Geopolitical Factors in Energy Security (Part II) – Expanded Geopolitical Risks & Their Impact on Energy Security & Decarbonization

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By Guo Sizhi

Author Guo Sizhi

Widened Energy Related Geopolitical Risks

In addition to the rising risks in the Middle East, growing attention has been drawn to changing risks in all oil-producing nations and regions rather than just the Middle East. In particular, since the beginning of the 21st century, with the transformation of the international political and economic order, geopolitical factors surrounding oil and energy security have been complicated and non-Middle East risks have been increasing.

For example, today we often see terrorism within the African oil-producing nations including Nigeria, the largest oil producer in Africa and one of the major members of OPEC. This creates an impediment to oil supply in the international energy market. It must be remembered that in March 2003, triggered by tribal conflicts in Nigeria, residents and the army collided and the Western oil major companies had to stop their operations as their workers had to retreat from the drilling facilities. That resulted in a nearly 40% reduction in the country's crude oil production and eventually a temporary shock to the international energy market.

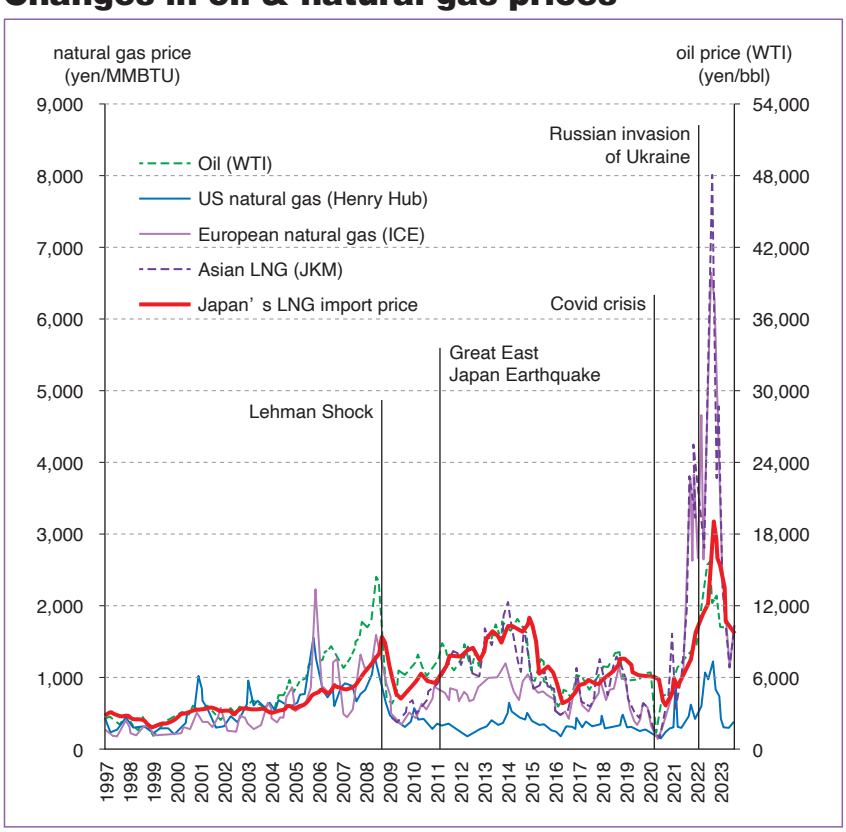
Venezuela, the fifth largest oil-exporting nation in the world and with the largest proven oil reserves, is now considered to have a geopolitical risk that could affect the international oil market due to political uncertainty in the country. For example, in January 2003, with a general strike, oil production rapidly declined from a little less than 3 million barrels per day to only 0.69 million barrels, which caused big waves in the oil market. In January 2018 as well, due to political confusion and an economic crisis, daily oil production was 1.6 million barrels – a 20% decline over the same month in the previous year.

In addition, recently the risks in Russia, the second largest oil and natural gas-producing nation in the world, related to energy resources have been significant. In March 2014, when Russia annexed the Crimea Peninsula, Russia-Ukraine friction and confrontation with Western nations triggered by their economic sanctions on Russia, the Russian risk factor in the world energy market increased significantly. Crude oil prices soared to around $100 and the provision risk of Russian crude oil via Ukraine to Eastern Europe grew.

