

PROSPECTS FOR DEVELOPMENT OF ALTERNATIVE ENERGY

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The problems of operation and development of the energy markets have been gaining importance in the world and require the innovative solutions. Such as the limitations and deficit of energy resources, as also the monopoly of the world market for the energy resources is a global problem. It should be noted that the energy monopolists (USA, Russian Federation) argue that the next 50 years, the traditional energy resources (oil and gas) will account for the largest share of the world energy consumption. According to optimistic forecasts of leading scientists, by 2020 the share of the alternative energy should increase to 12.9 % in the world energy balance.

The world leaders' are increasing the share of the renewable energy in the total energy consumption. They create the favorable conditions for the development, financing and implementing the ecological projects for using alternative energy sources (tabl. 1). For an example UK energy suppliers have a target to source 15.4% of its energy from renewable sources by 2016. The leaders in the renewable energy sources in Europe are Germany, Denmark and Sweden. In these countries, the level of renewable energy sources development is very high. Aiming to the development, it is good to have as examples the best possible technological solutions and draw on the knowledge of more experienced countries.

Table 1 - The electricity generated from renewable sources (% of gross electricity consumption) 2009-2012 years

Countries	2009	2010	2011	2012
1. EC (27) including:	18,8	19,7	21,8	22,9
1.1. Germany	16,8	18,1	21,3	22,4
1.2. Poland	5,9	6,7	8,2	9,5
2. Ukraine	2,2	1,97	1,9	2,02

Thus, most of Ukraine's primary energy consumption is fueled by natural gas (about 40%), coal (about 28%), and nuclear (about 18%). Only a relatively small portion of the country's total energy consumption is accounted for by petroleum and other liquid fuels and renewable energy sources. In Poland the share of coal consumption in the energy balance is 55 %. But after Poland joined the European Union (2005), there the share of using the renewable energy in the energy balance have begun to decrease. They develop and research the new effective technology to use renewable energy sources.

According to the official statistic in Poland in 2005 - 7.2 % and in 2010 - 10.2 % were produced from renewable resources. The goal in 2030 is 16 %. For Ukraine the goal in 2030 is 18 %.

The comparing analyzes the structure of electricity production from renewable sources in EU, Germany, Poland and Ukraine, we can make some conclusion that in Germany the electricity is mostly produced from wind energy, solar energy and biogas. In Poland it is solid biomass, hydropower and wind energy. In Ukraine it is hydropower and wind energy

In Ukraine hydroelectric power plant (HPP) is more prevalent. However, the increase in the share of electricity generated by hydropower plants is accompanied by raising the eco-destructive impacts on the environment, including:

- building hydroelectric dams rivers seriously violates the aquatic ecosystem. In the first place it directly relates to the countries dominated plains. For example, in Belarus the height difference between Dzerzhinsky hill and valley near Minsk Neman is less than 250 m;

- the varied eco-destructive impact for the living organisms rivers. Since fish cannot pass through the dam to the place of their usual spawning grounds, which are also still become unsuitable for spawning. Also, a lot of the living organisms rivers are perished by the turbines blades.

- lack or high level of physical wear appropriate treatment facilities in reservoirs causing accumulation of pollutants from sewage and fertilizers that were washed from fields.

The share of other alternative energy sources (solar, wind, biomass, etc.) -currently provide far less than 5 % of global energy. While in Western Europe and East Asia, the figure is close to 10 %.

It should be noted that the effectiveness of alternative energy sources is largely dependent on climatic conditions natural environment. So, unfortunately, it is impossible to get solar energy at the surface of the Earth around-the-clock at any time of year, especially in temperate latitudes. The strength of winds can be not enough for powerful wind turbine . Although it is assumed that in this case, it is appropriate to use batteries.

In order to determine the effectiveness of the use of batteries in homes was determined required amount of energy to heat the building area of 100 m². According to the rules, if the atmospherical temperature will be 20 C, the required power to 16.6 kW. That is a day we will spend 398.4 kW/h. The average accumulator - 60 A/h. with 12 V, after a full charge is capable to give 0,72 kW/h. So we get 553 accumulators or about 10 tons of accumulator per day. Thus we need more accumulators for the full energy supply and besides, it is necessary to replace them every few years. According to the results of modern research the serial battery power consumption have low energy-output ratio, which results in high costs for their use.

Results indicate that the proportion of alternative energy in the world is being

increased every year. Also, the technic and technology of their using are being improved. However, it should be noted that the costs of alternative energy sources are high. Therefore, further research needs to find modern environmental and economic mechanisms that ensure a reduction of the cost of using alternative energy sources.

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