

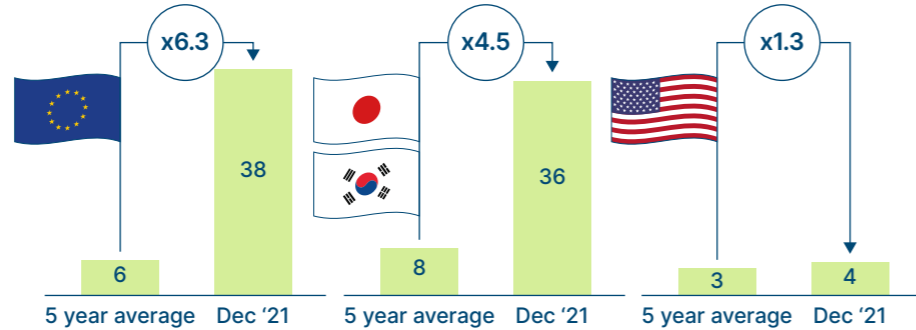
What you need to know about...

The drivers of the winter 2021-2022 gas crisis

Energy Transitions Commission

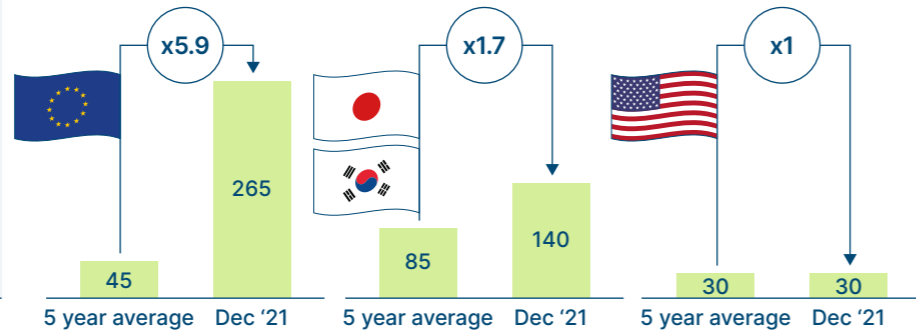
What happened to gas prices in 2021?

Average regional gas costs (\$/MMBtu)



Gas prices in Europe and Asia increased by more than 4 times in winter 2021, although limited increase in some regions – e.g. USA

Average regional electricity costs (\$/MWh)



Increased gas prices had a knock-on impact on electricity prices. Gas is used for electricity generation in many markets, and often sets the price of electricity

What were the causes of the gas price spike in 2021?

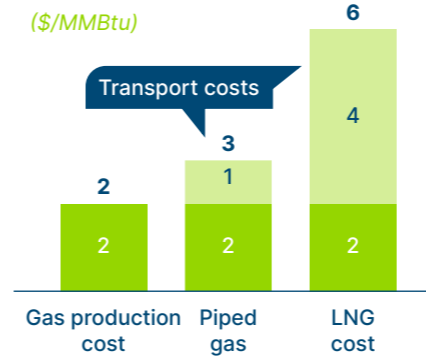
No one single cause, multiple factors coincided to drive up prices.

EVENT	IMPACT
Cold northern hemisphere winter in early 2021	Depleted European fossil gas storage levels to 33% below the four-year average during Summer 2021
Increased demand and willingness to pay higher prices in Asia and South America in early 2021	More LNG was delivered to Asia compared to previous years, with less going into European storage
Global demand for gas increased as COVID restrictions were lifted	Boosted global demand by 5% in 2021, which although significant was less than recent historical increases
Limited Liquefied Natural Gas (LNG) availability due to planned (e.g. Norway) and unplanned (e.g. Nigeria) outages	Further constrained the already limited global supply
Lowest amount of wind for 60 years across some parts of Europe, and low hydro year in US, China and Brazil	Less energy generated from renewables globally, with EU renewables running 10% less than the previous year
European phase out of coal, and structural decline of nuclear power has placed emphasis on gas plants	European countries needed to use more gas for balancing. Higher carbon prices also favoured gas over coal
Russia prioritised domestic storage injections ahead of additional exports to Europe	While contractual obligations were met, gas imports from Russia to EU lower than expected across 2021

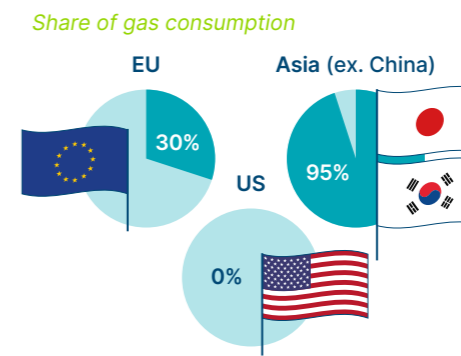
Why is Europe so exposed to gas price increases?

- Over the past decade Europe pushed for gas contract liberalisation to enable frequent price negotiation and access to low-cost LNG. Whilst beneficial pre-crisis, the shift away from long-term contracts has left Europe vulnerable to price spikes.
- Europe and Asia are both reliant on shipborne Liquefied Natural Gas, which is more expensive than piped gas.

LNG is more expensive than piped gas



EU and Asia reliant on LNG



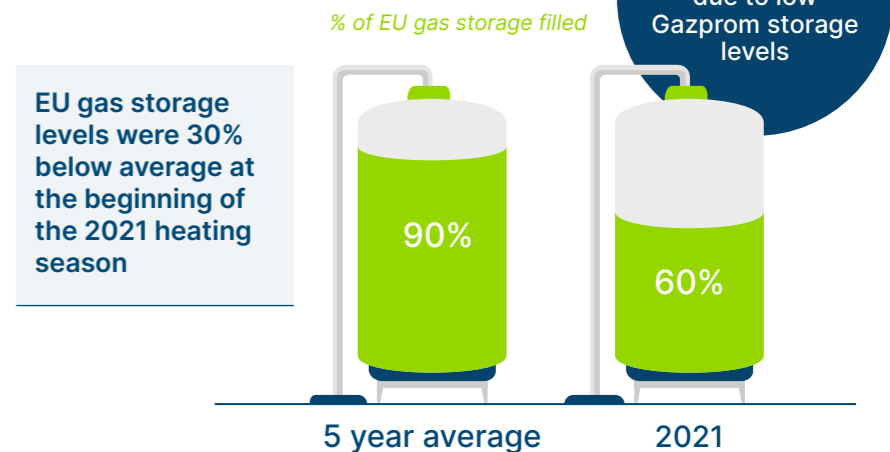
Fierce competition for LNG between EU and Asia



- Piped gas contracts tend to be long-term (15-20 years). Buyers are protected from price volatility at the cost of being locked into a long contract.
- The short-term market for LNG ('the spot-market') is very price inelastic and can be redirected to the highest bidder, at the peak of the crisis LNG prices had increased by over 500% on previous year.

- In winter 2021, Europe had particularly low levels of gas in storage, so had to buy new gas given very little buffer in reserve to draw on.

- Reliance on Russian gas imports and storage facilities has grown as European production of gas declined.
- From Jan 2021 Russia reduced exports to Europe which left EU storage facilities at historically low levels going into the winter period.



- Across 2021 Europe experienced lower than average wind output due to low wind speeds, with average annual output falling 10% in 2021.