

List of equipment required for replacement of the damaged equipment of NPC "Ukrenergo" as of 14.11.2022*
((information for the period from 02.11.2022 to 14.11.2022 is still being updated and adjustments are possible))

Damaged equipment	Technical parameters of the equipment	Type of equivalent equipment for replacement of the damaged one	Unit	Required quantity
Autotransformer 750 kV	333000 kVA Voltages HV/MV/LV - 750/330/15,75 kV	АОДЦТН-333000/750/330 ЗТР	phase	18
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/150/10 kV	АТДТН-250000/330/150/10 ЗТР	pcs	1
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/150/35 kV	АТДЦТН-250000/330/150/35 ЗТР	pcs	4
Autotransformer 330 kV	250 000 kVA Voltages HV/MV/LV - 330/220/35 kV	АТДТН-250000/330/220/35 ЗТР	pcs	1
Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV - 330/110/35 kV	АТДТН-200000/330/110 ЗТР	pcs	2
Autotransformer 330 kV	200 000 kVA Voltages HV/MV/LV - 330/110/10 kV	АТДТН-200000/330/110/10 ЗТР	pcs	1
Autotransformer 330 kV	195 000 kVA Voltages HV/MV/LV - 330/110/10 kV	АТДТН-195000/330/110 ЗТР	pcs	3
Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV - 330/110/10 kV	АТДТН-125000/330/110/10 ЗТР	pcs	2
Autotransformer 330 kV	125 000 kVA Voltages HV/MV/LV - 330/110/35 kV	АТДТН-125000/330/110/35 ЗТР	pcs	2
Autotransformer 220 kV	200 000 kVA Voltages HV/MV/LV - 220/110/10 kV	АТДТН-200000/220/110/10 ЗТР	pcs	1
Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV - 220/110/35 kV	АТДТН-125000/220/110/35 ЗТР	pcs	3
Autotransformer 220 kV	125 000 kVA Voltages HV/MV/LV - 220/110/10 kV	АТДТН-125000/220/110/10 ЗТР	pcs	1
Autotransformer 220 kV	Power - 125 000 kVA Voltages HV/MV/LV - 220/110/6 kV	АТДТН-125000/220/110/6 ЗТР	pcs.	2

Transformer 110 kV	Three-phase Power - 20000 kVA Voltages HV/MV/LV - 110/35/6 kV	ТДТН-20000/110/35/6 ЗТР	pcs.	1
Transformer 35 kV	Three-phase Power - 15000 kVA Voltages HV/LV - 35/10 kV	ТДН-15000/35/10 ЗТР	pcs	1
Transformer 35 kV	Three-phase Power - 2500 kVA Voltages HV/LV - 35/6 kV	ТМ-2500/35 ЗТР	pcs.	1
Transformer 35 kV	Three-phase Power - 630 kVA Voltages HV/LV - 35/0,4 kV	ТМ-630/35/0,4 ЗТР	pcs	1
Transformer 10 kV	Three-phase Power - 1000 kVA Voltages HV/LV - 10/0,4 kV	ТМ-1000/10 ЗТР	pcs.	2
Transformer 10 kV	Three-phase Power - 630 kVA Voltages HV/LV - 10/0,4 kV	ТМ-630/10/0,4 ЗТР	pcs	5
Transformer 6 kV	Three-phase Power - 630 kVA Voltages HV/LV - 6/0,4 kV	ТМ-630/6 ЗТР	pcs.	3

Reactor 750 kV	Single-phase Rated power - 110000 kVAp Rated voltage - 750 kV	РОМ-110000/750 ЗТР	phase	6
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Regulating transformer 35 kV	Three-phase Power - 63 000 kVA Voltages HV/LV - 38,5/38,5±10x1,5% kV	ЛТДН-63000/35 ЗТР	pcs.	3
Regulating transformer 35 kV	Three-phase Power - 40 000 kVA Voltages HV/LV - 11/11±10x1,5% kV	ЛТДН-40000/10 ЗТР	pcs.	1
Regulating transformer 35 kV	Three-phase Power - 10 000 kVA Voltages HV/LV - 38,5/38,5±10x1,5% kV	ЛТДН-100000/35 ЗТР	pcs	2

