

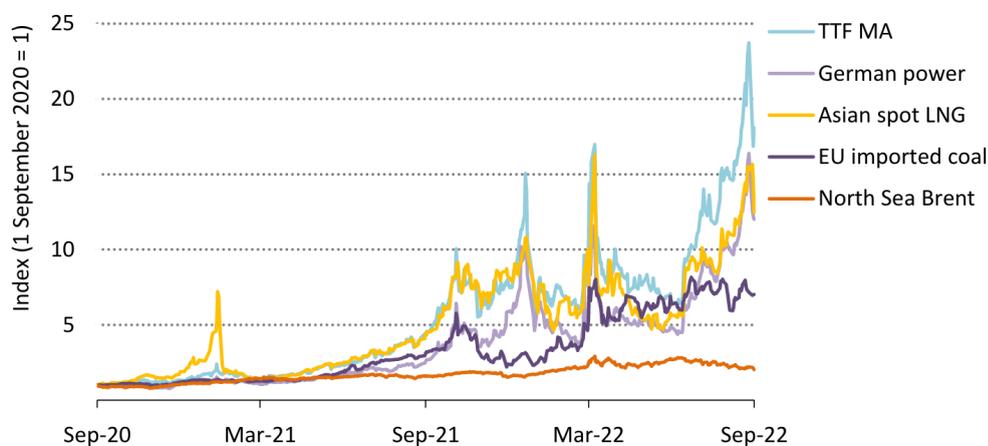
Briefing November 2022

## Gas, the energy crisis and net zero

### Key points:

- **Fossil fuels are the cause of the energy crisis.** The world is currently experiencing a global energy crisis of “[unprecedented depth and complexity](#)”, driven in part by the post-pandemic economic recovery and the Russian invasion of Ukraine. Since September 2020, fossil fuel prices have jumped, with dramatic spikes at times (Fig1), particularly in Europe. The [World Bank estimates](#) that natural gas prices will rise 74% in 2022 compared with 2021 using the European, US and Japanese benchmark prices.
- The gas industry blames net-zero policies rather than volatile fossil fuel prices, but IEA head Fatih Birol [said](#) such “assertions are misleading to say the least. **This is not a renewables or a clean energy crisis; this is a natural gas market crisis.**” He believes that a well managed energy transition could help reduce the volatility of energy markets. The [World Economic Forum](#) and the [International Monetary Fund](#) agree.
- **Around 99% of the changes in European electricity prices from the previous year are attributable to high gas prices**, according to BNEF.<sup>1</sup> Globally, the high price of [gas and coal account for 90%](#) of the increases in electricity prices, says the IEA.
- **Gas is incompatible with the Paris-agreed carbon budget.**
- **[New build solar and onshore wind are cheaper than gas](#) for at least two thirds of the world’s population.** As the costs of solar and wind continue to decline, gas power plants are becoming uneconomic to operate.
- **Carbon capture and storage (CCS) faces a number of challenges**, with most planned projects failing to get off the ground.

Fig. 1: Evolution in selected energy price indicators since September 2020



Source [IEA World Energy Outlook](#). Notes: TTF MA = Title Transfer Facility month ahead prices; LNG = liquified natural gas; Brent = Brent Crude oil benchmark

<sup>1</sup> BNEF, Europe’s Power Crisis Strengthens Case For Renewables: BNEF Q&A, September 29 2021. Accessed via Bloomberg network.

## Burning more gas is incompatible with the Paris climate goals

- The IEA says [no new gas investments should be made](#) to meet global net-zero emissions by 2050. Global [gas demand needs to peak](#) by the mid-2020s to maintain 1.5°C.
- To have a 66% chance of staying below 2°C, [half of the remaining gas resources](#) must remain unused before 2050, [according to Climate Analytics](#).
- With current emissions trends, our chance of staying below 2°C [is only 5%](#). Global gas emissions alone [increased](#) by 23% from 2010 to 2019, which means they would need to decline [twice as fast](#) from 2020 to 2030. To meet the 1.5°C limit, global gas production needs to shrink [3% each year by 2030](#).
- Methane, the main component of gas, [traps](#) up to 86 times more heat over 20 years, and 28 times more over 100, than CO<sub>2</sub>, and so can drive up temperatures quickly in the short-term. The IEA says global methane emissions must decline by [75% by 2030](#) for Paris alignment.
- Some 130 countries have now signed the [Global Methane Pledge](#), but many of them are continuing to invest in gas, suggesting they are relying on CCS to capture emissions and not taking meaningful steps to wind down gas production and cut gas demand (see below).
- Renewable energy emits 50 g CO<sub>2</sub>/kWh over its lifetime, drastically lower than gas with 475 g CO<sub>2</sub>/kWh (coal emits 1,000 g CO<sub>2</sub>/kWh), [according to an NREL study](#).
- Batteries [address](#) the variability of wind and solar power, enabling them to provide a reliable supply of clean electricity. Short-term storage, such as that provided by batteries, covers the vast majority of energy demand. The [cost of batteries is also falling fast](#) and [has halved since 2018](#).

