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ORGANIZATION OF A BOOST CHANNEL IN THE STRUCTURE OF A RENEWABLE DC ENERGY SOURCE

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Abstract

The instability of the work of renewable energy sources (RES), which is caused by a change in meteorological conditions, requires appropriate adjustment of the output voltage. One of the options for implementing this adjustment is to organize a boost channel, which is proposed to be performed on the basis of a semiconductor energy converter, the transformer-and-switches executive structures (TSES) of which consists of a transformer with a partitioned secondary winding and a multi-level rectifier. This TSES through discrete-time control of key elements implements the necessary purposeful change in the level of output voltage. The set of constant functioning states (voltage transfer coefficients) of the TSES is analyzed and the appropriate transition options between them are determined. The high efficiency of the use of switches elements in this TSES and low total losses on semiconductor devices are substantiated. References 6, figures 2, table 1.

Key words: renewable energy source, boost channel, voltage converter, transformer-and-switches executive structure, winding section, multi-level rectifier.

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