

3.22. CONSULTING OF INDUSTRIAL ENTERPRISES IN DIAGNOSTICS AND EXPERT EXAMINATION OF TECHNICAL STATE OF POWER CABLE LINES

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Currently, large number of power equipment with exhausted standard operation time is a feature peculiar to state of the fixed assets of electric power industry. For Russia, in average, share of this equipment amounts to 60 – 80%. Renewal of the power industry fixed assets does not exceed 3 – 5% per year. Replacement of such a quantity of electric equipment for a new one within the short terms is impossible task both in economic and technical terms. Program of substantiated extension of the operation time is required. Taking into account the large number of power industry objects with exhausted standard operation time, including power cable lines, application of known testing methods becomes often inadmissible due to possible failures.

Problem solution can be considered in the following main directions:

- determination of the actual technical state of lines by nondestructive diagnostic methods;
- analysis and determination of the quantity of objects to be replaced (or repaired);
- recovery of lines to required operation parameters;
- implementation of technical maintenance system for cable lines under the actual technical state;
- planning of the development of cable lines taking into account data on their technical state.

Actual technical state of power cable lines can be determined by methods of technical diagnostics. These methods make it possible to localize problematic points in insulation, to determine the degree of their danger, to evaluate the remaining operation time of lines and material resources necessary for their recovery to required parameters. Methods of technical diagnostics are not an alternative in relation to tests by increased voltage, but rather are their obligatory supplement.

It should be noted that reliance of companies operating power equipment on mathematical support and software of purchased instruments is groundless currently. As a rule, in diagnostic equipment of domestic and foreign production, the diagnostic method itself is implemented good (not always) only, while software for analysis of obtained results is either absent or implemented weakly. For high-quality diagnostics, specialists-experts are required, and there are only few of them in any country.

Unlike to traditional testing methods, diagnostics is the high-end technology. In order to implement it, intellectual expensive equipment and high-level specialists with scientific degrees, as a rule, are required. Therefore, in fact, diagnostics is possible only by efforts of specialized enterprises. With own available diagnostic equipment and absence of specialists required at enterprises for these purposes, cooperation with analytical subdivisions of third-party specialized enterprises or cooperation in the form of consulting is possible.

Enterprise LLC “Test”, Perm, has vast experience in diagnostics of power cable lines under modern methods. Enterprise is equipped mainly with equipment produced by the known company “SebaKMT”, Germany. Enterprise’s personnel includes qualified specialists able to provide third-party companies with consulting services. It is necessary for such enterprises to be in all regions of Russia.