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INFLUENCE OF DEVELOPMENT OF CHARGING INFRASTRUCTURE FOR ELECTRIC VEHICLES AND HYBRID TRANSPORT ON MODES OF ELECTRIC NETWORKS

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Abstract

The practical aspects of the development of the infrastructure of charging devices and stationary stations for electric vehicles and hybrid vehicles, basic methods of batteries charging and various types of charging equipment, as well as the its impacts on electrical networks including those with a significant amount of renewable energy sources are considered. It is shown that with the mass use of electric vehicles transport it is possible to significantly improve

the efficiency and stability of the energy system due to smoothing the peaks of the load curve of the electrical network, which is achieved by charging in the periods of daily reduction of the total energy consumption, as well as by using the accumulated energy from renewable energy sources buffer systems. The mutual impact of the charging equipment and the electrical network in terms of ensuring electromagnetic compatibility and electrical safety in low voltage networks with connected charging devices and stations is studied. It is proposed to use filters current zero-sequence of various modifications as means of maintenance of electromagnetic compatibility and increase of voltage quality in loading nodes of low voltage distribution networks with charging devices and stations, as well as providing electrical safety even when broken of protective PE- conductor with the use of protective grounding systems «TN-C-S». References 13, figures 4.

Key words: electric vehicles, hybrid transport, battery charger, electrical network, load curve, electromagnetic compatibility, electrical safety.

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