

List of TOP Priority Needs for Ukrainian Power System (21/11/2022)

Equipment	Technical parameters*	Unit	Quantity
Autotransformer 750 kV	333000 kVA Voltages HV/MV/LV – 750/330/15,75 kV	phase	20
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV – 330/150/6 kV	pcs	1
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV – 330/150/10 kV	pcs	1
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV – 330/150/35 kV	pcs	4
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV – 330/220/35 kV	pcs	2
Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV – 330/110/35 kV	pcs	2
Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV – 330/110/10 kV	pcs	3
Autotransformer 330 kV	195 000 kVA Voltages HV/MV/LV – 330/110/10 kV	pcs	3
Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV – 330/110/10 kV	pcs	3
Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV – 330/110/35 kV	pcs	2
Autotransformer 220 kV	200 000 kVA Voltages HV/MV/LV – 220/110/10 kV	pcs	1
Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV – 220/110/35 kV	pcs	3
Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV – 220/110/10 kV	pcs	2
Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV – 220/110/6 kV	pcs	2

* voltage classes might not be precisely the same, i.e 345 kV is equivalent to 330 kV AT

List of Priority 2 Needs for Ukrainian Power System 22/11/2022

Sector	Damaged equipment	Technical parameters*	Unit	Required quantity	
TSO (Ukrenergo)	Transformer 150 kV	Three-phase Power - 63000 kVA Voltages HV/MV/LV - 150/38,5/6,6 kV	pcs.	1	
	Transformer 110 kV	Three-phase Power - 20000 kVA Voltages HV/MV/LV - 110/35/6 kV	pcs.	1	
	Transformer 35 kV	Three-phase Power - 15000 kVA Voltages HV/LV - 35/10 kV	pcs	1	
	Transformer 35 kV	Three-phase Power - 2500 kVA Voltages HV/LV - 35/6 kV	pcs.	1	
	Transformer 35 kV	Three-phase Power - 630 kVA Voltages HV/LV - 35/0,4 kV	pcs	1	
	Transformer 10 kV	Three-phase Power - 1000 kVA Voltages HV/LV - 10/0,4 kV	pcs.	2	
	Transformer 10 kV	Three-phase Power - 630 kVA Voltages HV/LV - 10/0,4 kV	pcs	5	
	Transformer 6 kV	Three-phase Power - 630 kVA Voltages HV/LV - 6/0,4 kV	pcs.	3	
	Reactor 750 kV	Single-phase Rated power - 110000 kVAp Rated voltage - 750 kV	phase	6	
	Regulating transformer 35 kV	Three-phase Power - 63 000 kVA Voltages HV/LV - 38,5/38,5±10x1,5% kV	pcs.	3	
	Regulating transformer 35 kV	Three-phase Power - 40 000 kVA Voltages HV/LV - 11/11±10x1,5% kV	pcs.	1	
	Regulating transformer 35 kV	Three-phase Power - 40 000 kVA Voltages HV/LV - 35/35 kV	pcs.	1	
	Regulating transformer 35 kV	Three-phase Power - 10 000 kVA Voltages HV/LV - 38,5/38,5±10x1,5% kV	pcs	2	
	Phase Shifting Transformer 110 kV	Single-phase Rated power - 92000 kVA Voltages RW/EW/CW - 68/15,75/10,5 kV	phase	7	
	Phase Shifting Transformer 150 kV	Single-phase Rated power - 92000 kVA Voltages RW/EW/CW - 68/15,75/10,5 kV	phase	2	
	Circuit breaker 750 kV	Rated voltage - 750 kV Rated current - 4000A Rated short-circuit breaking current - 40 kA	set 3 phases	4	
	Circuit breaker 330 kV	Rated voltage - 330 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	20	
	Circuit breaker 220 kV	Rated voltage - 220 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	11	
			Rated voltage - 150 kV Rated current - 3150A		

