

PERSPECTIVES FOR WIND FARMS IN THE ZAPORIZHZHIA REGION

In Ukraine, wind energy was used as early as the 19th century. Moreover, over time, its use has evolved and developed. In addition, on the territory of Ukraine, the construction of wind farms began to be planned by many foreign firms. And it seemed like the ideas were not bad, and everything went as planned, but there was a problem that could not be calculated. Wind energy is not stable in itself, because sometimes where there used to be a strong wind flow, now there is a barely felt breeze. By the way, it was precisely because of the inconstancy of the wind that the plan of the "Comprehensive Program for the Construction of Wind Power Plants in Ukraine", which was adopted in 1997, was not fulfilled. The solution to this problem is quite simple, you just need to arrange the windmills not in a row, but more scattered. On the surface, this may seem like just a chaotic arrangement, but here an interesting factor plays the main role - the wind roses. Wind roses - this is a graph on which we can observe the same monsoons and trade winds characteristic of a given area, that is, it is an opportunity to understand where the wind turbine will be effectively installed. The main thing is not to overdo it with the number of wind turbines, because if there are enough of them, each next wind turbine will reduce the productivity of the station.

There are several wind farms in the Zaporizhzhia region. One of them is the Botievo wind farm. The installed capacity of the power plant is 200 MW. Figure 1 represents a diagram of the productivity of this farm over the years of operation.

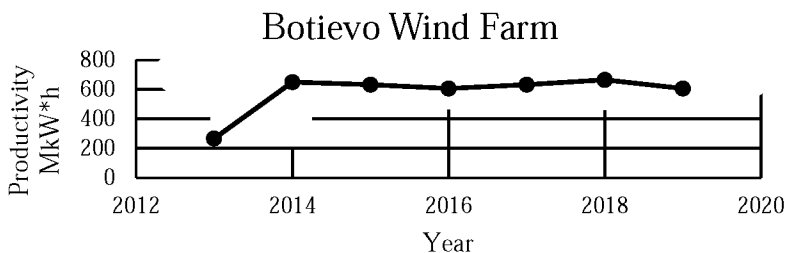


Figure 1 – A diagram of the productivity of the Botievo wind farm over the years of operation

We can see at first a large increase in the productivity of the station, this is due to the increase in the number of wind turbines “Vestas V-112” from 30 to 65, and then we see a fluctuation in the graph, which now shows us how wind instability affects energy production. In 2019, the wind power plant generated 607.2 million kWh.

The Primorskaya wind power farm with a total installed capacity of 200 MW has been put into operation. The Primorskaya wind farm uses 3-MW class wind turbines manufactured by General Electric. Projected supply of "green" electricity is 680 million kWh per year.

In 2018, the Omniflow Vertical Wind Turbine was invented. It uses not only wind energy, but also the energy of the sun as it has solar panels installed. Omniflow is a very interesting development, as it does not depend on the direction of the wind. The most suitable are the territories of the Azov region and the Odessa region, since there are seas there that will give us a constant wind (breeze), as well as the climatic zone will give us the opportunity to use solar panels more efficiently. This development will be a good alternative for wind turbines and will make wind farms more productive.