

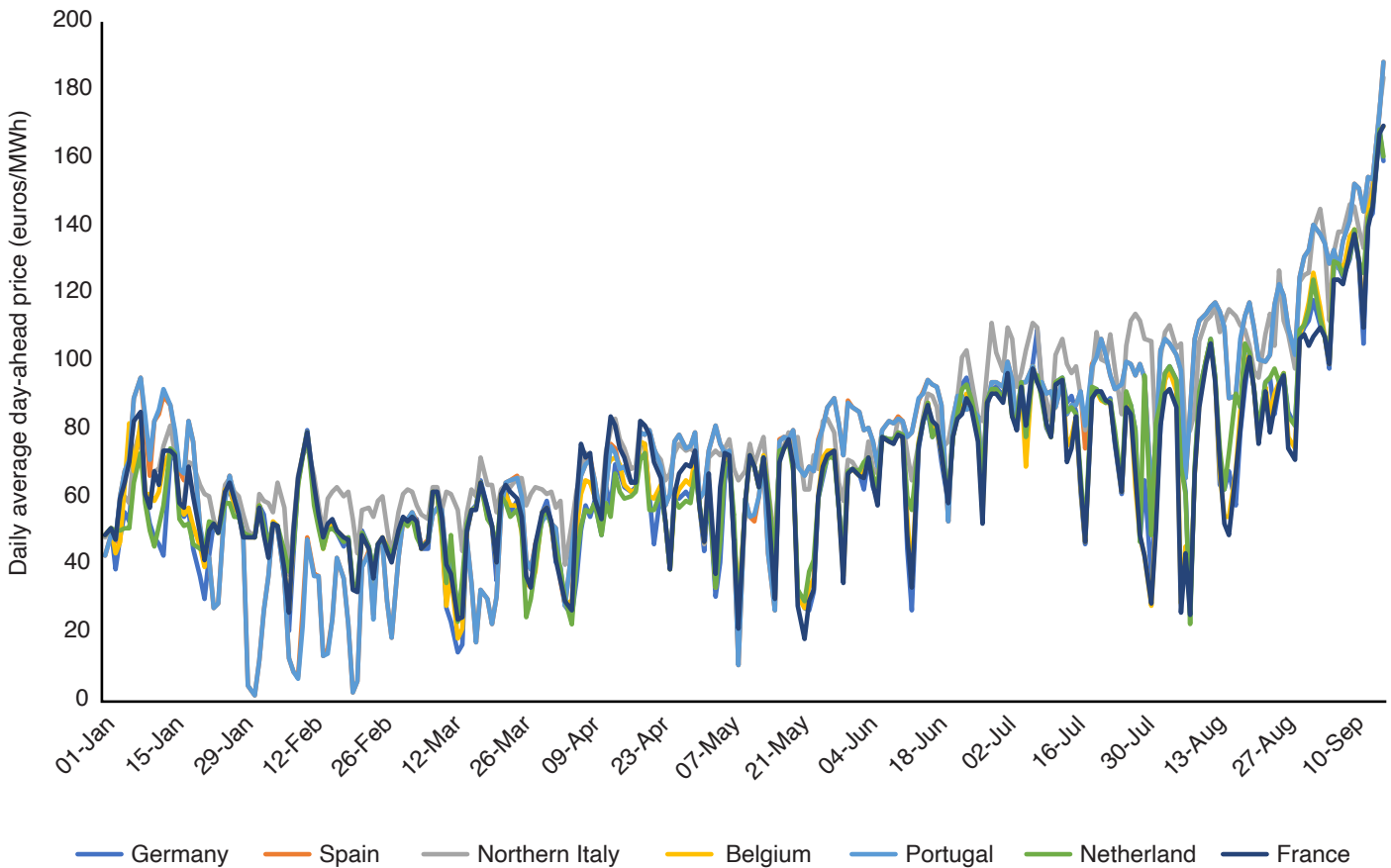
# Data Insight

27/10/2021

## Why are European Wholesale Electricity Prices Soaring?

Since the beginning of summer 2021, European wholesale electricity prices have been soaring to historic highs. The average day-ahead price of electricity for central European countries more than doubled between June and September, reaching 170 euros per megawatt-hour (€/MWh) on September 15. This data insight discusses this unprecedented increase in wholesale electricity prices and their key drivers.

**Figure 1.** Daily average day-ahead prices in 2021 in Germany, Spain, Italy North, Belgium, Portugal, Netherlands, and France.

