

PART - III
SCHEDULE OF RATES FOR REPAIR OF POWER TRANSFORMER

Sl. No.	Description of Materials	Unit	HSN Code	Amount in Rs.
1	Main Tank for Power Transformers			
	i Dehydrating Silicagel Breather Assembly	No.	8504	Rs. 2000/kg capacity of Silicagel
	ii Rubberised corksheets/Neoprene rubber Gaskets as necessary, for complete Transformer			
	a 220 kV and above Class	Set	8484	35000
	b 110 kV and below Class	Set	8484	20000
	iii Bi-directional Rollers for Power Transformers			
	a 220 kV and above Class	Set		40000
	b 110 kV and below Class	Set		30000
	iv Drain plugs with Teflon washers for Power Transformers			
	a 220 kV and above Class	No.	6813	1500
	b 110 kV and below Class	No.	6813	1500
2	Bushings for Power Transformers			
	A Condenser type OIP Bushings for Power Transformers			
	i 420 kV/1250 A	No.	8504	750000
	ii 245 kV/800 A	No.	8504	300000
	iii 245 kV/1250 A	No.	8504	400000
	iv 245 kV/2000 A	No.	8504	530000
	v 145 kV/800 A	No.	8504	80000
	vi 145 kV/1250 A	No.	8504	100000
	vii 145 kV/2000 A	No.	8504	240000
	viii 72.5 kV/800 A	No.	8504	72000
	ix 72.5 kV/1250 A	No.	8504	98000
	x 72.5 kV/2000 A	No.	8504	168000
	xi 36 kV/2000 A	No.	8504	60000
	B Conventional Bushing with metal parts for Power Transformers			
	i 36 kV/800 A - 1250 A - 2000 A	No.	8504	15000
	ii 12.1 kV/800 A - 1250 A - 2000 A	No.	8504	15000
	C Bushing Terminals for Power Transformers			
	i Suitable for 420 kV class / 1250 A bushing	No.	8536	45000
	ii Suitable for 220 kV class / 800 A bushing	No.	8536	35000
	iii Suitable for 245 kV class / 1250 A bushing	No.	8536	38000
	iv Suitable for 245 kV class / 2000 A bushing	No.	8536	45000
	v Suitable for 72.5 kV or 145 kV class / 800 A bushing	No.	8536	20000
	vi Suitable for 72.5 kV or 145 kV class / 1250 A bushing	No.	8536	35000
vii Suitable for 72.5 kV or 145 kV class / 2000 A bushing	No.	8536	45000	
viii Suitable for 36 kV class / 800 A bushing	No.	8536	14000	
ix Suitable for 36 kV class / 1250 A bushing	No.	8536	14500	
x Suitable for 36 kV class / 2000 A bushing	No.	8536	15000	
D Terminal Connector clamps for bushings for Power Transformers				
i Suitable for 420 kV class bushing to suit Twin Moose / Drake	No.	8536	2000	
ii Suitable for 420 kV class bushing to suit Rigid Busbar (100 mm/63 mm)	No.	8536	1500	
iii Suitable for 245 kV class bushing to suite Single Drake conductor	No.	8536	835	
iv Suitable for 245 kV class bushing to suit Twin Moose / Drake	No.	8536	1400	
v Suitable for 245 kV class bushing to suit Rigid Busbar (100 mm/63 mm)	No.	8536	1500	
vi Suitable for 121 kV class bushing to suit Twin Moose / Single Drake conductor	No.	8536	1400	
vii Suitable for 72.5 kV class bushing to suit Twin Moose / Single Drake conductor	No.	8536	1400	
viii Suitable for 36 kV class bushing to suit Coyote / Lynx conductor	No.	8536	345	
ix Suitable for 12.1 kV class bushing to suit Drake conductor	No.	8536	800	
E Bushing CT (Turret CT)	No.	8504	10000	
3	Cooler Bank for Power Transformers			
	A Radiators for Power Transformers			
	i Radiator without valve for 220 kV and above voltage class Transformer	Each	7322	80000
	ii Radiator without valve for 110 kV and below voltage class Transformer	Each	7322	30000
	iii Radiator valves with gaskets (50 to 200 mm)	No.	8481	1500
	iv Air out plug with gaskets	No.	6903	1000
	B Fans / Pumps for Power Transformers			
i Cooling Fan	No.	7322	10500	

