



# ENERGY MATTERS

Energy Markets Insights  
June 2022 Edition



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# 1. Market Economics

June 2022 Insights

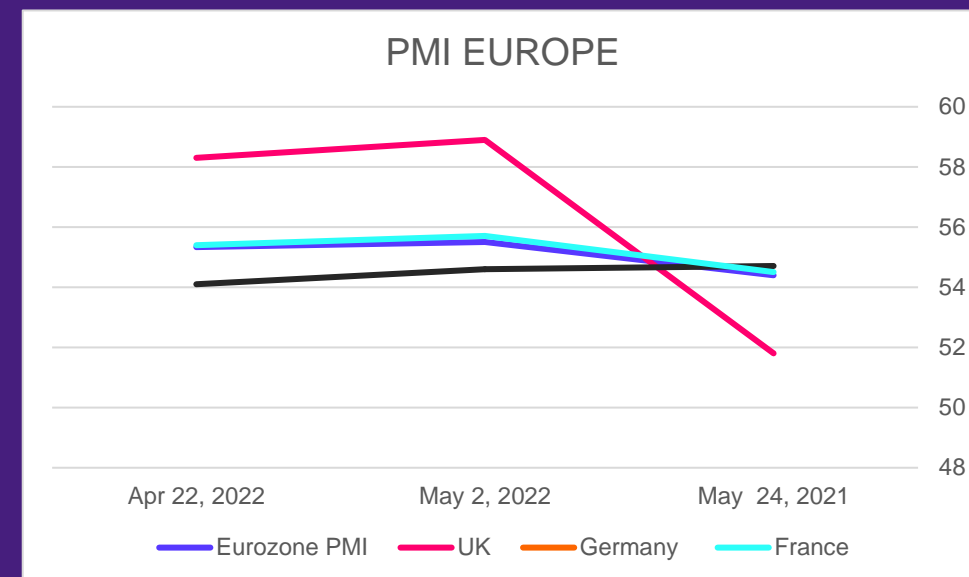
**Eurozone growth remained robust in May thanks to buoyant service sector. Cost pressures ease for second month but remain elevated:**

- Flash Eurozone PMI Composite Output Index at 54.9 (Apr: 55.8). 2-month low.
- Flash Eurozone Services PMI Activity Index at 56.3 (Apr: 57.7). 2-month low.
- Flash Eurozone Manufacturing Output Index at 51.2 (Apr: 50.7). 2-month high.
- Flash Eurozone Manufacturing PMI at 54.4 (Apr: 55.5). 18-month low

Eurozone economic growth remained robust in May despite headwinds associated with the Ukraine war, pandemic supply constraints and the rising cost of living. However, while the service sector continued to report strong growth from pent-up pandemic demand, the manufacturing sector saw only a modest expansion for the second month running amid falling order book inflows.

While both sectors continued to report solid hiring, with the service sector reporting the strongest jobs gain for almost 15 years, business expectations deteriorated slightly to the second-weakest seen over the past year-and-a-half to reflect growing concerns about the outlook.

Meanwhile prices charged for goods and services rose at the second-highest rate yet recorded by the survey, though the rate of inflation cooled slightly compared to April following a second successive monthly easing in firms' input cost inflation.



# Coronavirus Situation

May 2022 headlines

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**Travel restrictions are being lifted by an increasing number of countries heading into the summer:**

## **Switzerland**

Since 2 May 2022, the country has removed all Covid-19-related travel restrictions meaning there is much less hassle now to travel to the country. No proof of vaccination, recovery or testing is required for entry.

## **Bulgaria**

Following an easing of restrictions on 13 April, as of 1 May, it has decided to open its doors to everyone and travellers arriving to Bulgaria no longer must provide Covid-19 related documents to enter the country.

## **Lithuania**

From 1 May, Lithuania declared that its borders are open for anyone, regardless of country of origin and regardless of vaccination status.

## **Italy**

Mask-wearing remains mandatory in indoor spaces, in public buildings and on public transport. Italy classifies its regions into white, yellow, orange or red zones, depending on the infection rate. Each region and municipality may enact hygiene rules to reflect the local epidemiological situation.

## **Austria**

As of 16 May, no proof of vaccination, recovery or a negative test is required to visit the historic green capital of Vienna. The pre-travel clearance form is also now redundant. It follows the removal of domestic rules, including the need to wear a face mask in public places.

## **Belgium**

As of 23 May, visitors to Belgium no longer need to complete a passenger locator form (PLF) or show any Covid-19 documents to enter. You also no longer need to wear masks anywhere once you're there except in healthcare settings.

## **Greece**

Greece officially removed all Covid-related entry measures on 1 May 2022. Mask-wearing is still compulsory indoors, but for many tourists to the Greek islands this will be virtually unnoticeable as so much dining, drinking and socialising takes place outdoors.

# Summary of Key News on Energy Markets

May 2022 headlines

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## General Context

- Inflation in Europe continued to rise to its highest level in 40 years
- China had to cope with the pandemic and containment measures, but the situation seems to ease
- The latest figures from the US (falling unemployment claims, strong household consumption) surprised on the upside

## Oil



- EU agreement at the end of the month to ban Russian oil imports by sea
- The expected demand varied according to the evolution of the pandemic in China
- Oil prices were therefore influenced by the uncertainties linked to the EU sanctions and the pandemic

## Gas



- Good supply of LNG and via pipelines from Norway
- Uncertainty regarding supply from Russia
- Russia threatens to stop supplies when gas traders do not pay in rubles

## Power



- Mild temperatures and high production of renewable energy in May
- Prices continued to follow the gas market
- Uncertainty about the availability of French nuclear power due to corrosion problems in several facilities



## 2. Gas Markets

June 2022 Insights

# Market Sentiment- Near Term Outlook

## Natural Gas



Bullish Drivers 	Bearish Drivers 
-More uncertainty over Russian supplies following Western sanctions on Moscow	- Stronger LNG deliveries to European destinations
- A gloomy demand outlook from Europe and top importer China	- Healthy gas flows amid the end of some maintenance in Norway
-Tight supply ahead of summer	
-European Union's agreement to cut 90% of oil imports from Russia by the end of this year.	

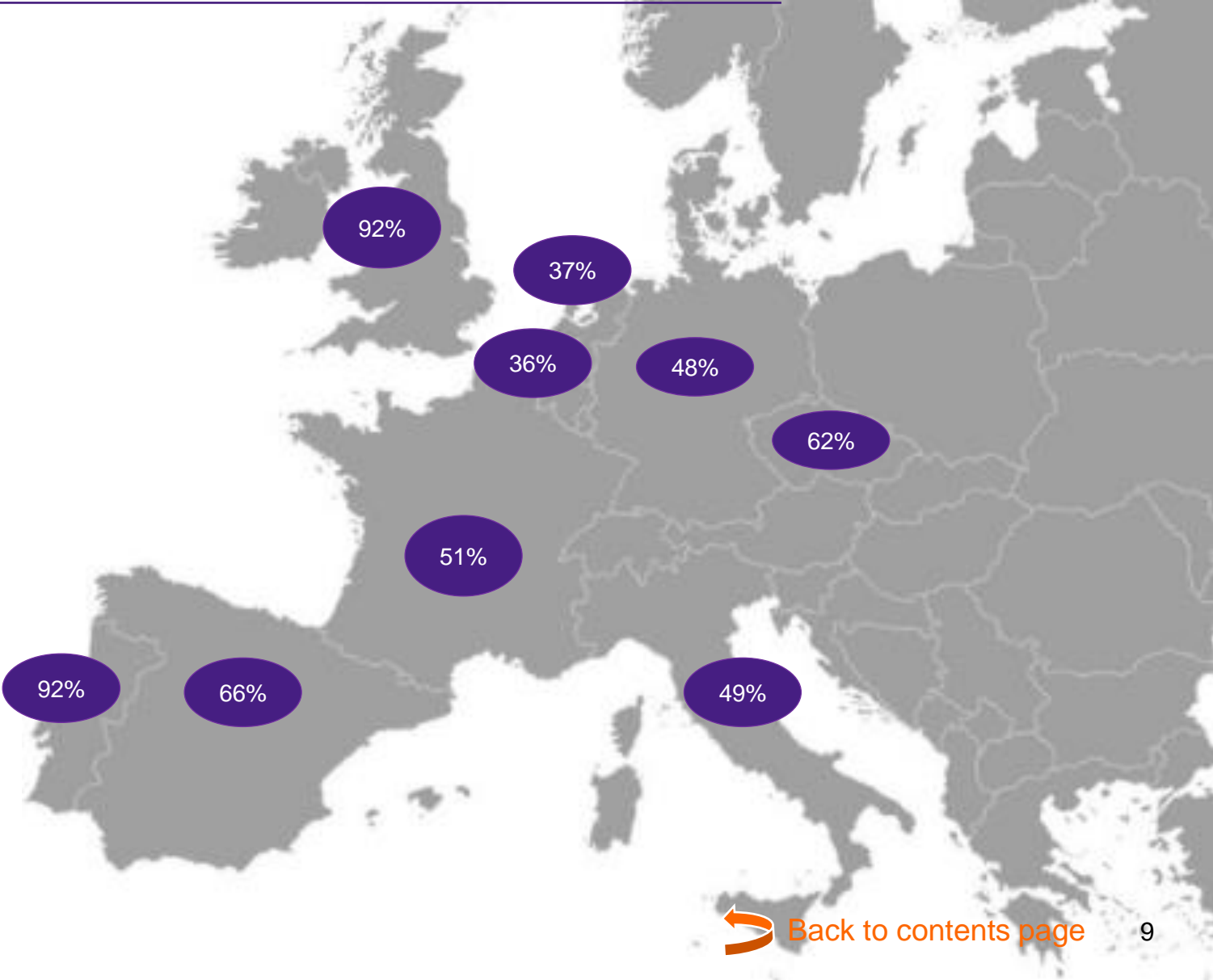


# Natural Gas Storage in Europe

Total EU27 + UK



+46%

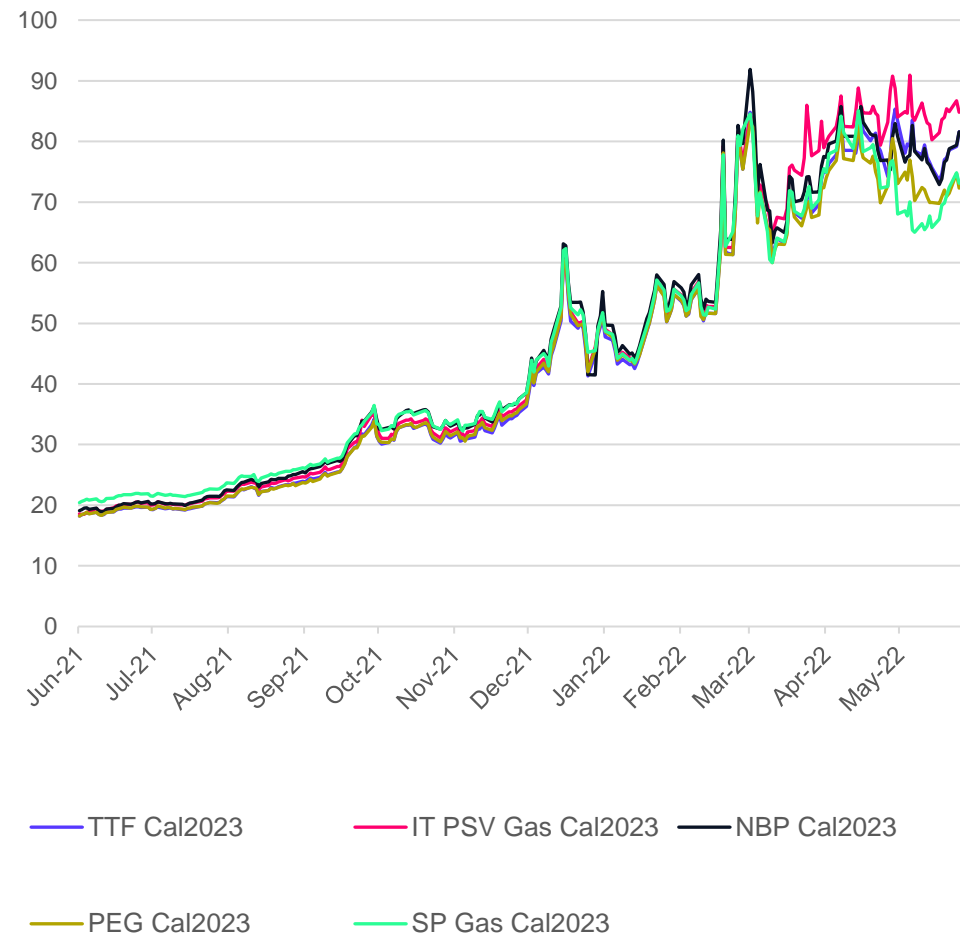


# Key European Natural Gas Prices

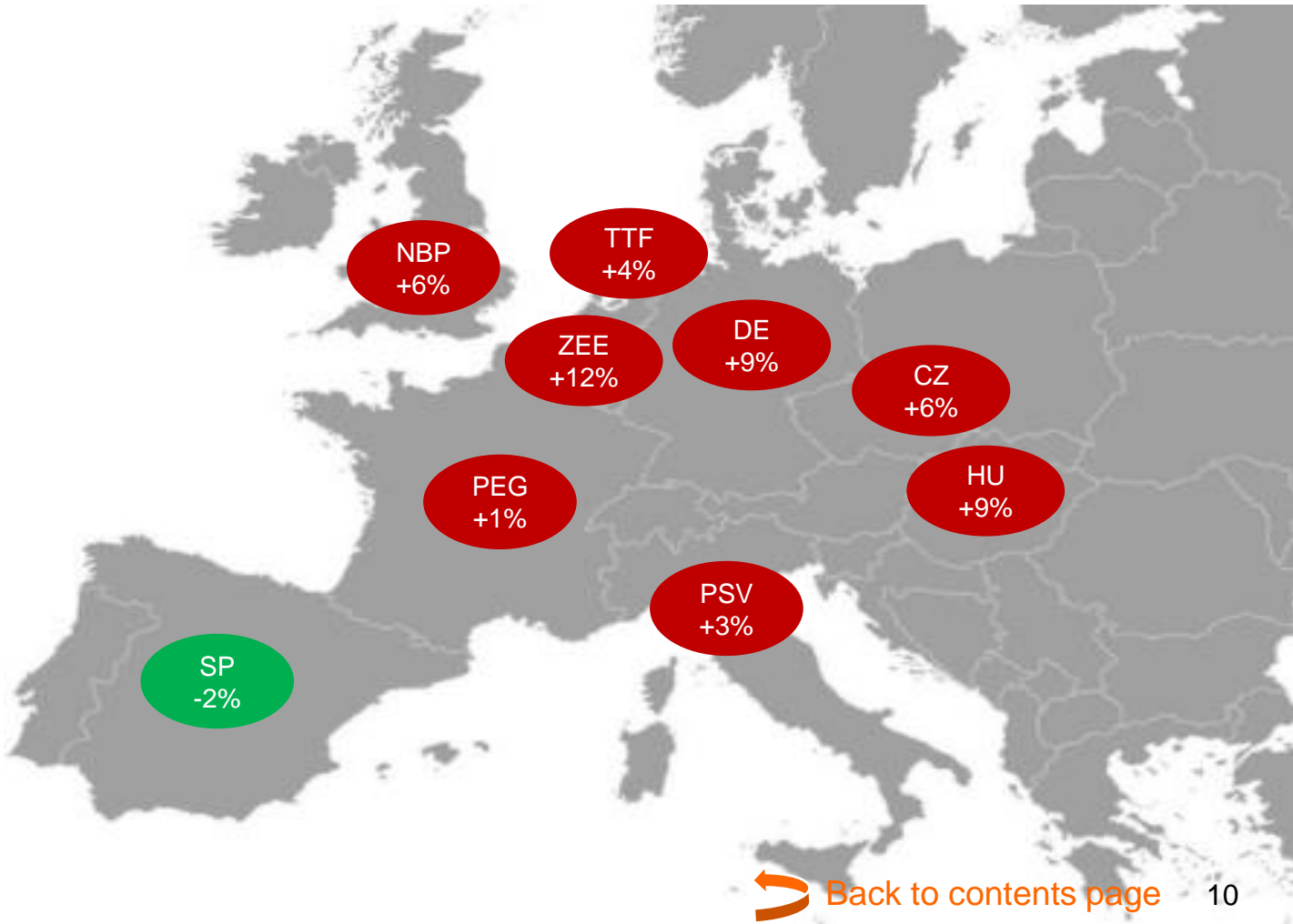
Forward Prices



## European Cal'23 Gas Prices (EUR/MWh)



## Cal23 Gas Prices Monthly Change



# Natural Gas Prices Belgium



## Insight of the Month

As Russia’s state-owned gas company Gazprom shut off its supply to the Netherlands, Belgian Energy Minister Tinne Van der Straeten stressed that there will be “no impact” on Belgium.

Just like when Russia shut off its gas supply to Poland and Bulgaria at the end of April, the Belgian supply of natural gas is still assured now that the same is happening to the Netherlands, said Van der Straeten.

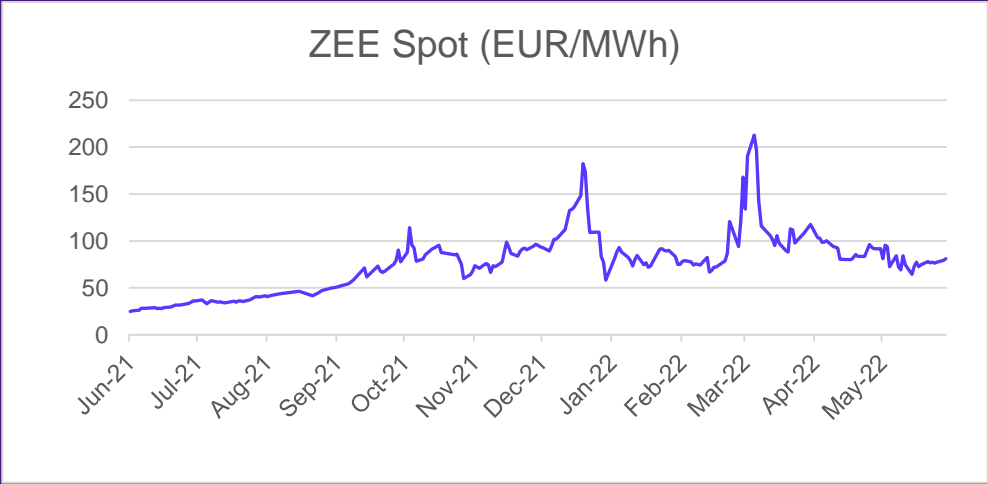
## Market Evolution since last Month

The Belgian forward gas prices gained ground in May, mainly amid supply concerns after Russia halted gas supplies to several European operators.

