

CHAPTER-17
OPERATION AND MAINTENANCE OF 33/11 KV SUB-STATION

Chapter Code No	DESCRIPTION OF WORK	UNIT	Rate/Unit
1	2	3	4
Note:	Incharge Assistant/Junior Engineer after necessary inspection testing & checking will identify the maintenance work which will be categorised as below:		
17.1.1	Labour charges for over all inspection of sub-station with two transformer for job requiring works analysis and testing of dielectric strength of oil, insulation resistance value and earth resistivity etc.	per trans.	982.12
17.1.2	Add for each power transformer.	per trans.	328.30
17.2	Labour charges for opening the transformer tank top cover(if required to facilitate maintenance of transformer) after removing required accessories.Including all required T&P Up to 5 MVA transformer.	per trans.	4790.81
17.3	Preventing oil leakage by changing main gasket with material after removing cover.		
17.3.1	Upto 1.6 MVA transformer	per trans.	1679.27
17.3.2	Above 1.6 MVA & upto 3.15 MVA transformer.	per trans.	2081.66
17.3.3	Above 3.15 MVA & upto 5 MVA transformer.	per trans.	2299.55
17.4	Change of HV/LV bushing gasket ring and rubber washers including supply of required material & draining /re-filling of oil as required.	Nos.	1197.70
	(a) For additional HV/LV bushing work.	Nos.	215.60
	* This amount will not be payable incase the work of removing of Top cover gasket is also awarded in the same order.		
17.5	Change of gaskets of valves/radiator / Buchhloze's Relay including cost of gaskets etc.		
17.5.1	Valve's/Buchhloze's Relay	Nos.	134.14
17.5.2	Radiator Valves.	Nos.	320.94
17.6	Providing & Fixing (including replacement) of HV/LV bushing of reputed make & bushing rod of brass matel including cost of gasket & rubber rings .Gasket makes are TABROSS,TIGER, ZEBRA and any other reputed make.		
	HV Side		
17.6.1	Upto 1.6 MVA transformer	Nos.	1475.61
17.6.2	Above 1.6 MVA & upto 3.15 MVA transformer.	Nos.	2816.94
17.6.3	Above 3.15 MVA & upto 5 MVA transformer.	Nos.	2816.94
	LV Side		
17.6.4	Upto 1.6 MVA transformer	Nos.	577.27
17.6.5	Above 1.6 MVA & upto 3.15 MVA transformer.	Nos.	1978.61
17.6.6	Above 3.15 MVA & upto 5 MVA transformer.	Nos.	1978.61
17.7	Dehydration/Filteration and reconditioning of transformer oil (electricity shall be supplied by deptt.) as per norms and testing thereof in presence of sub-station Incharge.	Ltr.	4.75
17.8	Cleaning of oil scale deposits over the body and radiators of power transformer with thinner/detergent and de-rusting in perfect manner.		
17.8.1	Upto 1.6 MVA transformer	Nos.	1161.88
17.8.2	Above 1.6 MVA & upto 3.15 MVA transformer.	Nos.	1439.63
17.8.3	Above 3.15 MVA & upto 5 MVA transformer.	Nos.	1681.56

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17.9	Replacement of oil temperature indicator, Winding temperature indicator, silica gel container, Presser relief device, Magnetic oil level gauge, Gas operated Buchhloz relay (including all required accessories.)		
(a)	Oil temperature indicator	Nos.	2275.67
(b)	Winding Temperature indicator	Nos.	2275.67
(c)	Silica gel container	Nos.	2275.67
(d)	Presser relief device Make ATBUS	Nos.	6227.99
(e)	Magnetic oil level gauge. Make ATBUS	Nos.	5030.29
(f)	Gas operated Buchhloz relay(Double floating type make ATBUS)	Nos.	5030.29
17.10	Spray Painting of the power transformer from out side with two coats of synthetic enamel paint of required shade after cleaning the body and radiators with preparation of surface by rubbing & applying primer coats and putty etc. and making smooth surface with the fine emery cloth including required material and tools.		
(a)	5 MVA Transformer	Per Nos.	3593.11
(b)	2.5MVA/3.15 MVA Transformer	Per Nos.	2994.25
(c)	1.6 MVA Transformer	Per Nos.	2634.88
17.11	Checking, tightening & replacement of jumpers, clamps connectors of bus bar including transformer & equipments of sub-station. Material to be provided by Nigam, If required.		
17.11.1	33/11 KV S/S with 1 power transformer	Nos.	1350.98
17.11.2	33/11 KV S/S with 2 power transformer	Nos.	1786.90
17.11.3	33/11 KV S/S with 3 power transformer	Nos.	2302.00
17.12	Replacement of damaged bus bar conductor including re-jumpering etc.		
17.12.1	Bus Bar with ACSR PANTHER	Per Wire	709.10
17.12.2	Bus Bar with ACSR DOG/RACOON	Per Wire	462.43
17.13	Replacement of damaged pin/post insulators including re-binding and jumpering etc.		
17.13.1	33 KV Pin/Post Insulator	Nos.	19.14
17.13.2	11 KV Pin/Post Insulator	Nos.	14.39
17.14	Replacement of damaged disc insulator with hardware, if required including jumpering etc.		
17.14.1	On 33 KV side	Per string	172.42
17.14.2	On 11 KV side	Per string	117.45
17.15	Replacement of damaged jumpers including fixing P.G. clamps, 'T' clamps and connectors at both ends. Including proper tightening of M.S. Nuts & Bolts.		
17.15.1	ACSR PANTHER	Nos.	90.94
17.15.2	ACSR DOG/RACOON	Nos.	40.73

