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INSTITUTE OF ENERGY
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# SEE ENERGY BRIEF:

## Monthly Analysis

# Key Factors for the Electricity and Gas Price Surge – The Case of SE Europe

# Introduction

Europe is currently facing an energy price shock as the cost of natural gas and electricity surges to record levels. A gas supply crunch is boosting the cost of producing power just as businesses reopen and people return to the office, increasing demand. Rising prices are fueling inflation and threatening to stall the economic recovery as energy-intensive industries from fertilizer to steel may need to curb output.

The main geopolitical factors of this painful development for Europe can be summarized as follows. Europe decided to be the first carbon neutral continent by 2050 and this caused a $CO_2$ price rally. However, it coincided with the increase in LNG demand from the Asian markets, especially from China, which are in the decarbonisation process, as well as a gas crisis, with Russia deciding not to deliver the required gas quantities to Europe in order to push for the Nord Stream 2 pipeline. These factors led $CO_2$ prices from the low level of €25 per tonne in 2019 and the very low level of €15 per tonne, due to COVID, in 2020, to over €61 per tonne in early September, while they are expected to reach €65 per tonne over the coming months. **(1)**

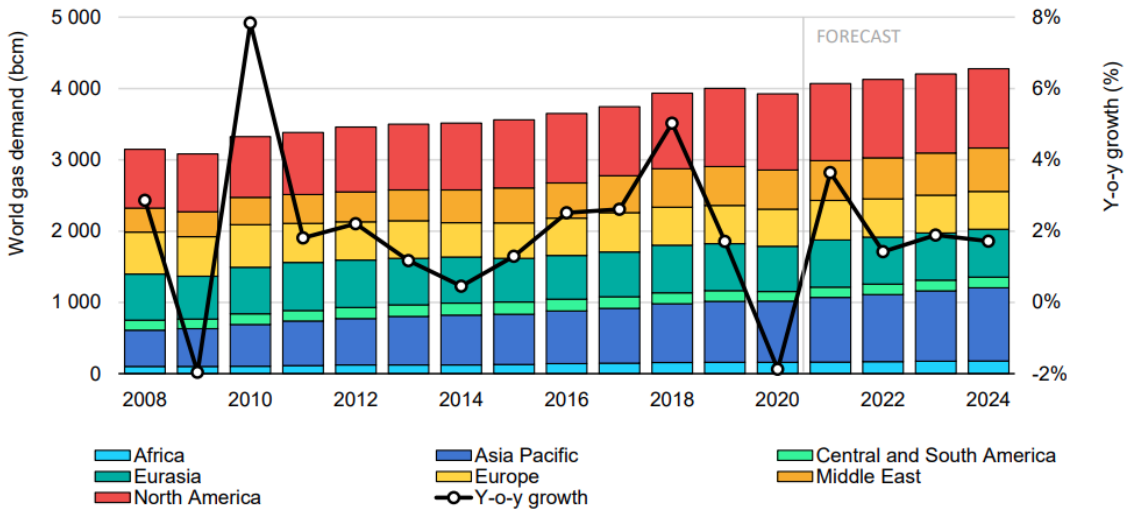
# Energy Price Surge

The reasons behind the European energy crisis are far from straightforward and illustrate how complex and interconnected the global energy market is. The major parameters, which help us explain some of the issues fueling the energy crisis, can be summarized as follows:

1. **Global Demand is Recovering Strongly**

In 2020, global gas demand fell by 1.9%, which was partly because of changes in energy use during the worst periods of pandemic disruption. But it was also the result of a mild winter in the northern hemisphere. In its Global Gas Security Review **(2)**, the International Energy Agency (IEA) says gas demand is likely to rebound by 3.6% in 2021. If left unchecked, global gas consumption could have increased 7% higher than pre-pandemic levels by 2024. Although gas demand growth is expected to slow - despite a switch from coal to gas - the IEA supports that governments may need to legislate to ensure gas-related emissions growth does not become a problem.

