

Market Price Report – 2021

Momentum in Supply & Demand and Prices

On the gas markets, the year 2021 saw historic price increases, reaching record levels, as well as particularly high volatility. This was due to the combined effect of pandemic-related restrictions, logistical problems in energy supply (coal, gas and electricity) in both Asia-Pacific and Europe (e.g. Russia), the strong economic recovery in Asia, and the weather conditions in both winter and summer.

According to estimates ([Cedigaz](#), [IEA](#)¹), world gas demand in 2021 should increase by 3.5% YOY. The strongest growth was recorded in China (+13.3%), Russia (+12.1%) and Europe (+6.0%). China overtook Japan to become the largest importer of LNG. On the supply side, LNG supplies as well as deliveries from Russia were limited, which led to tensions on the market. These tensions have increased in the course of 2021. Market fundamentals were not the only factors explaining the high prices observed throughout the year: geopolitical tensions (Russia/US/Ukraine, Nord Stream 2, Algeria), concerns and uncertainties of market players (mainly traders) related to the regularity and security of supplies (Europe, China), as well as the evolution of the Covid-19 have all exacerbated price volatility. These trends also reflect the globalization of gas markets.

Natural Gas Reference Price - 2021



In Q1 2021, in Europe, the TTF price started the year on the rise. It peaked at €26.5/MWh on January 12th, its highest level since December 2019. A cold weather, combined with liquefied natural gas (LNG) shortage (cargoes being redirected to Asia), contributed strongly to this rise. Prices fell in February to an

¹ IEA: International Energy Agency

average of €17.3/MWh. In March, the TTF stabilized at around €17.5/MWh (almost on a par with Asian prices), a level from which European prices then entered an upward trend due to a number of factors: production shutdowns in Norway, low temperatures, increased gas demand for electricity production to compensate for low wind production. According to the IEA, European LNG imports decreased by 35% on average in January (compared to December 2020) in favor of a redirection to Asia, before rising again by 33% in February compared to January, and by 50% in March compared to February. This momentum has thus contributed to the price variations observed on the Asian hubs.

Prices in Asia (JKM) fluctuated from an average of €45/MWh in January (reaching and exceeding €83/MWh in the middle of the month) to €18.7/MWh in February-March. However, prices in Asia began to rise again in mid-March, in a tense context (gas stocks seriously depleted, oil prices firming, low availability of nuclear power in Japan and South Korea). At the same time, Gazprom reported an increase in its sales to Europe, despite a drop in gas consumption for European industry, mainly in March, due to blockades linked to Covid-19. Simultaneously, carbon prices in Europe kept on rising, reaching an all-time high of €42.9/MT in mid-March. On a monthly average basis, CO₂ rose from €33.34/mt in January to €41/mt in March.

Q2 2021 saw an unprecedented and steady rise in prices, driven by growing demand for gas in Europe and Asia. This upward trend is part of a global post-Covid-19 economic recovery that has fueled energy demand and supported prices for all energies: oil, coal, electricity and gas.

In Europe, very low gas stocks, unusually cold and persistent temperatures and record high carbon prices have pushed up the price at TTF. This has led to an even stronger price increase at Asian hubs (e.g. JKM) due to increased Chinese demand for LNG, higher oil prices and numerous breakdowns in the LNG supply chain. Furthermore, although the JKM-TTF spread contracted in Q1-21 to only €0.3/MWh, it almost doubled in Q2-21 from €1.6/MWh to €3.5/MWh, illustrating the attractiveness of LNG cargoes to Asia at the expense of Europe.

Q2 saw TTF prices rise from €20.3/MWh to €29.1/MWh on a monthly average, levels about 4 times higher than 2020, and twice as high as 2019. The average spot price on the JKM was also up from €22/MWh to €32/MWh over the same period (350% higher than 2020).

