

Consolidated list of needs for the restoration of the destroyed infrastructure of the Ukrainian energy sector

COMPANY ACTIVITIES	FULL NAME OF THE NEED	KEY FEATURES	UNIT OF MEASUREMENT	TOTAL AMOUNT
GENERATION				
Generation (CHP, TPP, HPP)	Block transformer 250 MVA 220 kV/15.75 kV	Block transformer 250 MVA 220 kV/15.75 kV	pieces	2
Generation (CHP, TPP, HPP)	Block transformer 250 MVA 220 kV/15.75 kV	250 MVA 330 kV/15.75 kV Block Transformer	pieces	1
Generation (CHP, TPP, HPP)	Autotransformer 210MVA / 400kV / 330kV / Yauto/d-11	Autotransformer 210MVA / 400kV / 330kV / Yauto/d-11	pieces	3
Generation (CHP, TPP, HPP)	Autotransformer 240MVA / 330kV / 220kV / Yauto/d-11	Autotransformer 240MVA / 330kV / 220kV / Yauto/d-11	pieces	1
Generation (CHP, TPP, HPP)	Autotransformer 133MVA / 400kV / 220kV / Yauto/d-11	Autotransformer 133MVA / 400kV / 220kV / Yauto/d-11	pieces	1
Generation (CHP, TPP, HPP)	Software and hardware complex, turbine control system, thyristor excitation system of ARV-SD-21 generator	Generator thyristor system	pieces	2
Generation (CHP, TPP, HPP)	Block transformer 400 MVA / 150 kV	400 MVA / 150 kV	pieces	1
Generation (CHP, TPP, HPP)	Autotransformer 400 MVA, 330/150 kV	Autotransformer 400 MVA, 330/150 kV, Yauto/d-11 winding connection	pieces	4
Generation (CHP, TPP, HPP)	Block transformer 250 MVA /154 kV / 18 kV / Yo / Δ-11	250 MVA /154 kV / 18 kV / Yo/Δ-11	pieces	1
Generation (CHP, TPP, HPP)	Gas-insulated circuit breaker type - LTB145D1/B, or equivalent.		pieces	1
Generation (CHP, TPP, HPP)	Gas-insulated circuit breaker current transformer f "A" type IMB 123.		pieces	1
Generation (CHP, TPP, HPP)	Transformer type TDC 125000/110		pieces	1
Generation (CHP, TPP, HPP)	Line 1GT + slopes		pieces	1
Generation (CHP, TPP, HPP)	Auxiliaries transformer current duct 21T		pieces	1

Generation (CHP, TPP, HPP)	Turbine generator type – TVF-120-2-U3.		pieces	1
Generation (CHP, TPP, HPP)	Thyristor excitation system of the turbine generator type SVTG-3.85/375-1KS2T2.5-AR24-UHL4.		pieces	1
Generation (CHP, TPP, HPP)	A set of electrical protection and automation panels based on PM RPA "Diamant".		pieces	1
Generation (CHP, TPP, HPP)	Line 2GT + slopes		pieces	1
Generation (CHP, TPP, HPP)	Auxiliary transformer current duct 22T output 10.5 kV f "A"		pieces	1
Generation (CHP, TPP, HPP)	Gas-insulated circuit breaker of transformer 20T-2T		pieces	1
Generation (CHP, TPP, HPP)	Gas-insulated circuit breaker current transformers 20T-2T f "A", "V", "S" type TFZM		pieces	1
Generation (CHP, TPP, HPP)	Descent from the disconnecter P10T f "A"		pieces	1
Generation (CHP, TPP, HPP)	Transformer conductor 10T		pieces	1
Generation (CHP, TPP, HPP)	Mains water pipeline with a diameter of 1200mm, and tees.		pieces	1
Generation (CHP, TPP, HPP)	Cable products (type and quantity to be specified)		pieces	1
Generation (CHP, TPP, HPP)	Power transformer 280MVA		pieces	4
Generation (CHP, TPP, HPP)	Power transformer 6300 kVA		pieces	2
Generation (CHP, TPP, HPP)	Circuit breaker EV GT 11-12, 13-14, 15-16, 17-18		pieces	4
Generation (CHP, TPP, HPP)	Control and monitoring system of the GT 15-16 unit		pieces	2
Generation (CHP, TPP, HPP)	Surge arrester GT 11-12, 13-14, 15-16, 17-18		pieces	4
Generation (CHP, TPP, HPP)	Surge suppressor L-1, L-2		pieces	2
Generation (CHP, TPP, HPP)	Disconnecter L1-01		pieces	1
Generation (CHP, TPP, HPP)	Disconnecter L1-02		pieces	1
Generation (CHP, TPP, HPP)	Disconnecter L2-01		pieces	1
Generation (CHP, TPP, HPP)	Disconnecter L2-02		pieces	1
Generation (CHP, TPP, HPP)	Voltage transformer TN L1, TN L2		pieces	2

