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ALTERNATIVE SOURCES OF ENERGY IN BELARUS

АЛЬТЕРНАТИВНЫЕ ИСТОЧНИКИ ЭНЕРГИИ В БЕЛАРУСИ

My work is dedicated to some aspects of alternative energy usage in different countries including the Republic of Belarus. To begin with, 5% of our national budget is assigned to fossil fuels, mostly coal, peat, oil, natural gas and wood. It is 90% of all energy consumed by man. However, this resource will deplete one day. It becomes urgent to use renewable energy sources.

Objects of my work are: solar and wind sources of energy, which produce electricity without wasting limited natural resources and make it possible to reduce government expenditures by half.

Subjects: administrative territorial units of the Republic of Belarus, European States, USA, United company.

The main aim of my work is to study the usage of alternative sources of energy in the Republic of Belarus, its impact on the national economy in comparison with different countries. In European countries about 14% of activities are assigned to the alternative energy, which helps them to save around 2 billion tons of conditional fuel and 1 billion euros each. In the USA the figure is 16%. They have found out that additional funding for renewable energy in the amount of 22 billion US dollars per year can lead to saving \$200 billion dollars per year. In Belarus it is only 0,6%, but the potential to improve is visible.

One of the most prospective sources of energy is wind power. Today there are 23 wind turbines in Belarus: in Grodno, Minsk, Vitebsk and Mogilev regions. The largest wind power plant in Belarus is in Grabniki (Грабники) village of the Navahrudak District, Grodno Region. According to the wind balance in our country, it is visible that Mogilev region is the most suitable place for this activity. The total price of windmill construction in Belarus is 5189 euro.

Let's now turn to solar energy. The areas with solar energy constructions are located in the south and southeast of the country. Myadel solar station is the largest solar station not only in Belarus, but also in the Baltic States and Poland. Its capacity is enough to provide about 3,000 households with power. The most popular companies in this sphere are "Solitek Standard", "Solar Time", "Beam" and "Glavenergo", which have saved more than 1 million euros and about 200000g of energy each. The efficiency of solar installations will be increased to 45 % by using concentrators. Total planned investment in Belarus is 375 billion. The price of one

solar battery for solar construction is 190 BYR and in European countries, USA this prices are much lower.

Next step is SELF-CONTAINED HOUSE built of straw blocks, independent of the grid. The power is supplied by alternative power sources (solar panels and wind turbines). Straw increases the energy potential by more than 5%. Straw block costs about 1,000 times cheaper than brick. Straw bales don't need a heavy foundation due to light weight. If you want to build you own S-C house you will need represented materials. The cost of a straw house (15000 \$) compared with the lodging that modern property market offers is reduced by 40–50%.

The bright example of using wind and solar sources of energy is the “United company”, which has installed 10 windmills with the cost that varies from 103 thousand to 146 thousand rubles and 2 solar complexes in Minsk, with the cost of 85000 euros each. One solar panel was bought for 300 euros. And to build one solar station you will need 1 296 764 931 rubles. Only during 2016 they saved more than 300 thousand tons of conditional fuel and 63.8% of electricity for the enterprise, profit increased by 20%.

The law of the Republic of Belarus “On renewable sources of energy” is aimed at popularizing this issue among citizens. According to statistics more than 70% of our residents knows essential information about alternative sources of energy, 12% deal with them at work, 3% use them in everyday life, 15% don't know anything.

As a result, it is important to admit, that alternative sources of energy in our country will reduce the global dependence on fossil fuels, secure new possibilities of cheap and rational living (self-contained house), help citizens to save expensive organic fuel and provide the market with new labor force. All these factors can bring the Republic of Belarus to a new level of economic development.

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