In February 2022, when Russia invaded Ukraine and an import ban on crude oil from Russia was considered by the West, crude oil prices exceeded $100 per barrel and in March, WTI crude oil future prices rapidly increased *(Chart 1)*. In addition, crude oil prices together with the Brent Crude price, the index price in Europe, soared to higher than $130 per barrel. Dubai Crude, the index price in Asia, was continuously kept high as well. Furthermore, natural gas prices also soared due to the impact of the Russian invasion of Ukraine. Natural gas prices reached their highest level so far in not only the European but also the Asian LNG market ($72/MMBtu in the

CHART 1

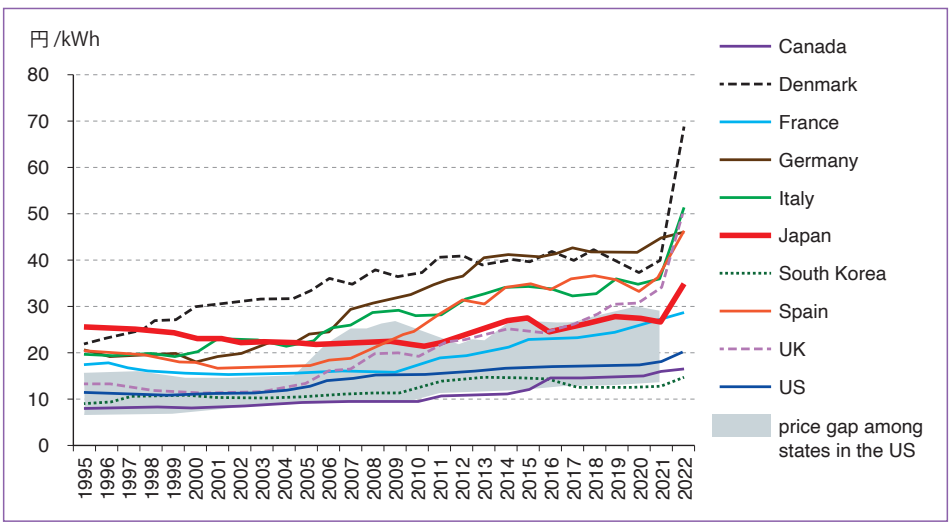
Changes in oil & natural gas prices



Source: Central Research Institute of Electric Power Industry

CHART 2

Changes of electricity costs for home use in major nations



Source: Central Research Institute of Electric Power Industry

European TTF and $85/MMBtu in the Asian JKM). As global energy and LNG prices continue to escalate, electricity prices have also surged significantly *(Chart 2)*.

This is how the global oil and energy market suffered such a big impact from the geopolitical risks that started in Russia, and why oil and natural gas prices are rapidly rising.

The Impact on Energy Security & Decarbonization

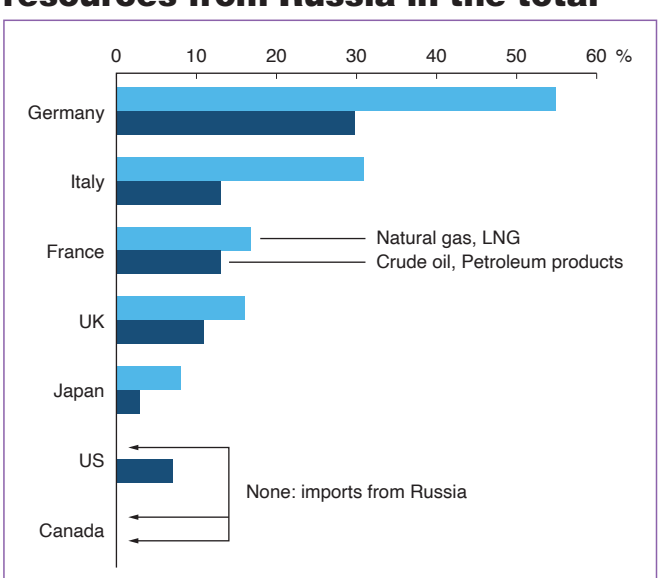
Rising geopolitical risks in regions other than the Middle East have had a big impact on energy security and decarbonization for mitigation of global warming. As well as the oil-producing nations of the Middle East, Russia, as an energy supply superpower, has a strong influence on the world energy situation. Its oil and natural gas production is respectively the third largest (10.67 million barrels per day) and second largest (638.5 billion m3) in the world, accounting for 12.1% and 17% of global supply. Major nations, particularly in the EU, are heavily dependent on Russian oil and gas *(Chart 3)*.

The EU's energy dependency on Russia is high, since each EU member cannot meet demand for primary energy on its own and they use pipelines for imports from Russia. Their energy security risk is extremely high because of this dependency on Russian resources and has become even higher due to the Russia-Ukraine war.

