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## **COMPARATIVE ESTIMATION OF AUTONOMOUS ENERGY SUPPLY METHODS FOR INDIVIDUAL USERS**

A comparative analysis of autonomous energy supply systems for individual users was conducted. There were examined key devices for energy supply: generation systems (fuel generators, solar panels, wind turbines) and energy storage systems (electrochemical, mechanical, and thermal devices). Estimation

criteria included efficiency, environmental friendliness, capability of installation and safety of usage. The advantages and disadvantages of each energy generation and storage method were identified.

Comparative calculations were performed, using commercially available devices as the baseline option.

The results of the study showed that the use of fuel-powered generators is the most rational solution for individual users where applicable. Electrochemical energy storage systems can also be used, although their cost remains high. Promising directions include mechanical kinetic energy storage systems and thermal energy storage solutions.

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