Sl. No.	Description of Materials	Unit	HSN Code	Amount in Rs.
ii	Oil Pump	No.	8413	30000
C	Cooler control cubicles for Power Transformers			
i	MCB/MCCB			
a	100 A, 3/4 Pole	No.	8536	4000
b	63 A, 3/4 Pole	No.	8536	2900
c	32 A, 3/4 Pole	No.	8536	2000
d	16 A, 3/4 Pole	No.	8536	1900
ii	Timer	No.	9106	1600
iii	CCU (Should match with the secondary of the WTI CT) with dual output	No.		5000
iv	WTI with 4 contacts, 15 meters capillary length with built in CCU RTD and external remote indicator, range 0-150 deg C, with SCADA compatability)	No.	9025	40000
v	OTI with 2 contacts, 15 meters capillary length with built in CCU, RTD and external remote indicator range 0-150 deg C, with SCADA compatability	No.	9025	12500
vi	Gauge glass along with beeding for cooler control cabinet (FCC)	No.	9026	5000
vii	Power Contactor	No.	8536	2000
viii	Auxiliary relay/contactor for control circuit	No.	8536	1500
ix	Thermal Over Load Relay	No.	8536	1500
x	Single phase preventer (SPM)	No.	8535	1600
xi	F.O Temperature sensor cable	No.		2000
xii	CAT Cable	m		150
xiii	PT 100 Sensor	No.		48750
xiv	PT 100 Sensor Probe	m		1850
4	OLTC for Power Transformers			
i	Complete OLTC (Diverter switch, selector switch Assembly, DOVA, drive mechanism and linkages) for Transformers			
a	220 kV and above Class	Set	8504 / 9010	1000000
b	110 kV and below Class	Set	8504 / 9010	700000
ii	Diverter Switch assembly for Power Transformers			
a	220 kV and above Class	Set	8504 / 9010	400000
b	110 kV and below Class	Set	8504 / 9010	370000
iii	Selector Switch assembly (For 3 Phases) for Power Transformers			
a	220 kV and above Class	Set	8504 / 9010	300000
b	110 kV and below Class	Set	8504 / 9010	270000
iv	Drive assembly with gears and connecting rod etc.,	Set	8504 / 9010	650000
v	RTCC Panel (ROTI, RWTI, switches, Tap Position Indicator, Timer, annunciator etc.) for Power Transformers			
a	220 kV and above Class	Set	8504 / 9010	200000
b	110 kV and below Class	Set	8504 / 9010	100000
vi	OLTC Conservator			
a	220 kV and above Class	Set	8504 / 9010	32200
b	110 kV and below Class	Set	8504 / 9010	21000
vii	Oil Surge relay for OLTC	No.	8504 / 9010	10000
viii	Diverter Switch Oil Vessel Assembly (DOVA) for Power Transformers			
a	220 kV and above Class	Set	8504 / 9010	350000
b	110 kV and below Class	Set	8504 / 9010	300000
ix	Fixed and moving contacts for diverter switch	Set	8536	228000
x	Fixed and moving contacts for Selector switch			
a	220 kV and above Class	Set	8536	350000
b	110 kV and below Class	Set	8536	300000
xi	Protection micro Switch	No.	8504 / 9010	1500
xii	OLTC Pressure relief Device with trip contacts and reset device	No.	8504 / 9010	15000
xiii	Transition Resistance complete assembly	Set	8504 / 9010	150000
xiv	Transition Resistance	No.	7408	5000
xv	Snap action switch	No.	8504 / 9010	35000
xvi	ROTI, RWTI in RTCC Panel	No.	8504 / 9010	2000
xvii	Auxiliary relay Contactor for Tap changer control circuit	No.	8504 / 9010	1500
xviii	Remote Tap change indicator	No.	8504 / 9010	5000
xix	Switches (Control selector switch, sequence selector switch etc.)	No.	8504 / 9010	2000
xx	Limit switches	No.	8504 / 9010	4500
xxi	Tap Position Indicator	No.	8504 / 9010	2000
5	Main Tank Conservator for Power Transformers			
i	Conservator tank			
a	220 kV and above Class	No.		80000
b	110 kV and below Class	No.		56000
ii	MOG	No.	9026	5000