Figure 1: Global Natural Gas Demand by Region, 2008-2024




*Source: IEA*

## 2. Europe is Reliant on Gas Imports

European gas production is in decline. Several North Sea gas deposits are running dry, as are a number of gas fields in the Netherlands, such as Groningen which is due to close in mid-2022. This leaves Europe increasingly dependent on gas imports, primarily from Russia and Norway. The IEA has called for Russia to send more gas to Europe to help alleviate the crisis **(3)**, with concerns being raised that Russian-controlled underground gas storage facilities in Europe are stocked lower than in previous years.

Gas storage sites in the European Union and United Kingdom are currently just under 76% full, compared with a ten-year seasonal average of almost 90%, according to data compiled by Gas Infrastructure Europe **(4)**. In the last decade, gas storage has emptied by an average of 57% over winter, but depletion is highly variable, ranging from a minimum of 38% in 2013/14 to a maximum of 71% in 2017/18. If this winter sees an average drawdown, storage sites would be reduced to just 19% full by next spring, the second lowest for a decade, leaving the region with a persistent gas shortage next year. If the winter sees a moderately strong draw, storage would be reduced by 68% to a record low of just 8% next spring, increasing the probability supply will actually run out in some areas. If the winter sees a maximum draw, similar to 2017/18, storage would be almost exhausted by next spring, making local shortages almost inevitable.

Futures prices are rising to avert this threat by rationing demand now to conserve inventories and reduce the risk of running out later in the winter. Sharply rising prices are the reason wholesale markets (such as European gas) rarely run into physical shortages, unlike retail markets (UK gasoline and diesel) where price rises are typically more limited for commercial and political reasons. Europe's gas and electricity prices are

likely to remain elevated until there is clear evidence that they have an impact in reducing demand and conserve inventories.

There are tentative signs the inventory situation has already improved slightly since late August in response to much higher prices, but the market may need a much stronger signal of conservation before prices fall. The most likely early signs of conservation are temporary factory closures (especially energy-intensive users); reductions in central and local government energy consumption (street lighting and building temperatures); and reductions in commercial and residential consumption (building temperatures).

On October 22, Italy urged the European Union to immediately begin work on a plan to build a joint storage system for strategic gas reserves. Speaking to reporters after the EU summit, Draghi said Brussels needed to prepare an inventory of the gas reserves that are available across the bloc today. **(5)**

***Russia Could Deliver More Gas if Nord Stream 2 Approved***

Russia can increase gas supplies to Europe as soon as Germany approves the new Nord Stream 2 pipeline, President Vladimir Putin recently said, underlining Moscow's conditions for help to resolve the continent's energy crisis. Putin said Gazprom, the Kremlin's gas monopoly, could increase flows by an extra 17.5 bcm via the new pipeline "the day after tomorrow" if regulators approved it "tomorrow". **(6)**

The amount, equal to roughly 10% of the gas Russia shipped to Europe and Turkey in 2020, would provide significant additional supplies at a time of record prices in Europe, even before the pipeline's second line is fully filled in December. But it is also likely to provoke anger that Russia clearly believes it has gas in reserve but is making its delivery to Europe contingent on Nord Stream 2 being approved.

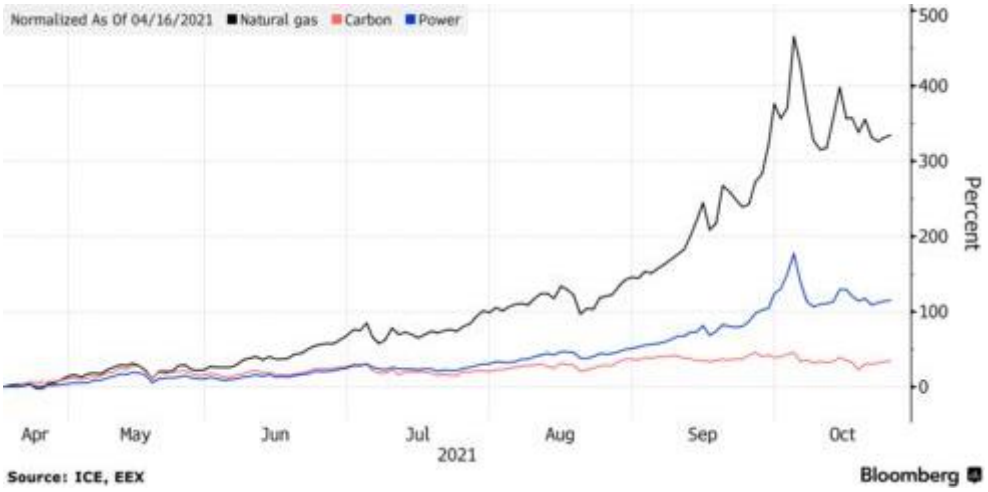
The US and several Eastern European countries say Russia wants to use the $10 billion pipeline, which bypasses Ukraine, as a geopolitical weapon to increase the EU's dependence on Moscow, while costing Kyiv transit revenues from traditional supply routes. But Putin said EU energy policy was being made by "non-specialists", who were "deceiving voters" and said the world could avoid future crises if it focused on "fundamental projects", such as Nord Stream 2, instead of spot market trading.

