

Natural Gas – An Unexpected Macro and Market Driver*



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Natural gas has become an unexpected driver of the global macroeconomic and market outlook.

Russia is the world's largest exporter of natural gas, supplying ~25% of global exports (through pipeline and LNG) with a staggering 77% of that supply flowing to Europe. The Russia-Ukraine war has constrained supplies and disrupted import and export patterns, leading to significant price volatility.

- *Our commodities team estimates that in 1H22, Russia supplies to Europe fell by 11% YoY.*
- *For Germany, one of the most reliant countries, supply from Russia has fallen by 29% since the start of the year.*
- *Prices have jumped dramatically, increasing from \$3.8/MMBtu in January to over \$8/MMBtu now, while European gas prices are up a staggering 279% from 2021 levels.*

*These dynamics along with heightened geo-political uncertainty has led to a **significant deterioration in the macro outlook for Europe**, prompting our Economists to forecast a contraction in 4Q22-1Q23 of -0.5%q/q ar.*

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Supply and Demand Dynamics

Current global natural gas supply and demand is very tight. In addition to constrained supply from Russia, labor and material shortages have also contributed to decreased global capacity and surging prices. These dynamics are expected to persist for the rest of the year and into 2023.

Recalibration of Supply

The macro environment has dramatically changed the flow of natural gas supply across the world:

- Sanctions against Russia are forcing traditional buyers to find alternate sources of supply or cut demand.
- China is capping fuel exports, and Europe's gas procurement is now likely to rely more on imports from North Africa.
- In early June, an explosion caused the shutdown of a Freeport LNG export facility in Texas, which has further curtailed supply at a time when it was already "struggling to keep up" with demand.

Replacing Russian gas supplies is complicated and difficult, especially for Europe. Countries such as Germany are struggling to meet demand despite cutting consumption by 10-20%. Despite attempts to replace the supply losses from Russia through other sources – including increasing supply from Norway and the Netherlands, as well as the deployment of LNG import infrastructure – **Russian gas supplies are still expected to be needed to meet winter 2022/2023 demand.**

Heat and higher demand

Weather is a primary demand driver for natural gas. With temperatures rising across Europe and the US, demand for gas used in cooling has increased:

- Record-setting warm days in the US during May, June, and July added at least 73 cooling degree days (CDD) to cooling-related demand.
- Weather is forecast to remain exceptionally warm across the US in August, which will likely put further upward pressure on demand for natural gas for cooling that had already risen 6% y/y for the US in 2Q22.

Arun Jayaram, Head of JPM's U.S. Exploration and Production and Oilfield Services and Equipment Research teams, forecasts natural gas demand to grow by 4% YoY for 2022 – likely related to the heat.

Storage

In addition to extreme heat, US Gas storage levels – which are now 10% lower than last year – are also exacerbating the supply demand imbalance.

Storage has become a more prominent factor in the outlook given its relationship to energy security. In Europe, countries with the highest storage levels and more energy security include Portugal (100%), Poland (98%) and the UK (98%). In contrast, countries that are reliant on Russian gas, have, on average, lower storage levels with Italy at 66% and Germany at 65%.

And the situation is not expected to improve dramatically anytime soon. The commodities strategy team highlights that there is a looming threat of a full-scale shutoff of natural gas flows on Nord Stream 1 to Europe. “The primary concern for storage is severely colder than normal winter weather for Europe, which could lead to more residential and commercial heating-related demand. Overall, there could be up to a 90% surge in demand relative to that of the summer season, **potentially causing NorthWest Europe to run out of natural gas this winter season.**”