Circuit breaker 150 kV	Rated short-circuit breaking current - 40 kA	set 3 phases	14
Circuit breaker 110 kV	Rated voltage - 110 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	30
Circuit breaker 35 kV	Rated voltage - 35 kV Rated current - 2000A Rated short-circuit breaking current - 40 kA	pcs	4
Disconnecter 750 kV with one earthing switch	Rated voltage - 750 kV Rated current - 3150A	set 3 phases	2
Disconnecter 330 kV with two earthing switches	Rated voltage - 330 kV Rated current - 3150A	set 3 phases	18
Disconnecter 330 kV with one earthing switch	Rated voltage - 330 kV Rated current - 3150A	set 3 phases	20
Disconnecter 220 kV with two earthing switches	Rated voltage - 220 kV Rated current - 2000A	set 3 phases	5
Disconnecter 220 kV with one earthing switch	Rated voltage - 220 kV Rated current - 2000A	set 3 phases	13
Disconnecter 150 kV with two earthing switches	Rated voltage - 150 kV Rated current - 2000A	set 3 phases	5
Disconnecter 150 kV with one earthing switch	Rated voltage - 150 kV Rated current - 2000A	set 3 phases	27
Disconnecter 110 kV with two earthing switches	Rated voltage - 110 kV Rated current - 2000A	set 3 phases	8
Disconnecter 110 kV with one earthing switch	Rated voltage - 110 kV Rated current - 2000A	set 3 phases	52
Disconnecter 35 kV with two earthing switches	Rated voltage - 35 kV Rated current - 2000A	set 3 phases	3
Disconnecter 35 kV with one earthing switch	Rated voltage - 35 kV Rated current - 2000A	set 3 phases	9
Current transformer 750 kV	SF6-filled Rated voltage - 750 kV Transformer ratio - 4000-3000-2000-1500/1 Accuracy class - 0,2S/0,2S/10P/10P/10P/10P	phase	5
Current transformer 330 kV	SF6-filled Rated voltage - 330 kV Transformer ratio - 2000/1 Accuracy class - 0,2S/0,2S/10P/10P/10P/10P	phase	27
Current transformer 330 kV	SF6-filled Rated voltage - 330 kV Transformer ratio - 2000/5 Accuracy class - 0,2S/0,2S/10P/10P/10P/10P	phase	9
Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 1200/1 Accuracy class - 0,5/10P/10P/10P	phase	3
Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 600/5 Accuracy class - 0,5/10P/10P/10P	phase	6
Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 600-1200/5 Accuracy class - 0,5/10P/10P/10P	phase	6
Current transformer 150 kV	SF6-filled Rated voltage - 150 kV	phase	30

	Current transformer 150 kV	Transformer ratio - 1200/5 Accuracy class - 0,5/10P/10P/10P	phase	30
	Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 750-1500/1 Accuracy class - 0,5/10P/10P/10P	phase	21
	Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 1500/5 Accuracy class - 0,5/10P/10P/10P	phase	12
	Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 600-1000/5 Accuracy class - 0,5/10P/10P/10P	phase	9
	Current transformer 35 kV	Solid isolation Rated voltage - 35 kV Transformer ratio - 1500/5 Accuracy class - 0,5/10P/10P/10P	set 3 phases	3
	Voltage transformer 35 kV	Rated voltage - 35 kV	set 3 phases	1
	Voltage transformer 110 kV	SF6-filled Rated voltage - 110 kV	phase	12
	Voltage transformer 150 kV	SF6-filled Rated voltage - 150 kV	phase	3
	Voltage transformer 220 kV	SF6-filled Rated voltage - 220 kV	phase	18
	Voltage transformer 330 kV	SF6-filled Rated voltage - 330 kV	phase	9
	Surge Arrester 750 kV	Rated voltage Surge Arrester (Ur) - 612 kV Line discharge class - 3	set 3 phases	4
	Surge Arrester 330 kV	Rated voltage Surge Arrester (Ur) - 288 kV Line discharge class - 2	set 3 phases	15
	Surge Arrester 330 kV	Rated voltage Surge Arrester (Ur) - 288 kV Line discharge class - 2	set 3 phases	2
	Surge Arrester 220 kV	Rated voltage Surge Arrester (Ur) - 192 kV Line discharge class - 2	set 3 phases	3
	Surge Arrester 150 kV	Rated voltage Surge Arrester (Ur) - 138 kV Line discharge class - 3	set 3 phases	8
	Surge Arrester 110 kV	Rated voltage Surge Arrester (Ur) - 108 kV Line discharge class - 2	set 3 phases	8
	Surge Arrester 35 kV	Rated voltage Surge Arrester (Ur) - 37,5 kV Line discharge class - 2	set 3 phases	5
	Surge Arrester 6 kV	Rated voltage Surge Arrester (Ur) - 6,3 kV Line discharge class - 2	set 3 phases	2
	Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 450 Ah Service life - not less than 20 years	set	2
	Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 500 Ah Service life - not less than 20 years	set	4
	Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 375 Ah Service life - not less than 20 years	set	1
DSO & Generation	Current transformer	2000/1, U=330 kV, accuracy class 0.2S, IEC 61869	pcs.	27
	Current transformer	1200/1, U=220 kV, accuracy class 0.2S, IEC 61869	pcs.	10

(DTEK &
other
private
operators)