Sl. No.	Description of Materials	Unit	HSN Code	Amount in Rs.
	iii Prismatic Gauge	No.	9026	10000
	iv Fibre Optic temperature sensor system with 8 temperature channels.	Set	9026	300000
	v Aircell for conservator for 220 kV and above Transformers	No.		100000
	vi Aircell for conservator for 110 kV and below Transformers	No.		40000
6	Transformer mounted Protection in Power Transformers			
	i Buchholz Relay	No.	8536	5900.00
	ii Oil surge Relay (OSR)	No.	8536	2525.40
	iii Pressure Relief Device (PRD or PRV)	No.	8536	7300.00
7	Control Valves for Power Transformers			
	i Drain Valve (100 mm to 200 mm size) suitable for,			
	a 220 kV and above Class	No.	8481	3000
	b 110 kV and below Class	No.	8481	2500
	ii Top / Bottom Filter Valve (50 mm to 100 mm size) suitable for :			
	a 220 kV and above Class Transformers	No.	8481	4500
	b 110 kV and above Class Transformers	No.	8481	3200
	iii Oil Sampling Valve with Plug (20 mm size) suitable for :			
	a 220 kV and above Class Transformers	No.	8481	3000
	b 110 kV and above Class Transformers	No.	8481	2250
	iv Header pipe valve	No.	8481	2200
	v Gate/Butterfly valves of various sizes ranging from 50 mm to 200 mm suitable for :			
	a 220 kV and above Class Transformers	No.	8481	5625
	b 110 kV and above Class Transformers	No.	8481	2000
8	Nitrogen Fire Protection System (NIFPS) for Power Transformers			
	i Fire Sensors for NIFPS/LHD Cable	No.	8531	3000
	ii PNRV for NIFPS	No.	8481	1500
9	Others			
	i Marshalling Box (with IP 55 degree of protection, TBs, Earthing arrangement, mounting arrangements for various components etc.,)	No.		15000
	ii Transformer Oil			
10	Credit Parts of Power Transformers			
	i Scrap Copper			
	ii Scrap Iron			
	iii Scrap CRGO			
	iv Scrap Brass			
	v Released Oil			