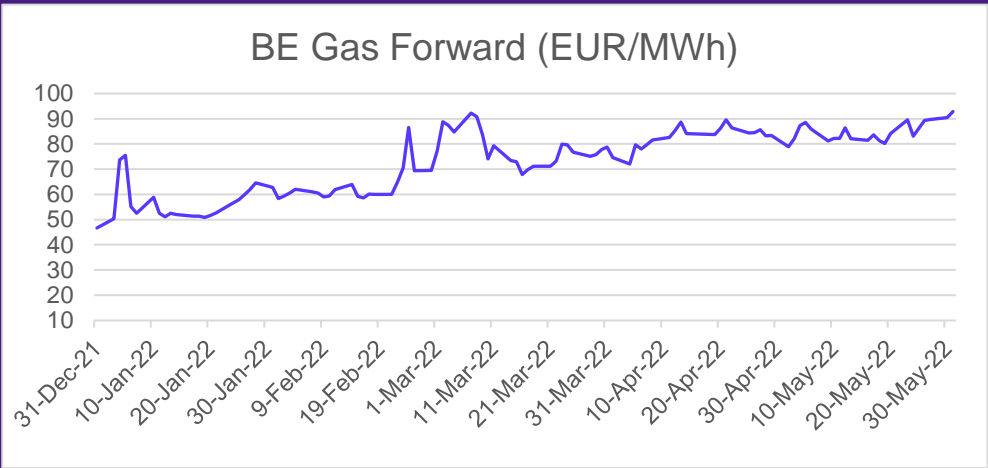
The BE Cal’23 contract hit its highest settlement of 92.89 EUR/MWh on May 31, while the lowest level of 78.85 EUR/MWh was reached on May 2.

In contrast, the spot price fell by 12% to 80.95 EUR/MWh amid healthy pipeline supplies and LNG deliveries to Europe.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
ZEE Cal 23	85.0190	82.8110	73.3768

# Natural Gas Prices Czech Republic



## Insight of the Month

The Czech industry ministry plans to launch a new state energy trader whose main aim is purchasing gas as the central European country seeks to boost its energy security and shift away from dependence on Russian supplies.

The Czech Republic is nearly 100 per cent dependent for its gas on Russia, which cut supplies to Bulgaria and Poland last month after they refused to pay for it in roubles as demanded, sparking concerns other European Union countries could be similarly hit.

## Market Evolution since last Month

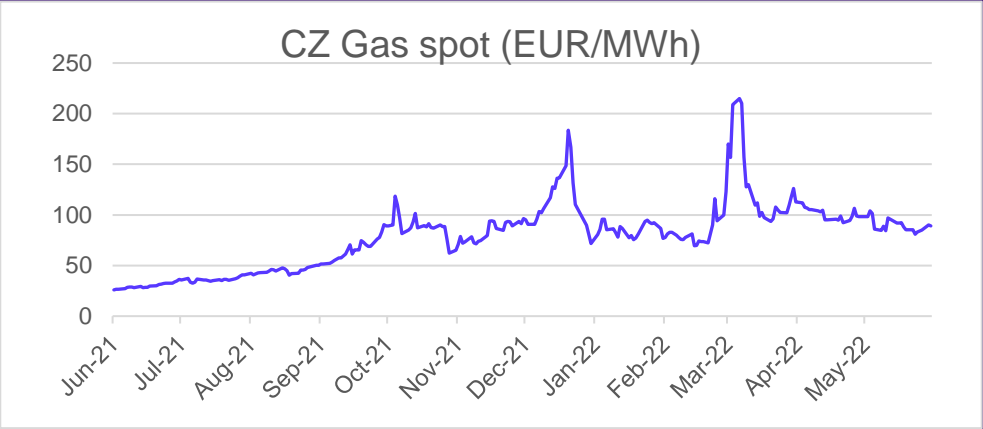
Czech forward gas market soared last month, tracking the evolution in the oil market.

The EU dispute with EU countries regarding payment as Russia announced a halt to supply to some European companies, added further support.

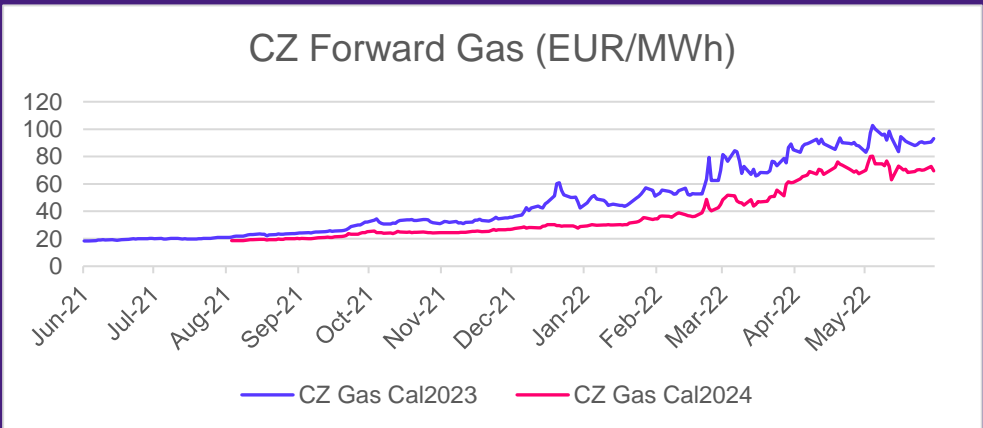
The Czech gas price for delivery in 2023 hit its highest settlement of 102.74 EUR/MWh on May 5, while the lowest level of 83.6 EUR/MWh was reached on May 16.

The stable imports of Russian gas as well as the massive arrival of LNG on the European continent dragged down the spot price.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
CZ Y+1	92.3193	89.0407	72.3037
CZ Y+2	72.1093	68.5797	51.7312

# Natural Gas Prices France



## Insight of the Month

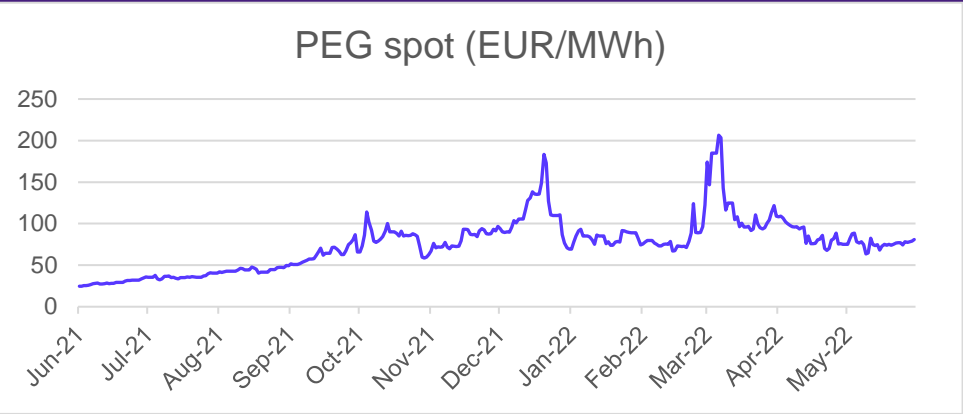
Spain and France have relaunched the 8bcm/year Midcat gas pipeline project to unlock Spanish spare LNG capacity and increase EU market liquidity. Spain is linked to France via the Irun and Larrau onshore gas pipelines. Its plans to build a third onshore link, known as Midcat, were abandoned a few years ago as it was considered too expensive.

## Market Evolution since last Month

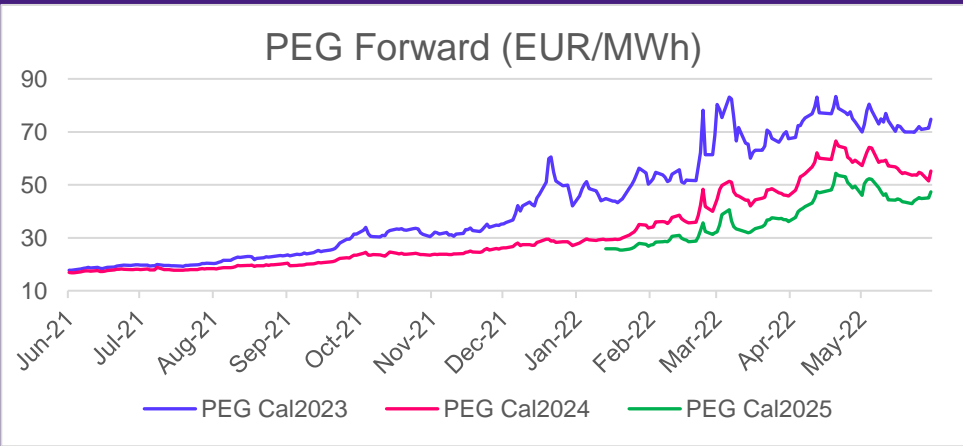
May started with a decline in the markets but prices have started to rise again in the last week. However, despite this rebound, market fundamentals remain unchanged with strong and consistent Russian import volumes and the arrival of many LNG cargoes.

Storage is taking place at a steady pace and has reached a 50% fill rate by late May. The CAL 23 price reached 74.74 EUR/MWh by month's end, a 1% increase against the beginning of the month. However, CAL 24 dropped by 4%, reaching 55.15 EUR/MWh on May 31.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
FR Y+1	73.0488	76.0213	64.4684
FR Y+2	56.9787	57.7957	45.7422
FR Y+3	46.3691	46.2021	37.6314

# Natural Gas Prices Germany



## Insight of the Month

German gas market operator Trading Hub Europe (THE) awarded 80% of the tendered 59.6 TWh of gas volumes for storage injection this winter. The cost for the awarded volume of 48 TWh amounted to EUR 370m, it added. Under THE requirements, companies successful in the tender will have to keep 90% of the contracted volume in storage by 1 October and 100% by 1 November and still have 45% in store by 1 February.

## Market Evolution since last Month

The German forward gas prices continued to add ground as forecasts of tighter gas supplies and volatile prices in the next few years are keeping buyers on edge.

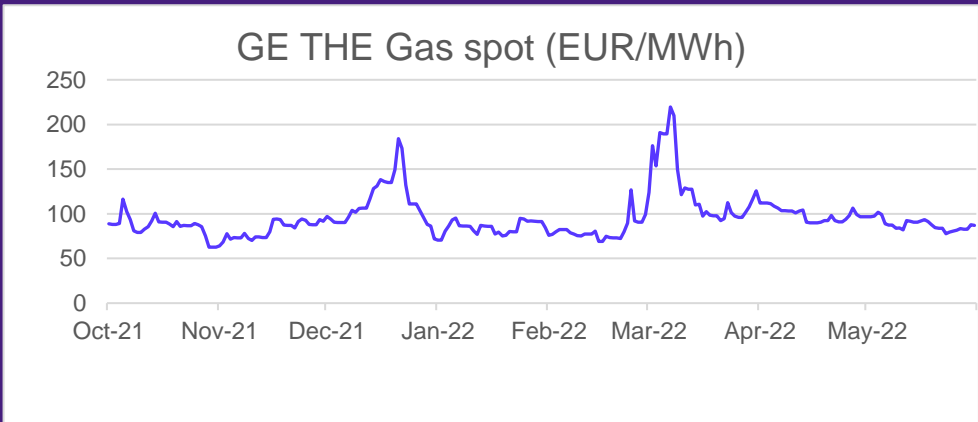
The German Cal'23 gas hit its highest level of 95.43 EUR/MWh on May 5, while the lowest level of 81.81 EUR/MWh was recorded on May 1.

Steady supply and increasing storage levels put pressure on the spot price.

### Evolution since Last Month



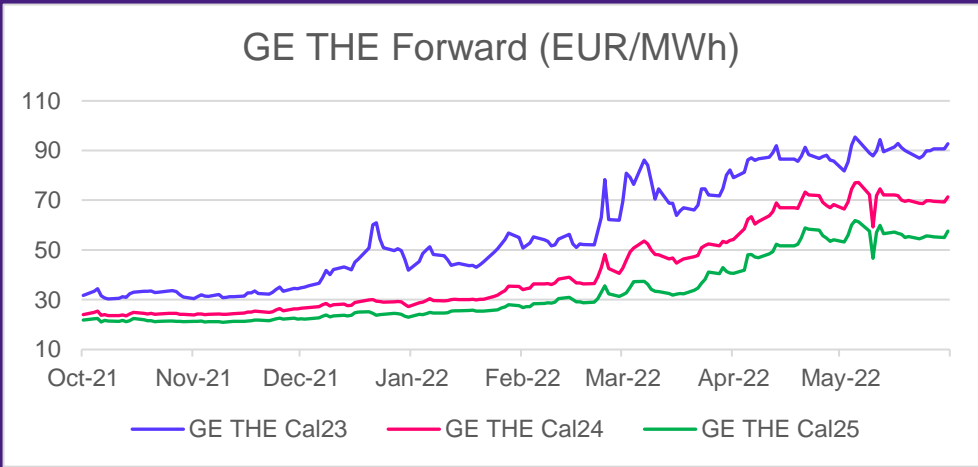
-10%



### Evolution since Last Month



Cal'23  
+8%



Average EUR/MWh	M	M-1	YTD
GE Gas Y+1	90.1108	86.7546	71.1124
GE Gas Y+2	70.6905	65.9316	51.0774
GE Gas Y+3	56.3290	51.3233	39.8122

# Natural Gas Prices Hungary



## Insight of the Month

Hungary will allow Serbia to store natural gas in its gas storage facilities for next winter, Hungarian Foreign Minister Peter Szijjarto said after talks with Serbia's finance minister.

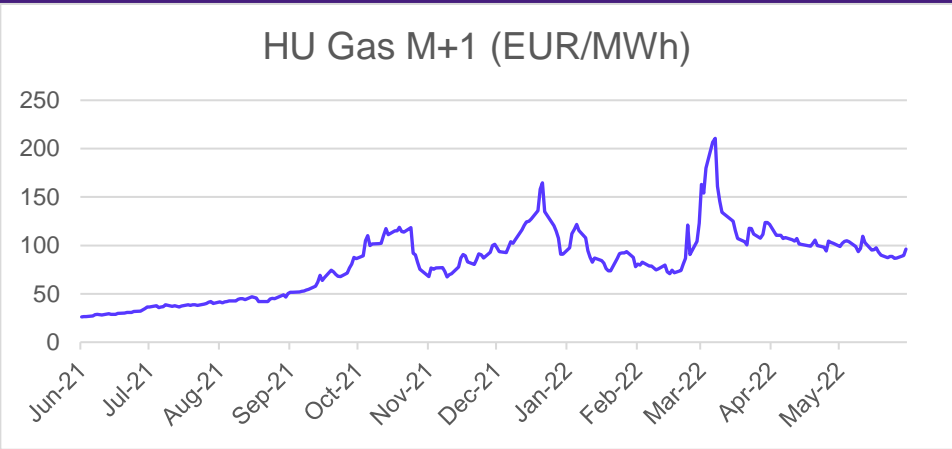
Belgrade plans to direct 500 million cubic metres of gas to Hungarian storage facilities by the end of June, Serbia's Finance Minister Sinisa Mali said at a press conference with Szijjarto.

## Market Evolution since last Month

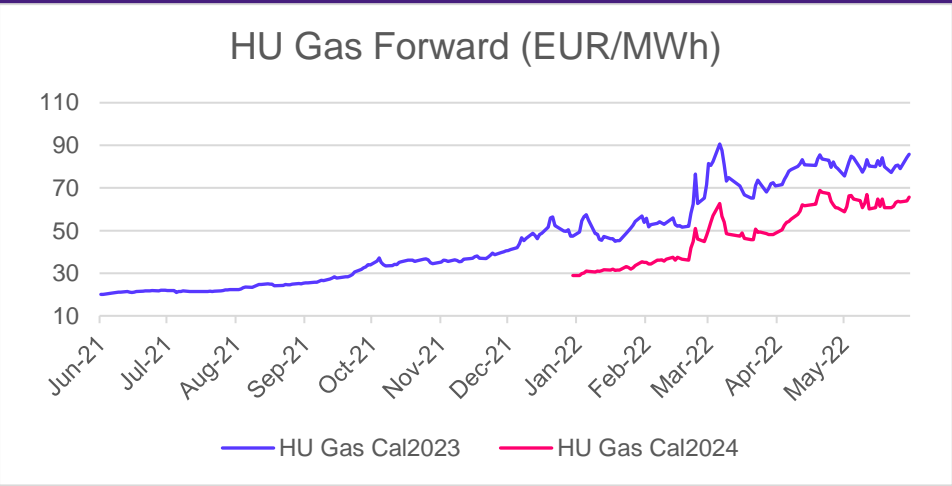
The Hungarian forward gas prices climbed in May as the upcoming EU ban on Russian oil raised fears that a stop for gas import could also be on the way.

