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Analysis of the efficiency of artificial neural network architectures for predicting the technical and economic indicators of solar power plants

Recently, in the field of renewable energy, when solving modeling and optimization problems, there has been an increasing interest in the use of artificial intelligence (AI) algorithms, in particular, artificial neural networks (ANN) algorithms, in view of the fact that all information based on renewable energy systems is rather changeable and noisy, the behavior of such systems does not show a linear trend. The purpose of this work is to develop a predictive mathematical model of the performance of a solar power plant based on an artificial neural network. To achieve this goal, the presented article solves the following tasks: to develop an effective ANN architecture for modeling the thermal and electrical efficiency of SPP, to train the network using an experimental database on the SPP performance under various environmental conditions and operating parameters, to evaluate the performance of various learning algorithms developed ANN.

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