

## 2 Energy and Fuel Markets Influences Summary

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At the start of 2022, global energy markets were recovering from the coronavirus of 2019 (COVID-19) pandemic. While the introduction of the vaccine and return to work initiated economic recovery, the pandemic's impacts on market and economic factors remained. Global markets, including technology (such as computer chips), marine supply chain, and labor availability, experienced similar challenges observed in the energy sector.

The imbalance between supply and demand was a key underlying factor to rising prices in 2022. Prices for energy commodities increased and remained elevated both domestically and globally. The U.S. Energy Information Administration (EIA) reported that in 2021, energy commodity prices rose due to increasing demand for gasoline, diesel, crude oil, and natural gas. As government lockdowns ended, travel rapidly increased, and consumer spending on goods approached prepandemic levels. Fuels production lagged behind global demand, as the financial risk of restarting operations (or shutting operations down) was closely monitored by producers and refiners that had dealt with nearly two years of COVID-19. This slower production increase relative to demand growth was a fundamental reason for price increases (EIA 2022).

Low regional inventories across all petroleum products and natural gas led to increased prices for near term energy commodities. In standard energy market conditions, futures prices are typically higher than current prices. This reflects ambiguity around market conditions in the future while near-term market conditions tend to reflect certainty around market expectations. Under these standard market conditions, suppliers are encouraged to increase inventories, as early purchases avoid anticipated future price increases. In 2022, however, concerns regarding fuel availability in the market emerged and prices for future commodity contracts fell below current prices. This market condition limited inventories of fuels, particularly distillate and gasoline

In addition to the supply/demand imbalance other factors that influenced supply and pricing of energy commodities include:

- Russia's invasion of Ukraine
- Global supply chain challenges
- Weather-related market influences

## 2.1 Russia's Invasion of Ukraine

During late 2021 and January 2022, Russian forces organized along the Ukraine border. On February 24, 2022, Russia invaded Ukraine with ground troops and missile strikes (BBC 2024). In response to the invasion, the U.S. and other countries imposed strict sanctions on Russia, targeting banks, corporations, and individuals to financially deter the aggression (The White House 2022). These sanctions continued throughout 2022 and eventually extended into the energy sector.

Russia was a significant source of crude oil, petroleum products, and natural gas for European countries and global markets. Following the invasion and subsequent sanctions, many energy products Russia supplied were no longer accepted. This shift caused rapid price changes and a shift in global energy markets as the supply chains adjusted to compensate for the loss of Russian products (EIA 2022). A coordinated U.S. release of significant crude oil barrels from the Strategic Petroleum Reserve and similar actions from other countries aimed to maintain an adequate supply of petroleum in global markets (EIA 2022).

The war impacted natural gas and liquefied natural gas (LNG) markets, although changes occurred slowly since sanctions on natural gas were among the last to be imposed. As European countries moved away from Russian natural gas, U.S. LNG export capability emerged as a flexible option (S&P Global 2022). Sanctions and attacks on Russia's infrastructure limited the flow of natural gas from Russia into Europe. In 2022, LNG imports into the European Union and the United Kingdom increased by approximately 73% compared to 2021, replacing pipeline imports from Russia (EIA, Today in Energy 2023).

## 2.2 Global Supply Chain Challenges

One long-term impact of the COVID-19 pandemic included significant global logistical and labor challenges. These challenges highlighted considerable supply chain disruptions starting in 2021, which shaped the international markets and economics, including energy markets. Specific challenges directly affecting energy markets included (S&P Global 2022):

- Congestion in container shipping networks
- Delays and disruptions in manufacturing and deliveries, including computer chips for a wide range of products
- Strains on capacity in global oil production

As the production of crude oil, petroleum products, and natural gas/LNG continued to struggle to meet increasing demand, shipping delays also significantly hindered the transportation of fuel.

## **2.3 Weather-related Market Influences**

The weather during 2022 limitedly impacted energy markets, particularly in New York State. According to the National Oceanic and Atmospheric Administration (NOAA), the winter season at the start and end of 2022 generally experienced normal to warmer-than-normal temperatures (NOAA 2024), resulting in manageable heating fuels demand being met by the lower regional inventories and supply chain constraints.

The 2022 Atlantic hurricane season produced 14 named storms, with 3 U.S. landfalls (NOAA 2022):

- Initial landfall of Hurricane Ian Cayo Costa, FL; secondary landfall at Georgetown, SC
- Landfall of Hurricane Fiona near Punta Tocon, PR
- Landfall of Hurricane Nicole in North Hutchinson Island, FL

Aside from the areas directly affected by landfall areas, the hurricanes did not significantly impact the supply chain for energy and fuels markets supplying New York State.

At the end of 2022, winter storm (Elliott) impacted the central and eastern portion of the United States between December 21 and December 26, 2022. For NYS, the storm brought heavy snow and wind resulting in temporary power outages. Beyond NYS, there were similar power outages, but with the rapid temperature decrease during and after the storm, there were refineries and production wells that were forced to shut in production in the southeast. The combination of snow and wind, along with the interruption of production for natural gas had a profound impact on electricity generation and power outages.

The temperatures in the southern United States warmed on December 25, 2022, allowing a rapid restoration from the production slowdown. If the temperatures remained cold for longer period of time, there could have been significant impacts downstream into the northeast; an example of the importance of energy supply chains and regional risks associated with extreme weather. This 2022 storm had similar impacts on the energy industry as winter storm Uri of 2021, which impacted production in the southern portion of the United States. The impact of Elliott in 2022 led the Federal Energy Regulatory Commission to closely monitor how industry implements cold weather reliability standards (FERC 2023).