The highest settlement of 85.77 EUR/MWh was reached on May 31, while the lowest level of 75.58 EUR/MWh was hit on May 1.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
HU Gas Y+1	80.8782	79.5411	68.1883
HU Gas Y+2	63.0364	59.7605	48.6595



# Natural Gas Prices Italy



## Insight of the Month

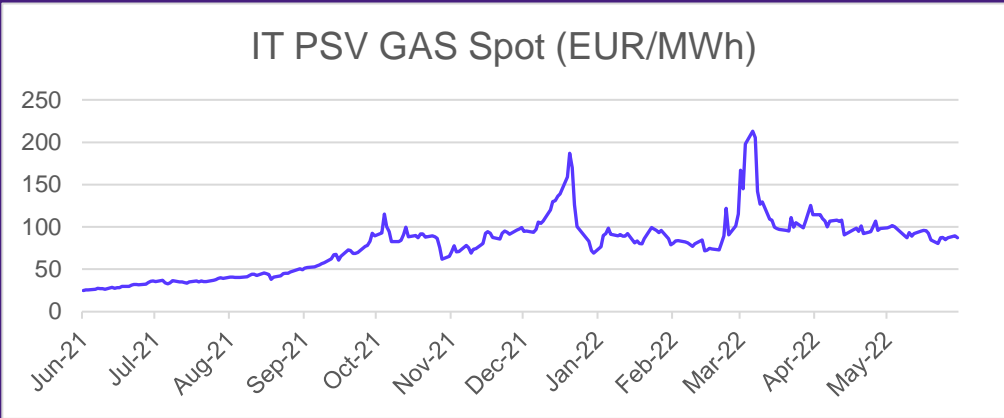
Russian gas flows to Italy slid 54% year on year to 12.7 TWh (1.2bcm) in April, reaching the lowest level since the autumn of 2010, said Italian energy exchange GME. The drop in Russian supplies was the main driver behind a 12% decrease in overall gas imports in Italy last month, at 64.9 TWh. Elsewhere, flows from Algeria and Libya rose nearly 2% and 5% to 20.1 TWh and 2.7 TWh, respectively. And gas arriving from Azerbaijan jumped 74% to 9.3 TWh at the Melendugno entry point and rose 46% to 7.3 TWh at the Gries Pass entry point. Italy's gas demand dropped 13% on the year to 55.3 TWh in April.

## Market Evolution since last Month

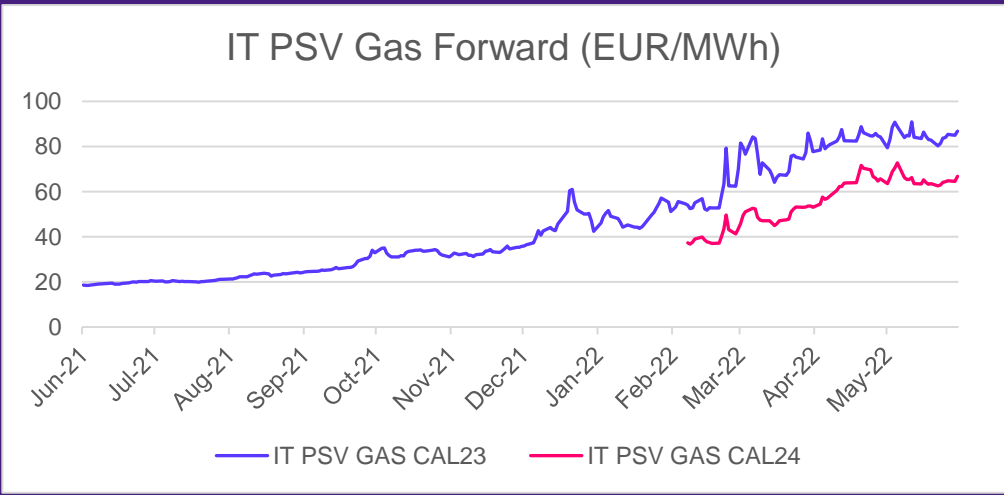
Italian forward gas prices increased in May amid heightened concerns over the future supply outlook. Some market participants were concerned that the decreased Russian flows could signal further cuts in the future following the EU's agreed embargo of oil imports from Russia.

The Cal'23 gas contract hit its highest level of 90.96 EUR/MWh on May 12, while the weakest price of 79.36 EUR/MWh was reached on May 2.

Evolution  
since Last Month



Evolution  
since Last Month



Average EUR MWh	M	M-1	YTD
IT PSV Gas Y+1	84.8166	83.2864	69.5475
IT PSV Gas Y+2	65.3733	62.7262	55.1894



# Natural Gas Prices Netherlands



## Insight of the Month

Traded gas volumes in European brokered markets slumped 48% year on year in April, led by a significant drop for the Dutch TTF hub, according to London Energy Brokers' Association (Leba) data. Gas volumes totalled 1,217 TWh, compared with 2,319 TWh in the same month last year. TTF volumes were down 55% to 855 TWh, offsetting a 21% increase for Germany's THE hub to 157 TWh. UK NBP volumes, which are not included in the European total, were virtually unchanged at 234 TW, said Leba.

TSO Gasunie has leased an 8bcm/year floating LNG import terminal for five years from US energy infrastructure company New Fortress Energy, to arrive in the Netherlands in the third quarter. The vessel will convert LNG into gas in the Eemshaven port in the north of Groningen, in a bid to further reduce dependence on Russian gas.

## Market Evolution since last Month

TTF forward gas prices increased in May as a consequence of the EU agreement on a partial ban on Russian oil.

As such, TTF Cal'23 gas hit its highest level of 85.36 EUR/MWh on May 5, while the lowest point of 73.55 EUR/MWh was recorded on May 23.

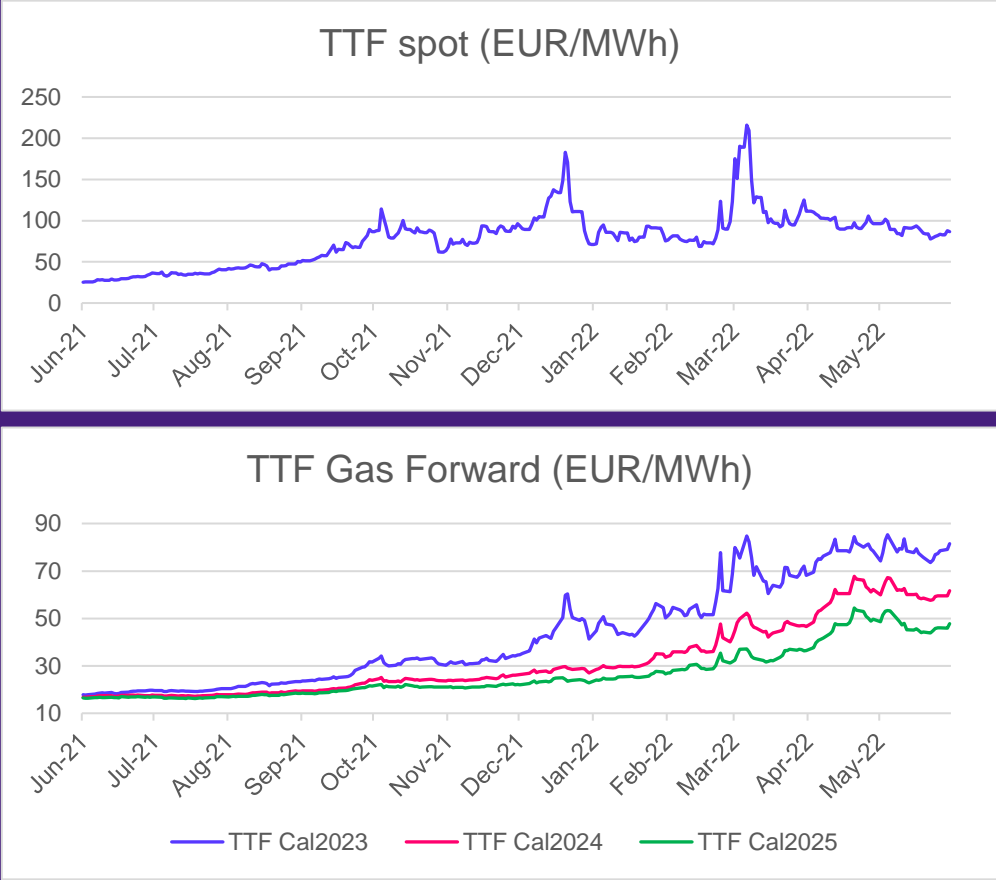
Spot price plummeted amid mild weather and strong renewable generation.

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Evolution  
since Last Month



Evolution  
since Last Month



Average EUR/MWh	M	M-1	YTD
TTF Y+1	78.6882	78.0807	66.1973
TTF Y+2	61.0122	59.0378	47.0312
TTF Y+3	47.4412	46.3896	36.7038

# Natural Gas Prices Poland



## Insight of the Month

Poland’s PGNiG has plans to buy 3m tonnes of LNG per annum for 20 years from US firm Sempra Energy, starting from 2027, as it looks for alternatives to Russian supply. The price will be based on Henry Hub benchmark with added liquefaction costs, according to PGNiG via the Warsaw Stock Exchange. The preliminary deal, if signed, will increase PGNiG's yearly LNG supplies by more than a half, to 11m tonnes, equal to 13bcm of natural gas.

## Market Evolution since last Month

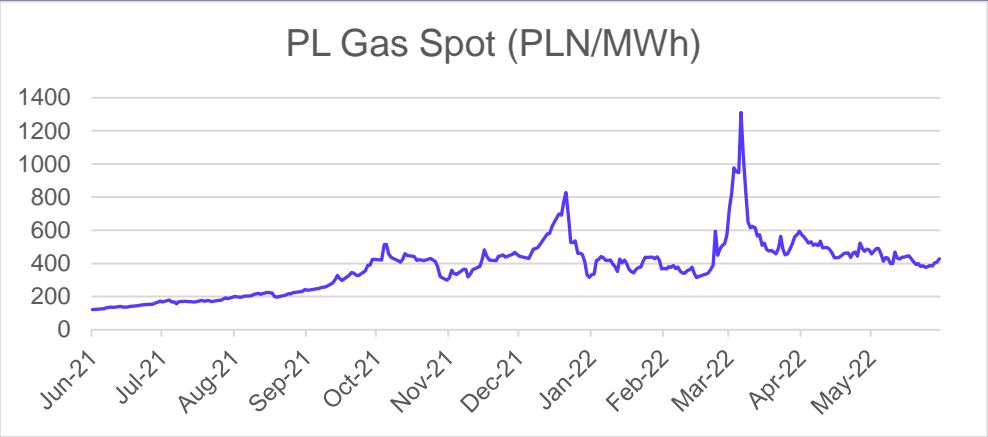
The year-ahead Polish price rose following the similar movement in regional gas markets, while Russia stopped gas flows to Poland. However, help from neighboring countries and liquefied natural gas (LNG) exports have kept prices stable.

The Cal’23 gas contract hit its highest level of 517.17 PLN/MWh on May 6, while the lowest point of 444 PLN/MWh was notched on May 23.

### Evolution since Last Month



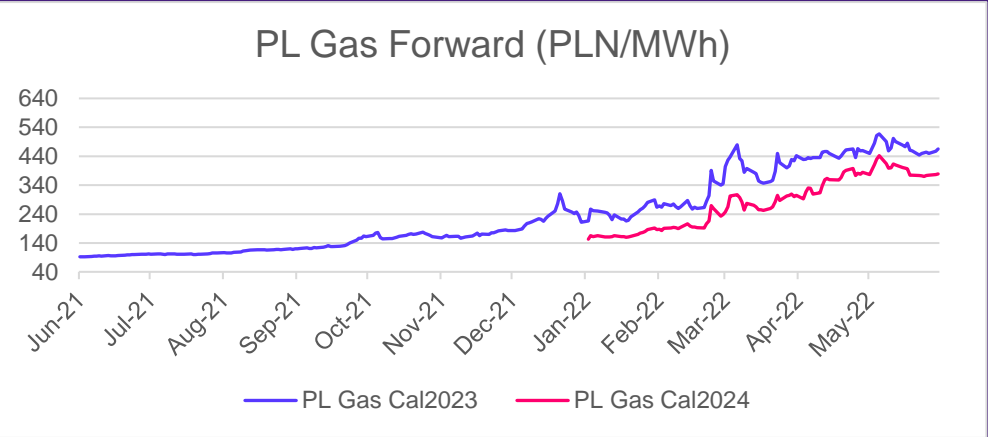
-12%



### Evolution since Last Month



Cal’23  
+1%



Average PLN/MWh	M	M-1	YTD
PL Gas Y+1	471.7224	446.5250	370.7542
PL Gas Y+2	393.2843	351.5980	279.6917

# Natural Gas Prices Spain



## Insight of the Month

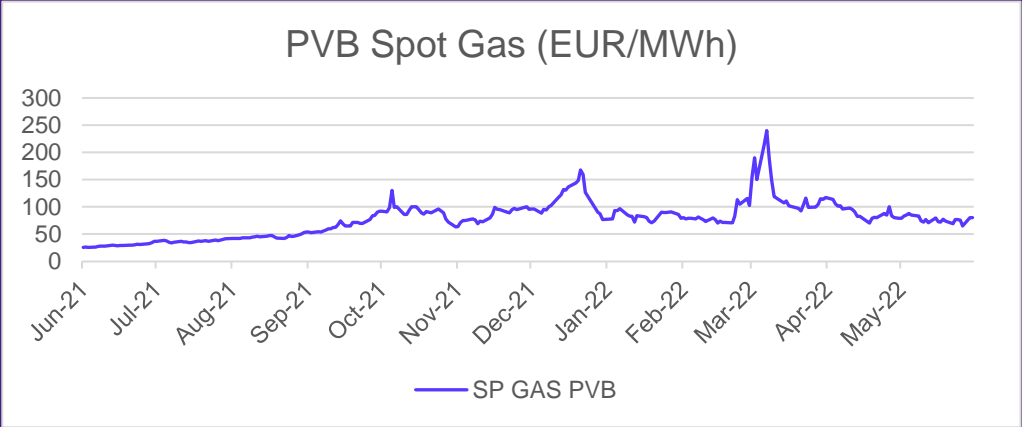
The Spanish government approved a system of guarantees of origin (GOs) to identify and spur the use of renewable gases such as green hydrogen, biogas and biomethane. Under the scheme, which is currently used in the power market, the green gases will be differentiated from fossil fuels to encourage consumption of energy sources with zero or low emissions, the energy ministry said in a statement. Every 1 MWh of 100% renewable gas produced will generate one GO. The certificates will provide information on where, when and how the gas was produced.

## Market Evolution since last Month

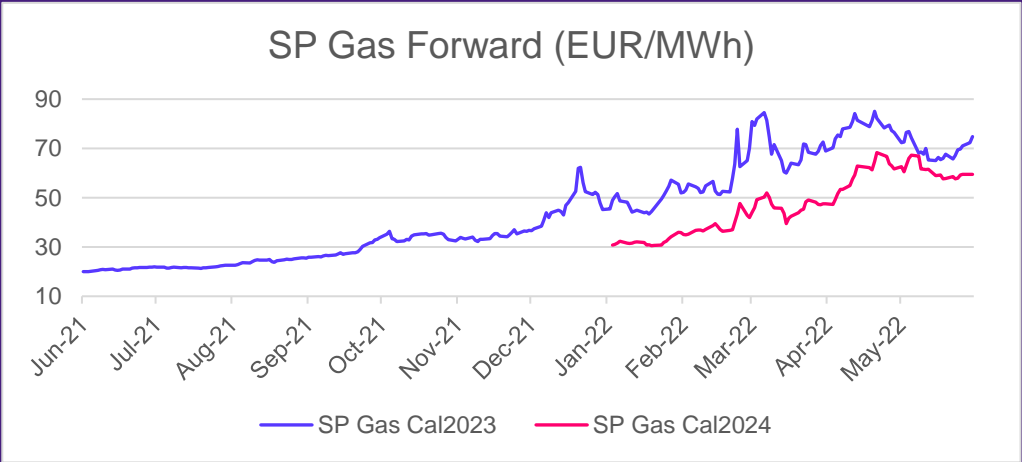
Spanish gas prices corrected in a bearish direction amid restocking in EU as gas storage sites increased fast, currently up by 17% than a year ago. A potential cap on gas prices by the local government exercised bearish pressure on the market.

The gas price for 2023 delivery hit its highest level of 74.89 EUR/MWh on May 31, while the minimum of 65.04 EUR/MWh was reached on May 16.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
SP Y+1	69.7155	78.1627	64.6215
SP Y+2	60.7804	59.5659	47.442

# Natural Gas Prices UK



## Insight of the Month

UK LNG imports have surged more than 50% so far this year, which in turn has driven strong export volumes to the continent as the country’s gas prices remain significantly below the cost of continental benchmark contracts. The country has imported nearly 13bcm of the chilled fuel so far this year compared with 8.5bcm in the same period last year, with almost half – or 6.4bcm – arriving from the US, ship-tracking data from VesselsValue showed. Qatar was the second-largest supplier, providing around 3bcm, according to the figures. This in part reflected UK efforts to counter the threat of a possible cut in Russian supply to mainland European countries amid the war in Ukraine.

## Market Evolution since last Month

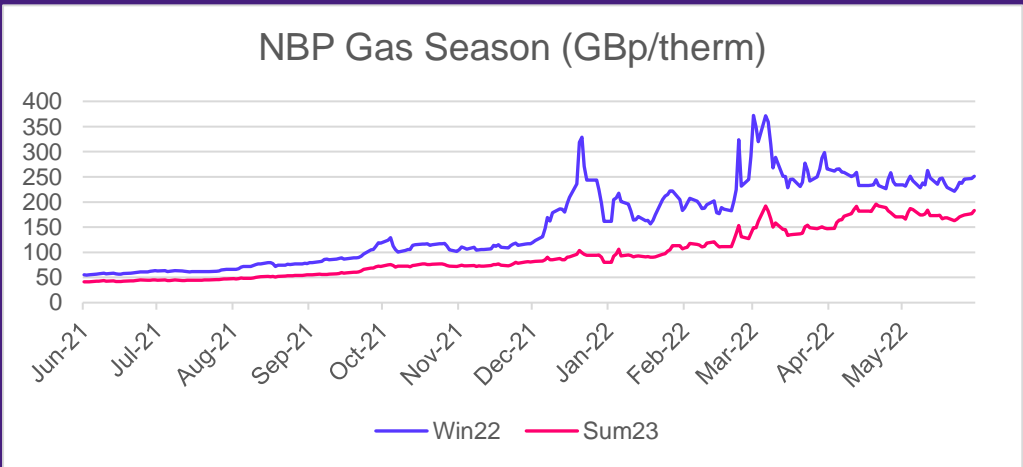
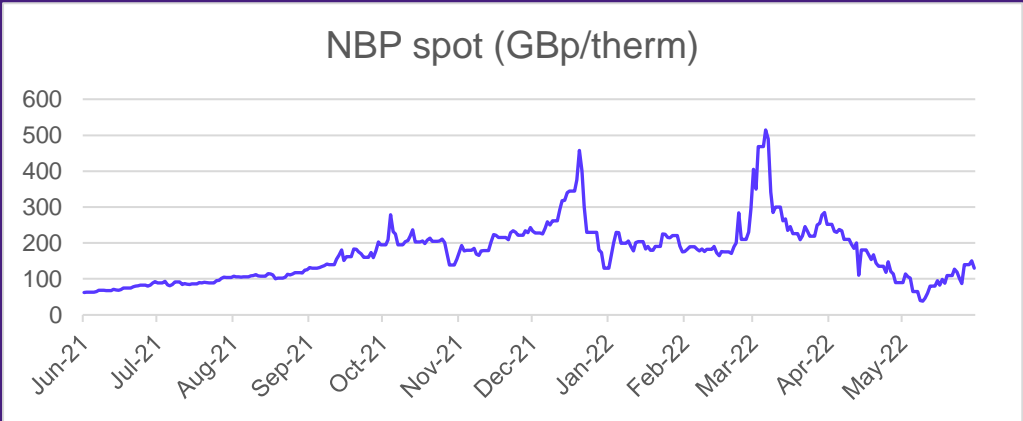
Worries that the Russian invasion of Ukraine will continue to put pressure on gas supplies for a longer period spurred the British seasonal gas prices in May.

