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Japan’s Energy Policy and Its Significance for Russia

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Just as decades ago, coal remains a strategically important fuel for the world. Despite the constant talk of greenhouse gas emissions and the complete phase-out of coal, the disappearance of this fuel from the market would lead to the collapse of the global economy. It is quite natural that the world’s four major coal consumers, China, India, the USA, and Japan are among the most economically developed countries in terms of GDP.

As for Japan it once relied heavily on “atoms for peace” technologies in its energy sector. Before 2011, Japan had 54 nuclear reactors that generated about 30 percent of its electricity. However, after the Fukushima Daiichi nuclear disaster in March 2011, Japan began a mass shutdown of nuclear power plants. Some power plants have been re-commissioned after safety checks, but many are still not operational, and in 2020, nuclear power plants accounted for only about 5% of Japan’s electricity.

To make up for lost nuclear capacity, Japan has dramatically increased its use of hydrocarbon energy in the decade since 2011. Since the country is under the strongest influence of the West and has to share the latter’s “green” policy, Japan wanted to replace nuclear power plants with thermal power plants (TPP) running on natural gas, which is considered the most environmentally friendly type of hydrocarbon fuel. However, Japan has no large gas reserves of its own, and it proved to be too expensive to import gas in the quantities required to cover all the needs of the Japanese energy industry. With oil, which is not as clean a fuel as natural gas is but is still superior to coal in this respect, the same situation occurred, as it turned out too expensive to fuel all thermal power plants with imported oil only. As a result, Japan had to increase its use of coal and, since it does not possess coal reserves, had to multiply its imports. In 2020, Japan became the world’s fourth-largest consumer of coal.

It would be in Japan’s interest to buy the bulk of its coal from Russia since Russia has vast deposits of this energy carrier and can offer coal of the highest quality that gives maximum energy with minimum pollution. However, Japan’s close relations with the West, with which Russia’s relations have significantly deteriorated in the past decade, and Japan’s claims to

the Kuril Islands, which were ceded to Russia as a result of World War II, have played a role. Therefore, Japan's top coal suppliers from 2011-2020 were Australia and Indonesia, with Russia ranking third. However, given the volume of Japanese coal consumption and the fact that Japan imports Russian oil and gas in addition to coal, this is a very high figure characterizing the magnitude of Russian-Japanese hydrocarbon cooperation. For example, in 2019, Russian coal exports to Japan totaled 20 million tons, earning Russia $1.9 billion.

However, the "green" pressure of the West doesn't go away and is only getting stronger every year. Wealthy countries and corporations do not need competitors, they must be able to restrict industry and slow down other countries' economic development. That is why Washington and Brussels are tirelessly pushing the environmental agenda on every possible international platform, making it one of the main topics at the UN.

As a result, in the summer of 2020, Hiroshi Kajiyama, the Minister of Economy, Trade and Industry announced the government's intention to close 110 of Japan's 140 coal-fired power plants by 2030 to reduce carbon dioxide emissions. In the fall of 2020, Japan's new Prime minister, Yoshihide Suga, said in his first speech to the Japanese Parliament that his country is committed to achieving zero greenhouse gas emissions. "Zero" or "carbon neutrality," which is so much talked about, does not mean that there are no emissions at all, but that they are offset by the green spaces that absorb carbon dioxide, or by the money that a particular country or company allocates to environmental projects. However, coal, considered the dirtiest fuel, should be reduced down to, or just above, zero.

Of course, if it happens, Japan's rejection of coal could have a significant blow to the budgets of all Japanese coal exporters, especially Australia, Indonesia, and Russia. Whether the Land of the Rising Sun will implement such an ambitious plan is a matter of lively debate.

The fact is that, according to Hiroshi Kajiyama, the Minister of Economy, Trade and Industry, Japan plans to replace hydrocarbon energy sources with renewable energy sources (RES), such as solar radiation, water, wind, etc. Also under consideration is the possibility of switching to a new fuel, hydrogen, which is considered environmentally friendly because it does not emit harmful substances when used.