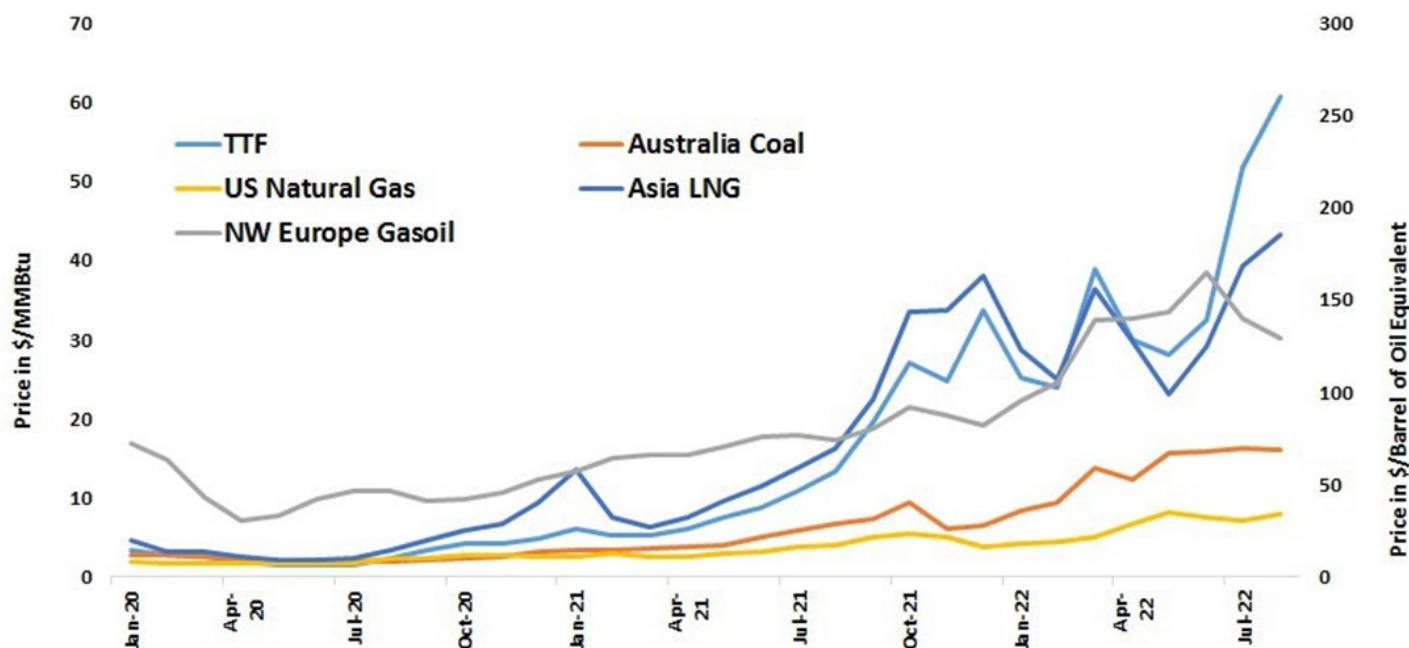
Switching Away from Natural Gas

The shortages of natural gas and high prices should trigger switching to other fuel sources. The European Commission had initially asked EU countries to cut gas usage by 15% by March 2023, while the final plan agreed to allows for country-specific targets and a less ambitious cut of ~10% in aggregate. Measures included in the plan emphasize that member states should prioritize switching, especially in the industrial sector, to renewables or coal, oil or nuclear power if needed (Figure 1).

Figure 1: Global Energy Costs – Northwest European natural gas prices are so high, that even with the Coal prices being up ~300% and gasoil prices up ~200% from this time last year, switching to either fuel would make economic sense

**TTF is the benchmark natural gas market representing the supply and demand balance of Northwest Europe

** Both axes represent different units for prices



Sources: JPM Commodities Strategy Team

We go deeper on the economics of energy switching, with Shikha Chaturvedi, Head of Global Natural Gas and Natural Gas Liquids Strategy.

“Easy” Switching

- Fuel switching at this point in the European natural gas story is far more difficult to do than it was at this time last year. In part, all the low-hanging fruit – the easiest points of switching – was already incentivized through price since fall of last year when the TTF price first rose above 100 EUR/MWh after averaging 48 EUR/MWh in 2021.

Power Generation

We believe that companies are already turning to other fuel sources for power generation. This fuel switch for power generation is from gas to coal-fired:

- While European coal stockpiles are hearty enough to contend with increased coal-fired power generation for now, excessive switching is likely to increase stress on the global coal balance.
- The global coal balance appears particularly tight as more countries, even beyond the Euro area, are switching to coal-fired power generation. **The biggest issue?** The availability of coal supply, and, as a result, coal prices have been rising steadily.

Industrial Processes

In recent months we have seen underperformance in natural gas industrial demand relative to our expectations – including a ~10% decrease in demand this summer – likely reflecting higher prices. This suggests that some additional fuel switching is most likely occurring in the industrial sector.

- Most fuel switching is likely to oil-related products, particularly as oil prices have fallen under some pressure. However, **some companies have suggested that renewable power generation can help lower natural gas usage.**
- Energy-intensive industries such as chemicals (including fertilizer manufacturing and petrochemicals), metals smelting, glass and paper are already being impacted by higher natural gas price and could be at risk of any potential policy decision to ration supply.
- Some companies have contingency plans that include switching from gas to fuel oil or diesel, but **in many cases alternative fuel sources cannot be used indefinitely.**

What Happens Next? All Eyes on Europe

Looking ahead, Shika Chaturvedi notes, **“Even if Northwest Europe can persevere through the winter season, refilling storage during summer 2023 will likely be far more difficult than we have observed during summer 2022.”** She cites that “Asian LNG demand, led by weakness in Chinese LNG demand, has made Europe’s refill of natural gas storage this injection season far easier” and that dynamic will not persist next year as **“increased LNG demand will keep the global market tight, making it more difficult for Europe to compete for LNG.”**

While our European Utilities Credit team notes that “Europe [is] facing the real prospect of insufficient energy supplies to meet demand in 2H22.” While, all parts of the utility sector value chain are likely to be affected by any systemic shortages of energy, the team notes that “negative impacts may well be manageable for large parts of the industry through either direct balance sheet support, or indirect support via energy market intervention.” Most recently, the EU managed to “broker a deal on a gas savings plan ahead of winter despite diverging views. Member states have agreed to coordinate savings and redistribute supply across the region, with the aim of mitigating rationing risk and preparing for a worst-case scenario of a complete halt of Russian gas supply. ■

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