



FEASIBILITY STUDY OF OVERHEAD LINES REPLACEMENT WITH UNDERGROUND CABLE LINES IN THE MV DISTRIBUTION NETWORK

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ABSTRACT

In paper the latest statistics of middle voltage network power line failures and causes of these failures are analyzed. Paper is based on the analysis of the Latvian statistical data, but these statistical data are also compared with other countries' statistics, which is quite similar in most countries. It means that information included in the paper can be widely used in any middle voltage electricity distribution network reliability calculations and analysis all over the world.

In paper there are presented possibilities to reduce number of failures using different methods and also compared quality of energy distributed through the network for two cases – when network is formed by overhead or cable lines in the forests. This paper presents possibility to improve reliability of distribution network using underground cables instead of OHL.

Paper presents results of network life-time related cost estimation for underground cable and OHL networks. Calculations of life-time related costs included construction (taking into account additional equipment needed for capacitive current compensation in cable line network), exploitation and fault elimination costs. Results of calculations demonstrate that the perception that cable lines are more expensive than overhead lines is wrong. Conclusions made on the basis of OHL and cable line fault statistics analysis are of high importance for planning of reliability centered maintenance.