SCHEDULE OF RATES FOR REPAIR OF POWER TRANSFORMER

Sl. No	Description of Jobs	Unit	HSN Code	Capacity in MVA	Amount in Rs.
1	Draining out oil from the Power Transformer complete duly collecting the oil in barrels (supplied by KPTCL), shifting barrels to safe place (in the Station premises only) with proper tightness of cork/lid to avoid entry of moisture.	Ltr	9988	All capacity	1.05
2	Unloading of the Faulty Transformer tank with active parts and accessories at firm's work or loading of repaired Transformer tank with active parts or accessories at firm's works	MT	9988	All capacity	153.30
3	Dismantling faulty Transformer for joint inspection at repairer's premises including all activities such as opening of top cover, de-tanking of core and winding, separation of HV/LV coils, conducting preliminary test required for assessment of repair work to be undertaken, dismantling core etc., in the presence of KPTCL authorised representative.	66/11 kV Class			
		L/s	9988	8	22991
		L/s		12.5	35923
		L/s		16/20	45982
		L/s		31.5	54603
		220/66/11 kV Class			
		L/s	9988	100	58116
		L/s		150	87174
		400/√3/220/√3 kV - 33 kV Class			
		L/s	9988	167	97054
		400/220 kV - 33 kV Class			
		L/s	9988	315	183066
		L/s		500	290580
110/33-11 kV Class or 110/11 kV Class					
L/s	9988	10	24420		
L/s		16/20	48840		
220/110/11 kV Class					
L/s	9988	100	58116		
4	Main Tank of Power Transformers				
i	Minor modification to Transformer Main Tank/Top lid or frame assembly in case required during repair.	kg	9988	All capacity	180
ii	Modification/replacement of link board for 110/33-11 kV Transformers.	Per Phase	9988	All capacity	22000
5	Drying of Power Transformers				
i	Drying of Transformer at site : Drying of active parts of Power Transformer upto 5 cycles, by Vacuum application, external heating, nitrogen purging, till the required dew point is achieved. Work should be carried out at site only (Required new transformer oil will be supplied by KPTCL). Provision for replacement of gaskets also may be made as per Sl. No. 1 (ii) of material portion.				
a	220 kV and above class Transformer	L/s	9988	All capacity	400000
b	110 kV and below class Transformer	L/s	9988	All capacity	250000
ii	Drying of active parts for each cycle over and above 5 cycles, if required				
a	220 kV and above class Transformer	L/s	9988	All capacity	56000
b	110 kV and below class Transformer	L/s	9988	All capacity	32500
iii	Drying of Transformer at factory : Drying of active parts of Transformer in VPD chamber				
a	220 kV and above class Transformer	L/s	9988	All capacity	168750
b	110 kV and below class Transformer	L/s	9988	All capacity	97500
iv	Drying of Transformer at factory : Drying of active parts of Transformer in Oven				
a	220 kV and above class Transformer	L/s	9988	All capacity	135000
b	110 kV and below class Transformer	L/s	9988	All capacity	78000
v	Re-assembly of Core and Winding				
66/11 kV Class					
L/s	9988	8	26823		
L/s		12.5	41910		
L/s		16/20	53645		
L/s		31.5	63704		
220/66/11 kV					
L/s	9988	100	66889		
L/s		150	100333		
Single Phase 400/√3/220/√3 kV - 33 kV Class					
L/s	9988	167	111704		
400/220 kV - 33 kV Class					
L/s	9988	315	210700		
L/s		500	334444		
110/33-11 kV Class - 110/11 kV Class					

Sl. No	Description of Jobs	Unit	HSN Code	Capacity in MVA	Amount in Rs.
		L/S	9988	10	28490
		L/s		16/20	56979
		220/110/11 kV Class			
		L/s	9988	100	66889
vi	Filling of oil to the main tank and OLTC tank, filtering the oil including filtering till attainment of prescribed BDV valves including labour, filtering equipment along with accessories.	Ltr	9988	All capacity	4.39
6	Cooler Bank of Power Transformers				
i	Refurbishment of radiators including removal of bends of radiators, fins, test for leakages and arrest if any.				
a	220 kV and above class Transformer	Each	9988	All capacity	4000
b	110 kV and below class Transformer	Each	9988	All capacity	1500
ii	Overhauling of fans and pump	No.	9988	All capacity	2000
iii	Repair of cooling fan	No.	9988	All capacity	5000
iv	Repair of Oil pump	No.	9988	All capacity	9000
7	Tests to be carried out on Power Transformers				
i	Impulse test on Transformer below 72.5 kV (For Transformer above 72.5 kV class, Impulse test comes under routine test)	No.	9988	All capacity	125000
ii		66/11 kV Class			
		L/s		8	15327
		L/s	9988	12.5	23949
		L/s		16/20	30654
		L/s		31.5	36402
		220/66/11 kV			
		L/s	9988	100	55892
		L/s		150	83837
		400/√3 / 220/√3 kV - 33 kV Class			
		L/s	9988	167	93339
		400/220 kV - 33 kV Class			
		L/s	9988	315	176058
		L/s		500	279458
		110/33-11 kV Class - 110/11 kV Class			
		L/s	9988	10	16280
		L/s		16/20	32559
		220/110/11 kV Class			
		L/s	9988	100	55892
		66/11 kV Class			
		L/s		8	6270
		L/s	9988	12.5	9797
		L/s		16/20	12540
		L/s		31.5	14892
		220/66/11 kV - 66/11 kV Class			
		L/s	9988	100	16418
		L/s		150	24627
		Single Phase Transformer 400/√3 / 220/√3 kV - 33 kV Class			
		L/s	9988	167	27418
		400/220 kV - 33 kV Class			
		L/s	9988	315	51717
		L/s	9988	500	77575
		110/33-11 kV Class - 110/11 kV Class			
		L/s	9988	10	6660
		L/s		16/20	13320
		220/110/11 kV Class			
		L/s	9988	100	16418
8	Redesigning of Power Transformer (Where ever applicable) (3 Winding / Auto Transformer / 2 Winding)				
i	3 Winding Transformer				
a	220 kV and above class Transformer	L/s	9988	All Capacity	75000
b	110 kV and below class Transformer	L/s	9988	All Capacity	50000
9	Reconditioning of accessories like Radiators, Conservator by hot air circulation along with pressure test of radiators and reconditioning of Transformer mounted mechanical relays				
i	220 kV and above class Transformer	L/s	9988	All Capacity	100000
ii	110 kV and below class Transformer	L/s	9988	All Capacity	70000