Russia has faced growing criticism in recent weeks because it has not made additional supplies to Europe available, despite hints from Putin that he would act to cool the crisis. An assorted chorus of critics are blaming Russia for not making any additional sales of gas available to European customers this year, beyond those secured through long-term contracts. Gazprom has also let its own storage facilities in Europe fall to very low levels, heightening fears of shortages of supplies in the event of a cold winter.

### 3. Prices are High and Could Go Higher

Since the start of 2021, there has been a 600% increase in European gas prices. At one point in early October there was a 37% spike in UK wholesale gas prices in just 24 hours. Surging prices prompted a lobby group, representing steel, chemical and fertilizer businesses, to call on the UK government to provide help against spiralling costs. The price of wholesale gas has caused several smaller energy providers in the UK market to collapse, and has halted production in some industries. The UK's Secretary of State for Business, Energy and Industrial Strategy, Kwasi Kwarteng, said: "Our exposure to volatile global gas prices underscores the importance of our plan to build a strong, home-grown renewable energy sector to further reduce our reliance on fossil fuels". **(7)**

**Figure 2: European Gas, Power and Carbon Prices are Soaring on Supply Shortage, April-October 2021**




*Source: Bloomberg*

***Switch to Coal***

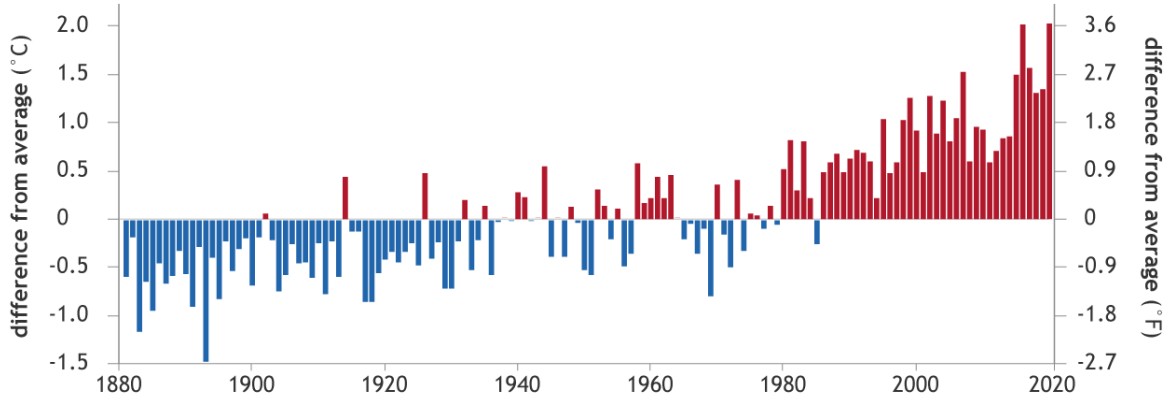
Soaring European wholesale gas prices are encouraging more utilities to switch to carbon-heavy coal to generate electricity just as the region tries to wean nations off the polluting fuel. Although European coal and carbon prices have also jumped in recent months, they have lagged the spike in gas prices, causing short-term marginal costs to shift in favour of using coal to generate electricity. Benchmark carbon permit prices under the European Union's Emissions Trading System (ETS) have almost doubled since the start of the year, while European coal futures are more than twice as high. Wholesale Dutch gas prices, however, are almost four times higher than at the start of 2021.