The Winter 22 gas hit its highest level of 262.63 on May 12, while the lowest level of 221.00 p/therm was reached on May 23. Downward revised weather forecasts have helped to provide support for prompt pricing as temperatures are expected to move closer in line to seasonal norms.

### Evolution since Last Month



### Evolution since Last Month



Average GBp/MWh	M	M-1	YTD
NBP WIN22	239.8856	247.6990	233.9162
NBP SUM23	173.7937	176.1494	143.2564



# 3. Electricity Markets

June 2022 Insights

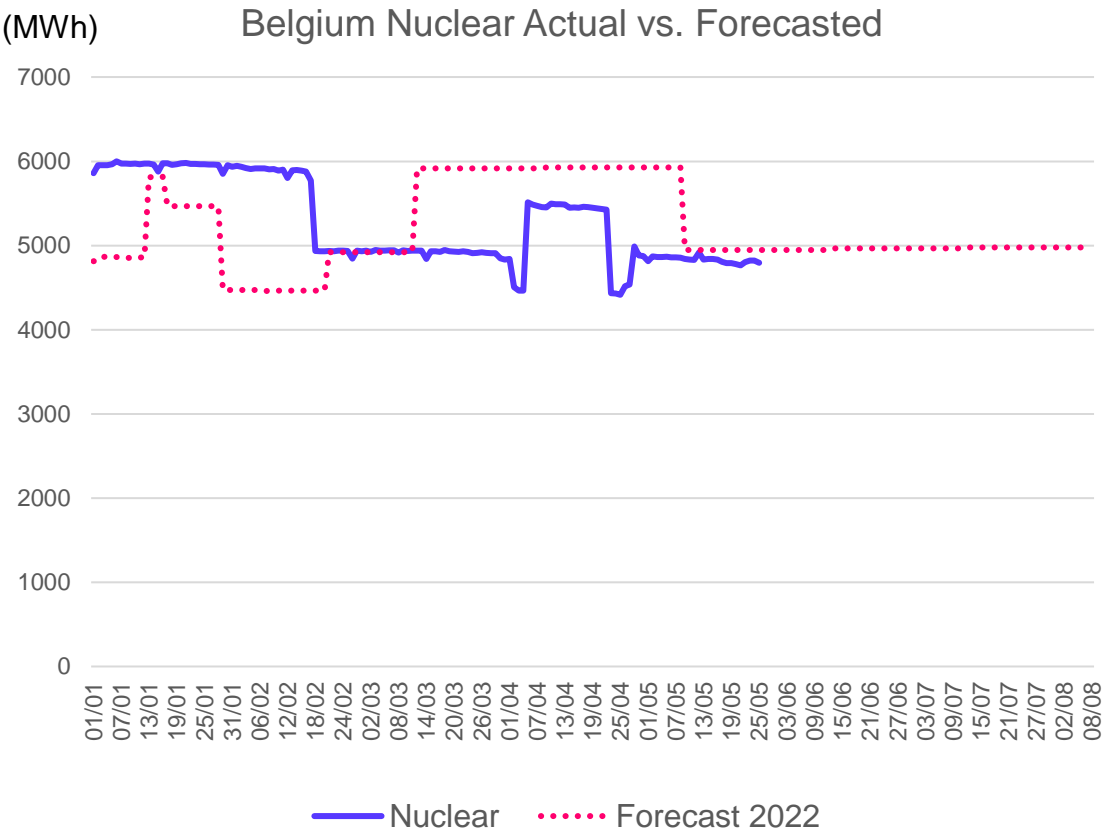
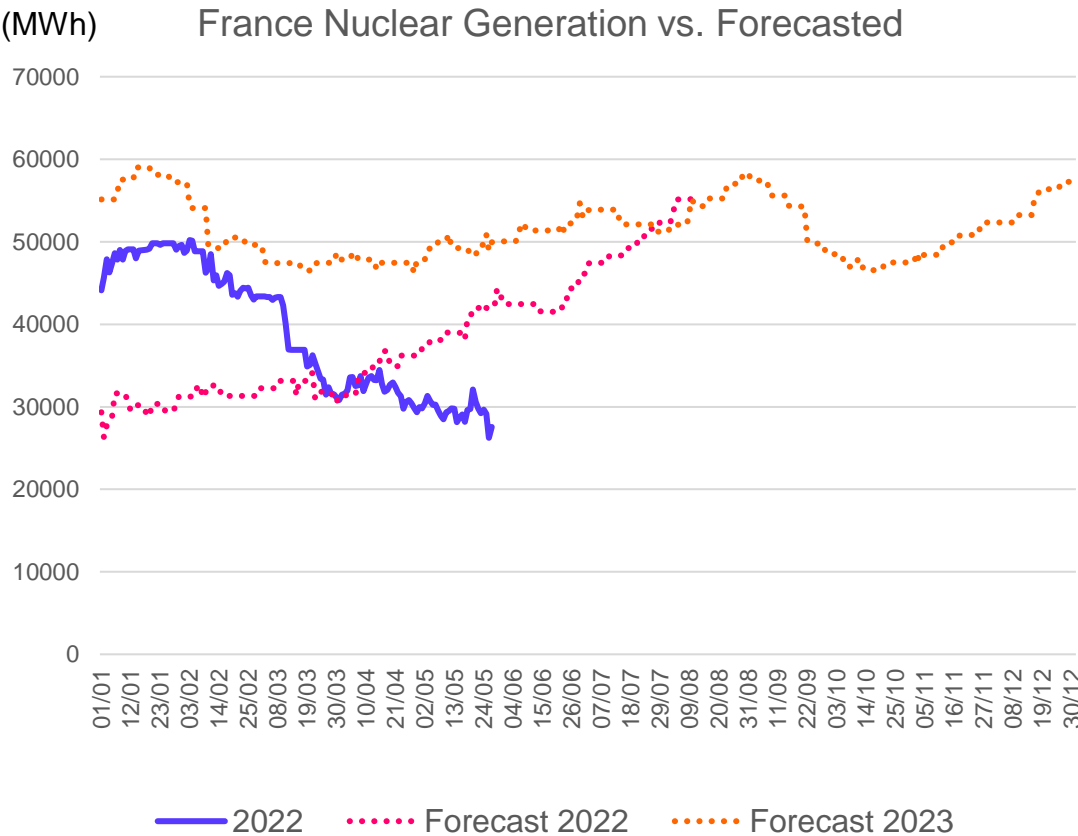
# Market Sentiment- Near Term Outlook

Electricity



Bullish Drivers 		Bearish Drivers 	
-Global coal prices would likely remain elevated this year amid a supply-and-demand imbalance due to Russian coal import restrictions and looming winter demand.		- Germany set for robust solar power generation.	
- Germany to see fading wind, drier weather in June. Temperatures are expected to drop below seasonal norms into the first week of June.		-Germany was set to see mostly normal weather throughout June. From mid-June, the continued influence of low pressure meant it was unlikely that a much warmer trend would emerge in northern Europe, with temperatures close to the long-run average.	
- Strong carbon prices		- Stabilization of carbon prices	
- High gas prices			

# Nuclear Generation: France & Belgium (MWh)



# Power Prices Belgium



## Insight of the Month

Belgian energy regulator Creg has demanded that national offshore wind farms pay back the excess profits they have made from the record high electricity prices, as reported by the Belga news agency

Until now, existing regulations have been aimed at the high profits made by nuclear and gas plant operators. However, Creg is currently focusing on the last five offshore wind farms built off the Belgian coast. These were partly financed by public subsidies. European gas and electricity prices have reached record levels this year, mainly due to the impact of the Russian invasion of Ukraine. The Belgian spot price averages 200 EUR/MWh.

## Market Evolution since last Month

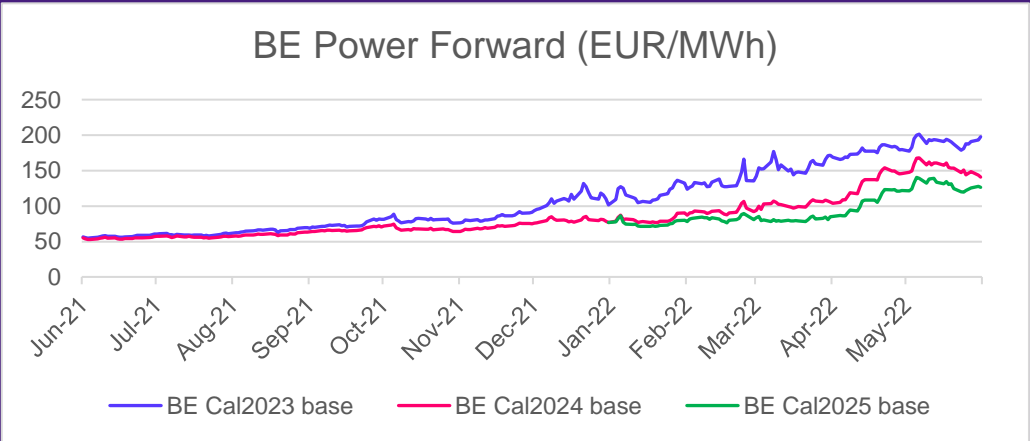
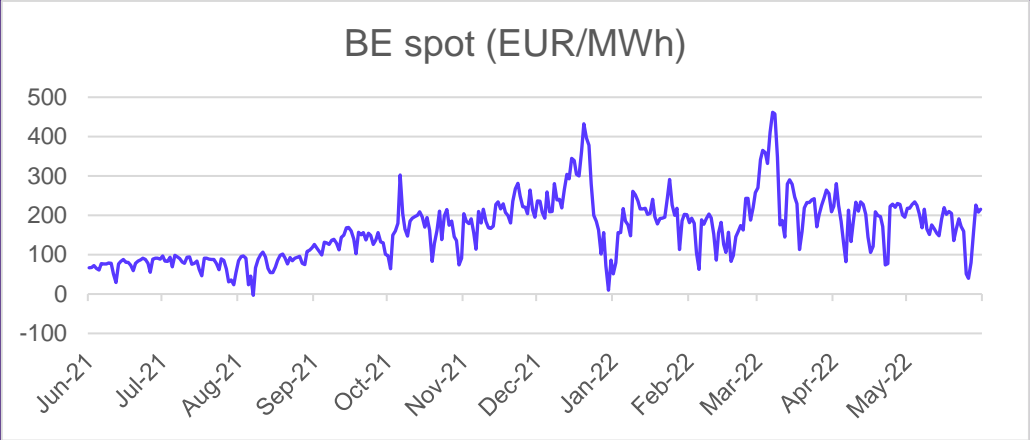
The Belgian forward power prices were driven in May by higher gas prices.

The Cal'23 power contract hit its highest level of 201.14 EUR/MWh on May 6, while the lowest level of 177.43 EUR/MWh was seen on May 2.

Evolution  
since Last Month



Evolution  
since Last Month



Average EUR/MWh	M	M-1	YTD
BE Y+1	190.4418	176.9925	155.2891
BE Y+2	154.1731	131.8869	112.6489
BE Y+3	129.8777	105.6510	94.9937



# Power Prices Czech Republic



## Insight of the Month

Czech utility Cez had hedged 29.3 TWh, or 61%, of next year’s power production at an average of EUR 70.90/MWh by the end of March, while overall earnings doubled in Q1. At the end of December, Cez had hedged 26.4 TWh of 2023 output at EUR 61.50/MWh. For 2024, the firm had sold 14 TWh – 32% – at EUR 69.20/MWh, while it hedged 4.1 TWh, or 10%, of 2025 output at EUR 76.30/MWh, it said in its first-quarter financial report. The utility had bought 8.5m of EUAs for 2023 by the end of March, paying EUR 45.80/t on average. Further out, it had purchased 3.2m certificates for 2024 at an average of EUR 53.10/t and 0.4m units for 2025 at EUR 91.6/t.

## Market Evolution since last Month

The high gas translated into a further bullish trend in Czech electricity prices in May. The CO2 emissions price had a slightly dampening effect, but that did not last long.

Hence, the maximum of 241.9 EUR/MWh was hit on May 31, while the lowest level of 207.4 EUR/MWh was recorded on May 2.

### Evolution since Last Month

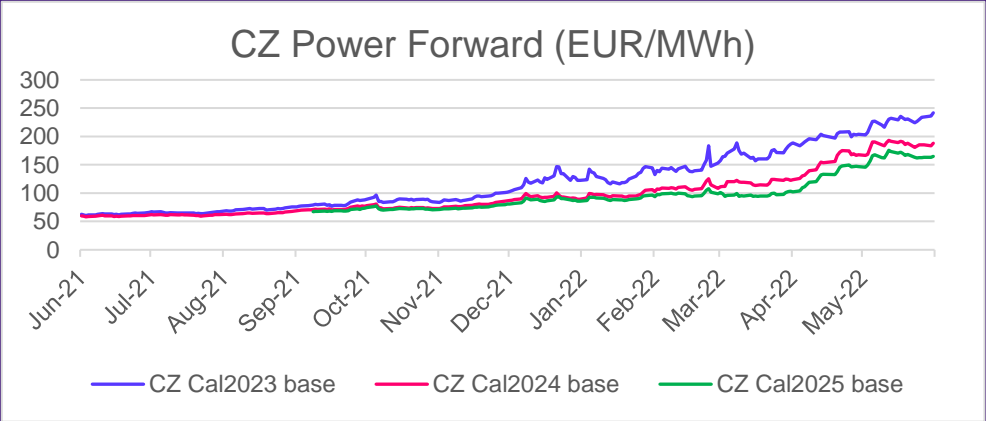
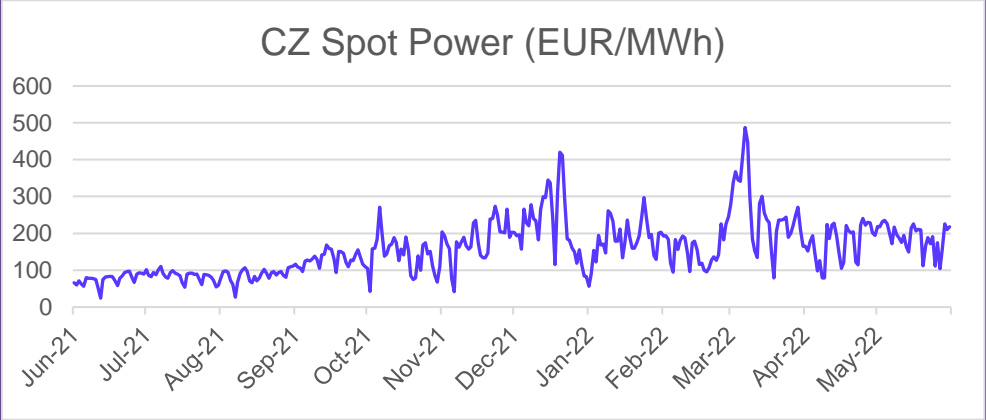


+12%

### Evolution since Last Month



Cal’23  
+19%



Average EUR/MWh	M	M-1	YTD
CZ Y+1	226.8023	197.8895	174.0497
CZ Y+2	185.0905	151.1270	132.6644
CZ Y+3	164.3918	128.8450	116.1052

# Power Prices France



## Insight of the Month

French utility EDF has cut its nuclear generation target for this year 5% to 280-300 TWh, citing corrosion checks on a dozen reactors which could impact production until 2024.

A 280 TWh output would be the lowest level in 34 years and well below last year’s 360.7 TWh outcome. EDF’s previous target for 2022 was 295-315 TWh. Meanwhile, the firm maintained its 300-330 TWh estimate for next year, but it warned that “considering the overall control and repair program, nuclear generation for 2024 may be impacted”. Twelve reactors (15.3 GW) are currently shut down and being checked for stress corrosion on safety circuits connected to the primary circuit, EDF said.

## Market Evolution since last Month

The meteoric rise in prices observed on the markets for several months continued during May, culminating in a 307 EUR/MWh price for French CAL23.

However, the markets remain very tense with a historically low level of French nuclear production (30 reactors closed out of 56). Energy stakeholders are also waiting for the rundown of the checks on the first-generation reactors (900 MW). The CAL 23 contract started out the month at the price of 256.27 EUR/MWh, versus 305.57 EUR /MWh at the end of the month, posting an 18% increase over the same time.

