

Q3
2025

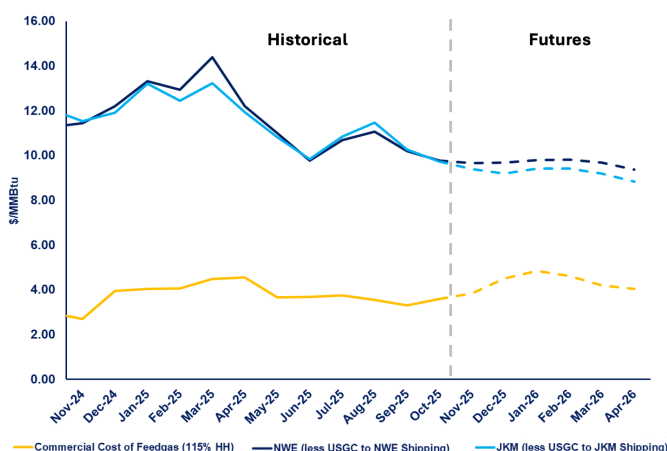


Energy Economic Horizons

A QUARTERLY PUBLICATION OF THE
ENERGY & CLIMATE PRACTICE

Economic Horizons for LNG and Gas-Fired Generation

US LNG COMMERCIAL MARGINS



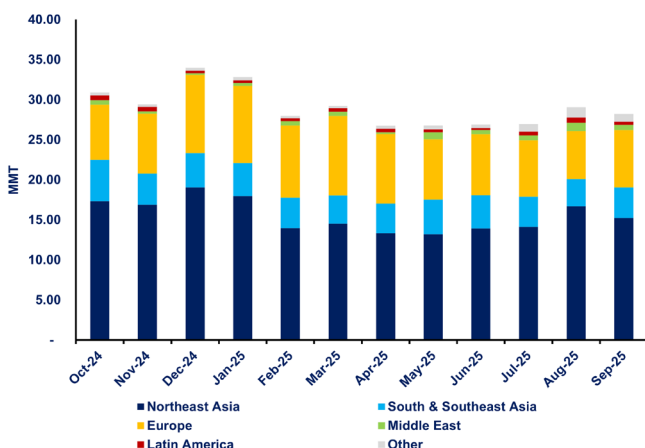
Insights

- US LNG commercial margin compression has occurred over the last 12 months, dropping from a high of \$9.90/MMBtu in March 2025 to \$6.16/MMBtu at present.
- Therefore, net of average tolling/SPA liquefaction fees of \$2.75/MMBtu, net estimated average trading margins declined from a March 2025 high of \$7.15/MMBtu to a current average of \$3.41/MMBtu.
- Estimated margins for European sales were higher than Asian margins in 9 of 12 months, and Asian margins were only slightly higher in a few summer months.
- Near-term futures prices signal that margins will compress further and trade to Europe remains favorable.

Notes

Commercial cost of feedgas: 115% HH (Source: S&P).
 NWE (less USGC to NWE Shipping): Platts NWE minus BRG calculated shipping costs (Sabine Pass to Zeebrugge).
 JKM (less USGC to JKM Shipping): Platts JKM minus BRG calculated shipping costs (Sabine Pass to Futtsu).

GLOBAL LNG IMPORTS



Insights

- Over the last 12 months, global monthly imports averaged 29.1 MMT.
- Northeast Asia – predominantly Japan, Korea, and China – accounted for 50-55% on average of global imports.

Closing the Books on Russian Gas

European Union (EU) energy secretaries gathered in Luxemburg on October 20 to discuss a legislative proposal for a ban on all energy imports (including natural gas) originating from Russia, to be phased in until January 2028. In a historic vote, member-states approved the ban, even if landlocked Hungary and Slovakia, which voted against the proposal, reportedly will be exempt. Lawmakers in the European Parliament are expected to adopt the law before the end of the year. While a delegation from Russia recently announced a memorandum of understanding (MoU) with China about possible construction of the Power of Siberia 2 pipeline, EU leaders are trying to end all energy imports from Russia—a cornerstone of European manufacturing, power generation, and heating and cooking for over half a century.

Evidently, important geopolitical questions are linked to Europe's transition away from its historically leading energy supplier. But what about the market impacts of a ban on imports of natural gas from Russia? Not long ago, interruptions in the supply of natural gas could be felt dramatically (if unevenly) across the European continent. Today, Europe's natural gas market is more integrated than ever, as are markets globally, due to maturation of the market for liquefied natural gas (LNG). EU offtakers have already significantly reduced imports from the Russian Federation following the second outbreak of the war in Ukraine and Gazprom's decision to halt exports of natural gas to northwestern Europe.

Drastic market intervention by banning a specific source of supply can have profound and unexpected consequences. Our LNG Horizon model, which projects global gas prices, production, and flows across all regional markets and international LNG markets, offers four key insights.

Gas price impacts in Europe

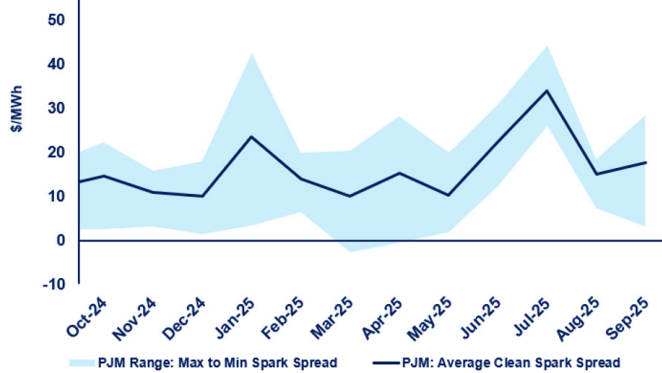
Typically, a sudden disruption in supply in the market, such as an infrastructural bottleneck or production shutdown, will lead to a spike in prices because alternative supplies cannot immediately compensate for lost volumes. This happened in the summer of 2022, when Gazprom halted exports to Germany and prices soared to historic highs.