### 4. Winter is Coming

In the northern hemisphere, the start of 2021 was punctuated by a series of very cold extreme weather events. Swathes of the US were affected by a polar vortex that brought snow, ice and freezing temperatures

as far south as Texas. Another very cold northern winter would put additional pressure on a gas system that is already stretched and struggling. Responding to rising demand during cold weather will not only be challenged by low gas stocks. Chartering ships to transport LNG around the world has been affected by a lack of shipping capacity, making responses to spikes in demand both difficult and expensive. "Daily spot LNG vessel charter rates have spiked above $100,000 in each of the last three northern hemisphere winters," the IEA says. "And hit an all-time high of well above $200,000 during the unexpected cold spell in northeast Asia in January 2021 – amid physical shortages of available shipping capacity."

**Figure 3: Winter Land Surface Temperatures Compared to 20th Century Average, 1880-2020**




*Source: NOAA*

## 5. The Energy Transition

Undoubtedly gas burns cleaner than oil or coal and is widely used as a substitute for both in the production of electricity. Although it is playing a role in helping decarbonize electricity generation, environmentalists worry that gas is still a source of greenhouse gas (GHG) emissions. In its Global Gas Security Review, the IEA describes gas as: "A major source of emissions that needs to be reduced – especially in mature markets where much of the growth and substitution potential has already been tapped."

Natural gas is predominantly made up of methane, which is a strong GHG. The US Energy Information Administration says that almost 1/3 of methane emissions are caused by "natural gas and petroleum systems and from abandoned oil and natural gas wells" **(8)**. Although the overall increase in global gas demand between 2020 and 2024 is expected to be "rather modest", the IEA says, it will be too high to meet key environmental objectives. The IEA forecasts a 9% increase in annual gas demand between 2020 and 2024, significantly higher than the demand growth that would need to be maintained to stay in line with the target of net-zero emissions by 2070.

Decarbonizing the gas system must become a priority in order to hit net zero emissions targets by 2050, the IEA says, involving the widespread use of low-carbon gases: "This deployment must be supported by policies

enacted in the short to medium term to prepare for such a massive transition for gas systems and industry. In this regard, policy makers should take into consideration new security of supply challenges that are likely to emerge in this transition." However, many countries in Europe, especially in SEE, view gas as a key transition fuel which will help them decarbonize fast and, hence, they are committed to its use in the mid to long term.

## The Case of SE Europe

On October 13, the European Commission unveiled a "toolbox"[1] of measures designed to tackle the exceptional rise in global energy prices, which is projected to last through the winter, and help Europe's people and businesses. The "toolbox" can be used by the EU and its Member States to address the immediate impact of current prices increases, and further strengthen resilience against future shocks. Short-term national measures include emergency income support to households, state aid for companies, and targeted tax reductions. The Commission will also support investments in renewable energy and energy efficiency, examine possible measures on energy storage and purchasing of gas reserves and assess the current electricity market design.

In SE Europe, heatwaves rocketed demand for power from air conditioning, while below-average wind generation kept demand for gas high in the power sector. The energy crisis, which is also present in SE Europe, have led the majority of the SEE countries to take relief measures in order to shield their consumers from record-high energy prices (see Maps 1 and 2) that have curtailed industrial production and hiked consumer bills.

