

SOLAR POWER DEVELOPMENT IN BELARUS

Rudnikov M.P., student

Vasilevsky K.A., student

Scientific supervisor – Matusevich O.A., senior lecturer

English language department №1

Belarusian National University of Technology

Minsk, Republic of Belarus

Solar power is one of the most promising and pollution-free energy sources in the world. The use of solar energy has seen a fast development of technologies recently. More and more states are recognizing the importance of switching to renewable energy sources and investing in the development of solar power. One of the countries that are rapidly developing this technology is Belarus.

A lot of solar power plants have been created in Belarus. Solar energy is currently used mainly for small installations on the roofs of buildings or for heating water. Owners of private houses are often interested in such installations. The main goal is to save on the cost of gas, electricity from the local power grid and other energy resources.

Not only ordinary citizens are interested in the production of solar energy, but also large enterprises. Thus, a 55 MW power plant was built in Rechytsky district on the area of more than 115 hectares by order of “Belorusneft”. This large area is occupied by 218,000 solar panels created at an enterprise in Slovenia, which is engaged in the creation of installation systems and photovoltaic modules. All works were accompanied by scientific support from the Institute of Energy of the National Academy of Sciences of Belarus. According to the state program “Energy Saving”, it is planned to build solar power plants with a total capacity of at least 250 MW [1].

The largest solar power plant in Belarus is “Solar II”. It is located in Brahin, Gomel region, in the most southern region of the country. According to the source, 1,900 hours of sunshine are concentrated in this region annually. The solar panels are connected with a 730 km long cable. Direct current is converted using inverters. The voltage rises to 20 kV at substations. The received electricity is transmitted via a 4.5 km long line to the nearest substation. The main feature of “Solar II” is its

location. It is situated on lands unsuitable for agriculture owing to the accident at the Chernobyl nuclear power plant. Thus, the previously abandoned land becomes involved in the Belarusian economy again [2].

Solar panels are harnessed not only to generate huge amounts of electricity for businesses, offices, and private houses. There are a lot of examples where the connection to the main electrical system is not required, but only one or more panels need to be installed:

1) Home Systems (solar electricity, solar batteries, solar generators, solar ventilation, solar water heating, active or passive solar water heater systems, solar-powered pumps);

2) Solar Lighting (solar landscape lighting, solar security lighting, solar holiday lights, indoor solar lighting);

3) Solar Appliances (solar oven, solar cooler, solar portable Bluetooth speaker, solar flashlights and lanterns, wireless solar keyboard, solar umbrellas, solar-powered Wi-Fi garbage bins);

4) Solar Beautification (solar garden decorations, solar bird feeders, solar water fountain, solar-powered irrigation controllers);

5) Solar Wearables (solar bike helmet, solar headset, solar textiles, solar earbuds, solar watches, solar backpacks) and the like [2].

So, the development of solar energy in Belarus is of great importance both from an environmental and an economic point of view. Solar power can become a major factor for the sustainable country development and the improvement of its ecological conditions. However, despite the positive changes in this area, the share of solar power in the Belarusian energy system remains insignificant. In general, solar energy has potential to be developed in Belarus, and further expansion of the use of this energy source can help to reduce the dependence on imported power sources and to decrease greenhouse gas emissions.

References

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