

LIST OF PRIORITIES FOR WINTERIZATION IN UKRAINE

The top priority for replenishment is the autotransformers fleet. As of today, the need, including the replenishment of the emergency stock, is the following:

- AT 750 kV - eleven phases;
- AT 330 kV - sixteen units;
- AT 220 kV - six units.

The amount of other damaged primary equipment (high voltage circuit breakers, disconnectors, surge arresters, measurement transformers, and shunt reactors) is tremendous as well. Just a few figures for a clearer picture:

- current transformers 750 kV - 21 phases;
- circuit breakers 330 kV – 15 units in 3-phase set;
- circuit breakers 110 kV - 25 units in 3-phase set;
- disconnectors 110 kV with one earthing switch - 33 units in 3-phase set;
- voltage transformers 220 kV - 15 phases, etc.

Another priority is the relay protection and automation devices. The current demand constitutes at least of:

- 13 sets of distance and overcurrent protection;
- 20 sets of circuit breaker control automatics;
- 6 sets of differential busbar protection;
- 10 sets of command transmission equipment.

As for thermal power plants, the needs are also substantial. In particular:

- circuit breakers 110 kV - 6 units in 3-phase set;
- circuit breakers 330 kV – 3 units in 3-phase set;
- disconnectors 110 kV with one earthing switch - 9 units in 3-phase set;
- current transformers 110 kV - 6 phases;
- voltage transformers 110 kV - 3 phases, etc.

The hydropower system is at risk as well and JSC Ukrhydroenergo needs the replenishment of its emergency stock of autotransformers 330 kV (7 units) and power transformers 330 kV (4 units) and 110 kV (7 units).

In accordance with Ukrenergo's projection, the full replenishment of the damaged equipment might take up to several years

Please see below the priority civil protection needs, which were compiled by the State Emergency Service of Ukraine:

1. modular houses - 6500 units (for 20 people with an internal lighting system);
2. residential modules - 820 units;
3. sanitary modules - 164 units;
4. bedroom sets - 130,000 units;
5. electric generators – 6,828 units (with the capacity >10 kW - 6500 units, >100 kW – 164 units, >400 kW – 164 units);
6. heat guns of indirect heating on liquid fuel or on electricity, with a thermostat and air distribution sleeves - 13,000 units;
7. mobile drinking water purification stations - 164 units. (at least 1.5 cubic meters per hour);
8. tank trucks for the delivery of drinking water - 164 pcs. (at least 8 cubic meters).