All this sounds tempting, but in practice, RES cannot yet bring enough electricity to uninterruptedly supply a country with a large population and developed industry. Hydropower plants depend on the availability of sufficiently full rivers. While a country like Norway has managed to generate 95% of its electricity through hydroelectric power, Japan does not have the same natural environment. In addition, hydropower plants themselves cause significant damage to river ecology.

As for solar and wind power plants, they are, as mentioned above, too unstable. European countries may serve as an example of this, such as the UK, which proudly reported in early 2020 that it could convert most of its energy to renewables, only to face an energy crisis in the cold winter of 2020-2021, when many people were left without heating in their homes. As a result, in the fall of 2021, to prevent a repeat of the crisis, Europe began actively buying gas, which, although it gives less pollution than coal, still remains a traditional hydrocarbon fuel. The massive purchase of gas has led to skyrocketing prices for the product, and as a result, even those European countries that are at the forefront of the global coal phase-out movement have had to buy and burn coal in their power plants. As a result, both gas and coal reached record prices in autumn 2021, and Russian, Australian,

and Indonesian coal companies do not feel the lack of profit.

The author has mentioned earlier Japan's desire to switch to hydrogen. Indeed, hydrogen does not pollute the environment when used. However, the environment is polluted during hydrogen's production: surprisingly, most of the hydrogen produced in the world comes from the same oil and coal. Other ways of producing hydrogen on an industrial scale are not cost-effective yet. Thus, to avoid processing hydrocarbon fuel on its territory, Japan will have to pay a lot of money to other countries, and only later receive the finished product. In the eyes of the United Nations, this may absolve Japan of responsibility for air pollution. Still, it will not make the number of harmful substances in the Earth's atmosphere any less.

In general, the plans announced by the Japanese government in 2020 seem unrealistic. Currently, coal-fired power plants generate more than 30% of all Japanese electricity. Rapid abandonment of coal in such a situation, as Europe has experienced first-hand, can provoke an energy crisis, the solution of which will require even more coal purchases. However, despite the loud statements of its leaders, Japan does not seem to be going to reduce coal consumption in the near future: from June 2020 to June 2021, Japanese coal imports increased by more than 4.8%.

The only truly realistic way for Japan to tangibly reduce its coal consumption is to switch to natural gas and revive Japan's nuclear power industry, which was nearly destroyed by the Fukushima Daiichi Accident.

Natural gas is too expensive right now. At the same time, it could remain expensive for a long time: in 2020-2021, Europe became convinced that it is too early to make renewables a strategic pillar of its energy security. However, a return to full coal consumption is also unlikely for today's European politicians, meaning that Europe is likely to keep buying gas at high prices for years and decades to come. This will make it difficult to switch from coal to gas in Japan as well.

The future of Japan's nuclear power industry remains unclear. On the one hand, Japanese politicians have already admitted it can't be abandoned altogether. On the other hand, it may take many years to restore nuclear power industry to pre-Fukushima levels while simultaneously introducing modern safety systems intended to prevent a repeat of the disaster.

No matter how the Japanese energy sector develops in the future, it could be beneficial for Russia. If Japan continues to consume the same amount of coal, Russia will maintain the same volume of its Japanese coal exports.

If Japan switches to natural gas, Russia could become its largest gas supplier, considering the geographical proximity of the two countries and the fact that Russia is one of the world's largest gas producers. Russia has long been exporting gas to Japan, and a considerable increase in those supplies will compensate Russia for its loss in coal supplies.

If Japan chooses to restore nuclear power, it will also indirectly benefit Russia. After the Fukushima Daiichi Accident, confidence in nuclear power was shaken in Japan and throughout the world. Many nuclear power plants have been closed in Europe, and many countries have given up building them. If Japan returns to building nuclear power plants with new, safer technologies, it will signal to the world that the "atoms for peace" can once again be trusted. Then the Russian Federation, which is one of the leading suppliers of peaceful

nuclear technologies, will be able to export them to more countries.

In conclusion, there are many promising types of energy globally, and those countries that pay attention to each of them will gain the most. However, traditional hydrocarbon energy will long play a leading role in the world, providing revenue and influence to resource-rich countries.

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