



# **ESTIMATION OF POWER SUPPLY INTERRUPTION RELATED COSTS. METHODOLOGY, SURVEY QUESTIONNAIRE AND RECEIVED DATA NORMALIZATION.**

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## **ABSTRACT**

Nowadays electrical energy is of vital importance to modern society. Power systems that provide electricity to customers have three main tasks – provide electrical energy: 1) in required amounts; 2) in as economical way as possible; 3) with needed quality level. Reliability of power supply has an effect on all the main tasks of power system as soon as power supply interruptions: 1) diminish amount of electrical energy provided to customers; 2) create additional expenses to power supplying companies and customers; 3) worsen quality of power supply.

Taking into account causes of power supply interruptions (nature impact, animals, equipment faults, etc.) and probabilistic nature of outages, reliability level never can reach absolute value – 100%, and due to that power system will never be able to provide as much electrical energy as needed. In contradistinction to aforesaid, the last two tasks of power system can be solved from reliability point of view. Reliability level that ensures the best fulfilment of the second and the third tasks of power system is determined by total costs of reliability that, in their turn, are formed by customer costs and utility costs of reliability.

This paper deals with problems related to determination of customer costs of reliability. In the paper is given comparison of different cost estimation methods. On the basis of analysis of different customer cost estimation surveys there is proposed new design of questionnaire for surveys. Problem of survey data normalization is discussed and proposal of appropriate normalisation factors for different situations is given.

Results of the work presented in the paper should be used when: trying to get knowledge of customer valuation of reliability; developing financial incentives for performance-based regulation of utilities (system operators); developing guaranteed reliability standarts etc.