ENVERUS

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GLOBAL MACRO

EUROPEAN GAS
A Perfect Storm

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FOCUS

In the wake of record U.K. and European gas prices, could oil substitution in power generation and heating drive European liquids demand higher?

KEY POINTS

- A perfect storm of fundamentals tightening European gas supply amid seasonally low storage levels has prompted industry speculation that oil substitution could lift liquids demand by 1-2 MMbbl/d in Europe and Asia during a cold Northern Hemisphere winter if utilities and industry switch to liquid fuels. We see potential in northwest Europe for a small uptick in LPG demand for heating but limited scope for higher oil-fired power generation since most of that capacity has been retired. Coal-fired power will increase as a result of high gas prices.
- Record U.K. gas prices have been caused by reduced North Sea production because of field maintenance, limited interconnector imports and higher recourse to gas-fired power generation due to a sustained period of low wind speeds and nuclear outages. Prompt U.K. NBP gas futures are trading at $22/MMBtu, up from $8.43 in early May.
- High gas prices have forced several bankruptcies among U.K. utility firms, many of whom have not effectively hedged their short gas exposure against surging wholesale prices. High prices for the U.K.'s gas-intensive industries have forced fertilizer plants to shutter, in turn causing a shortfall in CO_2 production required by hospitals, meat-processing and other food and drink industries.
- In mainland Europe, gas storage levels are seasonally low and reduced production plus limited Russian top-up auctions through Ukraine pipelines have exposed consumers to rising prices as buyers compete with Asian customers to secure LNG cargoes. Spain, Italy and France are preparing rescue packages to support customers and utility companies.

OVERVIEW

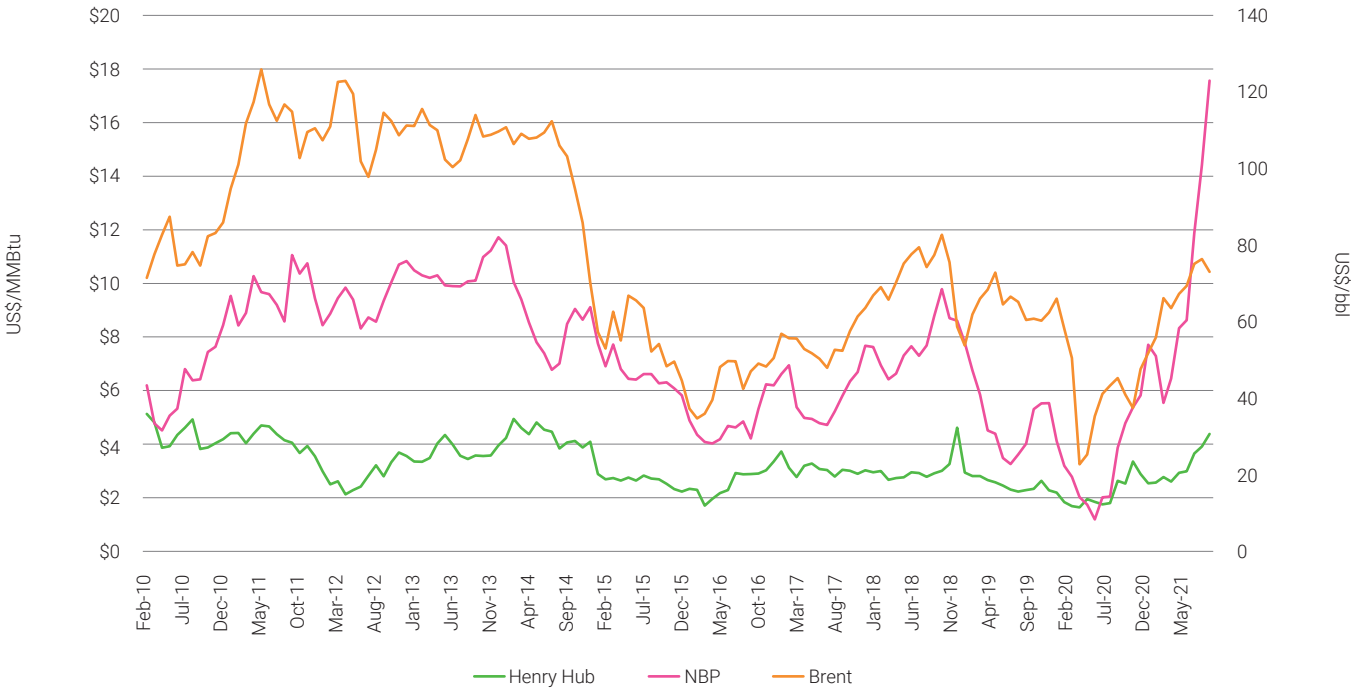
Tight gas supply in Europe is unlikely to lead to significantly higher oil demand for power and heating. Buyers will have to compete for higher LNG imports with Asia, where gas and power prices are also surging. Coal and nuclear power (Japan) are likely to be the major beneficiaries of the gas supply squeeze. Long-term declines in European gas production are unlikely to be reversed outside Norway, although pipeline imports from Russia could increase if political conditions allow.

