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PROBLEMS AND PROSPECTS OF WIND POWER GROWTH IN UKRAINE

The wind energy development in Ukraine is prospective primarily from an environmental perspective and creates opportunities of fossil fuel use reduction that in its turn reduces the harmful emissions and environmental pollution level.

Wind energy is an ecologically pure energy sector that is based upon the use of inexhaustible energy source. In the present circumstances it relates to perspective technologies that allow to save resources. Wind energy allows to save the organic and nuclear fuel for electricity generation and to reduce the freight costs for fuel transportation. It also makes possible to eliminate the expenses for exportation, waste disposal of nuclear plants and waste ashes of thermal power plants from agriculture. There is no sulfur, nitrogen and other substances air emissions that contribute to create the greenhouse effect and have negative impact on people, flora and fauna.

Wind power is the way to reduce the technogenic impact on the environment. For the effective functioning of wind energy installations, some certain location requirements are need to be implemented. Thus, for the relatively steady operation of wind power installations they need to be located in territory with wind potential above 2500 hours per year. The perfect places for use of wind energy are extended valleys, placed on high ground and blown on all sides. It is those areas have the average annual wind speed that exceeds 5 m/s, hence the effective wind installations operation is provided.

The climate and consequently on the Ukrainian wind regime mainly influenced by the Atlantic and Arctic Oceans, Carpathian and Crimean Mountains, Podolsk and Volyn highlands, Donetsk ridge and as well as Azov and Black sea neighborhoods. On the criterion of average wind speed (above 5 m/s) 7 regions and 2 different zones may be distinguished. Regions include Carpathian, Black sea, Azov, Donbass, east and western Crimean. Zones include Kharkov and Poltava. As we see, sufficiently large Ukrainian areas in different regions are favorable for wind power plants construction.

To this day, Ukraine already has experience in construction and exploitation of modern wind power plants. Undoubtedly, there are a number of wind energy industry development problems, but most of them are solvable.

The main factors adversely affecting the wind energy development in Ukraine are as following:

- the imperfect of legislative provision in all wind power development directions;
- the absence of economic stimulus policies by the country;
- insufficient level of scientific and design development finance;
- lack of data and conservatism of potential producers and consumers.

There is a perception about the negative influence of wind installations upon the people, animals and birds in particular. The European Union Commission jointly with the group of Dutch consultants investigated the issue of wind turbos impact on birds lives. It's been established that the bird death problem in a collision with wind power installations is less important that birds dying from power transmission lines.

The disturbance of bird migration routes poses no threat. The change of route that birds make in order to avoid wind turbos doesn't have significant impact on their life cycle. There is also a statement that wind power plants create noise that is very unsafe for people and animal health.

Most of modern wind installations at the wind speed is about 8 m/s create noise level of about 95-102 dBa, that coincides with the noise level of and average industrial enterprise. The share of wind energy in total energy amount is about 1.47%. The increase in installed capacity of wind power plants in Ukraine for 2018 reached 301.41 MWt in comparison with 120.629 mWt in 2017. There are 4 wind farms in 4 regions of Ukraine were built over the period 2017-2018. In September 2017 the new wind power plant "Novotroitskaia" was opened in Kherson region. Its common capacity is 69 MWt. It consists of 12 wind turbines Vestas V-126 (The capacity of single installation – 3.65 MWt.) So far, the Black Sea region windfarm consists of 2 wind plants with single capacity of 2.5MWt and one wind turbine with a capacity of 3.0 MWt. In October 2017 the new wind power plant "Stariy Sambor-2" with the common capacity of 20.7 MWt was built by the group of companies ECO-Optima. This power plant consists of 6 wind turbines produced by Vetas. The capacity of each turbine is 3.45 MWt.

Wind energy is one of the most effective direction of Ukrainian energy development. It was estimated that there is a possibility to build wind power plants in different regions of Ukraine with the apparent power of 16000 MWt that can cover 20-30% of general country electricity consumption. The use of wind energy is particularly relevant because of a large number of problems with thermal and nuclear energy as well as dependence from foreign energy supply.