Generation (CHP, TPP, HPP)	Current transformer GT 11-12, 13-14, 15-16, 17-18		pieces	4
Generation (CHP, TPP, HPP)	150 kV outdoor switchgear. L1 and L2 line cell		pieces	2
Generation (CHP, TPP, HPP)	Gantry crane Service bridge NB DHES-2		pieces	1
Generation (CHP, TPP, HPP)	Crane runways of the service bridge crane		pieces	1
Generation (CHP, TPP, HPP)	Downstream shutter set No. 1, 2, 3, 4, 5		pieces	5
Generation (CHP, TPP, HPP)	Semi-gantry aggregate crane LB No. 1,2		pieces	2
Generation (CHP, TPP, HPP)	Crane runways of aggregate cranes		pieces	1
Generation (CHP, TPP, HPP)	Trolleys for power supply of aggregate cranes		pieces	1
Generation (CHP, TPP, HPP)	Traverse for lifting the rotor		pieces	1
Generation (CHP, TPP, HPP)	Hydraulic turbine with a set of equipment, No 11, 12, 13, 14, 15, 16, 17, 18		pieces	8
Generation (CHP, TPP, HPP)	Hydrogenerator with a set of equipment (protection, excitation system), No 11, 12, 13, 14, 15, 16, 17, 18		pieces	8
Generation (CHP, TPP, HPP)	DC switchboard with VU1, VU2, VU3		pieces	1
Generation (CHP, TPP, HPP)	Speed controller GA 11, 12, 13, 14, 15, 16, 17, 18		pieces	8
Generation (CHP, TPP, HPP)	Station-wide, control and protection device		pieces	1
Generation (CHP, TPP, HPP)	Control and protection device L1, L2		pieces	2
Generation (CHP, TPP, HPP)	Commercial accounting of HPP-2		pieces	1
Generation (CHP, TPP, HPP)	6 kV network maintenance station		pieces	1
Generation (CHP, TPP, HPP)	Station Level Controller		pieces	1
Generation (CHP, TPP, HPP)	Registrar RECON L1, L2		pieces	2
Generation (CHP, TPP, HPP)	Plant-wide needs management and monitoring system		pieces	1