However, there are reasonable prospects for an easing of LNG constraints in some producers and the addition of new U.S. production (Sabine Pass Train 6 and Corpus Christi Train 3). If Russia increases exports into Europe and North Africa is able to maintain steady pipeline volumes, balances should ease. Strong performance from renewables such as wind and nuclear over the winter months would also take the pressure off gas supply.

GENERAL

The combination of rising European gas prices, a result of reduced supply, pipeline imports and low seasonal storage levels, plus higher demand for gas-fired power amid limited renewables output is worsening a crisis for utilities and gas- and power-intensive industry across the continent (**Figure 1**). In the U.K., several utilities have gone bust in recent weeks, unable to pass on surging wholesale gas and power prices to retail customers protected by term tariffs and the government's price cap.

FIGURE 1 | Gas Price Benchmarks vs. Brent



Source | Enverus, Bloomberg

LNG spot prices increased over 30% between August and September in both Asia and Europe, levels only seen during last winter's big freeze in northeast Asia, with little sign of easing heading into the Northern Hemisphere winter (**Figure 2**).

FIGURE 2 | Landed LNG Prices in Europe vs. Asia

Source | Enverus, Bloomberg

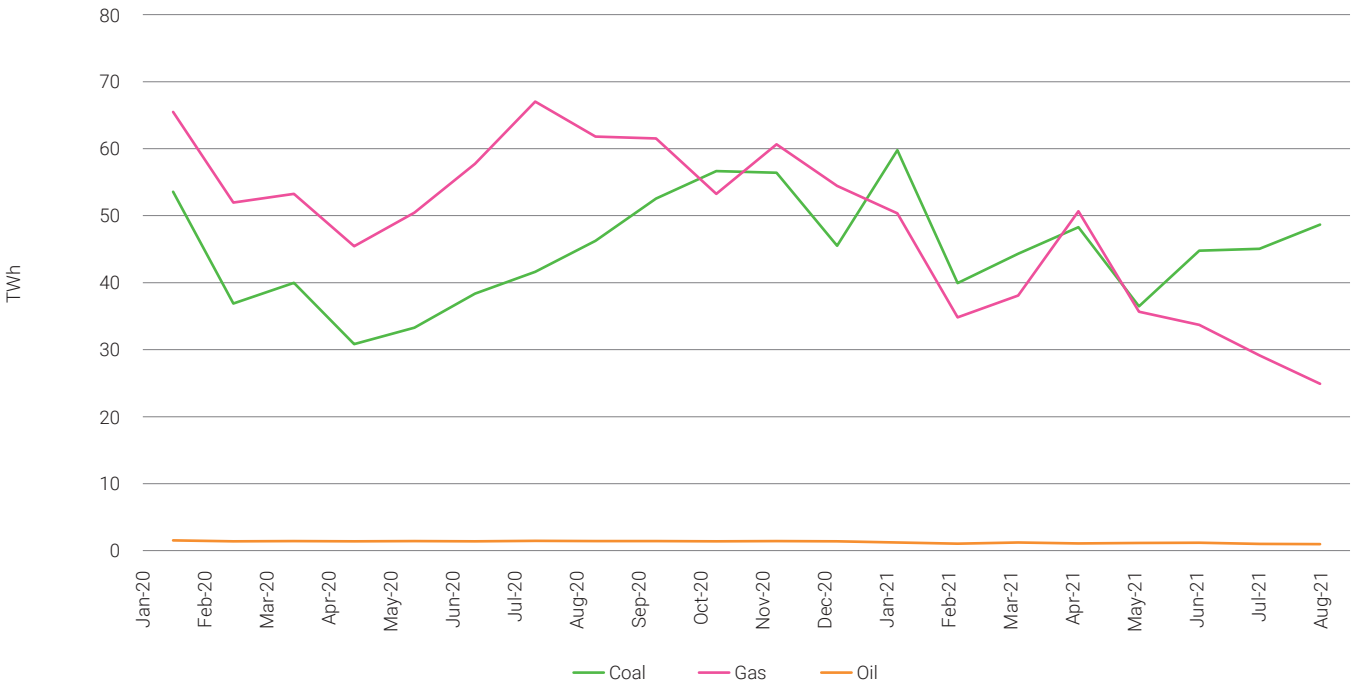
The U.K. experience is being replicated in European countries. A tripling of European benchmark gas prices since the spring lifted the eurozone's consumer price index for energy to its highest level since its creation in 1996, rising 15.4% in August Y/Y, and undermining consumer confidence as the region's economies recover from the COVID crisis. The Spanish government reduced energy taxes and proposed profit caps for utilities to address surging power prices, and Italy is readying a package of subsidies worth €3.5 billion to alleviate the impact of higher prices on consumers.