In our model, a decision to totally ban Russian gas from the EU by 2028 would have a more muted price impact, averaging only about \$0.30 to 0.40/MMBtu through 2038.

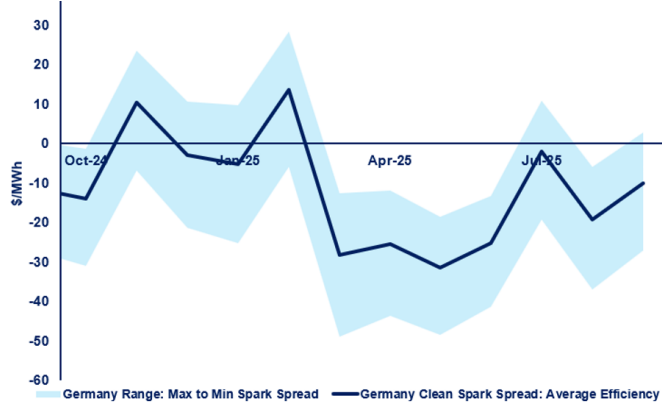
The primary reasons for the modest price impact are twofold. First, the volume of Russian gas imports to member states is already rather modest—less than 20 percent of the peak volumes in 2018. Second, the model computes long-term equilibrium prices in which markets have time to adjust to changing conditions. In the coming years, ample supplies of LNG will help the market adjust. We expect little difference in the price impacts on various EU trading hubs (e.g., TTF or Baumgarten), which would have been different less than ten years ago.

CLEAN SPARK SPREADS¹ FOR CCGT PLANTS

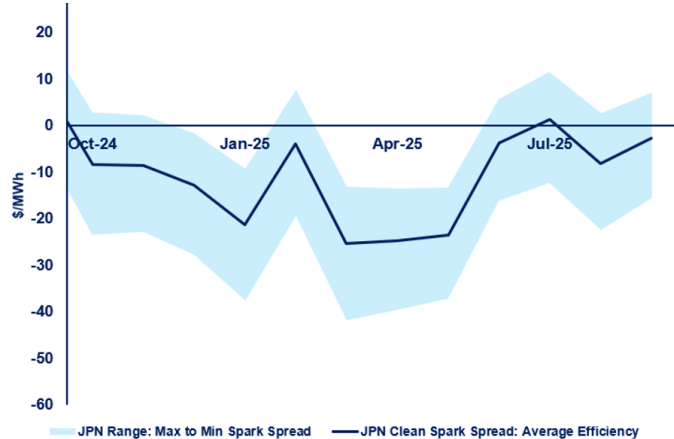
US: PJM



GERMANY



JAPAN



Insights

- Over the last 12 months, clean spark spreads:
 - > remained positive in the US PJM region
 - > turned and remained negative in Germany from the first quarter of 2025
 - > remained negative throughout 2025 in Japan
- Over the last 6 months, clean spark spreads increased in the US and trended toward positive in Germany and Japan.
- Looking ahead:
 - > US spreads could be jeopardized by increasing HH prices, but
 - > declining LNG prices could lift German and Japanese spreads into positive territory [see US LNG Commercial Margins figure on p. 1].

Notes

- 1 Clean spark spreads = electricity prices - natural gas costs - traded carbon prices.
- 2 Ranges in clean spark spread prices are based on variation in market prices and plant efficiencies.
- 3 Market data from S&P and Platts.
- 4 Emissions prices from a specified carbon tax (Japan), RGGI (PJM), and ICAP or Trading Economics (Germany).

A boon for Asia?

One man's loss is another man's gain, as the proverb goes. Displaced gas from Russia will have to find another home if the ban comes into effect. Diversion is easier in the global market for LNG than for some of the volumes that make their way to the EU by pipeline. Therefore, our model expects a modest decline in Asian gas prices, manifested in Japan/Korea Marker (JKM), even if the Northern Sea Route is only open for a part of the year and nuclear-powered icebreakers may add to the delivered cost of Russian LNG. Some pipeline volumes will have to find other regional markets (e.g., Turkey) or be absorbed domestically inside Russia.

More beneficiaries on the supply side than just the US

Following publication of the legislative proposal in June, most conversation has focused on likely beneficiaries of a ban of Russian gas. The consensus seems to center around LNG—and more specifically US LNG—as the chief beneficiary. This would be consistent with the recently concluded US/EU trade deal, which envisions enormous volumes of commodities making their way across the Atlantic Ocean in the coming years.

LNG benefiting from the ban is part, but not all, of the answer. In the longer term, and assuming no major swings in demand, we expect that increased upstream (and some midstream) investments would result in higher imports of natural gas by pipeline from North Africa and Central Asia.

Enter “outlaw molecules”

The complex element of this legislative proposal, as the European Commission (EC) has acknowledged, is whether Russian molecules will in fact disappear completely under the ban. This is unlikely now that Hungary and Slovakia have been exempt, but also because it will be exceedingly complicated to trace the origins of natural gas coming into the EU market from Turkey.

In the most likely scenario, more Russian gas will enter Turkey under a ban, and some of that gas likely will make its way into the EU. Because the Turkish market attracts various sources of supply, it will be challenging, if not impossible, to definitively determine where natural gas has originated.

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