At the end of Q2, prices at TTF reached their highest level ever recorded at that time, around €35/MWh, while in Asia the JKM was over €35/MWh. Such price spikes are exceptional during the summer months. They can be explained by: 1) a tightening of the LNG market which has returned to growth (despite the increase in transportation costs), a growth driven in particular by China (which has become the world's largest importer of LNG ahead of Japan); 2) Gazprom's decision not to book any additional interruptible transport capacity via Ukraine. LNG suppliers, having essentially targeted Asia due to higher prices, have

implicitly led to tensions in European supply, which is affected at this stage by outages in Norway and already low storage levels, despite the increase in Russian pipeline exports and LNG exports from the USA.

Q3 2021 was a tense one globally, with a historic surge in European and Asian prices, which continued to rise as the quarter progressed and markets tightened. During Q3, European (TTF) and Asian (JKM) prices increased by an average of 31% and 27% from July to September, reaching €48.7/MWh and €51/MWh respectively. These unprecedented price levels (especially in Europe) were due to a tighter than expected global LNG market, unplanned maintenance and supply outages, as well as the fact that there appeared to be no additional LNG supply available from the three largest supplier countries, Australia, Qatar and the US. The latter had failed to increase their exports sufficiently to meet European LNG demand. Thus, in addition to the strong correlation between TTF and JKM, price differentials close to €0.27/MWh were observed, reflecting a mismatch between supply and demand, and thus strong competition between Asia and Europe in a highly volatile environment. Prices reached new records in August and September in a very particular context: persistent disruptions in supply from Norway (Åsgard field), combined with other supply issues (restricted flows from Russia, postponement of the certification of the Russian Nord Stream 2 pipeline, and other logistical breakdowns in the LNG supply chain in Latin America and Nigeria). In particular, the end of September saw prices rise to €97.5/MWh on the JKM and €90/MWh on the TTF, the latter marking its new daily historical record. On a monthly average, TTF and JKM prices increased by 47% and 41% respectively compared to August, reaching €65.7/MWh and €65.4/MWh.

Among other catalysts for European price increases, carbon prices continued to break records (€59/t in the last week of September) due to the EU's stricter cap-and-trade rules. Carbon prices were exceptionally volatile prior to the release of the EU's "Fit for 55" legislative package, which included an overhaul of the carbon market and a cut in projected emissions for 2030. The higher European carbon price did not stop producers from using coal.

According to IEA, in Q3 2021, global LNG supply increased by 5% compared to the same period last year, driven by Asian LNG demand, primarily from China. As a result, global LNG supply kept on being heavily weighted towards Asia, which absorbed nearly 75% of total LNG exports during the quarter, according to Cedigaz. The strong correlation observed throughout the quarter between TTF and JKM only illustrated the fierce Asia-Europe competition for limited gas volumes despite strong price increases. This highlighted the increasing globalization and interconnectedness of gas markets.

During Q4 2021, gas prices remained at historically high levels due to unprecedented tensions. In Europe, prices skyrocketed mainly due to supply disruptions in an already tight market and gas stocks still at their lowest historical level for this time of year. In Asia, the context was characterized by a continuously growing demand for LNG in China and some logistical problems in the LNG chain in Australia.