Risks are rising that tighter fundamentals could persist through the winter (especially if temperatures are colder than normal) and into 2022, giving an additional headache to central banks as they balance the need to act on inflation while trying to preserve the economic recovery.

Limited Liquids Impact

We do not see a substantial impact on European oil demand at this point because of limited capacity for oil substitution in the power sector. A cold winter would exacerbate the strain on gas markets but would likely boost coal-fired power, a trend already apparent in northwest Europe since May (**Figure 3**).

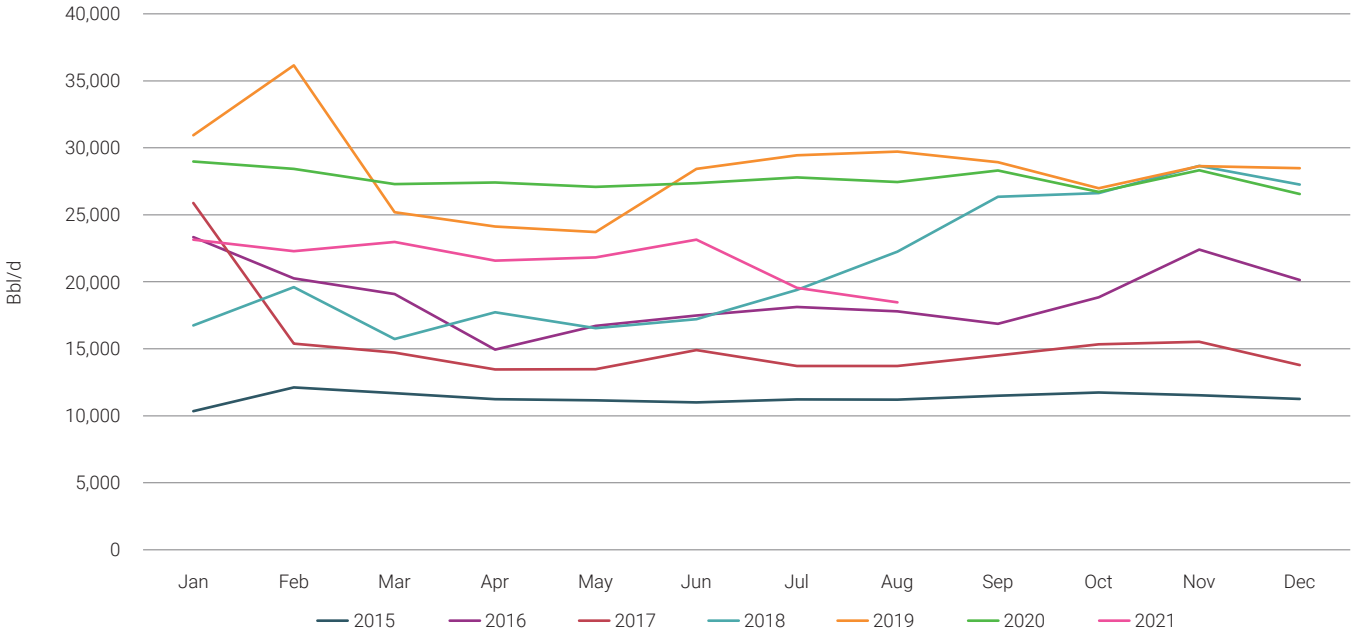
FIGURE 3 | Northwest Europe Power Generation by Fuel Type



Source | Enverus, ENTSOE Transparency Platform

Speculation that oil-fired generation could meet the shortfall, should northwest Europe (U.K., Germany, Belgium and France) experience a colder-than-normal winter, is wide of the mark. Oil-fired power generation in the region peaked at ~35,000 bbl/d in February 2019, with modest variation in consumption since 2015 (**Figure 4**).

