

Eight wind energy myths blown away

To see the true value of such a new phenomenon for Russia, as wind power, one cannot rely on the judgment of the respected and reputable experts with lack of professional knowledge on this particular subject.

We have tried in this article to dispel some of the most common myths about wind power with real facts.

1. Insignificant share of RES in the global energy balance. *Nowadays the share of renewables in the world's energy generation is 18,2%. There are plenty of reasons to expect that by 2020 the share of wind energy in power generation will reach 10%.*



2. Wind energy is unstable in its nature and less predictable in comparison to conventional energy sources. It has changeable probable character that causes the need to accumulate and reserve energy.

There are some ways already found to solve this problem. The global experience of grid wind power plants operation shows that this issue has been resolved. According to data, provided by "Gamesa" and "Winwind", the level of accuracy of wind power predictions with hourly planning on the market for the day ahead now exceeds 95%. This is a very high level of prediction for the stable operation of power system. Foreign management practice of wind power systems confirms on the basis of experience, that the proper planning of grid development, with taking into account the possible placing of wind power plant, increases their reliability and performance.

3. Wind energy unlike conventional one need to be heavily subsidized. *According to the International Energy Agency, subsidies for conventional energy sector in Russia are 40 billion dollars, of which 60% is for natural gas, and the rest – for electricity. Within the United Nations Development Program (UNDP) subsidies for conventional energy in the global economy were calculated. The annual subsidies amounted to about \$ 250 billion. Total subsidies in the 15 EU countries in 2001 amounted to 29 billion euros, of which renewable energy accounted for only 19%, or 5,5 billion euros. Thus, renewable subsidies are essentially making equal conditions for all power generation technologies (sources).*



4. Wind power is economically unprofitable due to its high cost. *Wind power reduces the average cost of electricity on the market. Since 1980, the installed capacity of wind turbines in the EU grew 290 times, and the cost of power generation over the same period decreased by 80%. (P.S. Kanygin, "Economics of renewable energy").*



Introduction of each 5% share of RES at the power market leads to decrease in wholesale prices by 1% (power market analysis in Northern Germany and Denmark). 1% increase in energy, generated by RES, results in additional GDP growth of 1,5%.

For each ruble spent the society will get direct income of 1,39 ruble, in addition to savings for medical care and environmental improvement.

Thereby:

- No investment or operating costs in the associated industries are needed: mining, processing, transportation and storage of fossil fuels, its processing and combustion waste recycling and storage;

- Renewables are developing the very energy sector, industries, services, installation and construction, design and development companies, electricity markets, stimulates R&D;

*- During the last 5 years European wind power generated 33 jobs every day
The potential capacity of wind power market in Russia accounts to 135 million rubles (3100 million euros) in 2013, and 315 billion rubles (7000 million euros) by 2015.*

5. Low Capacity Utilization Ratio.

The installed capacity utilization ratio for modern wind power plants, connected to grid, is from 0.15 to 0.37. The ratio for conventional plants is from 0.4 to 0.8. In 2005 the capacity utilization ratio of all the power plants in Russia amounted to 0.5.

6. Wind turbines cannot operate in grids and are useful only for small autonomous power systems.

The research of the experts in the field of power systems and grids showed that problems in power systems due to the instability of the power, generated by wind farms should be taken into account once their share reach 20-25% of the total installed capacity of the system. For Russia, this figure will be somewhere around 50 000-55 000 MW. With 13 MW of existing wind power generating capacities and an introduction of 1 000 MW a year, this value can be achieved in 50 years for Russia. Thus, in our country, this problem is irrelevant.



7. Wind farms are dangerous to human environment (because of aerodynamic noise).

Early wind turbines were designed in a way that turbine generated a strong low frequency pulses, which also had significant levels of energy in the infrasound range (3-15Hz) negatively affected the fauna . The evolution of wind farm technologies over the past 2 decades has rendered mechanical noise from turbines almost undetectable by optimizing shape and speed of blade with the main sound being the aerodynamic swoosh of the blades passing the tower. The noise from modern wind turbines at a distance of 200 m is the same as that of a refrigerator in the kitchen.



8. Wind turbines kill a lot of birds.

The threat to migratory birds is eliminated if the wind farm site is chosen based on the data of ornithological expertise, away from the migration routes of birds, taking into account the views of ornithologists. Ornithological expertise is mandatory for wind farms worldwide. Research of American scientists showed that no matter how extensively wind is developed in the future, bird deaths from wind energy are unlikely to be ever more than a small fraction (1%) of bird deaths caused by other human-related sources, such as hunting, cats, cars, high voltage lines, etc.



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