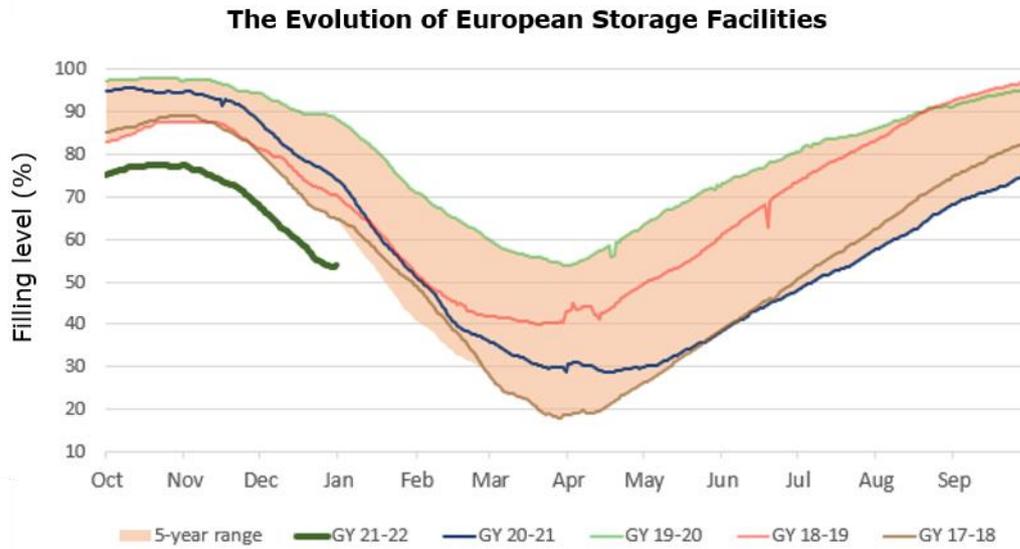
In October, Asian (JKM) and European (TTF) prices increased sharply compared to the end of Q3, by 60% to 105 €/MWh and 38% to 90 €/MWh respectively. The European market however saw a strong drop in prices at the end of the month due to rising temperatures and reassuring communications from Gazprom announcing that it was ready to deliver more gas to Europe in November, once Russian storages are full. The approval of the certification of the Nord Stream 2 project by the German regulator proved to be another bearish factor.

In November, European gas imports from Russia were down by about 30% YOY (IEA, Cedigaz), as massive stockpiling on the Russian market limited Gazprom's export capacity. Meanwhile, European gas demand was increasing mainly due to relatively cold temperatures and European storage levels at only 68%, 20% below the previous 5-year average for this time of year. TTF and JKM prices were down by about the same amount over the month, by 7% to 98 €/MWh and 8% to 83 €/MWh respectively. In addition, following Germany's suspension of the Nord Stream 2 pipeline certification process on November 16th, the TTF price increased by €14 in one day to around €94.5/MWh. In Asia, JKM prices climbed to nearly €110/MWh and have remained around these levels.

In December, prices at TTF soared again to reach a new record at €112/MWh on average per month, which is about 6.5 times the monthly average of the last 5 years. This hub also set other records: volatility (around 200% on average), unprecedented daily increase (+ 34 €/MWh) towards a peak of 180.3 €/MWh on December 21st. A combination of several factors led to this latest increase: low temperatures and historically low stock levels, weakened wind and hydro production, lower Russian deliveries from Ukraine and Belarus (Yamal), unexpected shutdown of two French nuclear reactors on December 16th. Conversely, at the end of December, the TTF experienced a sharp and record daily fall linked to an improvement in market fundamentals: higher temperatures and lower heating demand, a clear recovery in US LNG supplies to Europe and record Norwegian exports. European gas stocks however fell by 14% over the whole month of December, collapsing to 53.8% of capacity, which was well below the average for the last five years.

In Asia (JKM), prices followed European prices, rising by 20% to 118 €/MWh. It should be noted that the JKM - TTF spread reversed (i.e. became negative) for 7 days (between December 14 and 22) due to a moderation of Asian LNG demand (China, South Korea) and abundant LNG stocks. This reversal led to an increase in US LNG deliveries to Europe. In this way, US LNG has helped to limit tensions

on the European market. As a result, the United States has recently become Europe's leading supplier of LNG (IEA).



Sources: *Global Energy Review 2021 (IEA)*, *Natural Gas Information Overview- Statistics report 2021 (IEA 2021)*, *69th statistical Review of World Energy (BP, 2020)*, *Cedigaz (2021)*, *ICE Europe (2021)*, *Oxford Institute for Energy Studies (2021)*, *Energyscan*.