electric Motor for the above with all accessories and fittings.	Each	5837.58	6179.66	6316.23	6566.98
	4	Air vessels with vent valves etc. as per system requirement.	Each	5064.64	5361.43	5479.92	5697.47
	5	Sump pumps 10 Cum/ Hr. MWC with motor starter and all accessories	Each	4479.02	4741.49	4846.28	5038.68
	6	Basket strainer 300 NB	Each	1945.44	2059.44	2104.95	2188.52
C4F6	7(a)	Control panel equipped with all accessories for motor drives of Fire water pumps and 2 Nos. jockey pumps for two sources of supply.	Each	3892.13	4120.21	4211.27	4378.46
	7(b)	Panel for 2 nos. Battery chargers & Diesel Engine driven fire water pumps.	Each	3892.13	4120.21	4211.27	4378.46
	7(c)	Annunciation panel at fire water pump house.	Each	1483.43	1570.36	1605.06	1668.78
Page 10 of 18							

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
	7(d)	Annunciation panel in Control Room.	Each	1483.43	1570.36	1605.06	1668.78
C4F 7	8	Hydrant and HVWS system Accessories.					
	(a)	Single headed Hydrants	Each	679.29	719.10	734.99	764.17
	(b)	Landing valves	Each	679.29	719.10	734.99	764.17
	(c)	Hose cabinets.	Each	741.72	785.18	802.53	834.39
	(d)	Hoses of 15.0m length with coupling	Each	67.42	71.37	72.95	75.85
	(e)	Hoses of 7.5m length with coupling	Each	67.42	71.37	72.95	75.85
	(f)	Branch pipe with Nozzles.	Each	67.42	71.37	72.95	75.85
C4F8	9	Mild steel black pipes and Galvanized Mild steel pipes with wrapping & coating for below ground and painting for above ground including cost of wrapping & coating material and paint required & excavation, back filling & all civil works etc., & testing complete.					
	a(i)	300 NB (below ground)	RM	1945.44	2059.44	2104.95	2188.52
	a(ii)	300 NB (above ground)	RM	1297.37	1373.40	1403.75	1459.48
	b(i)	250 NB (below ground)	RM	1590.83	1684.05	1721.27	1789.60
	b(ii)	250 NB (above ground)	RM	1003.94	1062.77	1086.26	1129.38
	c(i)	200 NB (below ground)	RM	1234.94	1307.31	1336.20	1389.25
	c(ii)	200 NB (above ground)	RM	942.75	998.00	1020.06	1060.56
	d(i)	150 NB (below ground)	RM	973.97	1031.04	1053.83	1095.67
	d(ii)	150 NB (above ground)	RM	795.41	842.02	860.63	894.80
	e(i)	100 NB (below ground)	RM	618.09	654.31	668.77	695.32
	e(ii)	100 NB (above ground)	RM	501.97	531.39	543.13	564.69
	f(i)	80 NB (below ground)	RM	470.74	498.33	509.34	529.56
	f(ii)	80 NB (above ground)	RM	324.65	343.67	351.27	365.22
g)	50 NB	RM	314.66	333.10	340.46	353.98	
h)	25 NB	RM	188.55	199.60	204.01	212.11	
i)	15 NB	RM	133.61	141.44	144.57	150.31	
C4F 9	10(a)	Set of GI Piping beyond deluge valves for transformer including detection piping and pipe supports including all accessories.	per Set	221678.14	234668.48	239854.65	249376.88
	10(b)	Erection of Hume pipe as per specification	RM	618.09	654.31	668.77	695.32