Generation (CHP, TPP, HPP)	Control and monitoring system of the GT 11-12, 13-14 unit		pieces	2
Generation (CHP, TPP, HPP)	Operator panels Panel Mount PC, 19 INCH Display, Windows 10 IoT Ent 2019 LTSC x64.	Panel Mount PC, 19 INCH Display, Windows 10 IoT Ent 2019 LTSC x64.	pieces	6
Generation (CHP, TPP, HPP)	Operating Station	DROP250 DELL OptiPlex XE3 Dual Monitors Windows 10 LTSC + Dell Pro Stereo Soundbar AE515M	pieces	3
Generation (CHP, TPP, HPP)	Current Transformer	Voltage: 172 kV Transformation coefficient: 2000/5 Number of secondary windings: 6 (0.2S; 0.2S; 0.5; 3P; 3P; 3P)	pieces	3
Generation (CHP, TPP, HPP)	Voltage Transformer	Voltage: 172 kV Transformation coefficient: 154000/ $\sqrt{3}$ /100/ $\sqrt{3}$ /100/ $\sqrt{3}$ /100 Number of secondary windings: 4 (0.2S; 0.2S; 3P; 3P)	pieces	3
Generation (CHP, TPP, HPP)	OMICRON CMC356 Measuring Kit	6 x 32 A / 430 BA 3 x 64 A / 860 BA 1 x 128 A / 1000 BA 4 x 300 B	pieces	1
Generation (CHP, TPP, HPP)	OMICRON CMC353 Measuring Kit	3 x 32 A / 430 BA 1 x 64 A / 860 BA 4 x 300 B	pieces	1
Generation (CHP, TPP, HPP)	OMICRON CMControl P Control Panel		pieces	2
Generation (CHP, TPP, HPP)	Operator Panels DROP250 DELL OptiPlex XEC Dual Monitors Windows 10 LTSC + Dell Pro Stereo Soundbar AE515M	DROP250 DELL OptiPlex XE3 Dual Monitors Windows 10 LTSC + Dell Pro Stereo Soundbar AE515M	pieces	3
Generation (CHP, TPP, HPP)	Power supply	SYS BRAVO ALC 230VAC CE 220VDC EPC 01M 045 FIX STD 19600MM T2S ETN complete with one 2.5 kVA inder module BRAVO tsi-EPC-220VDC-230VAC	pieces	4
Generation (CHP, TPP, HPP)	SYS BRAVO 2.5kVA Manual Bypass	SYS BRAVO 2.5 kVA	pieces	4
Generation (CHP, TPP, HPP)	Clamp SAS 300-1B	Clamp SAS 300-1B	pieces	100
Generation (CHP, TPP, HPP)	Split clamp ROA-300-1	Split clamp ROA-300-1	pieces	100
Generation (CHP, TPP, HPP)	Clamp US-300-1	Clamp US-300-1	pieces	100

Generation (CHP, TPP, HPP)	Insulator LKC 120/150-3	Insulator LKC 120/150-3	pieces	100
Generation (CHP, TPP, HPP)	ACSR 300 wire	Wire ASO-300 (ACSR-300) Aluminum-steel wire uninsulated for overhead power lines	km	0,81
Generation (CHP, TPP, HPP)	Submersible pump SULZER	Pumps: Parameters Q=648 m ³ /h. H=23.3 m; Cable length not less than 25 m	pieces	4
Generation (CHP, TPP, HPP)	Float switch with clamp, weight and wire 30 m long		pieces	3
Generation (CHP, TPP, HPP)	Hose (hose) pressure-suction	D _{inside} = 152 mm; P _y =2,5 bar	km	0,2
Generation (CHP, TPP, HPP)	Centrifugal artesian pumping unit type A24A-18x1-10-U2		pieces	4
Generation (CHP, TPP, HPP)	Generator TGV-200, pcs		pieces	4
Generation (CHP, TPP, HPP)	Generator TGV-200M, pcs		pieces	1
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 200 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 100 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 21 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 11 kW, pcs		pieces	3
Generation (CHP, TPP, HPP)	Electric motor 750 rpm, 28 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 2985 rpm, 4000 kW, pcs		pieces	1
Generation (CHP, TPP, HPP)	Electric motor 2985 rpm, 3800 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 18.51 kW, pcs		pieces	6
Generation (CHP, TPP, HPP)	Electric motor 1500 rpm, 20 kW, pcs		pieces	2
Generation (CHP, TPP, HPP)	Electric motor 375 rpm, 1700 kW, pcs		pieces	1
Generation (CHP, TPP, HPP)	Overhead crane, pcs		pieces	2
Generation (CHP, TPP, HPP)	Autotransformer ATDTSTN- 125000/330/110-77U1 330 kV, pcs		pieces	1
Generation (CHP, TPP, HPP)	Transformer bushing 110 kV, pcs		pieces	3