Current transformer	1200/5, U=154 kV, accuracy class 0.2S, IEC 61869	pcs.	16
Current transformer	1200/5, U=110 kV, accuracy class 0.2S, IEC 61869	pcs.	19
Voltage transformer	U1=400/ $\sqrt{3}$ kV, U2=100/ $\sqrt{3}$ V, accuracy class 0,2, IEC 61869	pcs.	3
Voltage transformer	U1=330/ $\sqrt{3}$ kV, U2=100/ $\sqrt{3}$ V, accuracy class 0,2, IEC 61869	pcs.	6
Voltage transformer	U1=220/ $\sqrt{3}$ kV, U2=100/ $\sqrt{3}$ V, accuracy class 0,2, IEC 61869	pcs.	3
Voltage transformer	U1=150/ $\sqrt{3}$ kV, U2=100/ $\sqrt{3}$ V, accuracy class 0,2, IEC 61869	pcs.	3
Voltage transformer	U1=110/ $\sqrt{3}$ kV, U2=100/ $\sqrt{3}$ V, accuracy class 0,2, IEC 61869	pcs.	3
Circuit breakers and disconnectors	SF6 LTB	pcs.	13
Circuit breakers and disconnectors	SF6 HPL245	pcs.	5
Circuit breakers and disconnectors	SF6 LTB 170D1/154kV/3150/40kA	pcs.	6
Circuit breakers and disconnectors	SF6 HPL145B1/110kV/4000A/40kA	pcs.	7
Circuit breakers and disconnectors	4000 A - 160 kA peak - 63 kA/3sec (various voltage class)	pcs.	51
Circuit breakers and disconnectors	3150 A - 125 kA peak - 50 kA/3sec.	pcs.	20
Bushings for AT	(RIP bushings with silicone composite insulator): 400 kV	pcs.	9
Bushings for AT	(RIP bushings with silicone composite insulator): 245 kV	pcs.	7
Transformer Oil	(T-1500 or similar oil)	kg	60000
Mobile substation	154 (110) kV (40 MVA transformer + set of switchgear 110, 35, 10, 6 kV)	pcs.	3
Complete secondary substation	(2x630 kVA) with transformers	pcs.	30
Power transformer	63 MVA 150/35/10 kV	pcs.	1
Power transformer	40 MVA 150/35/10 kV	pcs.	2
Power transformer	80 MVA 110/35/10 kV	pcs.	1
Power transformer	63 MVA 110/10/10 kV	pcs.	1
Power transformer	63 MVA 110/35/10 kV	pcs.	4
Power transformer	40 MVA 110/35/10 kV	pcs.	3
Power transformer	40 MVA 110/10/10 kV	pcs.	1
Power transformer	25 MVA 110/35/10 kV	pcs.	2
Power transformer	25 MVA 110/10/10 kV	pcs.	1
Power transformer	16 MVA 110/35/10 kV	pcs.	2
Power transformer	10 MVA 110/35/10 kV	pcs.	2
Power transformer	16 MVA 35/10 kV	pcs.	3
Power transformer	10 MVA 35/10 kV	pcs.	3
Power transformer	6,3 MVA 35/10 kV	pcs.	1
Power transformer	4 MVA 35/10 kV	pcs.	1
Medium Voltage Transition Joint	(POLJ 24) 1x120 - 1x800 mm	pcs.	754
Power Cable Termination	(POLT 24) 1x120 - 1x800 mm	pcs.	502
Circuit breaker	110 kV, SF6	pcs.	24
Circuit breaker	35 kV, vacuum 35-20-1600	pcs.	19
Conical reinforced concrete pole for OHL	(22m)	pcs.	16
Power Cable 6-10 kV	with XLPE Isolation 1x120 - 1x800 mm	km	102
Steel-aluminum wire	120-400 mm ²	tones	567
Power transformer	TDTN-40000/150/35/10	pcs	1
Power transformer	TDTN -16000/110/35/6	pcs	1
Power transformer type	(ТДТНЖ)-25000/110/27,5/10	pcs	6
Power transformer type	(ТДТНЖ)-25000/110/27,5/6,3	pcs	1
Power transformer type	(ТДТНЖ)-40000/110/27,5/6,3	pcs	2

Ukrzaliznytsi a	Power transformer	ТРДН-25000/110/6,3/6,3	pcs	1
	Power transformer type	(ТДТНЖ)-40000/110/35/27,5	pcs	4
	Power transformer type	(ТДТНЖ)-40000/110/27,5/10	pcs	3
	Power transformer	35/10 kV 10MBA	pcs	1
	Power transformer	35/10 kV 6,3MBA	pcs	6
	Power transformer	35/10 kV 1,6MBA	pcs	1
	Power transformer	35/61 kV,6MBA	pcs	1
	Rapid switches	3,3 kV	pcs	60
	Contact network sectional insulators	HS-25 (CI-160)	pcs	30
	Contact network sectional insulators	HS-3	pcs	30

***voltage classes might not be precisely the same, i.e. 345 kV AT is equivalent to 330 kV AT.**