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4F10	11	VALVES					
	(a)	300 NB Gate	Each	1945.44	2059.44	2104.95	2188.52
	(b)	250 NB Gate	Each	1652.01	1748.82	1787.47	1858.43
	(c)	250 NB Check	Each	1652.01	1748.82	1787.47	1858.43
	(d)	200 NB Gate	Each	1297.37	1373.40	1403.75	1459.48
	(e)	150 NB Gate	Each	1234.94	1307.31	1336.20	1389.25
	(f)	100 NB Gate	Each	879.07	930.58	951.15	988.91
	(g)	80 NB Gate	Each	586.88	621.27	635.00	660.21
	(h)	80 NB Check	Each	586.88	621.27	635.00	660.21
	(i)	25 NB Gate	Each	214.77	227.36	232.38	241.61
	(j)	50 NB Gate	Each	470.74	498.33	509.34	529.56
	(k)	50 NB Check	Each	470.74	498.33	509.34	529.56
	(l)	15 NB	Each	129.87	137.48	140.52	146.10
	(m)	Float operated valve 100 NB	Each	1234.94	1307.31	1336.20	1389.25
C4F11	12	INSTRUMENTS					
	(a)	Float operated level gauge	Each	1066.37	1128.86	1153.81	1199.62
	(b)	Level Switch	Each	1066.37	1128.86	1153.81	1199.62
	(c)	Pressure Gauge	Each	618.09	654.31	668.77	695.32
	(d)	Pressure Switch	Each	1297.37	1373.40	1403.75	1459.48
	(e)	Differential Pressure Gauge	Each	942.75	998.00	1020.06	1060.56
C4F12	13(a)	Deluge valve with motor gounge, pr. switch, pr.guage, solenoid valve to drain - size 150 NB	set	5837.58	6179.66	6316.23	6566.98
	13(b)	Local control panel for Deluge valve	Each	1652.01	1748.82	1787.47	1858.43
	13(c)	Strainer Y type, 150 NB	Each	1297.37	1373.40	1403.75	1459.48
	13(d)	Quartzoid bulb detectors	Each	104.89	111.04	113.49	118.00
	13(e)	HVV spray nozzles	Each	104.89	111.04	113.49	118.00
C4F13	14	Detection & Alarm System					
	(a)	Ionisation smoke detector	Each	470.74	498.33	509.34	529.56
	(b)	Photoelectric smoke detector	Each	470.74	498.33	509.34	529.56
	(c)	Heat detector	Each	470.74	498.33	509.34	529.56
	(d)	Response indicator	Each	470.74	498.33	509.34	529.56
	(e)	Manual call point	Each	470.74	498.33	509.34	529.56
	(f)	Fire detection & Alarm panel	Each	470.74	498.33	509.34	529.56
C4F14	15	Portable Fire Extinguishers					
	(a)	Dry chemical powder type Fire extinguishers with all accessories.					
	(i)	10 kgs. Capacity	Each	47.45	50.23	51.34	53.38
Page 12 of 18							

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
	(ii)	25 kgs. Capacity (trolley mounted)	Each	93.65	99.14	101.33	105.35
	(iii)	50 kgs. Capacity (trolley mounted)	Each	126.11	133.50	136.45	141.87
	(iv)	150 kgs. Capacity (trolley mounted)	Each	269.72	285.53	291.84	303.43
	(b)	CO2 type portable Fire extinguishers					
	(i)	45 kgs. Capacity (trolley mounted)	Each	97.4	103.11	105.39	109.57
	(ii)	22.5 kgs. Capacity (trolley mounted)	Each	97.4	103.11	105.39	109.57
	(iii)	9 kgs. Capacity (trolley mounted)	Each	46.2	48.91	49.99	51.97
	(iv)	2 kgs. Capacity (Portable)	Each	36.21	38.33	39.18	40.74
	(c)	9 Litres capacity Mechanical foam type fire extinguishers	Each	48.69	51.54	52.68	54.77
	(d)	Sand / water Buckets 9 litres capacity	Each	63.68	67.41	68.90	71.64
C4F15	16	Air Conditioning System					
	1	Erection, testing and commissioing of Split AC 2 Ton with all suitable accessories	Each	4621.36	4892.17	5000.29	5198.80
	2	Erection of Air Conditioning AC distribution panel	Each	3892.13	4120.21	4211.27	4378.46
	3	Providing Under Deck Insulation for the Roof exposed to sunlight with 50 mm thick TF quality expanded poly styrene including GI washers and wire for fixing.	Sq. ft.	42.45	44.94	45.93	47.75
	4	Erection of Ventilation fans					
	i)	600 mm Sweep	Each	1035.15	1095.81	1120.03	1164.50
	ii)	450 mm Sweep	Each	1035.15	1095.81	1120.03	1164.50
	iii)	300 mm Sweep	Each	1035.15	1095.81	1120.03	1164.50
C4F16	17	Erection, testing and commissioing of 250 KVA DG Set complete including AMF Panel, auxilaries etc.	Set	68944.61	72984.76	74597.72	77559.25
C4F17	18	Erection, testing and commissioing of 33kV Station Supply System					
	1	33kV/440 V Substation :					
	(a)	33kV/433 V, 630KVA Station supply transformer	Each	5905.01	6251.04	6389.19	6642.84
	(b)	33 kV Isolator with terminal connectors and support insulators	Set	2100.28	2223.36	2272.50	2362.72
	(c)	33 kV HG Fuse set	Each	1181.26	1250.48	1278.12	1328.86
	(d)	33 kV Lightning Arrestor	Each	919.03	972.89	994.39	1033.87