Evolution  
since Last Month

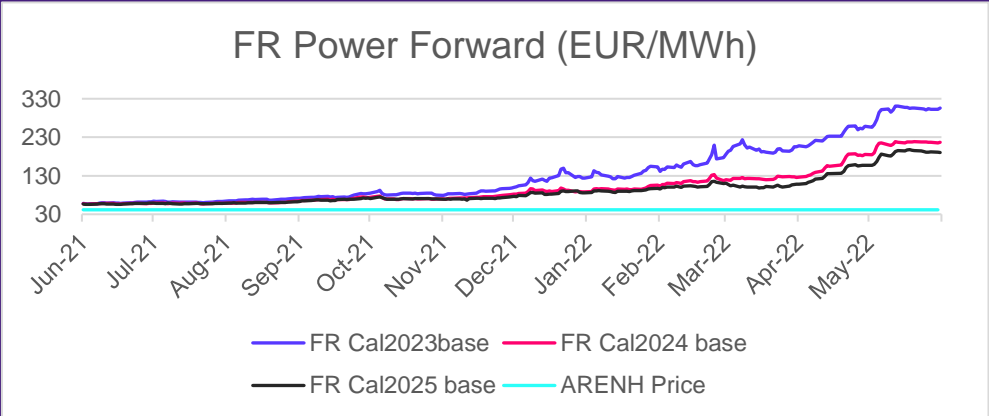
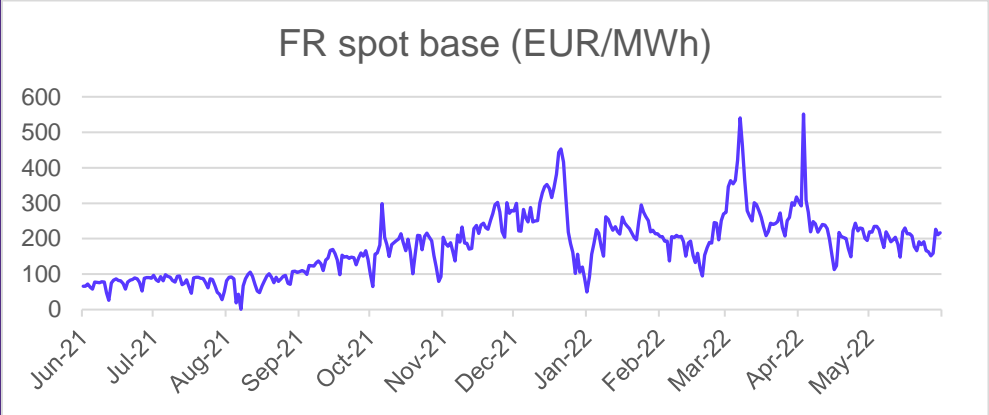


+11%

Evolution  
since Last Month



Cal'23  
+18%



Average EUR/MWh	M	M-1	YTD
FR Y+1	298.5995	232.3550	206.3404
FR Y+2	213.0236	156.8055	141.5719
FR Y+3	186.9605	134.2855	124.2930

# Power Prices Germany



## Insight of the Month

German utility Eon's subsidiary Preussen Elektra had hedged 84% of its 2022 nuclear power generation by the end of the first quarter in 2022, up six percentage points from the previous quarter. The company achieved an average price of EUR 68/MWh, an increase of EUR 12 compared to the end of March. Day-ahead power prices in Germany have averaged EUR 182.01/MWh so far this year, while the futures prices for the third and fourth quarters are trading around EUR 225/MWh and EUR 257/MWh, respectively. Russia's war in Ukraine has exacerbated energy price volatility, with the EU planning to wean itself off Russian energy supplies.

## Market Evolution since last Month

Rising prices on both the coal and gas markets as well as low wind in the weather forecasts led to yet another bullish month on the German power market.

The country's 2023 contract once again extended its all-time high in May.

The power contract for 2023-delivery hit its highest level of 239.5 EUR/MWh on May 31, while its lowest point of 200.47 EUR/MWh was reached on May 2.

### Evolution since Last Month

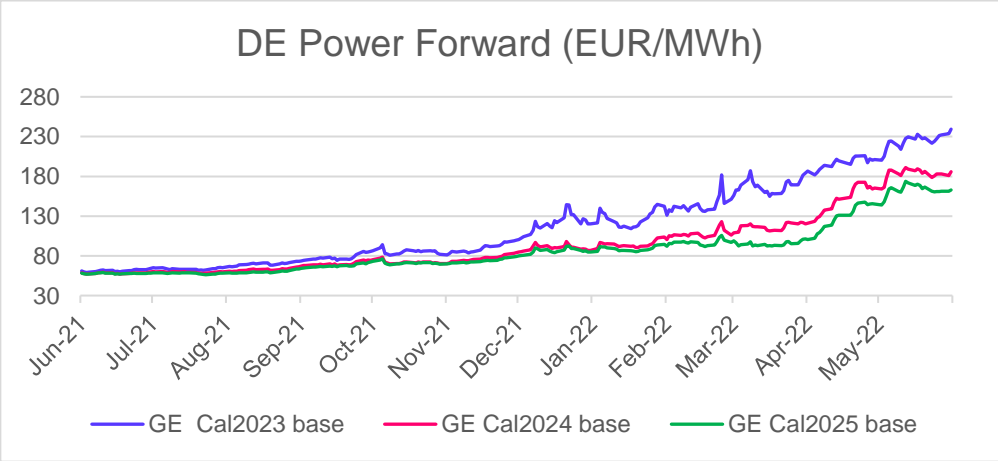
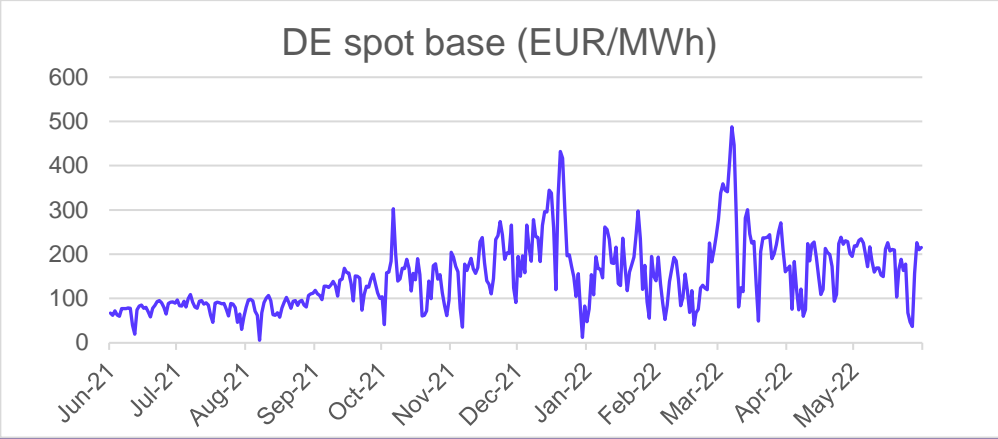


+11%

### Evolution since Last Month



Cal'23  
+19%



Average EUR/MWh	M	M-1	YTD
DE Power Y+1	224.3614	195.8995	172.0335
DE Power Y+2	183.0109	148.9920	130.4709
DE Power Y+3	162.6759	127.0950	114.4269

# Power Prices Hungary



## Insight of the Month

Hungary has received assurances from Russia’s Rosatom that it remains able to build planned new blocks at the Paks nuclear plant, according to the foreign minister.

Hungary wants to expand its Russian-built 2-gigawatt Paks nuclear power plant with two Russian-made VVER reactors, each with a capacity of 1.2 gigawatts.

The project, awarded in 2014 without a tender to Rosatom, has been often cited as a sign of warm ties between Hungarian Prime Minister Viktor Orban and Russian President Vladimir Putin. The project has suffered serious delays.

## Market Evolution since last Month

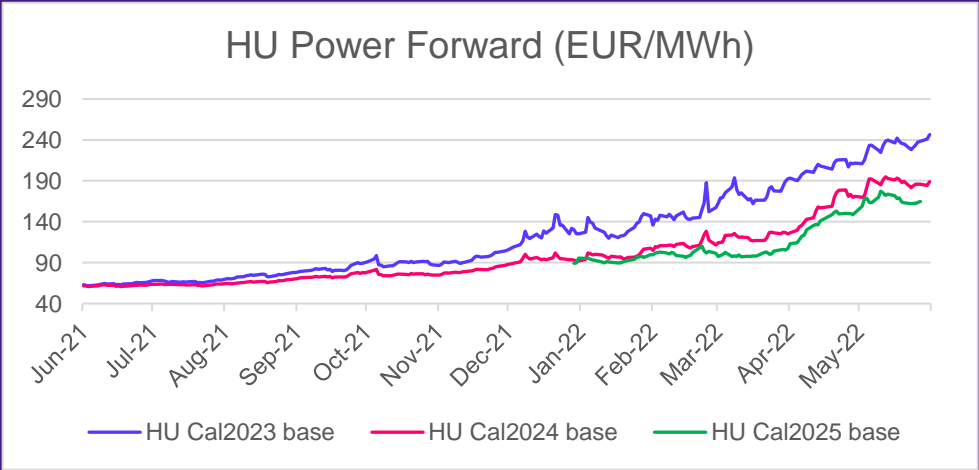
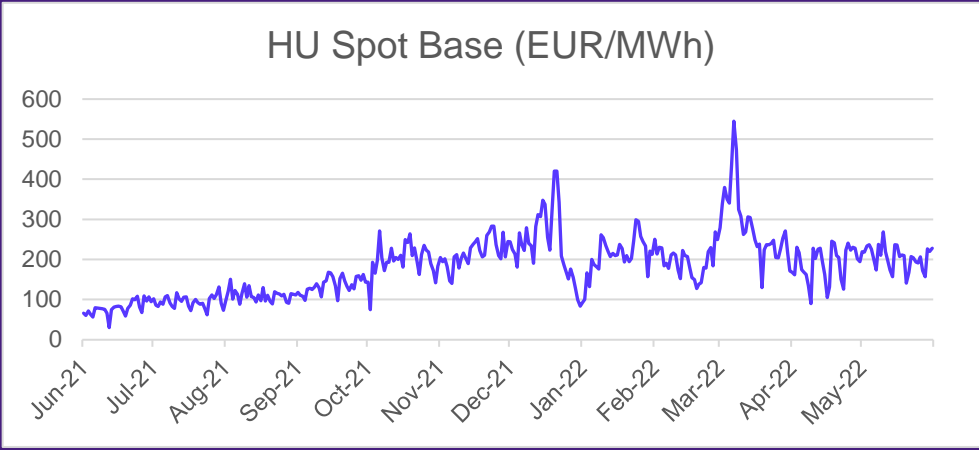
The Hungarian power year-ahead power prices climbed in May in tandem with other regional markets.

The maximum Cal’23 power price of 246.5 EUR/MWh was reached on May 31, while the minimum of 211.04 EUR/MWh was hit on May 2.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
HU Power Y+1	232.8927	204.8815	179.2898
HU Power Y+2	186.7891	154.6320	135.2230
HU Power Y+3	165.5586	132.0745	118.6709

## Insight of the Month

Swiss utility Axpo has sold four onshore wind farms totalling 65.5 MW in central France to Ireland’s Greencoat Renewables, it said on Tuesday. The units comprised Genonville (20.3 MW), Grande Piece (19.8 MW), Arcy-Precy (16 MW) and Butte de Menonville (9.4 MW), with a combined average annual production of approximately 178,500 MWh, Axpo added in a statement without disclosing financial details. The units were developed and commissioned by Axpo subsidiary Volkswind between 2017 and 2022.

## Market Evolution since last Month

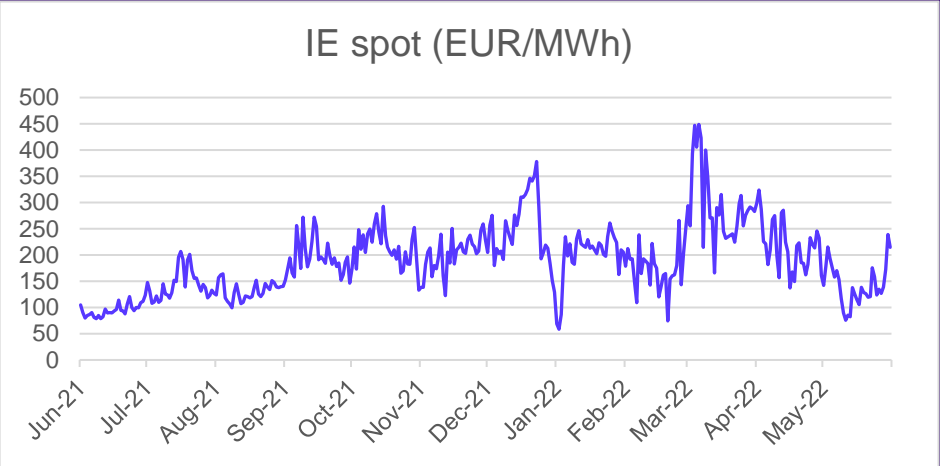
Electricity spot price in Ireland jumped by 33% in May to 214.48 EUR/MWh on May 31 amid a continuation of low levels of wind generation.

The average spot price for May was 143.16 EUR/MWh.

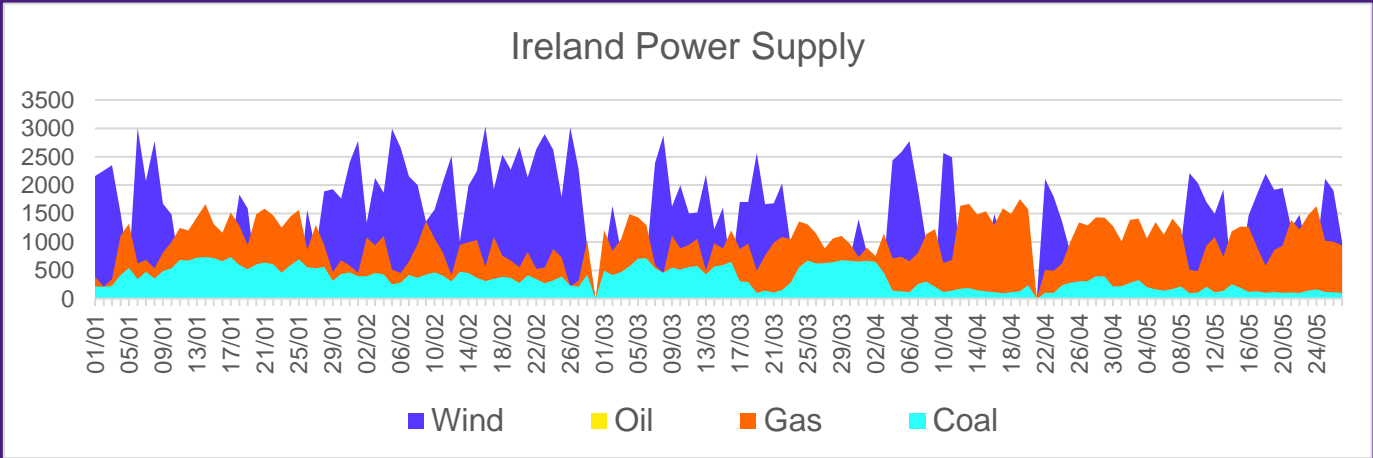
Evolution  
since Last Month



+33%



Average €/MWh	M	M-1	YTD
IE Power Spot	143.1608	218.5297	206.9771



# Power Prices Italy



## Insight of the Month

Power demand in Italy edged 1% higher year on year to 24.06 TWh in April despite a drop for the industrial sector, according to TSO Terna. Among the energy-intensive sectors, power demand dropped 1% on the year on lower power consumption by mechanical engineering, non-ferrous metals and transport industries. Power production dropped 2% year on year to about 20.9 TWh in April because of a 41% fall in hydropower production to nearly 1.88 TWh and a 3% descent to 13.3 TWh in electricity output from fossil fuels. Overall, renewable production fell over 1% to 1.84 TWh despite wind energy production jumping close to 54% to 2.37 TWh and solar energy increasing 18% to 2.85 TWh. Non-renewable energy sources met 49% of electricity consumption, while renewables covered 37% and the rest came from imports.

## Market Evolution since last Month

A rally in gas market spurred the Italian power prices throughout May.

The weakest level of 205.5 EUR/MWh was reached on May 2, while the highest price of 214.39 EUR/MWh was reached on May 31.

Evolution  
since Last Month

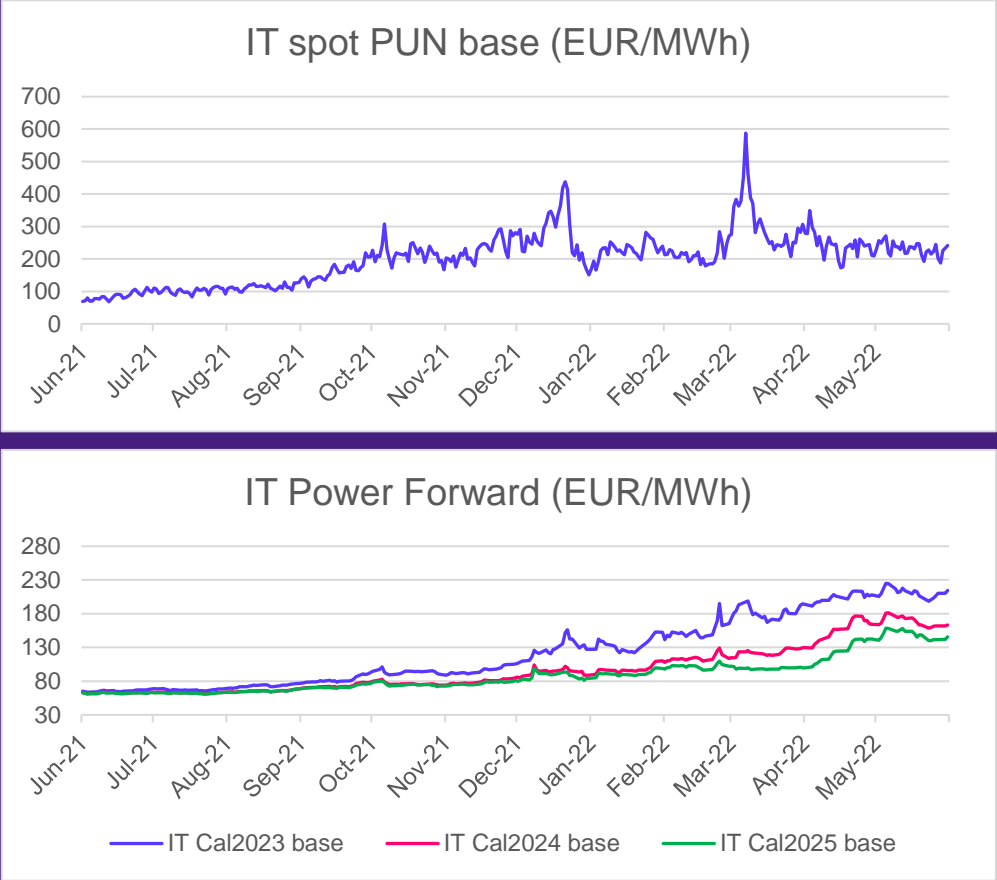


+16%

Evolution  
since Last Month



Cal'23  
+3%



Average €/MWh	M	M-1	YTD
IT Y+1	211.0214	203.1780	176.9520
IT Y+2	168.4186	153.5805	131.3985
IT Y+3	148.4527	122.8895	112.8090



# Power Prices Netherlands



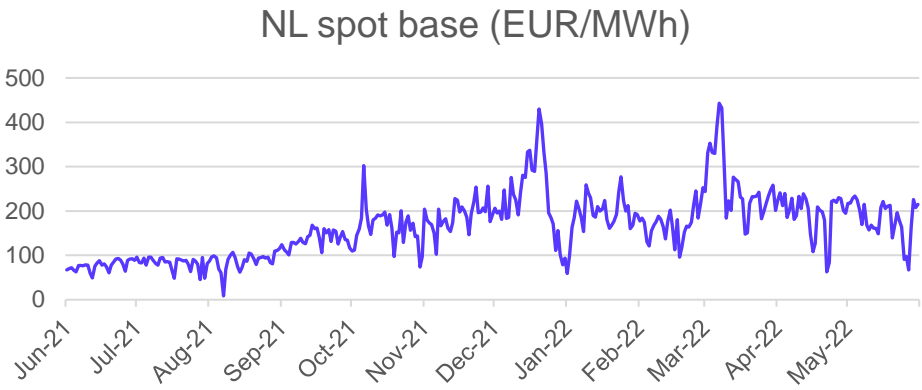
## Insight of the Month

The 1.4 GW Hollandse Kust West offshore wind tender in the Netherlands is pitting some of the world’s biggest offshore wind developers against each other in one of the fastest developing markets. Shell, Eneco and Vattenfall, who are already actively operating or building wind farms off the Dutch coast, have confirmed their participation in the zero-subsidy tender. BP and SSE, in partnership with Brookfield, are also vying for permits to develop the two 700 MW sites, 6 and 7, located around 53 kilometres off the west coast of the Netherlands. A Dutch-based spokesman for RWE also said the German utility was preparing its communication on the tender, while other companies approached did not reply to a request for comment. The Hollandse Kust West tender is the Netherlands’ second tender which will be awarded without any state subsidies and which places particular emphasis on environmental benefits and innovation. Vattenfall, which won two of the last three Dutch tenders, is in a strong position from which it can offer cost savings and other synergies with its existing nearby sites.