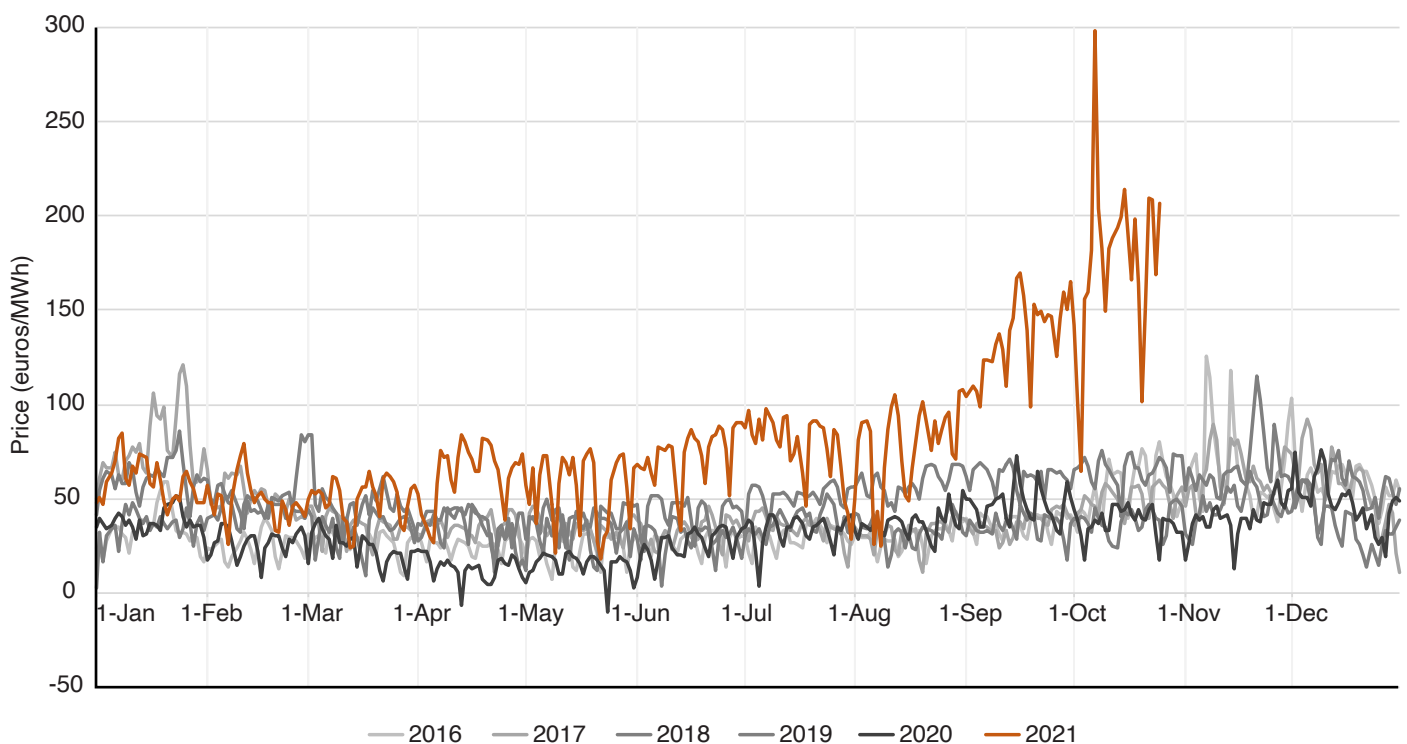


Source: ENSTOE 2021.

## Context

- The European electricity sector is liberalized with interconnected zonal wholesale electricity markets. The day-ahead market is a key wholesale market made up of 24 products priced according to each hour of the day.
- Due to transmission network interconnections and integrated power exchanges, day-ahead prices are highly correlated across central Europe. They follow similar daily or yearly patterns, with prices diverging when interconnections are at their limits.
- Due to European electricity consumption demand, the typical pattern of wholesale day-ahead prices is characterized by high prices in winter and low prices in summer (see Figure 2 for France).

**Figure 2.** Daily average day-ahead prices in France for the period 2016-2021.



Source: ENSTOE 2021.

## Key Insights

- 2021 has been an exceptional year for wholesale electricity prices in Europe, as illustrated in Figure 1. Since the beginning of 2021, day-ahead prices have been increasing almost continuously in Europe, apart from the daily/weekly pattern explained by electricity consumption behaviors. More importantly, this summer has shown historical prices with values never reached during summers since the liberalization of electricity markets. On September 15, baseload day-ahead prices were all above 150 e/MWh in Germany, France, Spain, Portugal, northern Italy, Belgium, and the Netherlands, with the highest hourly price skyrocketing to roughly 200 e/MWh.
- This record in wholesale electricity prices has not been limited to the day-ahead market; it is also seen in forward and futures markets, with Calendar 2022 prices already above 100 e/MWh.

