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The Development of the Belarusian Energy Industry

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The first information about the use of electrical energy in Belarus dates back to the end of the 19th century. However, even at the beginning of the last century, the energy base of Belarus was at a very low level of development, which determined the backwardness of commodity production and the social sphere: industrial output per inhabitant was almost five times less than the national average. In those days when Belarus was part of the Russian Empire, the main sources of lighting in cities and villages were kerosene lamps, candles, torches. The development of the energy industry began in the late 19th century, early 20th. The first power plant in Minsk appeared in 1894. She had a power of 300 hp. with. By 1913, three diesel engines from different companies were installed at the station, and its power reached 1400 hp. with. In November 1897, the DC power plant in Vitebsk gave the first current. In 1913, on the territory of Belarus, there was only one state-of-the-art steam turbine power plant, which belonged to the Dobrush paper mill.

The development of the energy complex of Belarus began with the implementation of the GOELRO plan, which became the first long-term plan for the development of the national economy of the Soviet state after the revolution of 1917. By the end of the 1930s, the installed capacity of the Belarusian energy system had already reached 129 MW with an annual electricity generation of 508 million kWh (in 1913, the capacity of all power plants was only 5.3 MW, and the annual electricity generation was 4.2 million kWh) [5]. The

rapid development of the industry began with the commissioning of the first stage of the Belarusian State District Power Plant with a capacity of 10 MW - the largest station in the pre-war period; BelGRES gave a powerful impetus to the development of electrical networks 35 and 110 kV - the Belarusian energy system has been created de facto. On May 15, 1931, a decision was made to organize the Regional Directorate of State Power Plants and Grids of the Byelorussian SSR - "Belenergo".

The Belarusian State District Power Plant has been the leading power plant in the republic for many years. At the same time, in the 1930s, the development of the energy industry developed rapidly - new thermal power plants appeared, the length of high-voltage lines increased significantly, and the potential of professional personnel was created. However, this bright breakthrough was crossed out by the Great Patriotic War. In the following decades, the industry continued to develop, its structure was improved, new energy enterprises were created: at the end of 1964, for the first time in Belarus, a 330 kV Minsk-Vilnius transmission line was put into operation. , which integrated our energy system into the Unified Energy System of the North-West, connected with the Unified Energy System of the European part of the USSR. The power of power plants in 1960-1970 increased from 756 to 3464 MW, and electricity generation increased from 2.6 to 14.8 billion kWh.

As of January 1, 2010, the capacity of the republic's power plants amounted to 8,386.2 MW, including 7,983.8 MW as part of Belenergo. This capacity is sufficient to fully meet the country's needs for electricity. At the same time, from 2.4 to 4.5 billion kWh are imported annually from Russia, Ukraine, Lithuania and Latvia in order to load the most efficient capacities and take into account the repair of power plants. With the adoption in 2010 of the Law of the Republic of

Belarus "On Renewable Energy Sources", the active development of alternative types of electric power industry began. The State Cadastre of Renewable Energy Sources, maintained by the Ministry of Natural Resources and Environmental Protection, has over 300 operating installations for the production of electrical energy from renewable sources with a total installed capacity of 500 MW, including: 98 installations for the use of wind energy (100 MW); 95 - on the use of solar energy (more than 150 MW); 29 hydropower plants (86.06 MW), 32 biogas plants (41.3 MW). The annual income of solar radiation per unit area of Belarus is comparable to that for Germany, Poland and other European countries. Significant free territories are required to accommodate solar power plants (SPP). So, one of the powerful solar power plants operates near Bragin, on the lands affected by the Chernobyl accident.

Belarus has sufficient wind energy resources for the development of wind energy. The average annual background wind speed on the territory of the country is about 3.5 m/s at a height of 10 m, and at heights of 80-100 m from the earth's surface - 5.2-5.7 m/s. Based on the research results, 22 regions of the country were identified as the most promising for the development of wind energy. Since Belarus is a flat country, the speed of river flow is low. The economically viable potential for the use of hydropower resources does not exceed 250 MW and is concentrated in the Grodno, Vitebsk and Mogilev regions in the sections of the Neman, Western Dvina and Dnepr river basins. In our country, wood fuel is still actively used, mainly for the production of thermal energy. Increasingly, logging and woodworking wastes are used for these purposes through transformation into chips or pellets. Energy can be obtained by burning various types of biomass, for example, woodworking or crop waste (grain waste, wood chips, etc.), or biogas, which is extracted from animal and crop

waste, municipal waste, waste treatment plants. Unfortunately, with the existing significant resource potential, the last direction is poorly implemented,” said Alexander KORBUT, Deputy Minister of Natural Resources and Environmental Protection. “At the same time, the total potential volume of substitution of imported energy resources at the facilities of agricultural organizations due to the rooting of biogas kits is about 700 thousand tons of standard fuel with an installed electric capacity of 300 MW. In accordance with the Energy Security Concept of the Republic of Belarus, the share of primary energy production from renewable energy sources to the gross consumption of fuel and energy resources should be: in 2020 - 6%, in 2030 - 8%, in 2035 - 9%. At the same time, already in 2018, this indicator was at the level of 6.2%.

Belarus is developing more and more in the field of alternative electrical energy, which allows us to keep up with the countries of Europe and the West.

References:

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