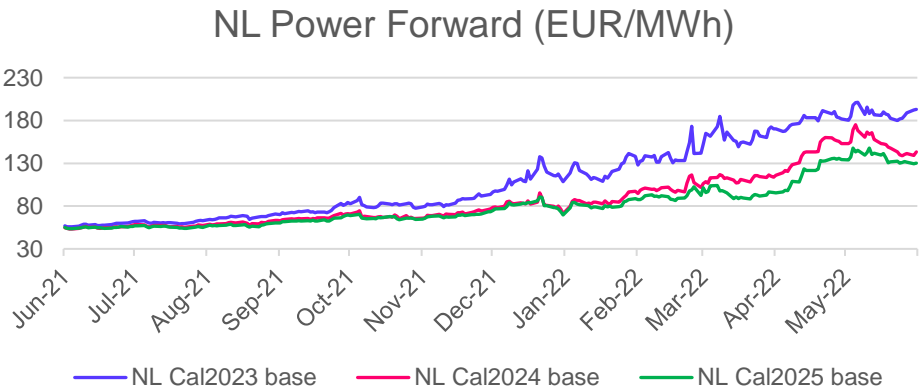
## Market Evolution since last Month

The Dutch power prices soared, marking fresh highs throughout May as an EU deal to ban around 90% of Russian oil imports by the end of the year renewed concerns about overall energy supply in 2023. The maximum of 193.25 EUR/MWh was hit on May 31, while the minimum of 180.35 EUR/MWh was reached on May 1.

Evolution  
since Last Month



Evolution  
since Last Month



Average EUR/MWh	M	M-1	YTD
NL Y+1	188.7711	180.5370	158.9719
NL Y+2	153.4640	141.3721	119.0696
NL Y+3	137.0870	119.3576	104.8689

## Insight of the Month

An outage of the 723 MW NorNed interconnector between Norway and the Netherlands will extend to 1 August at 00:00 CET, according to Norwegian TSO Statnett. The cable was taken offline early on 6 May following a failure. The extension comes the same day as the Norwegian TSO warned of a “pressed” security of supply situation in large parts of southern Norway amid low hydropower supply.

French renewables developers Valorem and a subsidiary of Finnish energy infrastructure firm Enerense have agreed to build 1.5 GW of wind power capacity by 2025 in Finland. Jussi Holopainen, CEO of Enerense, told that 0.5 GW is currently under development and the remaining 1 GW comprises new projects. Enersense’s subsidiary Megatuuli has a total development portfolio of 3 GW in Finland.

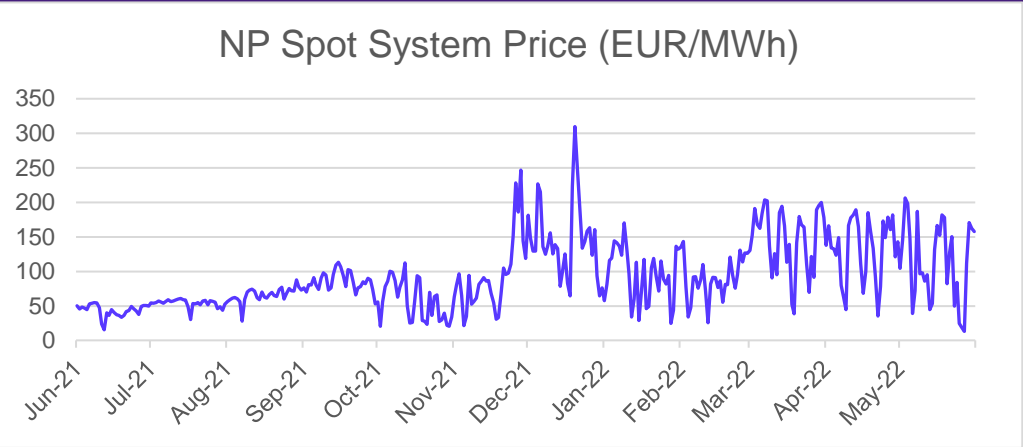
## Market Evolution since last Month

The Nordic power market followed fuels and German power upwards in May.

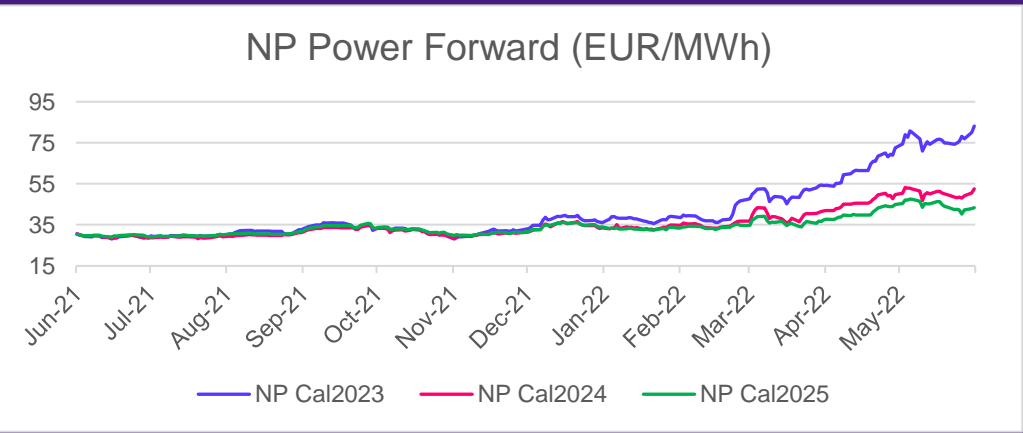
The power contract for 2023 delivery reached its peak of 83.12 EUR/MWh on May 31 and its low of 74.18 EUR/MWh on May 23.

Spot price jumped month-on-month amid high-pressure weather forecasts and a growing deficit on the hydro balance.

### Evolution since Last Month



### Evolution since Last Month



Average EUR/MWh	M	M-1	YTD
NP Power Y+1	76.5609	62.6286	53.5498
NP Power Y+2	50.3755	46.1306	40.9550
NP Power Y+3	44.5879	40.8079	37.7800



# Power Prices Poland



## Insight of the Month

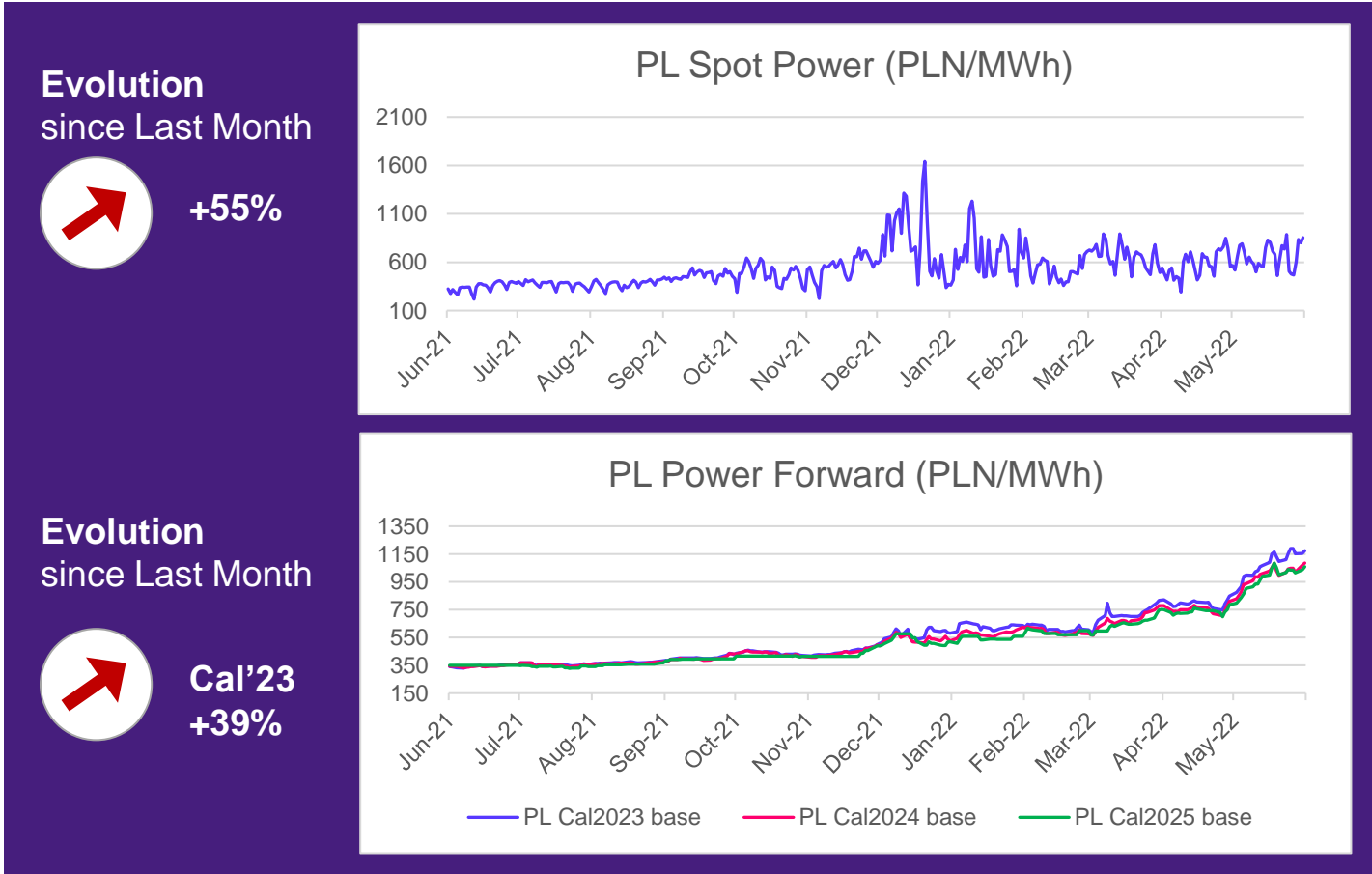
Polish power output rose 10% year on year to 14.7 TWh in April amid higher coal, wind and solar generation, according TSO PSE. Power consumption, meanwhile, rose 4.2% to 14.4 TWh over the same period. Production from hard coal units increased 6.7% to 7.4 TWh in April, while lignite-fired plants produced roughly 3.7 TWh, up 3.3%. Yet output from gas-fired plants fell 19.5% to 739 GWh. Regarding renewable power, Poland’s wind turbines generated 1.8 TWh, a 43% surge from April 2021, while output from solar plants jumped 85% to 846 GWh.

Polish energy firm PGNiG’s power generation jumped 42% year on year to 1.7 TWh in the first quarter, while earnings more than doubled. The rise in power output followed the launch of a 600 MW power plant in Warsaw in December, it added in its latest financial statement. Its earnings before interest and tax, meanwhile, more than doubled for the January-March period to PLN 8bn (EUR 1.7bn) amid a surge in gas prices. PGNiG imported 4bcm of gas in Q1, a 2% fall from the same period of 2021, the utility added. The fall came mainly from decreasing imports from Russia, which slipped 5% to 2.15bcm.

## Market Evolution since last Month

The Polish power futures skyrocketed, driven by a surge in European coal prices, and stoppage of gas supplies from Russia.

The Cal’23 power contract hit its highest level of 1191.12 PLN/MWh on May 25, while the lowest settlement level of 875.56 PLN/MWh was reached on May 2.



Average PLN/MWh	M	M-1	YTD
PL Power Y+1	1081.9229	792.4115	769.0797
PL Power Y+2	1002.2395	752.3395	722.4606
PL Power Y+3	979.4676	737.1935	700.3145

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# Power Prices Romania



## Insight of the Month

Portugal-based renewable energy producer has bought a 45 MWp photovoltaic park in Romania, which is valued at 83 million euro (\$87 million).

The acquisition was made through GreenVolt's subsidiaries V-Ridium Solar 45 and V-Ridium Renewables, it said in a press release.

The asset was owned by Samsung C&T Corporation, LSG Building Solutions and Green Source Consulting.

## Market Evolution since last Month

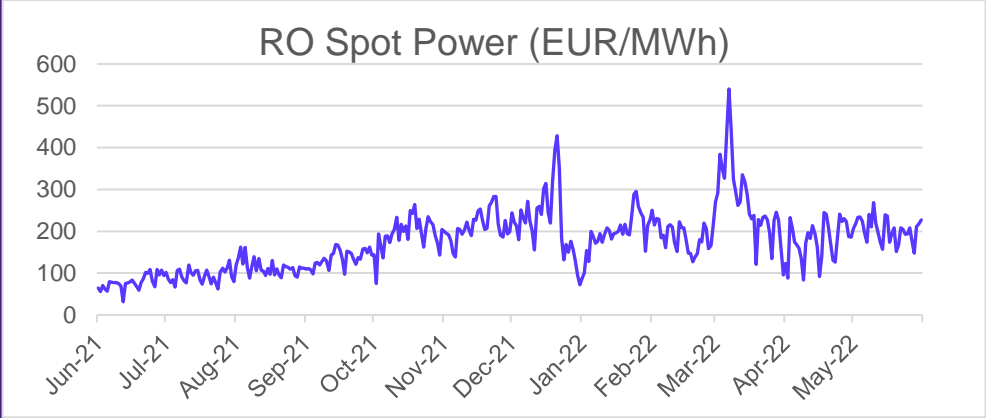
Romanian front-year power prices strengthened in May in tandem with bullish European gas prices.

The maximum Cal'23 power price of 174.71 EUR/MWh was reached on May 31 while the low of 157 EUR/MWh was seen on May 3.

### Evolution since Last Month



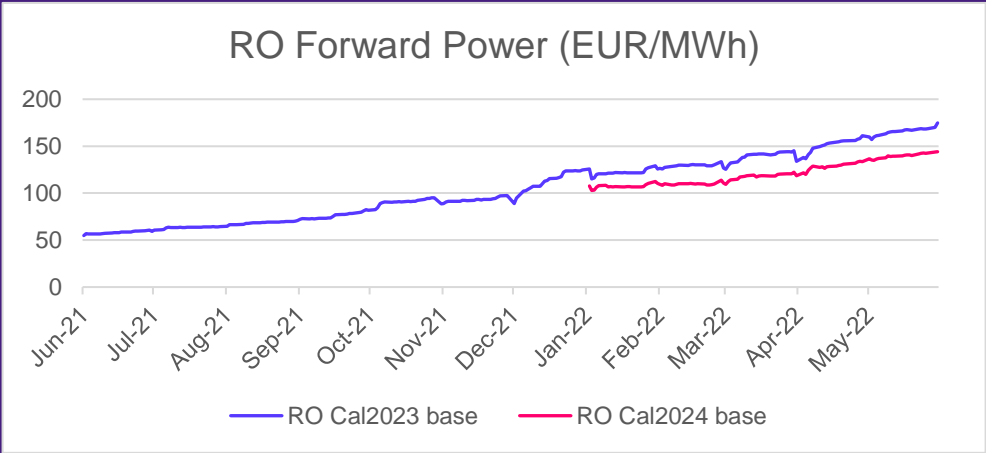
+23%



### Evolution since Last Month



Cal'23  
+8%



Average EUR/MWh	M	M-1	YTD
RO Power Y+1	165.6848	150.0329	141.4249
RO Power Y+2	139.7588	127.8175	120.5819

# Power Prices Slovakia



## Insight of the Month

Efforts to lower dependence on Russian energy is speeding up local geothermal projects in Slovakia that had been gaining traction before the invasion of Ukraine.

The pilot project of a geothermal power plant in Central Slovak town Žiar nad Hronom recently received investment from SSE Holding, one of the main electricity distributors in the country owned partly by the state and partly by the EPH group of Czech billionaire Daniel Křetinský.

PW Energy initially proposed the project, but EPH announced on Thursday that it now co-owns the smaller company. The new owner decided to expand the project from 13 megawatts to 20.

