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RESEARCH OF A MULTIAGENT MODEL OF AN INTEGRATED ENERGY SYSTEM DEVELOPED IN THE ANYLOGIC SOFTWARE ENVIRONMENT

Abstract. The main goal of this article is to develop and study an integrated energy system model in the AnyLogic software environment based on a multiagent approach. Creating an integrated energy system provides the following features: to implement new functional capabilities; increase reliability by improving redundancy and faster decision making in normal and emergency situations; determine the most profitable supply route for each consumer, based on cost and design features; participate consumers with their own energy sources in the process of energy supply of the system. The multiagent model of the integrated energy system was created in the AnyLogic software environment. The software environment uses advanced technologies for modeling complex systems that make it possible to clearly understand the mechanisms of interaction of objects in the system and analyze the results. This study describes in detail the developed multiagent model, its main agents, and their state diagrams. A description and analysis of an experiment conducted using this model is provided. The results show that the multiagent model of the integrated energy system works correctly and performs all the specified functions.

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