

COMMISSIONING OF AIR LINES

The construction of new or reconstruction of existing overhead power line (PL), as a rule, is performed by a specialized construction and installation organization. All works are performed according to the project. Before the start of work, the project is considered by the operational organization, which will then have to accept the finished power line (PL) into operation.

During the construction of PL, operational staff conducts technical supervision over the performance of construction and installation works. The task of operational personnel is to provide assistance to builders and installers during the detection of defects, omissions and deviations from the project.

After the completion of the work, the construction and installation organization notifies the operating organization on the need to accept the line into operation. For this, an acceptance commission is appointed, to which the necessary design and technical documentation of the PL is transferred (line project, passport and inventory description, three-line scheme with phase coloring and transposition of drives, route plan and profile, land allocation documentation, acts for hidden works, etc.). To assist the reception committee, working committees are created with the participation of electricians-linemen. Members of the working commissions perform a detailed inspection of the submarine (climbing onto each support) and draw up reports listing the defects and deficiencies found.

After the construction and assembly organization eliminates all deficiencies and inconsistencies with the project, the line is re-inspected and an additional act is drawn up. On the basis of the acts of the working commissions and a review of the documentation, the acceptance commission determines the readiness of PL to be put into operation.

Switching on the PL under voltage is performed by the operational staff of the power system upon application and with the permission of the head of the acceptance commission. The voltage on the line is supplied by a pulse at the minimum current and time settings on the protection relay. Before closing under the load, overhead line is phasing.

Under load, the PL is tested during the day. Upon positive test results, an act on the transfer of PL into operation is drawn up.

The damage of overhead power line causes harm to the national economy, therefore protection of PL from damage is an important state matter.

The "Rules for the protection of high-voltage electrical networks" were approved by a special government resolution.

For the normal maintenance of PL, security zones have been established along line, which pass through populated areas. They are limited by parallel lines located from the extreme wires at distances. The distances of the location of the outermost wires are given in the next table.

Table 1 – Distances of location of the extreme wires depending on the voltage of a power line

Voltage, kV	20	35	110	150-220	330
Distance, m	10	15	20	25	30

The width of the glade in forest areas and green plantations must be at least the distance between the outermost wires plus 3 m in each direction from the outermost wires for planting heights of up to 4 m and not less than the length of the support traverse plus a distance equaled to the height of the main forest area in each direction from extreme wires, for the height of plantings over 4 m.

It is forbidden to build cut-in structures, perform earthworks, construction and installation works, put haystacks, etc. within the boundaries of protection zones and passages.

It should be noted that the land area, which is under the PL, is not taken from the land users, and it is usually cultivated for sowing and planting.

Only the areas under the line supports are withdrawn from land users.