

**List of Priority A Needs for Ukrainian Power System**

<b>Sector</b>	<b>Damaged equipment</b>	<b>Technical parameters*</b>	<b>Unit</b>	<b>Required quantity</b>
<b>TSO</b>	Autotransformer 750 kV	333000 kVA Voltages HV/MV/LV - 750/330/15,75 kV	phase	<b>20</b>
	Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/150/6 kV	pcs	<b>1</b>
	Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/150/10 kV	pcs	<b>1</b>
	Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/150/35 kV	pcs	<b>4</b>
	Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/220/35 kV	pcs	<b>2</b>
	Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV - 330/110/35 kV	pcs	<b>3</b>
	Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV - 330/110/10 kV	pcs	<b>12</b>
	Autotransformer 330 kV	195 000 kVA Voltages HV/MV/LV - 330/110/10 kV	pcs	<b>3</b>
	Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV - 330/110/10 kV	pcs	<b>3</b>
	Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV - 330/110/35 kV	pcs	<b>2</b>
	Autotransformer 220 kV	200 000 kVA Voltages HV/MV/LV - 220/110/10 kV	pcs	<b>1</b>
	Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV - 220/110/35 kV	pcs	<b>3</b>
	Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV - 220/110/10 kV	pcs	<b>2</b>
	Autotransformer 220 kV	Power - 125 000 kVA Voltages HV/MV/LV - 220/110/6 kV	pcs.	<b>2</b>
<b>DSO &amp; Generation (DTEK &amp; other private operators)</b>	Autotransformer 220 kV	Power - 250 000 kVA Voltages HV/MV/LV - 220/110/10,5 kV	pcs.	<b>1</b>
	Transformer 220 kV	Power - 200 000 kVA Voltages HV/LV - 220/18 kV	pcs.	<b>1</b>
	Autotransformer 330 kV	Power - 240 000 kVA Voltages HV/LV - 330/220 kV	pcs.	<b>1</b>
	Autotransformer 400 kV	Power - 210 000 kVA Voltages HV/LV - 400/330 kV	pcs.	<b>2</b>
	Autotransformer 400 kV	Power - 133 000 kVA Voltages HV/LV - 400/220 kV	pcs.	<b>1</b>

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

**List of Priority B Needs for Ukrainian Power System**

<b>Damaged equipment</b>	<b>Technical parameters*</b>	<b>Unit</b>	<b>Required quantity</b>
<b>TSO</b>			
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 - 10000 kVA Voltages HV/LV - 10/6 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	7
Regulating transformer 35 kV	Three-phase Power - 63 000 kVA Voltages HV/LV - 38,5/38,5±10x1,5% kV	pcs.	4
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

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Circuit breaker 330 kV	Rated voltage - 330 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	25
Circuit breaker 330 kV	Rated voltage - 330 kV Rated current - 4000A Rated short-circuit breaking current - 63 kA	set 3 phases	2
Circuit breaker 220 kV	Rated voltage - 220 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	11
Circuit breaker 150 kV	Rated voltage - 150 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	15
Circuit breaker 110 kV	Rated voltage - 110 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	set 3 phases	43
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	21
Disconnecter 330 kV with one earthing switch	Rated voltage - 330 kV Rated current - 3150A	set 3 phases	31
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	9
Disconnecter 110 kV with two earthing switches	Rated voltage - 110 kV Rated current - 3150A	set 3 phases	12
Disconnecter 110 kV with one earthing switch	Rated voltage - 110 kV Rated current - 2000A	set 3 phases	52

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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	41
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 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	31
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	12
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

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Voltage transformer 220 kV	SF6-filled Rated voltage - 220 kV	phase	18
Voltage transformer 330 kV	SF6-filled Rated voltage - 330 kV	phase	13
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	18
Surge Arrester 220 kV	Rated voltage Surge Arrester (Ur) - 192 kV Line discharge class - 2	set 3 phases	5
Surge Arrester 150 kV	Rated voltage Surge Arrester (Ur) - 138 kV Line discharge class – 3	set 3 phases	11
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	3
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	2
<b>DSO &amp; Generation (DTEK &amp; other private operators)</b>			
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
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

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Voltage transformer	U1=220/√3 kV, U2=100/√3 V, accuracy class 0,2, IEC 61869	pcs.	3
Voltage transformer	U1=150/√3 kV, U2=100/√3 V, accuracy class 0,2, IEC 61869	pcs.	3
Voltage transformer	U1=110/√3 kV, U2=100/√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	2000
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	25 MVA 150/10/6 kV	pcs.	1
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

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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 110/6 kV	pcs.	2
Power transformer	2,5 MVA 110/10 kV	pcs.	2
Power transformer	16 MVA 35/10 kV	pcs.	3
Power transformer	10 MVA 35/10 kV	pcs.	4
Power transformer	6,3 MVA 35/10 kV	pcs.	1
Power transformer	4 MVA 35/10 kV	pcs.	2
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 <sup>2</sup>	tones	567
<b>Municipalities</b>			
Wind power stations	5-100 MW power stations	pcs.	1000
Gas/gas turbine genset power stations	5-100 MW power stations	pcs.	1000
Solar power stations	5-100 MW power stations	pcs.	1000
Battery energy storage	5-100 MW power stations	pcs.	1000