## Market Evolution since last Month

Slovak power market followed the trend of Czech market in May. The average spot power price was 195.84 EUR/MWh last month.

The minimum of 205.02 EUR/MWh was recorded on May 2, while the maximum of 243.9 EUR/MWh was hit on the last day in May.

Evolution  
since Last Month

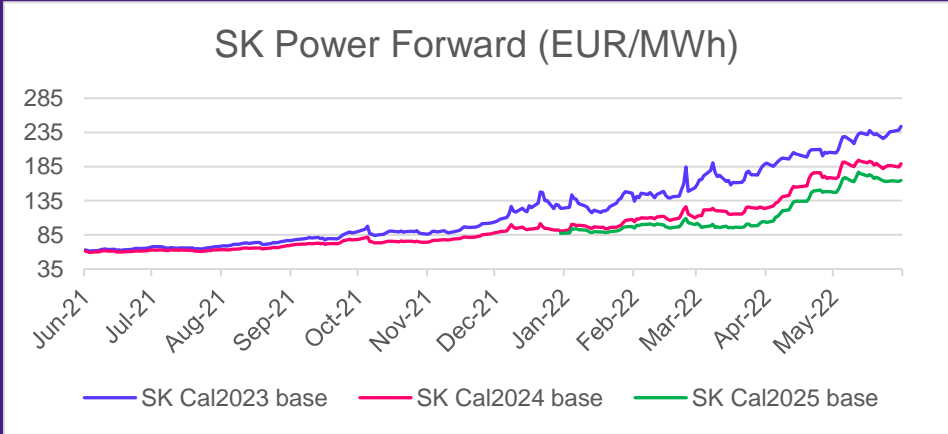
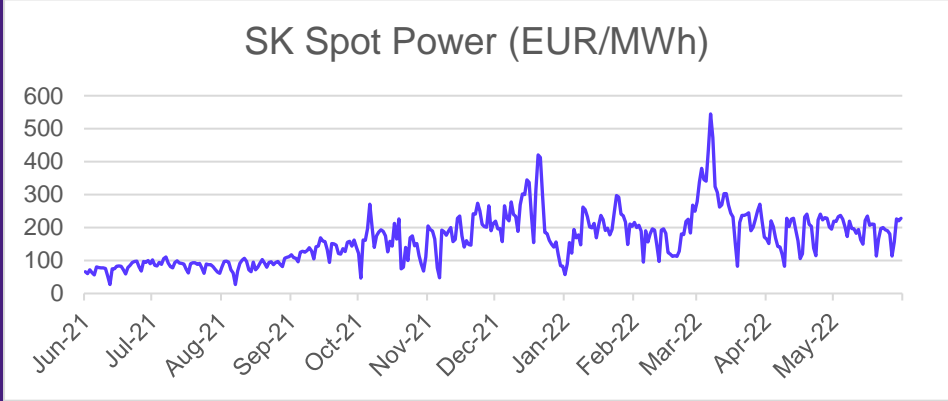


+17%

Evolution  
since Last Month



Y+1  
+18%



Average EUR/MWh	M	M-1	YTD
SK Y+1	228.9968	199.8445	175.7882
SK Y+2	186.4041	152.4670	133.9449
SK Y+3	165.4532	130.0950	117.3157

# Power Prices Spain



## Insight of the Month

Spain and Portugal approved on Friday a 48.80 EUR/MWh cap on gas prices for power generation for a period of 12 months, Spanish energy minister Teresa Ribera said. The cap would be set at 40 EUR /MWh for the first six months of the period, eventually rising to average 48.80 EUR/MWh for the whole length of the intervention, she added at a press conference. This would lead to a “significant” drop in spot power prices, from the average of around 210 EUR /MWh in the year to date to around 130 EUR /MWh, she added. The European Commission approved the measure earlier this week, though it had to be officially signed off, which could take 10-15 days.

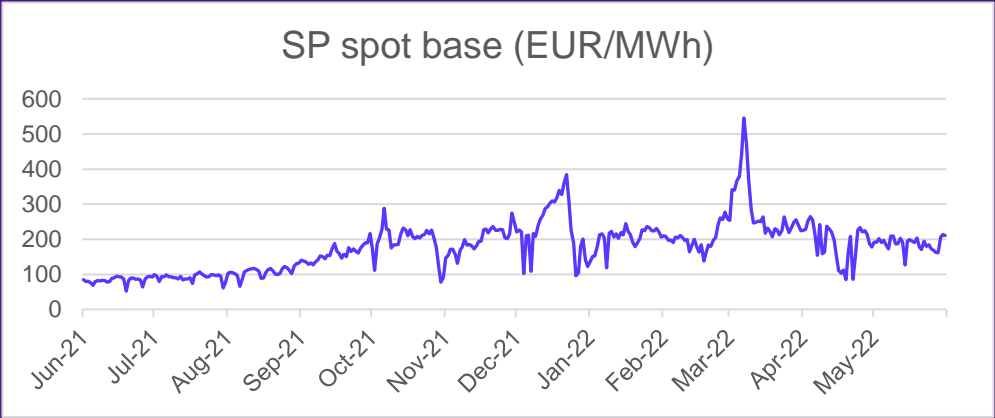
Spanish energy firm Naturgy connected 78 MW of new green capacity to the domestic grid in this year’s first quarter, it said on Thursday. The company also started construction work on another six renewables projects in the country, totalling 238 MW.

## Market Evolution since last Month

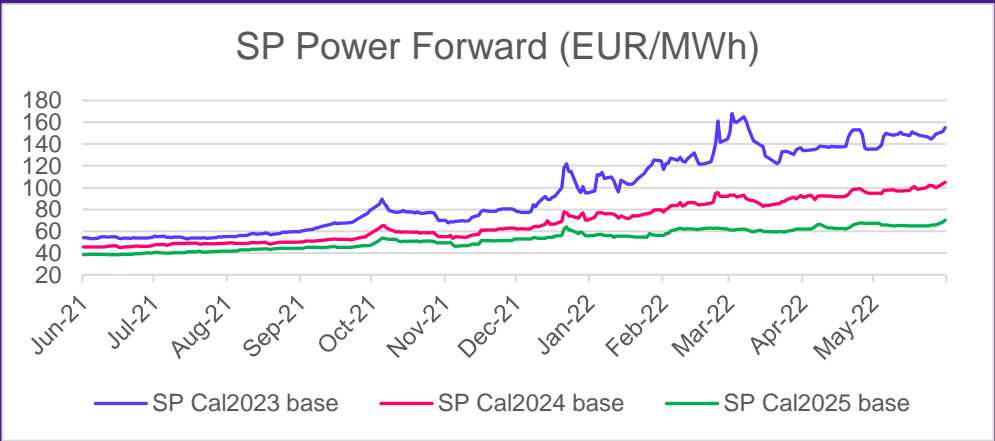
The Spanish power prices spiked on a monthly basis, benefitting from further uncertainty in the gas supply reserves in Europe, amid Russia-Ukraine war.

The Cal’23 power contract hit its highest level of 155 EUR/MWh on May 31, while the lowest level of 135.5 EUR/MWh was reached on May 2.

Evolution  
since Last Month



Evolution  
since Last Month



Average EUR/MWh	M	M-1	YTD
SP Y+1	147.2777	139.5364	133.7499
SP Y+2	98.8850	93.5750	88.5759
SP Y+3	65.8341	64.2709	61.6534

# Power Prices Switzerland



## Insight of the Month

Switzerland-based Axpo Holding AG has agreed to sell a 65.5-MW portfolio of wind farms in France to Irish infrastructure investment firm Greencoat Renewables Plc .

Under the deal, the Swiss renewable power producer and energy trader’s subsidiary Volkswind will offload four wind parks that have been developed and commissioned between 2017 and 2022. Financial details about the arrangement were kept under wraps.

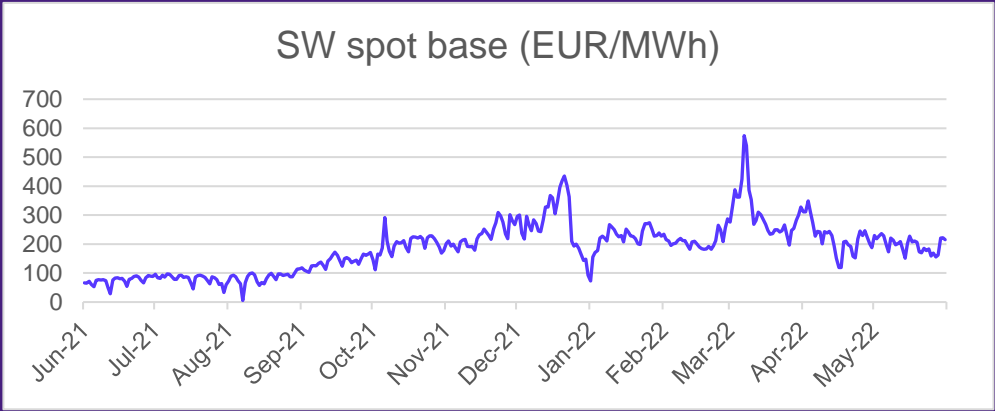
The portfolio’s plants are located in the Centre-Val de Loire and Bourgogne-Franche-Comte regions of central France and are equipped with turbines by Denmark’s Vestas Wind Systems and Germany’s Nordex and Enercon. Namely, these are the 20.3-MW Genonville, the 19.8 MW Grande Piece, the 16-MW Arcy-Precy and the 9.4-NW Butte de Menonville parks.

## Market Evolution since last Month

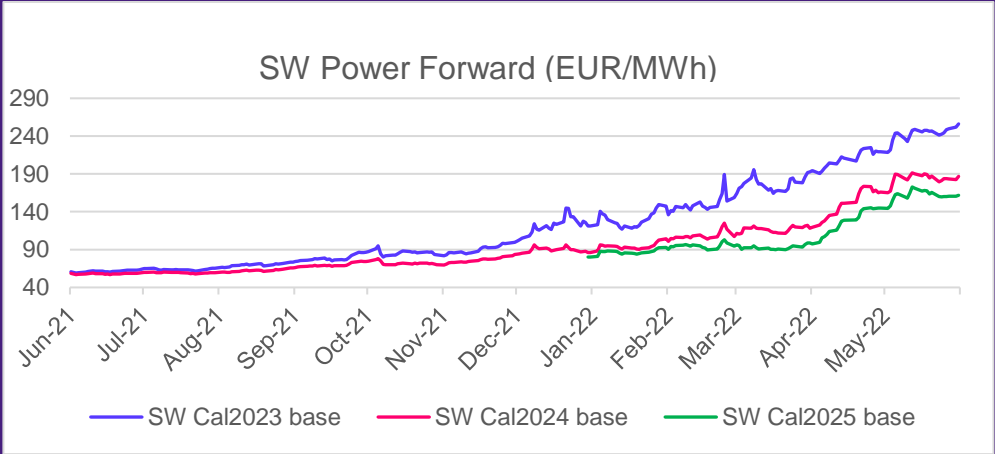
Swiss power prices climbed in May amid lower Russian flows to Europe and heightened concerns over the future supply outlook.

Cal’23 power contract hit its highest settlement level of 256.34 EUR/MWh on May 31 and its lowest close of 221.71 on May 2.

Evolution  
since Last Month



Evolution  
since Last Month



	Average EUR/MWh	M	M-1	YTD
Cal’23	242.7514		209.6795	182.1390
Cal’24	183.8186		149.8216	130.6268
Cal’25	161.5814		126.1979	112.4163

## Insight of the Month

From 25 May, a new interconnector between the UK and France, ElecLink, came into service. It will increase the exchange capacity by 1 GW to 4 GW. In this increasingly tense context, this news can only be welcomed.

EDF has delayed the start-up of the Hinkley Point C nuclear power plant in the UK by a year to June 2027, with costs rising by up to GBP 3bn to GBP 25bn-26bn, according to firm’s declarations, citing Covid-related problems.

Located in Somerset, Hinkley Point C was due to start generating power from the first of two planned 1.6 GW-capacity, new-generation reactors by mid-2026.

## Market Evolution since last Month

Nervousness on the gas market as all eyes remained on European payments for Russian gas deliveries spurred British season power prices in May.

The Winter 2022 power contract reached its highest level of 248.51 on May 31, while the lowest level of 224.56 on May 3.

### Evolution since Last Month



+22%

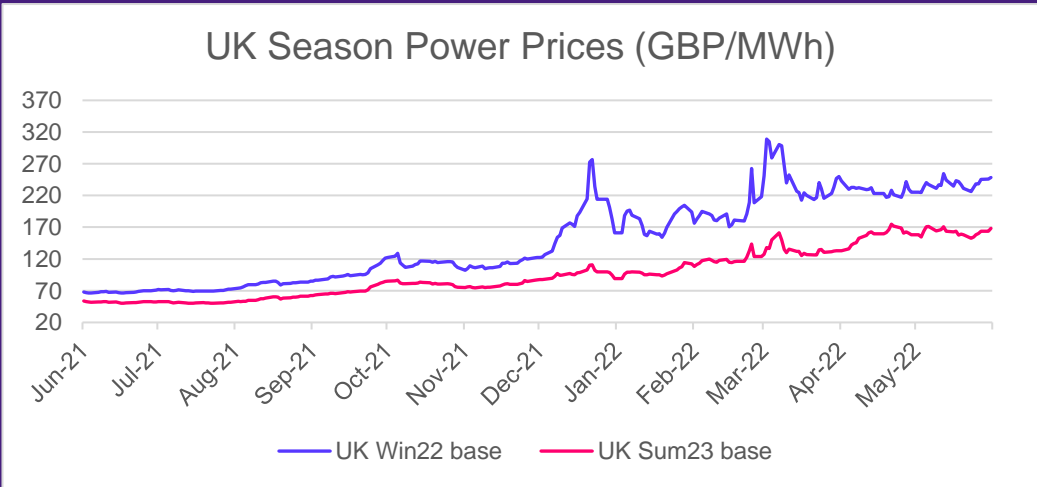
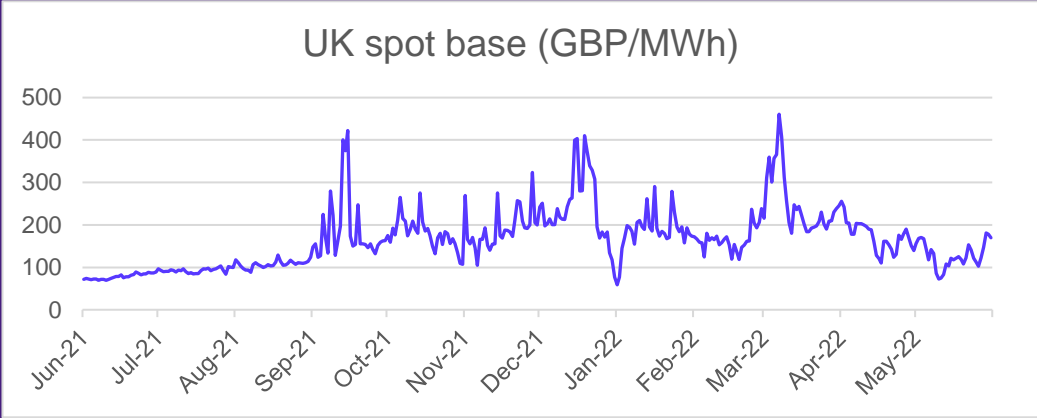
### Evolution since Last Month



Win22  
+10%



Sum23  
+6%



Average GBP/MWh	M	M-1	YTD
UK Win22	237.6070	228.2173	217.5726
UK Sum23	162.3247	156.9742	134.5851

# 4. Renewable Generation

June 2022 Insights



# Latest PPA deals closed in Europe and the US



Date	Country	Buyer	Seller	Technology	Project Size (MW)	PPA Tenor (years)
Apr 2022	United States	Imperial Irrigation District (IID)	Greenleaf Power	Unknown	45	5
Apr 2022	United States	Clorox Company	Enel Green Power North America	Onshore Wind	47	12
Apr 2022	Poland	T-Mobile Polska	GreenVolt	Unknown	98	15
Apr 2022	Finland	Solvay	Statkraft	Onshore Wind		10
Apr 2022	Germany	Volkswagen Sachsen	Enerparc AG	Solar	5.3	20
Apr 2022	United States	Bristol Myers Squibb	Enel Green Power North America	Solar	60	15
Apr 2022	France	Amazon	Unknown	Solar	23.4	
Apr 2022	Spain	Amazon	Unknown	Onshore Wind	98.6	
Apr 2022	United States	Amazon	Unknown	Solar	330	
Apr 2022	Spain	Nestlé	BayWa r.e	Solar	50	10
May 2022	Spain	Greenalia SA	Alcoa corp	Wind	183	
May 2022	Italy	Air Liquide	Shell Energy Europe	Unknown	42	10

## Insight of the Month

European power purchase agreement (PPA) prices surged 22% month on month in April amid a buoyant energy complex, said PPA and renewable energy software company Pexapark .

The increases came on the back of price developments in gas (+9%), coal (+11%) and carbon (+10%) markets last month, boosted by persistent uncertainty over the supply/demand situation in the wake of Russia's war in Ukraine, it said.

PPA prices in France jumped nearly 34% to 120.7 EUR/MWh in April, while those in Germany rose 28% to 109.4 EUR/MWh. Prices in Italy and the Netherlands leapt 30% and 32% to 105.2 EUR/MWh and 104.4 EUR/MWh, respectively. The UK and the Nordics saw increases in PPA prices of 17% and 15% to 129.7 EUR/MWh and 44.2 EUR/MWh, respectively, while those for Spain and Portugal remained unchanged month on month at 44.6 EUR /MWh and 44 EUR /MWh.



# Solar PPA Offer Prices by Country

## Solar PPA Prices by Country in Q1 2022 (EUR/MWh)



## Q1 2022 Highlights

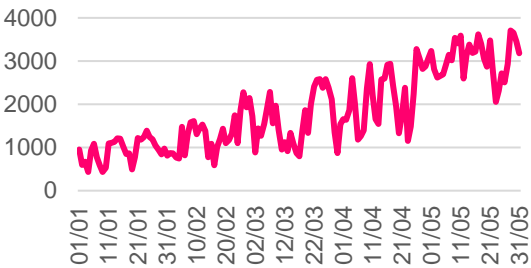
- P25 solar prices in Spain increased 11.8%, or 4 EUR/MWh. They now rest at 38 EUR.
- In Sweden, P25 solar prices also rose, reaching 40,13€, an increase of 13.4% over Q4 2021.
- Finnish P25 solar prices dropped by 4.9%, or 2 EUR/MWh.
- P25 solar prices in Denmark continued their long rising trend, increasing by a further 4.6% in Q1 to reach 54.80 EUR/per MWh. Year over year, Danish P25 solar prices have gone up a remarkable 60%.