FIGURE 4 | Oil-Fired Generation in Northwest Europe



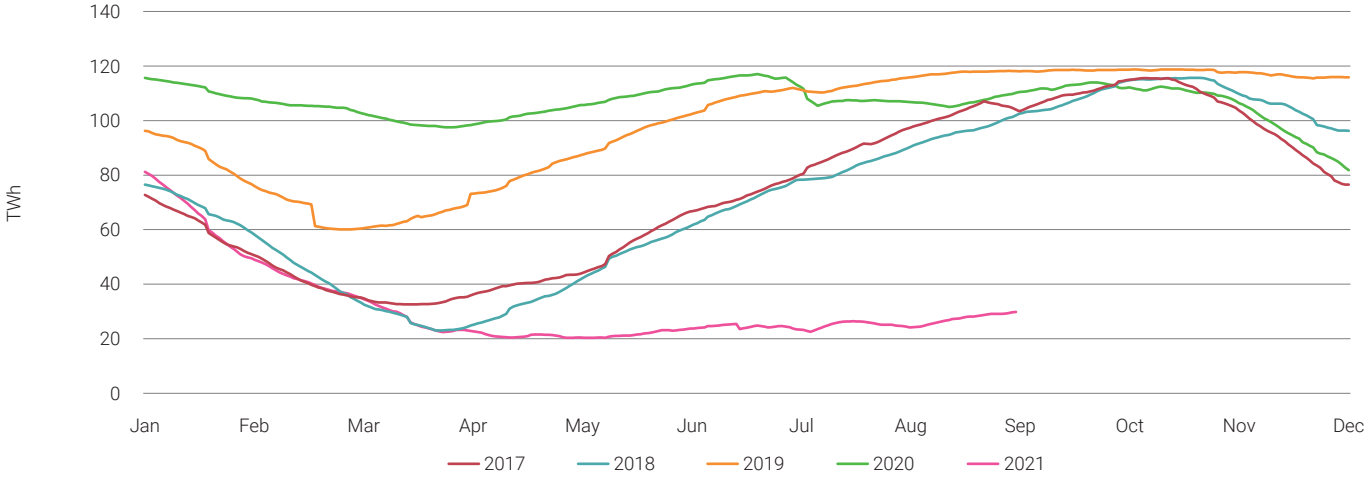
Source | Enverus, ENTSOE Transparency Platform

Utilization rates of the ~8 GW of oil-fired power generation in the U.K., Germany, Belgium and France average 8.5%, according to the World Resources Institute's power plant database. If oil-fired generation utilization ramps up to 100%, oil consumed could spike to just over 400 Mbbl/d. This seems unlikely given that utilzation peaked at 14% in 2015.

Europe's Tightening Gas Fundamentals

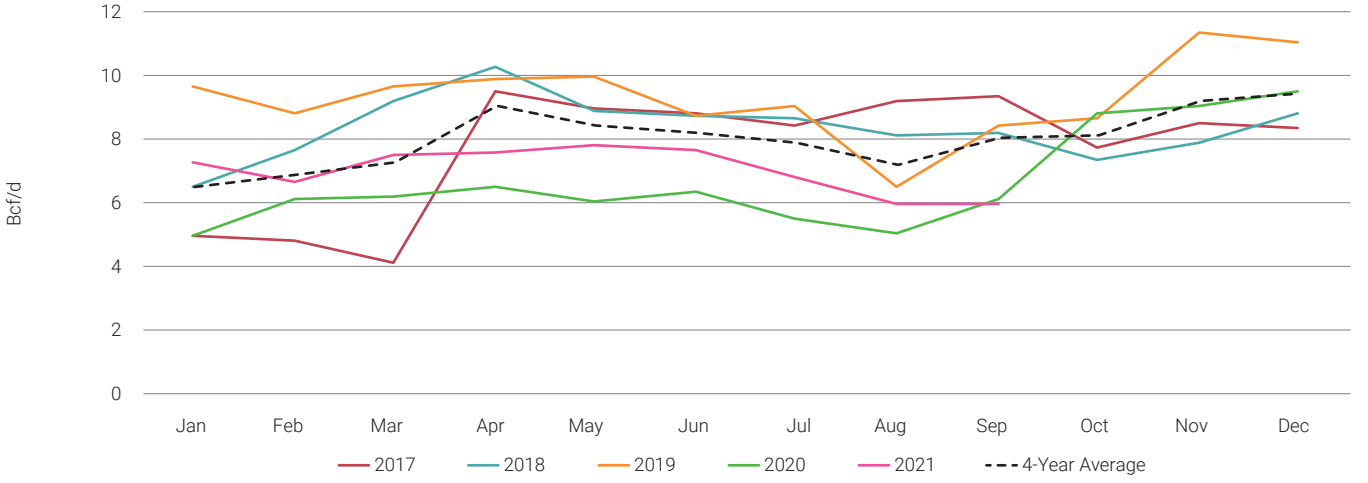
Rising gas prices have been driven by low seasonal stocks. European gas inventories are low at a time of year when they are normally rebuilding ahead of the higher-demand winter months. In particular, European storage operated by Russia's Gazprom, the largest source of Europe's pipeline imports, is unusually low, with the company not offering additional top-up volumes to shippers via Ukraine as it has in previous years (**Figure 5**). This has prompted speculation that Moscow is engineering a supply squeeze in order to win swift German approval of its just-completed Nordstream 2 pipeline. Russian export volumes to central and east Europe appear to support that argument, falling below the five-year average in September (**Figure 6**). Calls from the IEA for more Russian gas to ease the crisis appear to have prompted Russian officials to commit more gas, with Nordstream 2 as the preferred route.