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
	(e)	150 x 75 mm M.S Channels & Struc.	MT	2491.12	2637.10	2695.38	2802.39	
	(f)	HT Trivector Meter Box	Each	741.72	785.18	802.53	834.39	
	(g)	Hoisting of Insulators & Hardware, stringing / formation of the 33 kV Bus comprising of 3 phases with DOG Conductor and all equipment to equipment, equipment to bus interconnections, jumpering, fixing of clamps & connectors etc. required for the entire 33kV/440 V station supply switchyard of 400/220 KV Substation complete as directed by site engineer.	LS	13594.38	14391.01	14709.05	15293.00	
	2	33 kV Line :						
	(a)	Erection of pole in position, aligning and setting to work, fixing of cross arms and top clamps, earthing of supports, fixing of danger boards, back filling with earth and stones properly ramming including transport of materials from road side to location <u>excluding concreting and including excavation.</u>	Set	1574.59	1666.86	1703.70	1771.34	
	(b)	Assembly and erection of D.P. Structure as per specification which includes fixing of top channels and cross bracings, transport of all materials from road side to the location, earthing, back filling with earth ramming etc <u>excluding concreting and including excavation.</u>	Set	2522.33	2670.14	2729.15	2837.50	
	(c)	Mass concreting of supports erected with CC (1:4:6) using 40 mm, HBG metal including the cost of metal, sand, cement and curing etc.	Cum	4748.73	5027.01	5138.11	5342.09	
	(d)	Assembly and erection of stay set including fixing of guy insulators, clamps etc., on the pole and fixing stay wire and binding securely on either side as per standards, transport of material from road side to location and back filling with earth ramming etc excluding concreting and including excavation.	Set	315.92	334.43	341.82	355.39	
Page 14 of 18								


Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
	(e)	Paving out conductor, providing temporary stays, tensioning, sagging correctly, fixing strain points, transferring to pin points binding, fixing of Insulators, guys and jumpering etc., including transport of material from road side to location. (3 phases)	km	11554.04	12231.11	12501.42	12997.73
C4F18	19	Erection of Control and Relay Panels					
		Receipt from site stores, Transport to control room, handling, Erection, Testing and commissioning of all Control, Relay, Protection and other Panels/ Equipment, with complete accessories, equipment etc., as specified.					
	(i)	400 KV Feeders/ Tie/ 315 MVA Tranformer Control/ Relay/ Protection Panels.	Each	32511.88	34417.08	35177.70	36574.25
	(ii)	220 KV Feeders/ Bus coupler/ Transfer Bus / 315 MVA Tranformer / 50/63/80MVAR/125 MVAR Shunt Reactors Control/ Relay/ Protection Panels.	Each	30964.77	32779.31	33503.73	34833.83
	(iii)	Common equipment panels for 400/220kV	Each	26720.5	28286.32	28911.45	30059.23
	(iv)	400kV Bus bar Protection	Set	41966.88	44426.14	45407.96	47210.66
	(v)	220KV Bus bar Protection	Set	54181.47	57356.50	58624.08	60951.46
C4F19	19(i)	Common equipment Panels for 400/220kV.	Each	26720.5	28286.32	28911.45	30059.23
	19(ii)	All other equipment of SMS and Time synchronising equipment.	Each	124351.04	131638.01	134547.21	139888.73
	19(iii)	400KV AC Bay Kiosk	Each	31480.48	33325.24	34061.73	35413.98
	19(iv)	220KV AC Bay Kiosk	Each	23611.29	24994.91	25547.30	26561.53
C4F20	20	Complete Substation Automation system for 400/220KV Substation including hard ware and software for remote control station along with associated equipments and kiosks in full shape as per specification.					
	(a)	Installation, Testing and commissioning of Networking Panel, OWS1, OWS2, EWS Remote work station. BCUs, LIUs, Ethernet Switches, Splicing of OFC etc.,	Set	203157.74	215062.78	219815.67	228542.35
				Page 15 of 18			