SCHEDULE OF RATES FOR REPAIR OF POWER TRANSFORMER

(Both Material & Labour Portion - Rates are exclusive of GST)

Sl. No	Description of Materials	Unit	HSN Code	Capacity in MVA	Amount in Rs.	
1	Main Tank of Power Transformer					
	i	Providing new pipeline from main tank to Buchholz relay and conservator/from conservator to breather	kg	9988	All capacity	160.00
	ii	Cleaning, Repairing and painting inside the Transformer Tank with hot oil bath and acid proof epoxy paint and painting outside the tank with enamel paint after thorough cleaning including the cost of materials including the painting of radiators at site/Firm.	66/11 kV Class			
			L/s	9988	8	16720
			L/s		12.5	26125
			L/s		16/20	33441
			L/s		31.5	39711
			220/66/11 kV Class			
			L/s	9988	100	43154
			L/s		150	64731
			400/√3 / 220/√3 kV - 33 kV Class			
			L/s	9988	167	72067
			400/220 kV - 33 kV Class			
			L/s	9988	315	135935
			L/s		500	215769
			110/33-11 kV Class - 110/11 kV Class			
			L/s	9988	10	22199
L/s	16/20	35519				
220/110/11 kV Class						
L/s	9988	100	43154			
iii	Tanking the assembly, giving connection, providing new gaskets and insulating materials conforming to relevant ISS, putting back the cover, tightening the fixtures, fixing the bushing etc., including the cost of all materials like Gasket, insulating materials, Bolts and Nuts etc., and labour. Other accessories at repairers work to facilitate the testing.	66/11 kV Class				
		L/s	9988	8	15327	
		L/s		12.5	23949	
		L/s		16/20	30654	
		L/s		31.5	36402	
		220/66/11 kV Class				
		L/s	9988	100	50298	
		L/s		150	75447	
		400/√3 / 220/√3 kV - 33 kV Class				
		L/s	9988	167	83998	
		400/220 kV - 33 kV Class				
		L/s	9988	315	158439	
		L/s		500	251490	
		110/33-11 kV Class - 110/11 kV Class				
		L/s	9988	10	20350	
L/s	16/20	32559				
220/110/11 kV Class						
L/s	9988	100	50298			
2	Bushing of Power Transformers					
i	Modifying existing/Providing the new turret	kg	9988	All capacity	160.00	
3	Active Parts with lead					
A	Core					
i	Providing new CRGO lamination to the core in place of damaged lamination wherever necessary including cost of materials and labour.	kg	9988	All capacity	452.17	
B	Solid insulation					
i	Providing solid insulation materials for replacement of damaged or burnt insulation as per actual weight.	kg	9988	All capacity	426.35	
C	Winding					
i	Providing re-insulation to HV/LV winding whenever necessary for total weight of winding except solid insulation.	kg	9988	All capacity	166.75	
ii	Providing new windings in place of damaged winding including cost of materials, labour, drying etc., (Both HV & LV) - per kg of winding.	kg	9988	All capacity	566.26	
iii	Providing HV static rings/LV static rings/end rings for Tap coils including new insulation	No.	9988	All capacity	400.00	
D	Leads and Supports					
i	Modification/replacement of lead if required	kg	9988	All capacity	1000	
4	OLTC of Power Transformers					
66/11 kV Class						
L/s		8	15902			
L/s		12.5	24847			
L/s		16/20	31804			
L/s		31.5	37767			
220/66/11 kV						
L/s		100	57565			