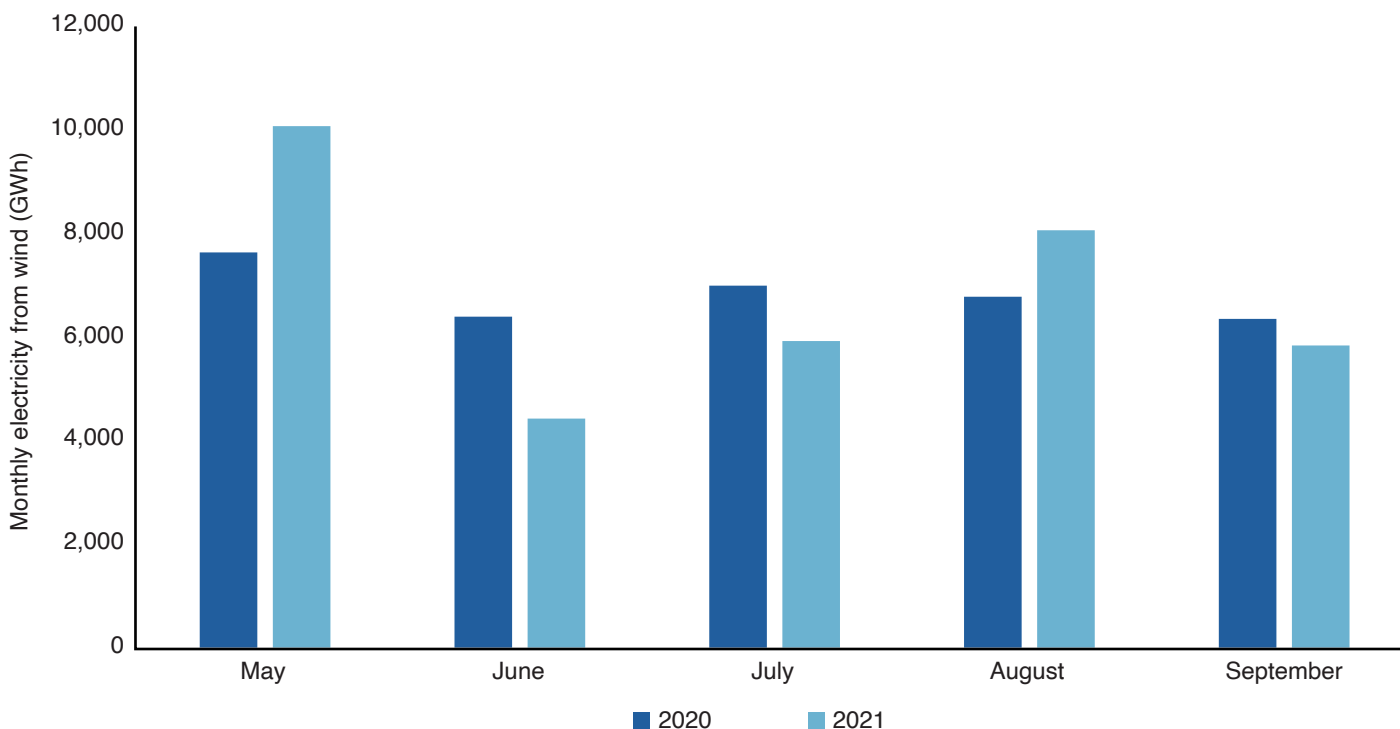
- Two major drivers explain this exceptional trend in 2021: carbon dioxide (CO<sub>2</sub>) allowance prices and natural gas prices.
- The European CO<sub>2</sub> price (EU-ETS allowances) doubled between January and September (Ember 2021), from roughly 30 euros per tonne of CO<sub>2</sub> (e/tCO<sub>2</sub>) to 60 e/tCO<sub>2</sub>, driving up the wholesale electricity price, as electricity generators had to purchase CO<sub>2</sub> allowances to offset their emissions. This explains the rising global energy prices seen in 2021. However, CO<sub>2</sub> prices had little impact on the electricity price increases of this summer.
- Natural gas prices saw a record increase this summer in Europe. While gas prices have been relatively stable since the beginning of the year, they roughly tripled between April and September 2021 (The Ice 2021). This can be mainly explained by the global post-COVID-19 economic recovery, particularly the high demand for gas from China and low gas reserves in Europe because of the cold winter. The tightness between supply and demand in the European gas markets has also been reinforced by the lower than usual electricity generation from wind power in June and July 2021 compared to 2020, as illustrated for Germany in Figure 4. Reduced investment in gas infrastructure and maintenance since the COVID-19 pandemic, as well as lower gas production in Europe, are also credited as factors contributing to higher gas prices in Europe (Euronews 2021). Moreover, Russia and Europe have not reached an agreement to increase Russia's gas supply to Europe as Russia would like long-term contracts, and Europe would have preferred to contract via the spot market.
- As a response to this unprecedented trend in wholesale electricity prices, several European countries (Spain, France, Italy) have already announced measures (The Guardian 2021) to mitigate the effects of high energy prices on consumers. These include support programs for low-income households, capping wholesale electricity prices, or even considering deeper reforms of the electricity market design.

**Figure 3.** The EU ETS Futures price for 2021.



Source: Ember 2021.

**Figure 4.** Monthly electricity volume generated by wind power (on-shore and off-shore) in Germany.



Note: GWh= gigawatthours

Source: ENSTOE 2021.

## Source

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