Generation (CHP, TPP, HPP)	Transformer oil Shell Diala S4 ZX-1, tons		tons	200
TSO				
TSO	Autotransformer	Three-phase power - 200 MVA, voltage HV/SN/LV - 330/110/6 kV	pieces	2
TSO	Autotransformer	Three-phase power - 200 MVA voltage HV/SN/LV - 330/110/35 kV	pieces	1
TSO	Autotransformer 330 kV	Three-phase power - 125,000 kVA, voltage HV/SN/HV - 330/110/10 kV	pieces	1
TSO	Autotransformer 330kV	Type ATDTN-200000\330\110\10, three-phase, power - 200,000 kVA Voltage HV/SN/LV - 330/110/10 kV	kit	2
TSO	Autotransformer 330kV	Type ATDTSTN-250000\330\110\35, Three-phase, power - 250,000 kVA Voltage HV/SN/HV - 330/150/35 kV	kit	1
TSO	Autotransformer 750 kV	Single-phase Rated power - 333000 kVA Voltages HV/SN/HV - 750/330/15.75 kV	phase	1
TSO	Rechargeable battery	Type SK-10 Battery voltage - 230 V Cell voltage - 2 V Capacity - 360 Ah Service life - at least 20 years	kit	1
TSO	High-voltage bushing 330 kV	1) GMTP-45-330/1000-U1 (AT-1 f. A) IVEI.686.343.008 2) GMTPA-45-330/1000-U1 (AT-1 f. V) 2SHCHC.800.093.01 3) GKTII-45-330/1000-O1 (AT-1 f. S) IVEI.686353.001	pieces	3
TSO	High-voltage bushing 110 kV	Bushing 110 kV 800A type BRIT R-110-550\800 No. KN 1.9.005-RY Rated voltage - 110 kV Rated current - 800A	pieces	2

TSO	High-voltage bushing 110 kV	GMTB-90-110/2000 UHL1 Type Rated voltage - 110 kV Rated current - 2000A	pieces	1
TSO	High-voltage bushing 330 kV	Type GSB 362\1600\0.66B Rated voltage - 330 kV Rated current - 1600A	pieces	1
TSO	High-voltage bushing 330 kV	Type GMT II - 45-330/1000 U1 Rated voltage - 330 kV Rated current - 1000A	pieces	1
TSO	110 kV circuit breaker	Rated voltage - 110 kV Rated current - 2000A Current off. Short circuit - 50 kA	3 Phase Kit	3
TSO	110 kV circuit breaker	Rated voltage - 110 kV Rated current - 4000A Current off. Short circuit - 40 kA gas- insulated	3 Phase Set	1
TSO	110kV circuit breaker	U-110-2000-50-U1	3 Phase Kit	1
TSO	150 kV circuit breaker	Rated voltage - 150 kV Rated current - 3150A Current off. Short circuit - 40 kA	3 Phase Kit	3
TSO	330 kV circuit breaker	Type GL-315 Rated voltage - 330 kV Rated current - 3150A Current off. Short circuit - 50 kA	Kit (3 phases)	1
TSO	750 kV circuit breaker	Type LTB-800E-4000-40 Rated voltage - 750 kV Rated current - 4000A Current off. Short circuit - 40 kA	Kit (3 phases)	2
TSO	750 kV circuit breaker	Rated voltage - 750 kV Rated current - 4000A Current off. Short circuit - 40 kA gas- insulated	Kit	1
TSO	Surge arrester 150kV	Type PEXLIM Q 198 XH 245 Rated voltage (Ur) - 245 kV Line discharge class - 2	pieces	3
TSO	Surge arrester 330kV	Type PEXLIM Q288-YH 362 Rated voltage (Ur) - 362 kV Line discharge class - 2	pieces	3
TSO	Surge arrester 3EQ3-612	Rated voltage of surge arrester (Ur) - 612 kV Line discharge class - 2	3 Phase Set	1

