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TOP 7 most powerful wind power plants in Ukraine

In 2019, two significant events took place in the national wind energy sector of Ukraine. First, Ukraine became a member of the international "Gigawatt Club" of those countries whose installed wind energy capacity exceeds 1,000 MW. Secondly, 2019 was a jubilee year in the development of renewable energy. The gradual transition from the usual "green" tariff to auctions, announced in 2018, became a significant impetus to accelerate the pace of design and commissioning of new wind energy facilities. According to the Ukrainian Wind Energy Association, wind energy facilities with a total capacity of 5.55 GW received construction permits and signed electricity purchase and sale contracts at the "green" tariff (PPA) with SE "Guaranteed Buyer". Thanks to this growth, today Ukraine has three wind power plants, the capacity of which is higher than 100 MW. This article presents the TOP 7 most powerful wind turbines in Ukraine today.



Botievska VES

The Botievska wind farm, built in 2014 by the energy holding DTEK, still ranks first among the largest wind farms in Ukraine. Everyone has at least once heard the news about the Botiev wind farm, which at the time of its installation was among the five most powerful in Europe. 64 Vestas V-112 turbines of 3 MW each, with a total capacity of 200 MW, with an annual energy production of about 686 million kWh. In 2014, the maximum wind speed of 40 m/s was recorded at the Botievska wind farm, but fortunately, all wind turbines withstood the storm, despite the fact that each wind farm has rather large dimensions, for example, the height of the tower is 94 m, and the diameter of the rotor 112 m.



Primorska WEIGHT

On November 1, 2019, the second stage of the Primorsky wind farm of DTEK VDE and GE Renewable Energy entered into operation. Another wind energy giant of Ukraine, DTEK, has a total of 52 wind turbines (models GE-130 and GE-137), each with a unit capacity of 3.8 MW. The height of the tower is 110 m, and the diameter of the rotor is 137 m. In general, the wind farm with a capacity of 200 MW produces 650-700 million kWh of energy annually, thereby reducing CO₂ emissions by 700,000 tons per year. An interesting fact is that the wind farm is equipped with two digital substations of 150/35/10 kV, which automatically react to malfunctions or failures in the system.



Myrna wind power plant

In the summer of 2019, the construction of the Myrnenska wind power plant with a total capacity of 163 MW in the Kherson region began. The wind farm project, consisting of 35 V-150 wind turbines (these are the largest Vestas wind turbines) with a capacity of 4.2 each and 4 wind turbines of the same model of 4 MW each, is implemented by the WindKraft company. It was noted that the cost of one set of wind turbines is about 3 million euros. The station can generate about 574 million kWh of energy annually and reduces emissions by 455,000 tons of CO₂ annually. Connection to the UES of Ukraine is carried out through a 150 kV high-voltage line with a length of about 22 km and a 220/150/35 kV "Kairka" substation. The new wind power plant supplies electricity to the Kalanchatsky district of the Kherson region, which previously received electricity from the Titan substation, currently located in the occupied Crimea. The third largest wind power plant in Ukraine will be located on the lands of the Myrna United Territorial Community on an area of 55 hectares. This project became a breath of fresh air for the Kherson region and, in particular, for the Skadovsky port, which received a major contract for the first time in 4 years.



Orlivska VES

On November 15, 2019, the third wind farm of the DTEK energy holding with a capacity of 98.8 MW was put into operation. Investments in Orlivsk WPP amount to 131 million euros, and about 40 million euros of them are equipment and services of Ukrainian contractors. It is located in the Primorye district of the Zaporizhia region. In total, Orlivska VES has 26 V126 wind turbines of the Vestas company with a capacity of 3.8 MW. The height of the tower is 112 m, and the diameter of the rotor is 126 m. Wind turbines for Orlivska VES became the largest cargo in history for the port of Mariupol. It is noticeable that with the construction of each subsequent wind power station, DTEK develops more and more capacity of a single wind turbine. This is due to the fact that the wind turbine's generation is affected by the diameter of its rotor - at the same wind speed, a turbine with a larger rotor diameter produces more electricity, and reaches its nominal power at a lower wind speed.



Novotroitska WPP

In 2019, the construction of two more stages of wind turbines with a capacity of 72.6 MW was completed in the Novotroitska district of the Kherson region. The wind farm consists of 12 V126 wind turbines with a capacity of 3.65 MW each and 8 wind turbines of the V136 model with a capacity of 3.6 MW from Vestas. The total height of each tower is 117 m, while the span of the blades is 126 m and 136 m. Financing was provided by Ukgasbank, and the wind power plant was built by the Windcraft Tavria company, which is part of the Windcraft group of companies.



Overyanivska WPP

This wind power plant is located in the Kherson region within the Heniche district.

A wind farm with a capacity of 68.4 MW reduces CO₂ emissions by 210,000 tons per year.

The annual production of electricity is expected to be about 266 million kWh of energy, which will provide clean electricity for 44 thousand households. Vestas V136 wind turbines were used in the project.



Novoazovsky Wind Park

The Novoazovsky Wind Park was built back in 2011 in the Donetsk region and was the first wind energy project in the CIS financed by the European Bank for Reconstruction and Development. The 20-year loan in the amount of 48.8 million Euros was distributed so that 33.3 million Euros is a loan from the EBRD, and the remaining 15.5 million are provided by the Clean Technologies Fund. The Novoazovskyi wind farm consists of 23 FL2500-100 wind turbines with an installed capacity of 2.5 MW each, manufactured by the German company Fuhrlaender AG. It is interesting to note that the wind farm built near the coast of the Sea of Azov became an exemplary project, during the implementation of which all the requirements of botanists, ornithologists, and zoologists were taken into account in order to reduce the harmful impact of wind farms on the environment. LLC "Wind Park Novoazovsky" is part

of one of the largest wind energy holdings in Ukraine, "Wind Parks of Ukraine".

So, as of 2019, the total installed capacity of wind power stations in Ukraine is 1,170 MW, which is 18.3% of the share of the entire installed "green" capacity of Ukraine. According to the forecast of the Ukrainian Wind Energy Association, by the end of 2020 the total installed capacity of wind stations located on the mainland of Ukraine may reach 1,600 MW. This means about 450 MW of new wind turbines. Thanks to the "green boom" of 2019, Ukraine fulfills its international obligations and has a great chance of reaching 11% of RES in the share of Ukraine's electricity generation. However, it should not be forgotten that the UES of Ukraine will not be able to operate with a large share of RES without an increase in high maneuverability and balancing capacities. According to Ukrenergo's calculations, the maximum installed capacity of SPPs and WPPs, which can be accepted by the UES of Ukraine without serious deviations in operation, is 3,000 MW. At the same time, according to the regulator, the total installed capacity of RES facilities at the end of 2019 already amounted to 6779 MW!

Before



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Red lines for green energy. Why slow down the development of large generation?



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Contacts

U03113, str. Polkovnyka Shutova, 9-A

office 112, Kyiv, Ukraine

+38 050 217 75 55

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