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)	
1	2	3	4	5	6	7	8	
	(b)	Installation, Testing and commissioning of all necessary software's compatible to IEC: 61850 for making the SAS operation in full shape including remote SCADA complete as directed by site engineer.	Set	67719.66	71688.03	73272.34	76181.25	
	(c)	Extension works of Installation, Testing and commissioning of BCU, LIU, Ethernet Switch, Splicing of OFC to the existing SAS System.						
	(i)	FIRST BAY	per bay (if it is First Bay)	27087.61	28674.94	29308.66	30472.21	
	(ii)	SECOND BAY onwards	Per Bay	13544.43	14338.13	14655.00	15236.80	
	(d)	Extension works of Installation, Testing and commissioning of all necessary software's compatible to IEC: 61850, adding new SLD for the new bay in the existing substation and configuring all necessary signals and data base for making the SAS operation in full shape including Remote SCADA as directed by site engineer.						
	(i)	FIRST BAY	per bay (if it is First Bay)	67719.66	71688.03	73272.34	76181.25	
	(ii)	SECOND BAY onwards	Per Bay	33859.2	35843.35	36635.49	38089.92	
	H	220 V DC Battery & Battery Chargers and AC, DC Distribution Boards						
	1	Receipt from site stores, Transport to control room, handling Erection, Testing and commissioning of Battery & Battery chargers with complete accessories, equipment etc., as specified.						
	(a)	220V, 400AH Capacity Sealed Maintanace free VRLA Type 1 No Battery Banks along with all other required accessories.	Set	11426.66	12096.26	12363.59	12854.42	
	(b)	40/100A Folat - Cum- Boost Charger (1 No.)	Set	6797.81	7196.16	7355.20	7647.20	
Page 16 of 18								

Sl. No.	Item. No.	Description of item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
	2	Receipt from site stores, Transport to control room, handling, Erection, Testing and commissioning of A.C. & D.C. Distribution Boards with complete accessories, equipment etc., as specified.					
	(a)	415V AC Main Board (Sub-Boards- I & II) as per the Specification & Drawing.	Each	92426.05	97842.22	100004.53	103974.71
	(b)	415V AC Distribution Board (Sub-Boards- I & II) as per the Specification & Drawing.	Each	154047.14	163074.30	166678.24	173295.37
	(c)	415V AC Lighting Board (Sub- Boards- I & II) & Emergency Lighting Board as per the Specification & Drawing.	Each	38697.85	40965.54	41870.88	43533.15
	(d)	220V DC Distribution Board (Sub-Boards- I & II) as per the Specification & Drawing.	Each	23342.83	24710.72	25256.83	26259.53
					Page 17 of 18		

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(Grid & Transmission Management)

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EXECUTIVE ENGINEER - 2
O/o Chief Engineer (400KV Construction)
APTRANSCO, Vidyut Soudha,
Vijayawada.

ANNEXURE – IV

TRANSPORTATION, HANDLING CHARGES INVOLVED DURING ERECTION OF 400KV TRANSMISSION LINES

SI. No.	Item. No.	Description of Item	Unit	SS Rate for 2015-16 (Rs.)	SS Rate for 2016-17 (Rs.)	SS Rate for 2017-18 (Rs.)	SS Rate for 2018-19 (Rs.)
1	2	3	4	5	6	7	8
C4H1	1	Total cost for transportaion and handling Charges for Setting of Stub with Stub setting template	Each Set	739.22	782.54	799.83	831.58
C4H2	2	Erection of Tower : Total cost for transportation and handling Charges	Per MT	583.13	617.30	630.94	655.99
C4H3	3	Double Circuit Stringing with Twin Moose : Transportation and handling charges for line materials	Per KM	15978.11	16914.43	17288.24	17974.58
C4H4	4	Single Circuit Stringing with Twin Moose : Transportation and handling charges for line materials.	Per KM	8528.48	9028.25	9227.77	9594.11
C4H5	5	Double Circuit Stringing with Quadruple Moose: Transportation and handling charges for line materials	Per KM	31956.21	33828.84	34576.46	35949.15
C4H6	6	Single Circuit Stringing with Quadruple Moose:Transportation and handling charges for line materials.	Per KM	17058.22	18057.83	18456.91	19189.65
C4H7	7	OPG wire & earthwire: Transportation and handling charges for OPGW/earthing materials for 1 KM for D/C stringing.	Per KM	485.73	514.19	525.55	546.41
C4H8	8	OPG wire & earthwire: Transportation and handling charges for OPGW/earthing materials for 1 KM for S/C stringing.	Per KM	496.98	526.10	537.73	559.08

Page 18 of 18

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EXECUTIVE ENGINEER - 2

O/o Chief Engineer (400KV Construction)
APTRANSCO, Vidyut Soudha,
Vijayawada.