**Development of Energy Devices Based on Photovoltaic Panels with Extra Consumer Properties**

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**Abstract**

The challenge at this time for renewable energy is the low cost of traditional energy resources. Therefore, the economic task of this project is to improve the profitability of devices using renewable energy by giving them additional consumer functions and improving performance in difficult air conditions in the city. Leading countries in the production and use of photovoltaic devices are China, the USA, Japan, and EU member nations. However, the efforts of manufacturers in these countries are focused on the creation of large-scale solar power plants specialized only in the production of electricity. Currently, efforts of well-known companies are under way to make solar cells with a cheaper (10–15 %) average efficiency. Efforts are being made by manufacturers specialized exclusively in the production of electricity to install and operate photovoltaic systems in cities associated with the installation of solar cells on roofs and sun-facing facades of buildings.

**References**

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