## Renewables are cheaper than gas

- Solar and wind are the cheapest sources for new-build power generation for two-thirds of the world's population, [according](#) to BNEF. New renewable projects added in 2020 reduced the cost of electricity by [USD 6 billion a year](#) in emerging countries.
- Solar and wind are now [cheaper globally than building a new gas fired power station](#). For example, [Rystad estimates that it would be ten times more expensive](#) to operate gas-fired power plants in the long-term than to build new solar PV capacity in Europe.

- In the third quarter of 2021, zero-carbon electricity generation saved EUR 33 billion in gas bills in the EU, and EUR 2.3 billion in the UK, says a [new analysis](#) by the Center for Research on Energy and Clean Air. [IRENA projects](#) that new renewable capacity added in 2021 could save USD 55 billion globally in 2022 in avoided fossil fuel costs.
- As renewables get cheaper, more than 90% of proposed gas power plants will become uneconomic in the US by 2035, as [modelled](#) by the Rocky Mountain Institute. In the UK, new gas power projects will face a [USD 13 billion](#) stranded asset risk by 2050, Carbon Tracker finds.

## The EU can cut its gas consumption with clean energy policies

- Before the crisis, around 40%–50% of European gas came from Russia. A combination of a scale-up in renewable energy and a focus on driving demand down through energy efficiency measures would cut Europe's exposure to overseas gas suppliers. EU demand for gas is [expected to halve by 2030](#) under the EU RePower proposals, with further cuts expected.
- LNG and gas projects will lock Europe into a fossil fuel future. New LNG projects can take years to complete, so they will not solve immediate or short-term energy supply issues.
- The price for gas in Europe is set by the European market, so building additional domestic capacity would have little effect on domestic gas prices.

## Carbon capture and storage faces a number of challenges

- By the end of 2021, there was 44 million tonnes a year of capture capacity globally, according to BloombergNEF, equivalent to 0.1% of global emissions
- Between 1995 and 2018, over 260 CCS [projects were undertaken](#). Of these, only 27 were ever completed. This despite government support following the global financial crisis of 2008–2009. Governments across the world [provided USD 8.5 billion](#) in support to CCS projects, but only 30% of that funding was spent as projects failed to get off the ground.
- [Almost three quarters of CCS projects](#) are used for enhanced oil recovery, where the captured CO<sub>2</sub> is pumped into wells to extract as much oil as possible. Used in this way, CCS could actually lead to higher emissions.
- Capturing CO<sub>2</sub> through CCS is also [energy-intensive](#).
- Many facilities only capture 65% of emissions when they begin operating, which steadily increases to 90% after a few years. It is possible to capture all carbon emissions, but the costs increase rapidly the more carbon is captured.
- Renewables are cheaper than gas in most countries in the world, even before CCS is added.
- For more information on the current state of the CCS market, [see this briefing](#).

## The role of gas in energy access and development in Africa

- An estimated 600 million people still lack access to electricity. Energy and climate-related investments in Africa are far off what is required – the continent needs [USD 277 billion](#) annually to implement its energy and climate plans, yet annual climate finance stands at only USD 30 billion.
- Some, including US and European investors following the invasion of Ukraine, are calling for countries to exploit their oil and gas resources, but the vast majority of the investment in African gas to date has been directed to extraction and upstream infrastructure [for export](#). Companies in Africa control [just 33%](#) of the continent's projected oil and gas production. The majority is controlled by companies in the global north, with TotalEnergies, Eni, ExxonMobil and BP accounting for a third. As a result, most oil and gas producing countries in Africa have not seen accelerated development from these resources.
- Lack of infrastructure is also a major challenge, with [statistics](#) showing that, in some countries, less than one in four are connected to the national grid. Renewables are the [cheapest, fastest and most resilient](#) way to connect millions to power networks, according to the IEA. By 2030, [costs of solar PV in Africa are projected to be between 18-49 USD/MWh](#), and those of onshore wind 33-86 USD/MWh – half as expensive as natural gas. By the same date, wind power is expected to be 15% cheaper.
- Large investments in new oil and gas infrastructure across Africa – which will take time to develop – [risk being stranded](#) by the mid 2030s as the continent's major export markets in Europe turn to renewables. Brussels' RePowerEU plans will see gas consumption [cut 50%](#) by 2030. Germany has [boosted](#) its renewable energy expansion with laws for 80% renewable power by 2030 and a net-zero power sector by 2035.