TSO	110 kV surge arrester	Rated voltage of surge arrester (Ur) - 108 kV Line discharge class - 2	3 Phase Kit	1
TSO	330 kV surge arrester	3EL-288-3PM42-4NA Rated voltage - 330 kV	3 Phase Kit	1
TSO	Valve arrester RVMG-330	Rated voltage - 330 kV	3 Phase Kit	1
TSO	Arrester RVS-110	Rated voltage - 110 kV	3 Phase Kit	1
TSO	Control transformer 35 kV	Three-phase power - 40,000 kVA HV/LV voltage - 11/11±10x1.5% kV	pieces	1
TSO	150 kV disconnecter with one earthing knife	Rated voltage - 150 kV Rated current - 2000A	3 Phase Kit	1
TSO	Disconnector 330 kV, with two earthing knives	Type RNDZ-2-330-3200 Rated voltage - 330 kV Rated current - 3200 (2000)A	3 Phase Kit	1
TSO	Disconnector 330 kV, with two earthing knives	Type S2DAT2T-330\3150 Rated voltage - 330 kV Rated current - 3150 (2000)A	3 Phase Kit	2
TSO	Disconnector 330 kV, with one earthing knife	Type RNDZ-1B-330/3200 Rated voltage - 330 kV Rated current - 3200 (2000)A	3 Phase Kit	1
TSO	Disconnector 750 kV RPG-1-750/3150	Unom - 750 kV Other - 3150A with one grounding knife	3 Phase Set	1
TSO	150 kV arrester	Rated voltage of surge arrester (Ur) - 138 kV Line discharge class - 3	3 Phase Set	1
TSO	150 kV arrester	Rated voltage of surge arrester (Ur) - 108 kV Line discharge class - 2	3 Phase Set	1
TSO	Arrester 150kV	Rated voltage - 150 kV	phase	3
TSO	Arrester 330 kV	Rated voltage of surge arrester (Ur) - 288 kV Line discharge class - 2	3 Phase Set	3
TSO	110 kV arresters	Rated voltage of surge arrester (Ur) - 108 kV Line discharge class - 2	3 Phase Kit	1
TSO	Arresters 330 kV	Type RVMG-330 Rated voltage (Ur) - 330 kV Line discharge class - 2	pieces	6

TSO	750kV arresters	Type RVMK-750M Rated voltage (Ur) - 750 kV Line discharge class - 2	pieces	6
TSO	Voltage transformer 110kV	Rated voltage - 110 kV	phase	3
TSO	Voltage transformer 150kV	Rated voltage - 150 kV	phase	3
TSO	Voltage transformer 330 kV	Type TEMP-362 Gas-insulated ...	pieces	3
TSO	Voltage transformer 330kV	Rated voltage - 330 kV	phase	6
TSO	Voltage transformer 750 kV	Type NDE-750-72U1 Gas-insulated ...	pieces	6
TSO	Current transformer 110kV	Rated voltage - 110 kV Transformation factor - 1000- 2000/5 Accuracy class - 0.2S/0.2S/10P/10R/10P/10P	3 Phase Kit	4
TSO	150 kV Current Transformer	Gas-insulated Rated voltage - 150 kV Transformation factor - 1200/5 Accuracy class - 0.2S/10P/10R/10P	phase	3
TSO	Current transformer 330kV	Rated voltage - 330 kV Transformation coefficient - 2000/1 Accuracy class - 0.2S/0.2S/10P/10P/10P/10P	3 Phase Kit	2
TSO	Current transformer 750 kV	Gas-insulated Rated voltage - 330 kV Transformation factor - 4000-3000-2000-1500/1 Accuracy class - 0.2S/0.2S/5P/5P/5P/5P	phase	2
TSO	Voltage Transformer	NKF-110 U1	pieces	3
TSO	Regulation Transformer	Type - LTDN - 40000 \6 Rated voltage - 6 kV Rated power - 40 MVA	pieces	1