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THE AVAILABILITY OF NATURAL GAS AND THE COST OF BUILDING POWER PLANTS

Nabiyev Muminjon*; Rahmonov Fayzullo Valievichmaster**

Candidate of Technical Sciences,
 Fergana Polytechnic Institute, Fergana,
 UZBEKISTAN

**student
 Faculty of energy, Fergana Polytechnic Institute,
 Fergana, UZBEKISTAN

ABSTRACT

The construction of thermal power plants that run on natural gas requires relatively small investments-in comparison with power plants that run on other fuels, such as coal, uranium, and hydrogen. In this article highlights of the availability of natural gas and the cost of building power plants.

KEYWORDS: *Natural Gas, Power, Effective, Technology, Cost, Alternative Energy, Ecology.*

INTRODUCTION

Natural gas as fuel for power plants is available in almost all industrial zones of Russian cities. In 2010, the level of gasification in Russia averaged 62%. In cities, the level of gasification has increased by 6% in recent years, to 67%. In rural areas, the level of gasification has increased by 8% and now stands at 44%.

The construction of thermal power plants that run on natural gas requires relatively small investments-in comparison with power plants that run on other fuels, such as coal, uranium, and hydrogen.

The electric efficiency of a modern gas-fired power plant reaches 55-60%, while that of a coal-fired power plant is only 32-34%. At the same time, the capital costs for 1 MW / hour of the installed capacity of a gas-fired thermal power plant are only 50% of the coal, 20% of the nuclear, 15% of the wind power plant.

Gas is more cost-effective than other fuels and alternative energy sources.

The construction of a gas-fired power plant takes only 14-18 months. The construction of a modern coal-fired power plant will take 54-58 months. In order to erect a nuclear power plant (NPP), it will take at least 56-60 months.

Gas is the most affordable and cost-effective solution for electricity producers and consumers who count money.

It is likely that someday alternative energy sources will replace fossil fuels, but this will not happen soon. For example, in order for wind energy to account for 10% of the world's energy consumption, between 1 million and 1.5 million wind turbines are needed. In order to simply place these wind turbines, you will need an area of 550,000 square kilometers. This is equal to the area of the Khanty-Mansi Autonomous Okrug or the largest European country — France.

The problem is not only in the area: alternative sources are not the best solution from a business point of view. Alternative energy sources are still economically untenable. The most cost — effective type of fuel today is gas. Gas allows you to get cheaper electricity, in comparison with alternative energy.

Gas and ecology

Gas is a significantly cleaner fuel than any other hydrocarbon energy carrier. When the gas is burned, less carbon dioxide is released compared to other traditional sources, such as coal. This, accordingly, has a much smaller negative impact on the environment. A modern gas-fired power plant has practically no harmful emissions into the atmosphere, and in this sense its emissions are similar to those of conventional gas stoves. The misconception of many people is the erroneous opinion about supposedly absolutely clean alternative energy sources. Wind, geothermal and hydroelectric power plants also cause their own damage to the environment, and sometimes considerable.

For thermal power plants, the transition from coal to gas contributes to a sharp reduction in carbon dioxide emissions into the atmosphere. Gas has a greater calorific value than coal. In order to get an equal amount of energy, you just need to burn more coal. Gas-fired power plants are more efficient in terms of efficiency: with the same amount of heat generated during gorenge, gas-fired CHPP produces more electricity.

As a result, the replacement of coal-fired power plants with gas-fired thermal power plants reduces CO2 emissions by 50-70%. Gas is an environmentally adequate fuel.

Gas reserves — will they be enough for our children and grandchildren?

You can often read that the gas reserves are exhausted, but this is not the case. There is enough gas not only for our century. The gas will not run out during the lives of our children, nor during the lives of their grandchildren. According to the International Energy Agency, at the current rate of gas production, the already discovered reserves of this fuel will be enough for 130 years of production. We are talking about gas reserves, the production of which is possible and cost-effective at the current level of technology. The volume of gas reserves is estimated at 400 trillion. cubic meters.

The recoverable reserves of unconventional gas (such as dense rock gas, shale gas, and coal-fired methane) are still at least 380 trillion. cubic meters. As technology develops, their extraction becomes more and more real. Thus, the gas reserves already discovered will last for about 250 years. At the same time, exploration methods are constantly being improved, which makes it possible to increase reserves. To date, the United States, the world's largest consumer of energy, is provided with reserves of unconventional gas for 100 years to come. China, the second largest consumer, also has similar gas reserves.

Gas-the solution to the problem of energy shortage in the XXI century.

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