Russia has been taking retaliatory measures such as reducing or

CHART 3

Percentage of imports of natural resources from Russia in the total



Note: Made from documents by IEA and BP, crude oil in Nov. 2021 and natural gas in 2020
Source: Nikkei Journal

preventing energy provision to the EU and other developed nations. At the end of March 2022, it requested the EU and other nations they considered unfriendly to make the import payments for natural gas in Russian rubles, threatening to stop supplying gas unless they agreed to do so. The EU has been refusing to do so, considering this request a menace. Gazprom, a major Russian company, stopped provision of natural gas to Poland and Bulgaria which refused to pay in rubles at the end of April 2022, and at the end of July it also stopped natural gas provision to Latvia.

Russia has been trying to threaten the EU by reducing natural gas supply as well as ceasing provision to certain nations. Gazprom reduced daily gas transportation by 40% from the routine amount (167 million m3) by Nord Stream 1 – the submarine pipeline via the Baltic Sea between Russia and Germany – on June 15, 2022, supposedly for pipeline maintenance. And on the following day, it further reduced it to 67 million m3, less than the usual amount by 60%. Russia greatly reduced provisions to France and Italy as well. Furthermore, between July 11 and 21, it completely stopped provision of gas to Germany for the alleged purpose of regular checking of facilities. It restarted supply on July 22, but the amount remained 60% less than usual. Meanwhile, Gazprom announced on Aug. 19 that gas provision by Nord Stream 1 would be suspended for three days from Aug. 31.

These actions by Russia aim at not only threatening Germany and other European nations continuing with economic sanctions against Russia but also at further increasing energy prices that have already been raised by war by intentionally creating tension.

Due to the Ukraine crisis today, oil and natural gas prices have been significantly raised and Russian gas supply has decline. European natural gas reached $51.33/million BTU in July 2022, having increased by 310% over the same month in the previous year. Crude oil prices (WTI) also reached $108.5 in March 2022 right after the Russian invasion of Ukraine, a more than 70% increase over the same period in the previous year. The average oil price between January and July in 2022 rose by more than 50% over the previous year. This is how the world, and in particular, Europe has been suffering from a serious energy crisis. Electricity prices worldwide have also been acceleratingly due to the invasion. Prices in January 2023 in Japan rose by 30% over January 2020, and in the EU by 50% during the same period. Above all, in Italy and Germany, with their heavy dependence on Russia, prices trebled and doubled, respectively.

The Russian geopolitical risk has caused high energy costs for the European manufacturing industry after the invasion in Ukraine not only through natural gas price rises but also through LNG procurement from the United States, Qatar and Northern Africa to replace Russian gas, which is more costly for transportation and storing. It is thought that the decrease in energy supply from Russia has lowered economic growth in the EU by 0.4% in 2023 and 0.9% in 2024. In Germany particularly, in the first half of 2024, electricity prices were 50-60% higher than in other European nations. As the manufacturing industry is a driving force of German GDP and an energy intensive one, its decline in competitiveness has directly led to the decline of its whole economy. The German GDP growth rate has been a negative 0.3% in 2023 and a negative 0.2% in 2024. This in turn will negatively affect the Asian economy and eventually the global economy.

As nations are now strengthening their efforts for energy security by using more fossil fuels, such as coal, they are effectively delaying the process of decarbonization to cope with global warming. European nations are trying to reduce their dependency on Russia in the short term with diversification of natural gas providers and effective use of nuclear power. It will take time to develop renewable energy sources or new ones and expand their use, but this is indispensable for stable energy supply. It is also necessary to utilize existing energy sources as well.

In this light, immediately after the Russian invasion of Ukraine, Germany and other EU member nations tried to delay the closure of coal-fired power stations or reopen them. Germany has been considering postponement of the planned closure of coal-fired power stations by 2030, and major power companies have even started preparations to expand coal-fired power stations. The largest German power generation company, RWE, is now examining reutilization of suspended power stations or the extension of power stations earmarked for suspension. A law revision enabled the government to permit coal-fired power stations to return to the electricity market for a limited period, and on Aug. 1, 2022 official permission for the operation of the No. 3 power generator (capacity: 0.69 million kW, begun in 1979) of the Mehrum coal-fired power station in northern Germany was granted and it was restarted.

In France, the government decided to start preparations for reutilization of a coal-fired power station (capacity 0.618 million kW) that was suspended on March 31, 2022 and planned to be abolished within that year, while in Austria, the government and Verbund, the major electric power company, agreed in June 2022 on the reutilization of the Mellah thermal power station (gas fired, 0.246 million kW), transformed to be coal fired, in cases of emergency. In Greece, Prime Minister Kyriakos Mitsuotakis decided in April 2022 to increase coal mining by 50% for two years as a temporary policy, and Energy Minister Kostus Screkus told the Power Public

Corporation to raise the proportion of brown coal to total generated power from 5% in 2021 to 17-20 % in 2022.