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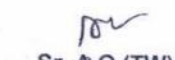
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1	2	3	4
17.16	Replacement of 33 KV/11 KV lightening arrestors including jumpering and earth connections etc. in all respect.		
17.16.1	33 KV L.A.	Nos.	182.05
17.16.2	11 KV L.A.	Nos.	59.87
17.17	Repair & maintenance of 33 KV/11 KV Isolator/ G.O. Switch for smooth operation including replacement of G.O. clamps, jaws, blades & post insulators etc. and checking of operating mechanism, oiling/greasing complete in all respect.		
17.17.1	33 KV Isolator/ G.O. Switch	Nos.	491.06
17.17.2	11 KV Isolator/ G.O. Switch	Nos.	328.30
17.18	Welding of fabricated MS Sheet box of 2 mm thickness for locking arrangement of power transformer valves to curb transformer oil having dimensions		
17.18.1	200x160x180 mm for filter valve of Power Transformer	per valve	490.73
17.18.2	160x100x120 mm for conservator drain valve	per valve	332.05
17.18.3	40x 50x40 mm for radiator air release cap	per valve	107.96
17.18.4	60x 50x60 mm for conservator cap	per valve	112.86
17.19	Removing of unwanted grass/small plants from the 33/11 KV Sub-Station		
(a)	From gravelled land/area	Per 100 Sq. Mtr.	219.20
(b)	From un-gravelled land/area	Per 100 Sq. Mtr.	142.40
17.20	Measurement of earth resistance:-		
(a)	By providing earth resistance tested by contractor	Per location	25.00
(b)	By providing earth resistance tested by Nigam	Per location	20.00
17.21	Carrying out following activities at 33/11 KV S/S. The necessary material, T&P & safety devices required for maintenance shall be provided by Nigam. Applicable statutory deductions shall be made as per rules.	Per Shift	490.00
A	To ensure un interrupted power supply during Block hours on the feeders emanating from GSS as directed by AEN/JEN and to maintain proper Log sheet.		
B	To registered On/Off timings of 33 KV feeders in the Log Sheet		
C	To ensure the Breaker OFF Position, Isolation of 11 KV G.O. Switch and proper earthing by earthing chain before permitting Shut Down of 33 KV /11 KV Feeders.		
D	Maintain the 33 /11 KV S/S like repairing the jumpers, change of faulty Disc / Pin Insulator, cleaning of Switch Yard, watering the earthing pits, cleaning & caring the equipments.		
E	Replacing the burnt Fuse during Single Phase & Three Phase supply.		
F	To record the tripping for the & type of fault occurred in any 33 KV/ 11 KV feeder and give a try for restoring the supply, if the breaker does not hold i.e. feeder remain faulty then message should be immediately convey to the Line Man of respective feeder and also to concerned officer.		
G	If any defect has observed in the installed equipments at the S/S, then message should be immediately conveyed to the concerned JEN/AEN.		
H	Keeping watch and ward of Nigam material lying at the premisis of S/S.		
I	Properly handover the shift to next shift duty staff indicating the position of all equipments /feeders.		


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17.22	To supply and replace the damaged /defective parts of 33 KV G. O. Switch (proper shut down will be provided by Nigam). Rates are inclusive of material.		
A	33 KV G.O. (800 Amps.)		
i	Contacts/ Jaws with terminal plate	Nos.	1513.00
ii	Centre Blade/Pipe	Nos.	2870.00
iii	Post Insulators (24 KV)	Nos.	385.00
iv	PG Clamps	Nos.	279.00
17.23	To supply and replace the damaged /defective parts of 11 KV Roaster Switch (proper shut down will be provided by Nigam). Rates are inclusive of material.		
a	Contacts/ Jaws with terminal plate	Nos.	531.00
b	Centre Blade/Pipe	Nos.	731.00
c	Post Insulators (12 KV)	Nos.	239.00
d	PG Clamps	Nos.	101.00

NOTE:The Rates are inclusive of all applicable Taxes/ Duty except service tax which will be paid extra by Nigam if applicable.

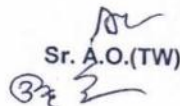
Note

Since only the Nigam employee for empowered to work on live line of equipment, thus the Executive Engineer Shall ensure the following from the contractor while engaging Pvt. Person (ITI Holder) for working on Live Line / Equipments.

- 1 At the Joining, the contractor should submit Accidental Insurance Cover in advance for One Year for the engaged person.
- 2 The contractor should submit age proof, copy of ITI Certificate for the engaged person.
- 3 The contractor should submit proof of deduction of PF (if applicable) and deposition of same with PF department alongwith bill otherwise submit exemption certificate for the engaged person.
- 4 The person should submit work experience for live line work ord should submit a certificate to be issued from Electrical inspector for working on Live Line.
- 5 Identify Card with Photo for the deployed person should be issued by Circle SE and proper record of it should be maintain at circle level
- 6 Montly /Routine verification of the deployed person should be done by circle office.


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