Sl. No	Description of Materials	Unit	HSN Code	Capacity in MVA	Amount in Rs.	
i	Repair and overhauling of OLTC each Divertor switch including change of oil, lubrication and replacement of gaskets and other parts which are locally available	L/s		150	86347	
		400/√3 / 220/√3 kV - 33 kV Class				
		L/s		167	96133	
		400/220 kV - 33 kV Class				
		L/s		315	181328	
		L/s		500	287823	
		110/33-11 kV Class - 110/11 kV Class				
		L/s		10	20350	
		L/s		16/20	32559	
		220/110/11 kV Class				
L/s		100	57565			
ii	Reconditioning of RTCC Panel and modification for SCADA compatability, replacement of all types switches, indicating lamps, annunciator windows, ROTI, RWTI, Tap position indicator etc., if required.					
a	220 kV and above Class	L/s	9988	All capacity	75000	
b	110 kV and below Class	L/s	9988	All capacity	50000	
iii	Retrofitting of existing OLTC by new one of other make including mounting arrangement, fixing of drives, drive linkages, modification in the maintenance lid, leads etc.					
a	220 kV and above Class (Inclusive of cost of OLTC)	L/s	9988	All capacity	1450000	
b	110 kV and below class (Inclusive of cost of OLTC)	L/s	9988	All capacity	1087500	
5	Cooler Bank of Power Transformers					
i	Providing 2 nos. of SCADA compatible Analog O/P of 4-20 mA and Remote temperature indicator for WTI & OTI to be provided along with necessary RTCs.	Set	9988	All capacity	10000	
ii	Providing new Fan control cubicle with main switch, contactors, relay and new wiring to meet requirement up to and including 8 nos. of fans as per standard/latest drawing.	Set	9988	All capacity	75000	
iii	Providing new Fan control cubicle with main switch, contactors, relay and new wiring to meet requirement for more than 8 fans as per standard /latest drawing	Set	9988	All capacity	85000	
iv	Providing new external wiring / cabling for cooling fans using 2.5 Sq mm , 4 core armoured copper cable.	m	9988	All capacity	105	
v	Providing mounting arrangement for each fan frame for cooling fans.	kg	9988	All capacity	180	
6	Nitrogen Fire Protection System (NIFPS) of Power Transformers					
i	Re-commissioning of NIFPS in case of replacement of Transformers (includes modification works required to connect all the accessories of NIFPS)					
a	220 kV and above Class	L/s	9988	All capacity	95000	
b	110 kV and below class	L/s	9988	All capacity	55000	
ii	Replenishment of Nitrogen gas (50 kg)	No.	9988	All capacity	20000	

Note :

- 1 Wherever explosion vent is present, the same shall be replaced by PRV.
- 2 provision for refurbishment/overhauling of various items may be made whenever the items seems to be in good condition by visual inspection. Decision regarding replacement of such items may be taken during Joint inspection for which SR rates are available
- 3 Any Transformer that does not have NIFPS, provision shall be made for fixing of NIFPS to the Transformer for capacities of 20 MVA and above.
- 4 **GST Reference Code 9988 : Manufacturing services on physical inputs (goods) owned by others.**