

PREDICTION ELECTRIC LOAD 110 SUBSTATIONS (35) / 10 kV RETROSPECTIVE HOURLY DAILY SCHEDULE ENERGY CONSUMPTION

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The use of information flows Automated system of commercial electricity metering (AMR), incorporated in substations with voltage 110 (35) / 10 kV for forecasting electricity load stations during their operation.

The widespread introduction of AMR in substations 110 (35) / 10 kV makes it possible, in addition to monitoring and recording, to form a database on retrospective daily schedules hourly electricity consumption and then using them to predict the load substations in the operation of power networks.

The purpose of research - formation of proposals for the use of forecast data loading stations 110 (35) / 10 kV for improvement calculations and management modes of electrical networks with distributed generation sources.

Materials and methods research. The forecasting load stations 110 (35) / 10 kV consider the example of some operation scheme introduced her at AMR remote sensing data.

The database is formed on the database server by passing daily hourly of meters for electricity consumed, such as on radio channels through switching controllers and controllers of data collection according to the programmed request.

Database on actual electricity consumption should be complemented by the actual average temperature in the area of power consumption.

Prediction recommended to perform using regression models, such as a simple one-factor linear regression, in which the determining factor is the average temperature, as well as study factor - power consumption.

Results. The procedure for solving the problem:

- 1) To make the sum of the squares full function abnormalities
- 2) Differentiate function F for the unknowns a_0 and a_1 ;

3) Derivatives equated to zero.

After the calculation of the amounts and solving a system of two linear equations with two unknowns determine the regression coefficient a_0 and a_1 and get the equation of digital values corresponding factors.

A large amount of data to be used in the proposed forecasting, requires the development of specific software.

Conclusions

Introduction to substations 110 (35) / 10 kV AMR meters with active and reactive energy enables to form a database on the hourly charts daily electricity consumption in the power grid branches lower voltage. If AMR similar to consumer TS-10 (6) / 0,4 kV will perform load forecasting these TP and carry out calculations and management regimes lower voltage networks. Particularly relevant is putting the problem in the presence of a network of distributed generation sources.

To predict the load stations can recommend a permanent and effective enough to handle flows retrospective information on defining and investigated factors regression analysis, such as univariate linear regression relationship.