FIGURE 5 | Gazprom European Gas Inventories



Source | Enverus, Reuters

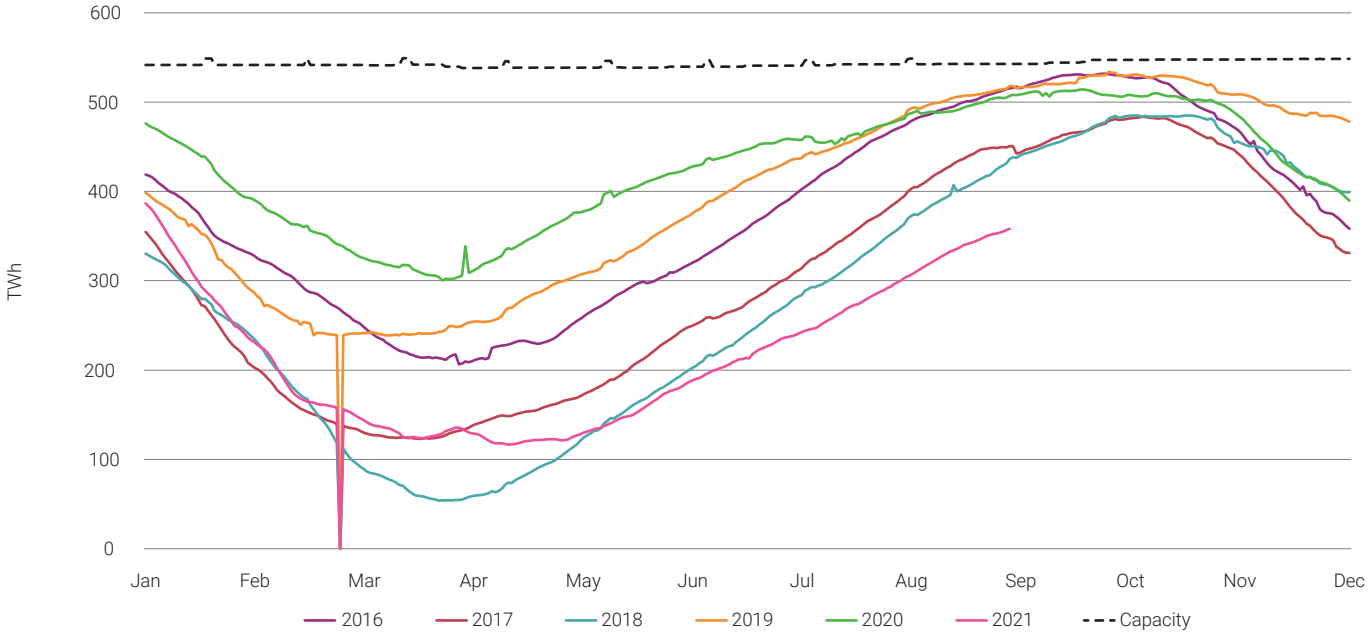
FIGURE 6 | Russia Gas Exports to Central and East Europe



Source | Enverus, Bloomberg

In general, northwest European gas stocks are rising but are low on a historic basis, reflecting the latest start to restocking after the extended 2020-21 heating season (**Figure 7**).

