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ABSTRACT

The article analyzes the estimates of international organizations that due to economic development, the demand for energy will increase by more than 50% by 2030 compared to the beginning of the century, and the total demand will be very high, resulting in a negative impact on the environment.

Keywords: alternative energy sources, renewable energy, solar power, atmosphere, solar power plants, carbon dioxide, wind power plants.

INTRODUCTION

According to international organizations, due to economic development, by 2030 the demand for energy will increase by more than 50% compared to the beginning of the century, and the total demand will be 23.27 billion tons of conventional fuel. This means that the negative impact on the environment is growing [2].

METHODOLOGY

If such rates continue, it is estimated that the reserves of black gold on the planet will last only 55-60 years. This period is estimated at 70-75 years for natural gas and 150-160 years for coal. In addition, the sustainable use of hydrocarbon resources is degrading the environment and human health, climate change is being observed, and the ozone layer is being depleted. According to experts, 5 billion tons of carbon dioxide are released into the atmosphere every year. tons of carbon dioxide, about 300 million. tons of carbon monoxide. This is 3.5 times more than in the first half of the twentieth century [3].

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Under these conditions, it is natural that the widespread use of alternative energy sources will be on the agenda. This is due to the fact that their types of solar, hydro and wind energy, as well as biomass, are almost unique and renewable, very relevant to the current era of innovative development, and the creation of new jobs. In addition, the equipment and technology working on this basis are environmentally friendly, environmentally friendly and do not lead to man-made disasters [4].

At present, 10.2% of all energy produced in the world comes from renewable energy sources. By 2050, its share in some species is expected to exceed 70%.

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RESULTS

Map of solar flux to the surface According to the study, the solar flux per 1 m2 of land perpendicular to the center of the sun (at the time of entering the Earth's atmosphere) is 1367 W / m2 (when the sun is constant). As a result of the absorption of sunlight into the Earth's atmosphere, the high solar flux above sea level is equal to 1020 W / m2 (at the equator). However, at different times of the day, the angles of incidence of the sun's rays on the ground change slightly due to changes. In winter, this figure can be reduced by 2 times. Solar power plants have advantages and disadvantages, just as each process has advantages and disadvantages. Advantages of solar power plants: - Prospective, renewable source; - Environmentally friendly and cost-effective; - Renewability of fuel source; - Increased demand for alternative energy sources; - Minimum impact on environmental climate change [6].

Disadvantages of solar power plants: - Dependence on weather, seasons and time of day for power generation; - The need for additional traditional energy sources in the field of industrial production; - Regular dusting of the panel surface; - Occupying a lot of space. Figure 2. Solar photovoltaic device and consumers: 1 – photoelectric module (solar panel); 2 - inverter charging control device; 3 - rechargeable battery; 4– Consumers The world's demand for electricity has grown by about 50% over the last 5 years. By 2050, solar power plants will reduce carbon dioxide emissions to the environment by 20-25% of annual electricity. Converting only electricity from sunlight to heat energy is a useful example [7]. The Sun alone

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sends so much heat to our planet every day that it is 20 times more energy consumed by the world's population year-round. Accordingly, last year, 120 billion solar cells were installed at solar stations around the world. More than kWh of electricity was generated. In a number of developed countries, including Germany, the share of non-conventional energy is planned to reach 15% by 2015 and 25% by 2020 [8].

According to statistics from the Department of Energy, in 2001 (solar electricity) the energy received from solar collectors was $ 0.09–0.12 per kWh, and by 2015–2020 this value will reach $ 0.04–0.05 and increase economic efficiency. Currently, there are companies around the world that produce solar photovoltaic cells, including:

China Yingli - 2300 MW
USA First Solar - 1800 MW
China Trina Solar - 1600 MW
Canada Canadian Solar - 1550 MW
China Suntech - 1500 MW
Japan Sharp - 1050 MW
China Jinko Solar - 900 MW
US SunPower - 850 MW
REC Group - 750 MW

Korea produces high-quality competitive solar photovoltaic cells Hanwha SolarOne - 750 MW [9].

DISCUSSION

The share of wind and solar energy has more than doubled since the signing of the Paris Agreement on Climate Change in 2015. At that time, the figure was 4.6 percent.

In the first half of 2020, the volume of energy from fossil fuels, the most polluting fuel, decreased by 8.3% [10].

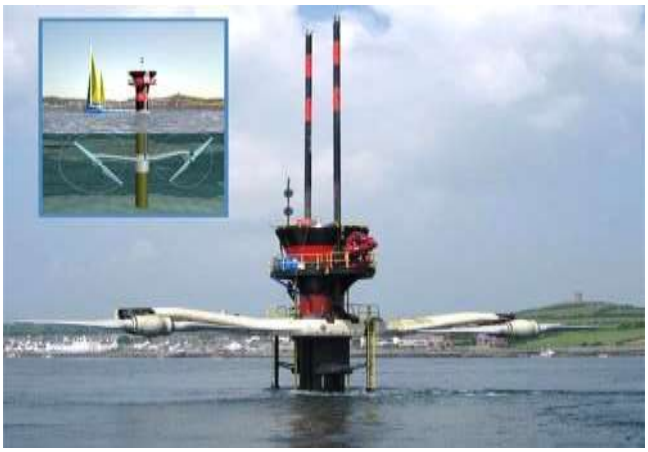
Analyzes show that many large countries, including China, the United States, India, Japan, Brazil and Turkey, get at least 10 percent of their total energy from wind and solar. Britain and the European Union deserve special praise, as they receive 21 and 33 percent of their energy from renewable sources, respectively.

According to the forecasts of the Global Wind Energy Council (GWEC), by 2030 the volume of offshore wind energy worldwide may increase from 29.1 GW in 2019 to 234 GW [11].

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The world's largest sales turbine based on the principle of rise and fall. The turbine, which operates on the basis of the principle of the rise and fall of the water supply, converts the kinetic energy of the water flow into the electric current, which comes in the same direction as the wind turbine. The world's largest hydroelectric power plant near Northern Ireland has a capacity of 1.2 MW. It consists of 2 grain turbines with a diameter of more than 20 m. Due to the rotation of the turbine's turbine system, the turbine and the waves are adapted to each
direction. To service the turbine, it may be lifted from the water [12].





CONCLUSION

The cost of 1 MW of installed power produced by such a system 5 million equal to a dollar. This is the cost of offshore wind turbines 30% more. However, in 2015, off the coast of South Korea, the cost of 820 million. It is planned to install a turbine operating on the principle of rising and falling water levels with a capacity of more than 1 MW. It is noteworthy that the widespread introduction of such "green technologies" in agriculture, energy, waste management, transport, education and science in our country will create more than 550,000 new jobs over the next ten years [13-15].

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