Phase Shifting Transformer 110 kV	Single-phase Rated power - 92000 kVA Voltages RW/EW/CW - 68/15,75/10,5 kV	ОДТНП-92000/110-У1 ЗТР	phase	6
Phase Shifting Transformer 150 kV	Single-phase Rated power - 92000 kVA Voltages RW/EW/CW - 68/15,75/10,5 kV	ОДТНП-92000/150-У1 ЗТР	phase	2

Circuit breaker 750 kV	Rated voltage - 750 kV Rated current - 4000A Rated short-circuit breaking current - 40 kA	LTB 800E4 HITACHI-ABB	set 3 phases	4
Circuit breaker 330 kV	Rated voltage - 330 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	3AP2FI Siemens GL 315 Alstom GE GL 316 Alstom GE HPL 420B2 HITACHI-ABB LTB 420E2 HITACHI-ABB	set 3 phases	20
Circuit breaker 220 kV	Rated voltage - 220 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	LTB 245-220-40/3150 HITACHI-ABB	set 3 phases	11
Circuit breaker 150 kV	Rated voltage - 150 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	LTB-170 D1/B HITACHI-ABB	set 3 phases	9
Circuit breaker 110 kV	Rated voltage - 110 kV Rated current - 3150A Rated short-circuit breaking current - 40 kA	LTB 145-110-40/3150 HITACHI-ABB	set 3 phases	25
Circuit breaker 35 kV	Rated voltage - 35 kV Rated current - 2000A Rated short-circuit breaking current - 40 kA	OHB 40.25.32 HITACHI-ABB	pcs	4

Disconnecter 750 kV with one earthing switch	Rated voltage - 750 kV Rated current - 3150A	Z BF12-800+1AE R RUHRTAL	set 3 phases	2
Disconnecter 330 kV with two earthing switches	Rated voltage - 330 kV Rated current - 3150A	GW-57-363DII HITACHI-ABB S2DA2T-362 Alstom GE SPOLT2-362 Alstom GE	set 3 phases	18
Disconnecter 330 kV with one earthing switch	Rated voltage - 330 kV Rated current - 3150A	GW-57-363DI HITACHI-ABB S2DAT-362 Alstom GE SPOLT-362 Alstom GE	set 3 phases	18
Disconnecter 220 kV with two earthing switches	Rated voltage - 220 kV Rated current - 2000A	S2DA2T-245 Alstom GE ONI-245 Siemens	set 3 phases	5
Disconnecter 220 kV with one earthing switch	Rated voltage - 220 kV Rated current - 2000A	S2DAT GE (ALSTOM)	set 3 phases	13
Disconnecter 150 kV with two earthing switches	Rated voltage - 150 kV Rated current - 2000A	S2DA2T-170 Alstom GE GW55-170DII HITACHI-ABB	set 3 phases	5
Disconnecter 150 kV with one earthing switch	Rated voltage - 150 kV Rated current - 2000A	S2DAT-170 Alstom GE GW55-170DI HITACHI-ABB	set 3 phases	20
Disconnecter 110 kV with two earthing switches	Rated voltage - 110 kV Rated current - 2000A	GW55 -126DII HITACHI-ABB S2DA2T-126 Alstom GE	set 3 phases	8
Disconnecter 110 kV with one earthing switch	Rated voltage - 110 kV Rated current - 2000A	GW55 -126DI HITACHI-ABB S2DAT-126 Alstom GE	set 3 phases	46
Disconnecter 35 kV with two earthing switches	Rated voltage - 35 kV Rated current - 2000A	GW55 -72,5DII HITACHI-ABB S2DA2T-72,5 Alstom GE	set 3 phases	3
Disconnecter 35 kV with one earthing switch	Rated voltage - 35 kV Rated current - 2000A	GW55 -72,5DI HITACHI-ABB S2DAT-72,5 Alstom GE	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	SAS-765, Trench Siemens SAS-800, Trench Siemens TG-800, HITACHI-ABB	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	SAS-363 Siemens	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	TG-245 HITACHI-ABB	phase	9
Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 1200/1 Accuracy class - 0,5/10P/10P/10P	TG-245 HITACHI-ABB	phase	3

Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 600/5 Accuracy class - 0,5/10P/10P/10P	TG-245 HITACHI-ABB	phase	6
Current transformer 220 kV	SF6-filled Rated voltage - 220 kV Transformer ratio - 600-1200/5 Accuracy class - 0,5/10P/10P/10P	TG 170 HITACHI-ABB	phase	6
Current transformer 150 kV	SF6-filled Rated voltage - 150 kV Transformer ratio - 1200/5 Accuracy class - 0,5/10P/10P/10P	TG-145 HITACHI-ABB	phase	27
Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 750-1500/1 Accuracy class - 0,5/10P/10P/10P	TG-145 HITACHI-ABB	phase	21
Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 1500/5 Accuracy class - 0,5/10P/10P/10P	TG-145 HITACHI-ABB	phase	9
Current transformer 110 kV	SF6-filled Rated voltage - 110 kV Transformer ratio - 600-1000/5 Accuracy class - 0,5/10P/10P/10P	TG-145 HITACHI-ABB	phase	9

Voltage transformer 110 kV	SF6-filled Rated voltage - 110 kV	SVS 145 Trench (Siemens)	phase	9
Voltage transformer 220 kV	SF6-filled Rated voltage - 220 kV	SVS 245 Trench (Siemens)	phase	15
Voltage transformer 330 kV	"SF6-filled Rated voltage - 330 kV"	SVS 362 Trench (Siemens) TVI 362 TIP 362 HITACHI-ABB TEIMF 362 Trench Siemens	phase	9

Surge Arrester 750 kV	Rated voltage Surge Arrester (Ur) - 612 kV Line discharge class - 3	3EP3 612-5PK54-2NE1 Siemens	set 3 phases	4
Surge Arrester 330 kV	Rated voltage Surge Arrester (Ur) - 288 kV Line discharge class - 2	3EL2-288-3PM42-4NA Siemens	set 3 phases	14
Surge Arrester 220 kV	Rated voltage Surge Arrester (Ur) - 192 kV Line discharge class - 2	3EL2 192-2PQ32-4XE1 Siemens	set 3 phases	5
Surge Arrester 150 kV	Rated voltage Surge Arrester (Ur) - 138 kV Line discharge class - 3	3EL3 138-2PM31-4NE1 Siemens	set 3 phases	7
Surge Arrester 110 kV	Rated voltage Surge Arrester (Ur) - 108 kV Line discharge class - 2	3EL2 108-2PJ31-4TA1-Z Siemens	set 3 phases	6
Surge Arrester 35 kV	Rated voltage Surge Arrester (Ur) - 37,5 kV Line discharge class - 2	MWK 41 HITACHI-ABB	set 3 phases	4
Surge Arrester 6 kV	Rated voltage Surge Arrester (Ur) - 6,3 kV Line discharge class - 2	MWK 7 HITACHI-ABB	set 3 phases	2

Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 450 Ah Service life - not less than 20 years	18 GroE 450 12 GroE 300 Exide Classic	set	2
Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 500 Ah Service life - not less than 20 years	5 GroE 500 Exide Classic	set	4
Battery	Battery voltage - 230 B Elements voltage - 2 B Capacity - 375 Ah Service life - not less than 20 years	15 GroE 375 Exide Classic	set	1

	Control automatics for circuit breaker 330-750 kV	REC670 (7VK87)	terminal	35
	Control automatics for circuit breaker 110-220 kV	REC650 (7VK87)	terminal	18

Relay protection and emergency automatics	Distance and overcurrent protections for OHL 330-750 kV	REL670 (7SA87)	terminal	20
	Distance and overcurrent protections for OHL 110-220 kV	REL650 (7SA86)	terminal	14
	Phase-comparison protection for OHL 330-750 kV	L60	terminal	20
	Phase-comparison protection for OHL 330-750 kV	DFZ Diamant	terminal	5
	Line differential protection	RED670 (7SL87)	terminal	1
	Differential protection for AT 330-750 kV	RET670 (7UT87)	terminal	11
	Autotransformer Bushings insulation control	7SJ804	terminal	2
	Differential busbar protection 110-750 kV	REB670 (7SS85)	terminal	16
	Line open-phase detection device, overvoltage protection automatics	REC670	terminal	8
	Automatic of elimination of asynchronous mode	REL670	terminal	3
	Special automatic load shedding		terminal	1
	Device for receiving-transmitting commands	APK "Orion"	terminal	32
	High-frequency post	UPZ «Orion»	terminal	7