FIGURE 7 | Gas Inventories in Belgium, France, Germany and Netherlands



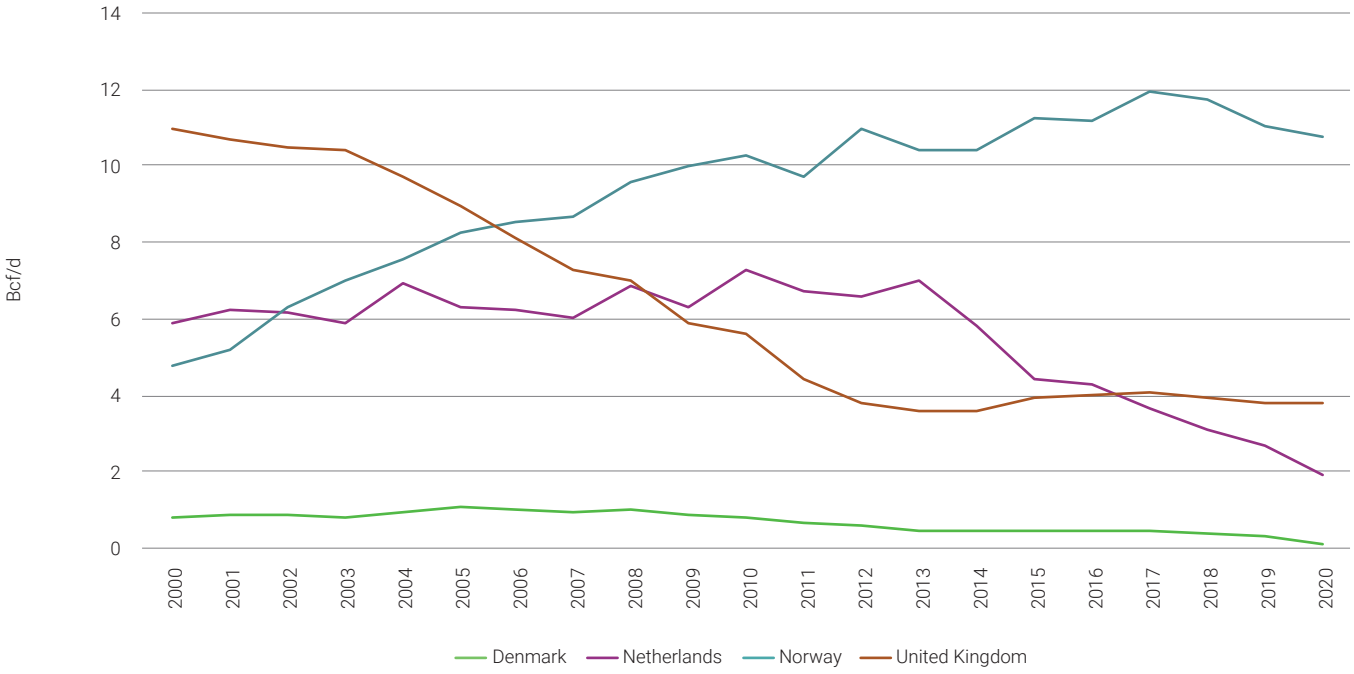
Source | Enverus, Reuters

The U.K. gas market is more sensitive than mainland Europe to gas supply disruptions, either from its own North Sea output or imported gas. The U.K. closed in 2017 its Rough storage site offshore Yorkshire, a depleted gas field that accounted for 70% of domestic gas storage capacity.

Europe's Declining Gas Output

European gas production, which has been in overall decline since 2010, continues to be pressured by falling U.K. North Sea output, the shutdown of Netherlands capacity (Groningen) and lower Danish output. While Norway expanded gas production over the last decade, most other producers experienced declining output, forcing European consumers to rely more heavily on pipeline imports from Russia and LNG (**Figure 8**).