Indicatively, **Greece**'s Minister of the Environment and Energy announced that the electricity and heating costs for households would grow only marginally. The funds earmarked for the mitigation of the energy crisis were doubled from the initial sum to almost €600 million for the period until the end of the year, due to the ongoing increase in prices. The Greek government was one of the first in Europe to introduce emergency measures for the protection of households, especially those at risk of energy poverty, from the spike in prices of electricity, gas and heating fuels. Moreover, Greece is setting up a permanent mechanism for future disturbances in the energy market and working with the European Union on a system that could be implemented in all member states. Minister Kostas Skrekas vowed to direct more funds next year for the purpose, if it is necessary. **(9)**

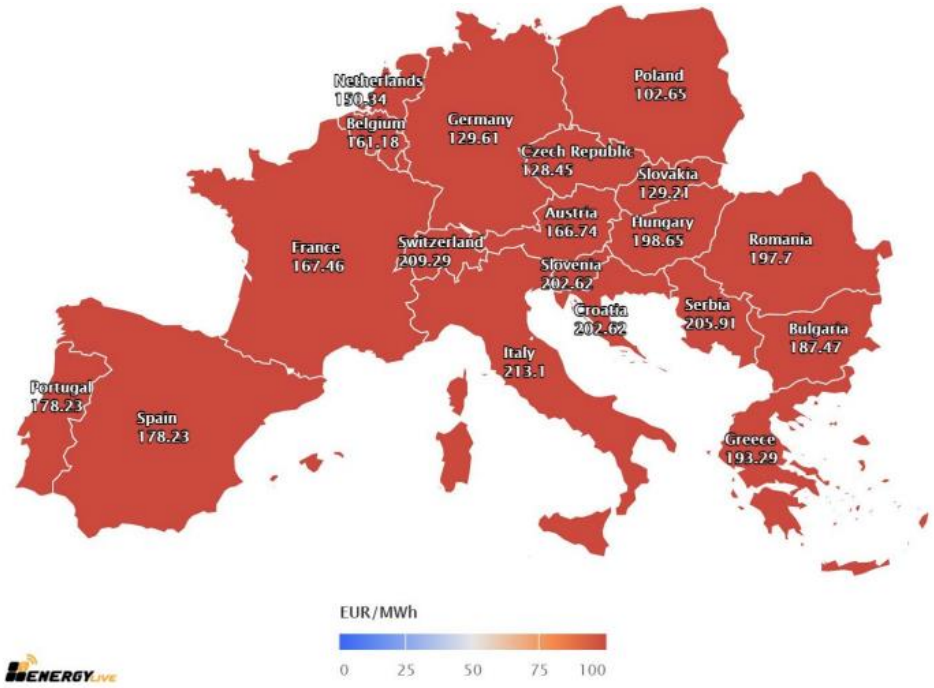
**Albania** declared an energy emergency due to the strong rally in electricity prices and said it would allocate €200 million for state-owned power distribution operator OSHEE and introduce other measures to protect

[1] https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204

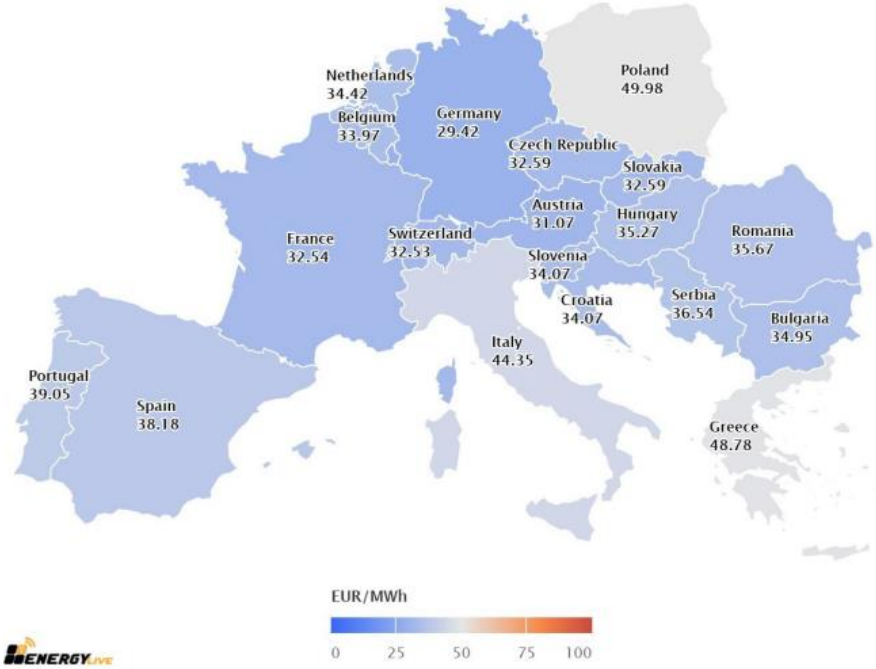
households and small businesses. More specifically, Prime Minister Edi Rama recently said that a €100 million fund will be established for OSHEE's liquidity until the end of 2021, which will be boosted by another €100 million in 2022, and offer state guarantees. **(10)**