Outside the EU, the United Kingdom decided in May 2022 to extend the operation of two coal-fired power stations (total 3.3 million kW) planned to be shut down by the end of that year, while China, though it promoted less use of coal following Russia's invasion of Ukraine, decided to increase coal production and expand thermal power in the first half of 2022. In 2022, coal-fired power generation worldwide expanded by 19.5 GW and China accounted for more than half of the 45.5 GW in total additional global power generation capacity.

In the US as well, with the rapid increase in oil and gas prices and tightened supply of power due in particular to fierce heat in summer, coal production increased and coal-fired power stations planned to be closed in some areas continued production.

Thus, with the ongoing movement to reduce dependency on Russian energy following the invasion, the EU and the rest of the world have had to adjust their plans to minimize coal-fired power generation as the main pillar of their decarbonization policies. Prioritizing energy security over decarbonization has forced them to postpone the shutdown of coal-fired power stations.

However, if their utilization is prolonged, it will badly affect the reduction of CO_2 emissions and the goal of carbon neutrality. In particular, the EU's policy of delay in CO_2 reductions could seriously damage Asia's or other regions' decarbonization and energy security policies. According to the "Emission Gap Report 2024" issued by the UN Environment Program (UNEP), global emissions of greenhouse gases reached 57.1 billion tons in 2023, a 1.3 % increase over the previous year and the largest amount so far.

Issues to Be Tackled

So the geopolitical risks surrounding energy security worldwide and decarbonization to mitigate global warming have been rising because of Russia's invasion of Ukraine. On the question of energy security, the EU plan for reducing dependency on Russian fossil fuels implemented in May 2022 was successful in significantly reducing the share of gas imported from Russia in the EU's total energy consumption from 45% in 2021 to 15% in 2023. It is noteworthy that the EU is trying to diversify energy supplies and energy saving through a transition to renewable sources. In addition, in May 2025 it announced a timetable for completely withdrawing from energy dependency on Russia. It aims for a step-by-step import ban on Russian gas and a complete import ban by the end of 2027. In parallel to a transition to clean energy, it plans to shut out Russian oil, gas and nuclear power (enriched uranium or fuel) from the EU market.

Japan has a lower dependency on Russian energy sources than the EU (natural gas 8.8%, crude oil 3.6%, coal 10.8%), but it is also aiming to reduce its dependency and diversify sources of supply. For example, it is trying to expand imports from other nations like Australia and Indonesia, while strengthening efforts on renewable energy sources or green fuels like hydrogen and ammonia.

I believe, above all, that the ultimate energy security policy to nullify geopolitical risks must be decarbonization. Diversification of energy supplies could temporarily lower dependency on certain oil- and gas-producing nations and reduce regional geopolitical risks. But energy-importing nations will not be able to cope with the simultaneous expansion of several risks related to energy-producing nations. So in the long run, we will need to strengthen our efforts to develop technologies related to renewable energy sources or new energy sources, in addition to decarbonization. Only decarbonization or green technology development will consistently achieve two goals: energy security and environmental protection.

The EU, Japan and other developed nations pursuing decarbonization have been accelerating technological development. For example, the EU has been boosting the development of biogas in addition to LNG and the hydrogen market, while Japan has an advantage in new energy sources such as hydrogen and ammonia as well as decarbonization-related technologies like all solid state batteries, power semiconductors, and Carbon Capture, Utilization and Storage (CCUS).

Japan should now strengthen its efforts and engagement in decarbonization by taking advantage of its excellent technology. This would contribute not only to its own energy security and environmental protection but also to the mitigation of worldwide geopolitical risks related to energy.

Article translated from the original Japanese by Naoyuki Haraoka, editor-in-chief of Japan SPOTLIGHT *& executive managing director of the Japan Economic Foundation (JEF).* JS

Dr. Guo Sizhi is specially appointed professor at Teikyo University Okinaga Research Institute, and consulting fellow at the Japan Economic Foundation (JFE). He specializes in the international economy, the energy economy, and the Chinese economy. His current research focuses on the transformation of the international political and economic order, new energy, and economic security toward carbon neutrality, and decarbonization technology innovation. He is the author of numerous books, including *A History of the Industrial Revolution: The Transition of the International Order as Seen Through Innovation* and *The Decarbonizing Industrial Revolution.*