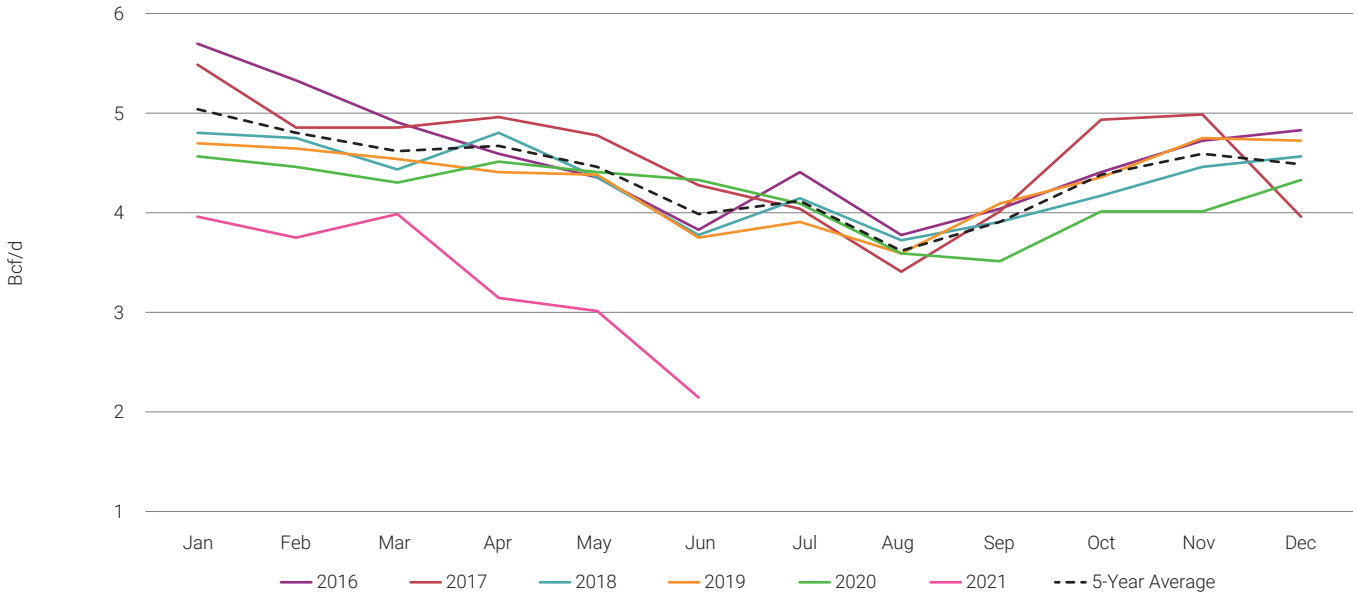
FIGURE 8 | North Sea Gas Production



Source | Enverus, BP Statistical Review

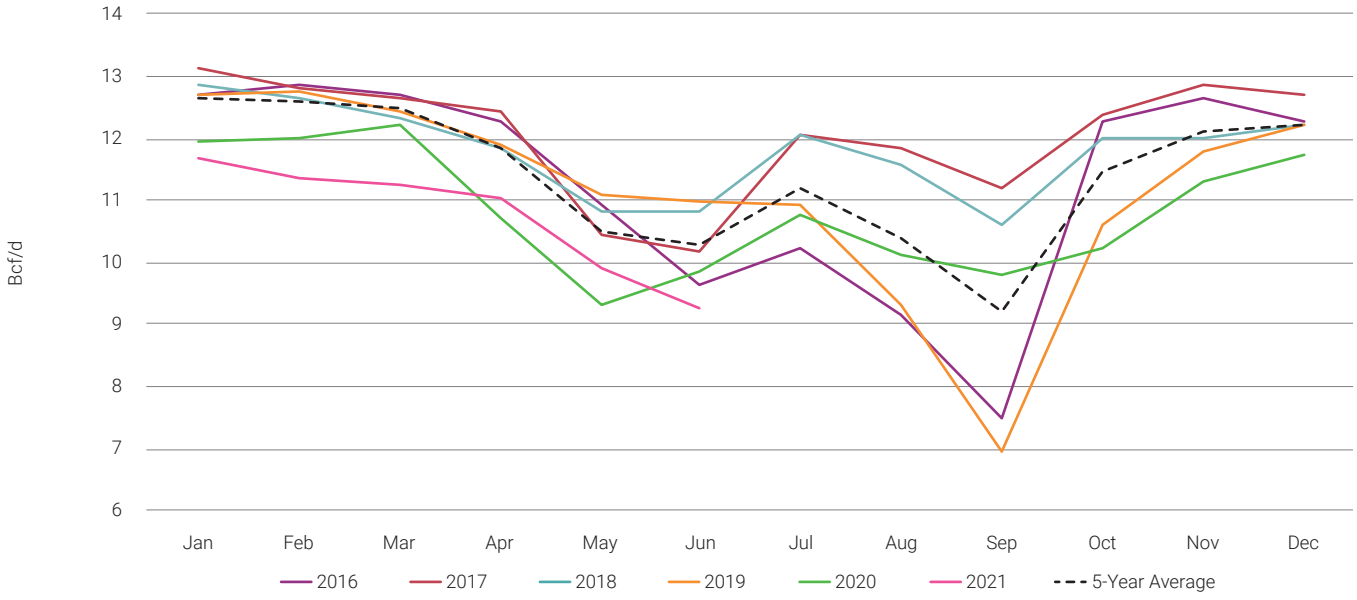
Norway and U.K. gas production dropped below average levels in 2Q21 due to extensive maintenance and a series of unplanned outages. June figures were ~2.9 Bcf/d below the five-year average, further constricting regional supply. While U.K. output is likely to continue on its downward trajectory due to underinvestment (**Figure 9**), Norway will rebound when Troll Phase 3 (~12.3 Tcf estimated recoverable resource) comes onstream (**Figure 10**). Oslo recently approved a gas export increase from the Troll and Oseberg fields for the year starting in October, but that will only add 70 Bcf (~0.2 Bcf/d).

FIGURE 9 | U.K. Gas Production 2016-2021



Source | Enverus, OGA

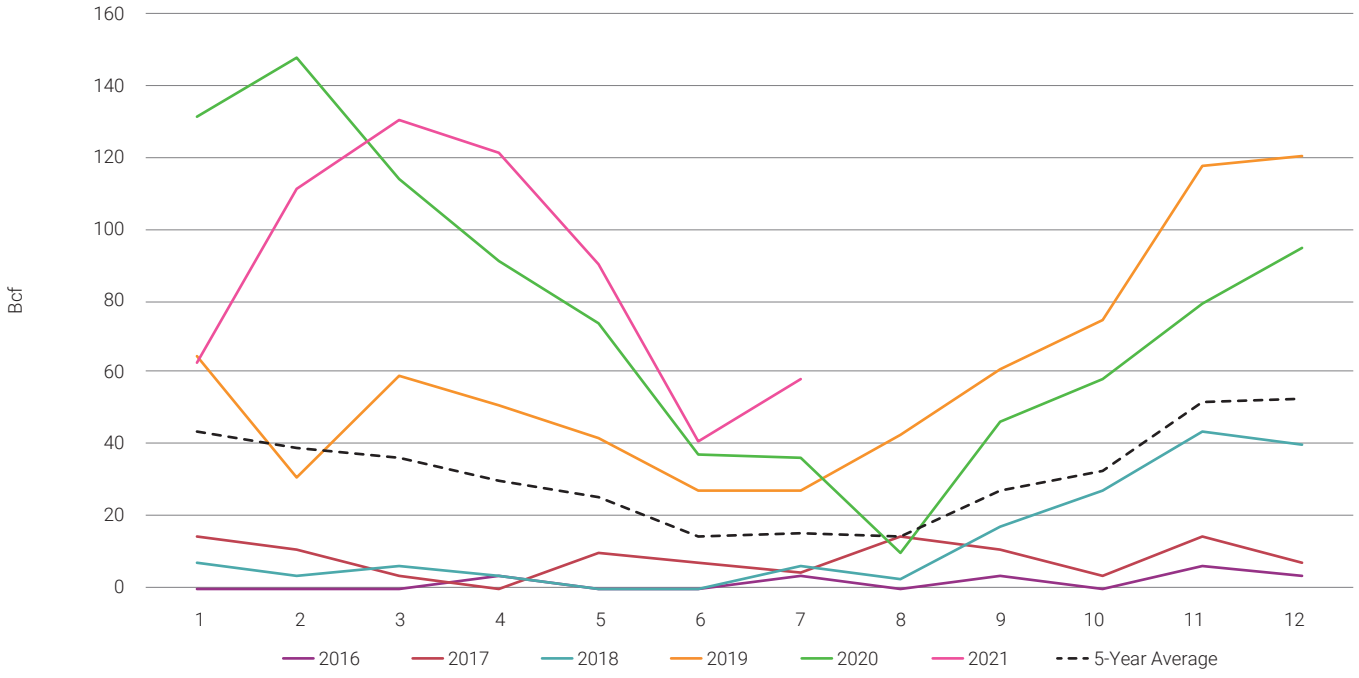
FIGURE 10 | Norway Gas Production 2016-2021