### Maps 1 and 2: Wholesale Average Day Ahead Electricity Prices in Europe

**October 25-31, 2021**




**October 26 - November 1, 2020**



*Source: Energy Live*

In addition, **Serbia**'s Prime Minister said that the government would not cap the electricity prices as requested by the business sector and state-owned power utility Elektroprivreda Srbije (EPS) announced it cannot offer dumping prices and distort competition. However, the company revealed it could offer companies more adequate prices if the government adopts such a decision. Earlier, the Serbian Association of Employers demanded the price increase to be gradual. The businesses sector sounded an alarm in early October amid a spike in power prices. The association said electricity suppliers have boosted tariffs by 70% to 135% and warned that companies would be forced to increase the prices of their products and lay off workers. **(11)**

**Bulgaria**'s interim government has proposed a payment of €330 million in subsidies to all companies in the country to ease the pressure of high electricity prices. In Bulgaria, power prices have increased 72% from the beginning of the year, and as of September 29 the price on the day-ahead market of the national power exchange IBEX was at €133 per MWh. Prices for households are regulated and they are currently set to remain at €57 per MWh by the end of the year. In its draft budget for 2022, the government proposed that every company should receive €26 per MWh consumed in the first six months of next year. The bill must be adopted by the national parliament, which should be convened after the elections scheduled for November 14. The measure could be implemented earlier if the new parliament decides to amend the budget for this year. The government also decided to change the rules for trading electricity at the IBEX exchange to make the market more transparent. **(12)**

Furthermore, **Romania**'s Energy Minister revealed a five-month mechanism that would be rolled out in November to cushion the blow on households and that a similar measure is in the pipeline for small and medium-sized enterprises (SMEs). More specifically, households that consume between 30 kWh and 200 kWh a month will be entitled to a discount of 3.6 eurocents per kWh, while gas bills should be trimmed by 25%, but on a yearly basis, the Minister said, estimating that the upcoming executive order would help 5.2 million households or 13 million people. SMEs need to be encouraged to conduct energy efficiency measures and install own sources of energy, the minister underscored and vowed to improve existing programs. He didn't rule out the possibility to extend the subsidies in the spring. On the other hand, President of Romanian Energy Regulatory Authority (ANRE) Dumitru Chiriţă suggested electricity bills would be reduced by 10% to 15% if the government decides to pay for the surcharges for the support for renewable energy and highly efficient cogeneration for six months. He told the Parliament of Romania that such a scheme would cost €424 million. **(13)**

# Discussion

The pan-European landscape in the energy sector looks like a perfect storm, with high gas and electricity prices suffocating companies, households and governments called upon to manage a general wave of price hikes and inflationary pressures that threaten Europe's competitiveness and social cohesion in all European countries, including SE Europe.

The rally in gas and carbon prices, which started last June and continues until now without signs of de-escalation, has pushed wholesale electricity prices to historic highs and the pressure is now being transferred from electricity generation and supply to electricity consumption, causing a shock in households and businesses.

According to the ICE **(14)**, the prices of Dutch TTF Gas Futures will remain high at above €50/MWh at least until March 2022 and the same stands for the energy cost. However, it is worth noting that the futures contracts give only an indication and we cannot be sure how prices will fluctuate, as one must take also into account other factors. Several energy analysts support that if gas prices fall, then, even if $CO_2$ prices are high, electricity prices will decrease. This happens as the gas contribution in the electricity cost has a much greater impact than $CO_2$. A main conclusion that we can drawn from this latest upheaval is that energy costs are and will most likely remain high until Q1 2022 in the best case scenario.

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