

## **Recent Energy Price Hikes and Growing Concerns on Energy Crisis**

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As energy price hikes and the tightening energy supply-demand balance have become global trends, concerns are growing that civic life and economic activities would be affected in many countries to exert negative impacts on the global economy. The price hikes cover a wide range of energy sources from oil and gas to liquefied natural gas, coal and electricity. While various regions in the world see problems, the tightening supply-demand balance has become a serious problem particularly in Europe and China.

Crude oil futures prices rose beyond \$70 per barrel in July and seesawed before resuming an uptrend from late August. The front-month futures contract topped \$80/bbl on October 4 for Brent and on October 11 for West Texas Intermediate. Oil futures prices thus hit the highest levels in seven years since November 2014. Gas and LNG prices have scored even sharper hikes. Spot LNG prices in Northeast Asia rose sharply in October, reportedly hitting extremely high levels surpassing \$50 per million British thermal units for the first time ever. The price of \$50/MMBtu amounts to an oil price of some \$300/bbl. In Europe as well, natural gas trading hub prices have soared, topping \$40/MMBtu on some days. Steam coal prices for power generation have also risen substantially. Spot prices for Australian coal exceeded \$200 per ton early in October and reportedly rose close to \$250/t. They have risen nearly five-fold from last year's bottom. European electricity price hikes have attracted global interest. In the United Kingdom where the electricity supply-demand balance has been tightening remarkably, the daily average wholesale electricity price came to 498 euros per megawatt-hour (about 65 yen per kilowatt-hour) on September 15, representing a 10-fold rise from the average's bottom recorded last February. A temporary high was as high as 380 yen/kWh. The average has remained above 200 euros/MWh so far this month.

Why have energy prices risen so widely? What has happened in international energy markets? A basic factor behind any commodity price hike is a tightening supply-demand balance. The supply-demand balance has tightened commonly in all energy markets. However, there have been various factors behind the tightening supply-demand balance. Regarding crude oil prices, for instance, an oil demand recovery from the COVID-19 disaster has been combined with production restrictions continued by the Organization of the Petroleum Exporting Countries and non-OPEC oil-producing countries known as the OPEC-plus group, as well as a U.S. oil production fall caused by hurricanes in September. The recent crude oil price hike was triggered by the OPEC-plus group's latest decision to refrain from increasing production. In the Asian LNG market, demand expansion through China's explosive appetite for LNG has been coupled with limited additional supply to sharply tighten the supply-demand balance, leading spot prices to shoot up on concerns about future supply shortages and limited market thickness and depth.

In Europe, LNG demand grew amid unusually low temperatures that lasted until early last spring, leading to lower inventories and constraints on supply expansion. The tightening Asian supply-demand balance made it difficult in Europe to procure additional LNG that had played a key

role in adjusting natural gas supply and demand. Additional Russian pipeline gas supply has failed to come as expected. LNG prices have soared as the supply-demand balance has been feared to tighten further towards the winter demand season at a time when gas-fired power generation is becoming more important under a tighter electricity supply-demand balance. While earlier low coal prices have affected supply expansion even amid a demand recovery from the COVID-19 disaster and led to uncertainties about coal development investment, China's domestic coal production has slackened under policy regulations including global warming countermeasures. Chinese demand for coal imports has thus increased rapidly, prompting coal prices to shoot up. The international coal market has been distorted due to deteriorating China-Australia relations, resulting in constraints on supply expansion, which might have been combined with the rapid increase in China's demand for coal imports to tighten the supply-demand balance. In the face of electricity shortages, the Chinese government has attempted to increase domestic coal production, secure stable coal imports and increase LNG procurement. Nevertheless, rolling blackouts and rising electricity costs are feared to affect the Chinese economy. The situation is serious in Europe as well. In the United Kingdom featuring the most remarkable tightening of the electricity supply-demand balance, wholesale electricity prices have soared as a long-term decline in wind power generation and disruptions to supply from power generation facilities have been combined. The United Kingdom now must depend on fossil fuel-fired power generation for a stable electricity supply. However, coal-fired power generation capacity has continued a downtrend. At the same time, coal and natural gas price hikes have brought about wholesale electricity price increases. A sharp rise in emissions trading prices under the European Union Emissions Trading System has also contributed to boosting power costs. The electricity supply-demand balance is feared to tighten further, depending on future developments. Facing the sharp energy price hikes, European countries are considering or implementing the expansion of gas reserves, relief measures for low-income people affected by energy price hikes, assistance to private companies and other measures.

As described above, there are various background factors behind the price hikes for each energy source and each region. Then, everyone may question why the tighter supply-demand balance and price hikes have simultaneously come for such wide range of energy sources. As far as I know, however, no experts have given any definite answers to the question. In the following, I would like to hypothetically explore answers to the question.

First, there has been the impact of the COVID-19 pandemic. Substantial drops in energy demand and prices in 2020 came as an unprecedented shock, affecting energy investment generally. In response to price drops, the restoration of a supply-demand equilibrium through supply cuts became a top priority. When energy demand recovered from the COVID-19 disaster, however, supply expansion failed to catch up with demand growth, leading to a mismatch between supply and demand. A market maxim says, "The deeper the trough, the higher the peak." Energy market prices are cyclic. As the shock of the COVID-19 disaster was huge, the reaction to that might have been great. Second, surplus supply capacity declined remarkably in all energy markets that have continued rationalization and cost reduction efforts to maximize efficiency. All energy markets have thoroughly reduced costs and surplus to survive severe competition. As a result, they have cut supply and demand buffers and surplus supply capacity, leading them to lose flexibility and stability once the supply-demand balance tightens. In such situation, players with sufficient surplus supply capacity (including the OPEC-plus group in the oil market and Russia in the gas market) exert great influence on markets.

Third, we should pay attention to the impacts of energy markets' transition to low-carbonization or decarbonization. As far as current supply and demand issues are concerned, the

expansion of variable renewable energy power generation and the impacts of some disruption to renewable energy supply are attracting attention. While some people point to the impacts of the current wind power generation fall in Europe, a wind power generation drop amid a Texas power crisis in February and a solar power generation decline behind Japan's tightening electricity supply-demand balance early this year. However, those incidents may have to be considered along with surplus supply capacity to make up for power generation falls. The impacts of power generation capacity drop through the reduction of coal-fired power generation capacity in Europe are also attracting interest. This should also be considered together with overall surplus capacity. It must also be noted that the current overall energy supply-demand balance tightening is characterized by installed capacity and fuel supply insufficiencies that have caused the composite tightening of supply and demand. Fourth, the current supply-demand balance tightening indicates that the tightening balance for all energy sources has shut down any loophole, leading them to post tighter balances and price hikes in a chain reaction. Market speculations anticipating supply concerns and further price hikes might have contributed to boosting prices, depending on the thickness of markets and the depth of trading.

How far would energy prices rise? Would the current price hikes lead to an energy crisis? With these questions in mind, we must closely watch future market developments. I would like to position this report as a general analysis and consider analyzing individual issues in the future.

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