Source | Enverus, NPD

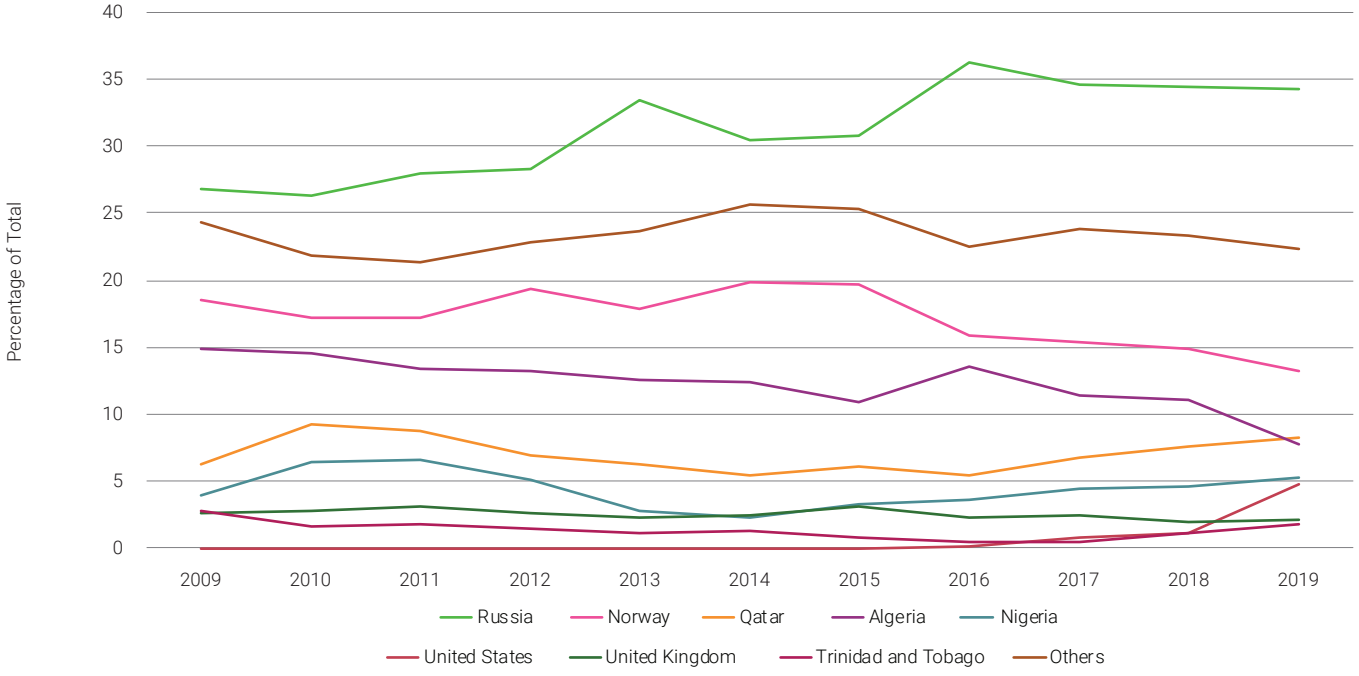
While U.S. LNG shipments to Europe should increase steadily over the medium term (**Figure 11**), producer constraints in West Africa (Nigeria and Angola), Australia and Norway crimped volumes this year. For the medium term, European gas imports will continue to be dominated by pipeline flows from Russia and Algeria alongside North Sea production (**Figure 12**).

FIGURE 11 | U.S. LNG Exports to Europe



Source | Enverus, DOE

FIGURE 12 | EU Gas Imports by Origin



Source | Enverus, Eurostat

COMPANIES MENTIONED IN THIS REPORT

NAME OF COMPANY	TICKER	EXCHANGE
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