# Solar Generation European Countries and UK

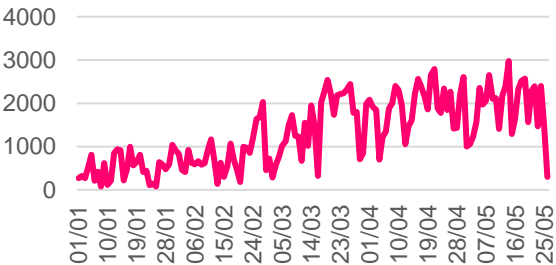


May 2022 (MWh)

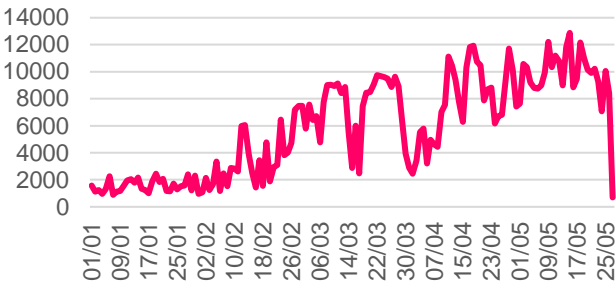
France



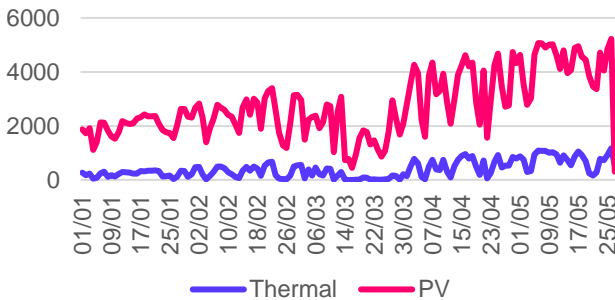
UK



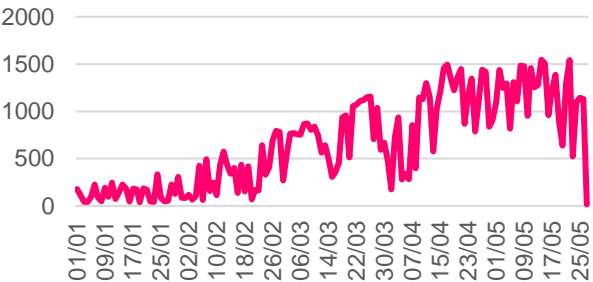
Germany PV



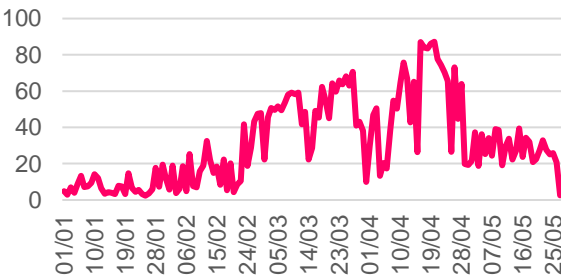
Spain



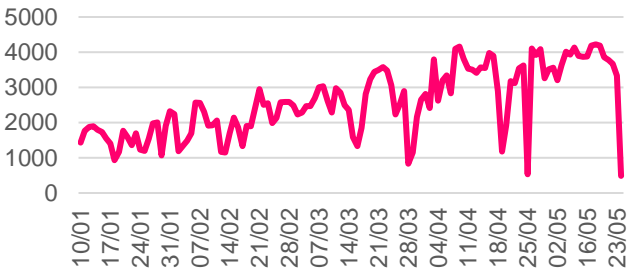
Belgium



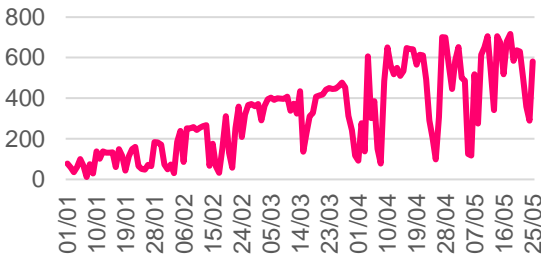
NL



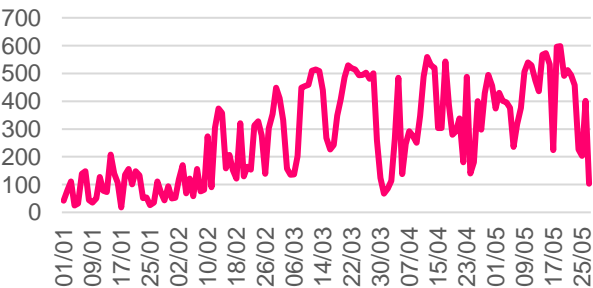
Italy



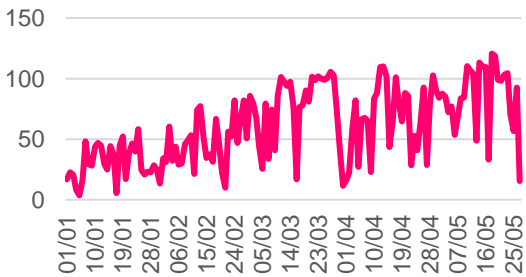
Switzerland



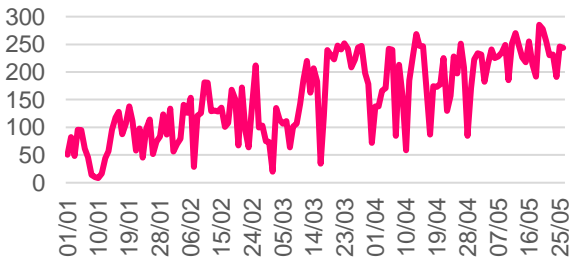
CZ



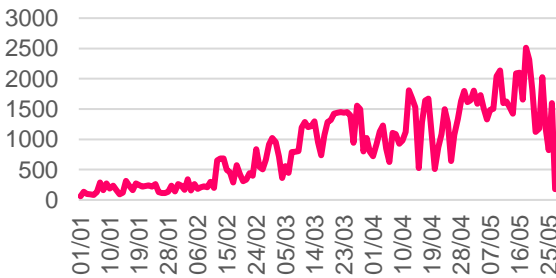
Slovakia



Romania

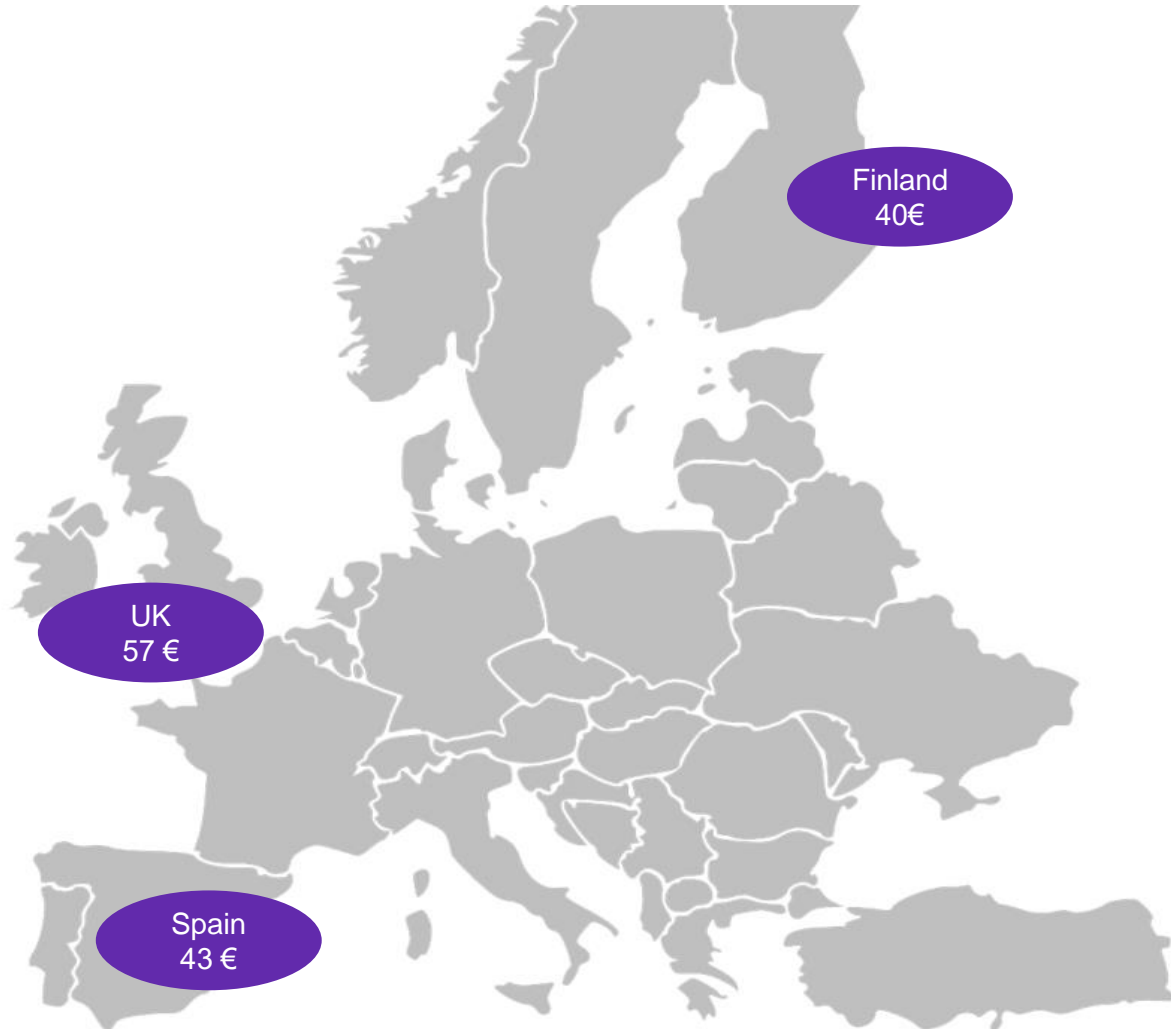


Poland



# Wind PPA Offer Prices by Country

## Wind PPA Prices by Country in Q1 2022 (EUR/MWh)



## Q1 2022 Highlights

- P25 wind prices in Finland rose 31.7%, or 9.50 EUR/MWh.
- Spanish P25 wind prices increased by 9 EUR/ MWh, or 26.5%.
- P25 wind prices in the UK dropped by 13.6%.

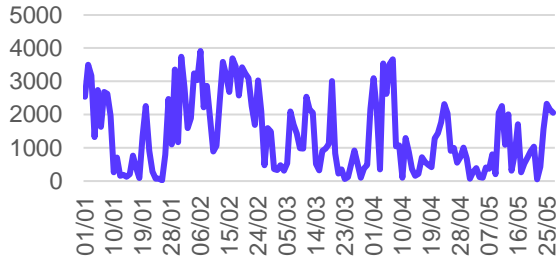
UK wind prices experienced a noticeable dip this quarter due to an increased number of UK wind offers coming onto our Marketplace during Q1, which added liquidity and reduced the impact of some high-priced offers present during Q4.

# Wind Generation European Countries and UK

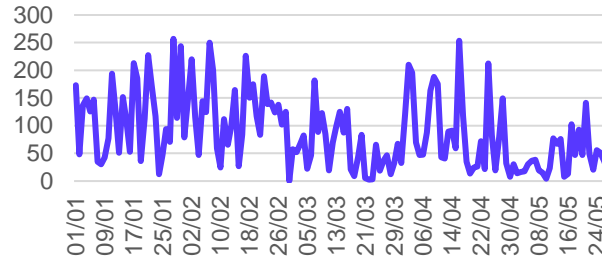


May 2022 (MWh)

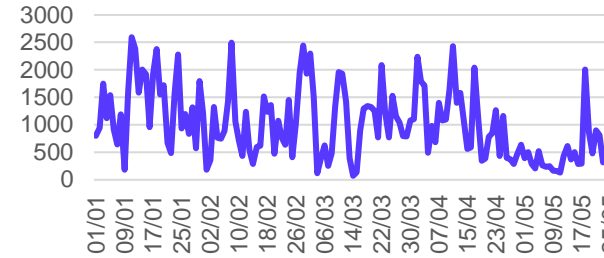
Belgium



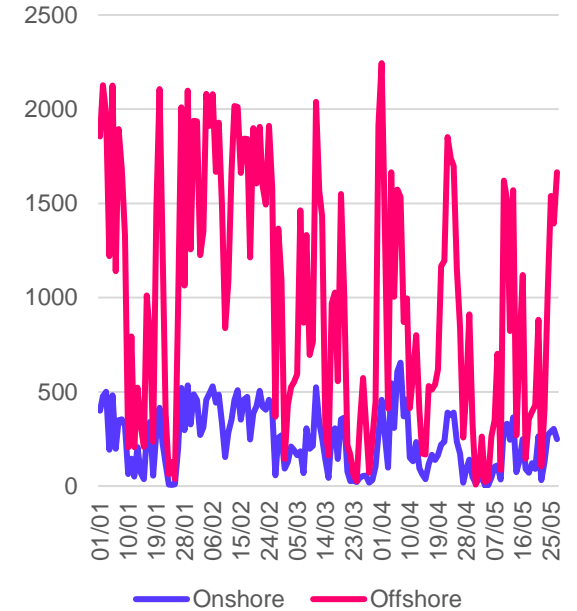
Hungary



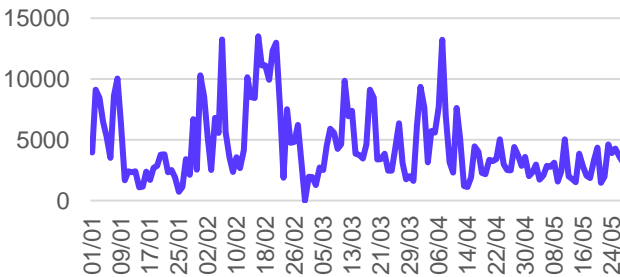
Romania



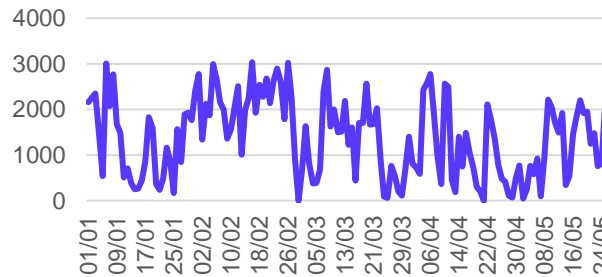
NL- Onshore vs. Offshore



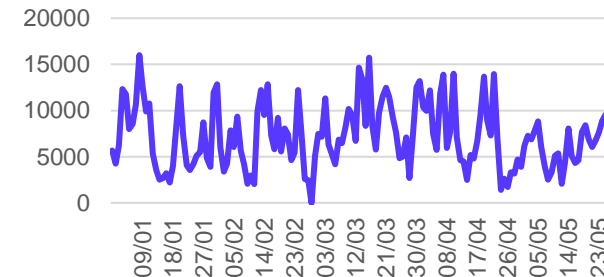
France



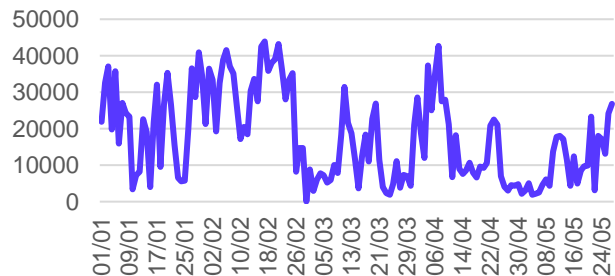
Ireland



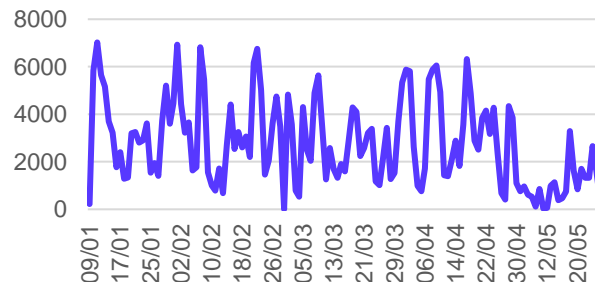
Spain



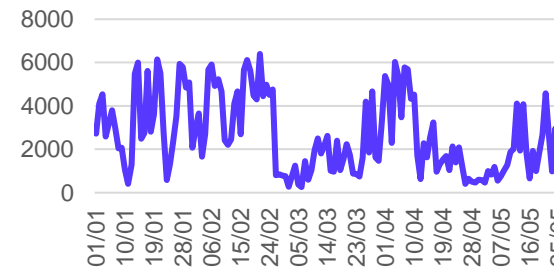
Germany



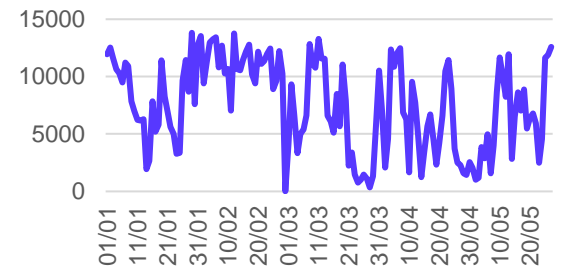
Italy



Poland



UK



# 5. Oil, Carbon and Coal Markets

June 2022 Insights

## Insight of the Month

OPEC and its oil-producing allies agreed to hike output in July and August by a larger-than-expected amount as Russia's invasion of Ukraine wreaks havoc on global energy markets.

OPEC+ will increase production by 648,000 barrels per day in both July and August.

## Market Evolution since last Month

In May, Brent crude hovered at its highest levels in seven years amid ongoing supply concerns in the wake of the EU decision to stop most oil imports from Russia.

For the first time since March, it shot up to above \$120 a barrel.

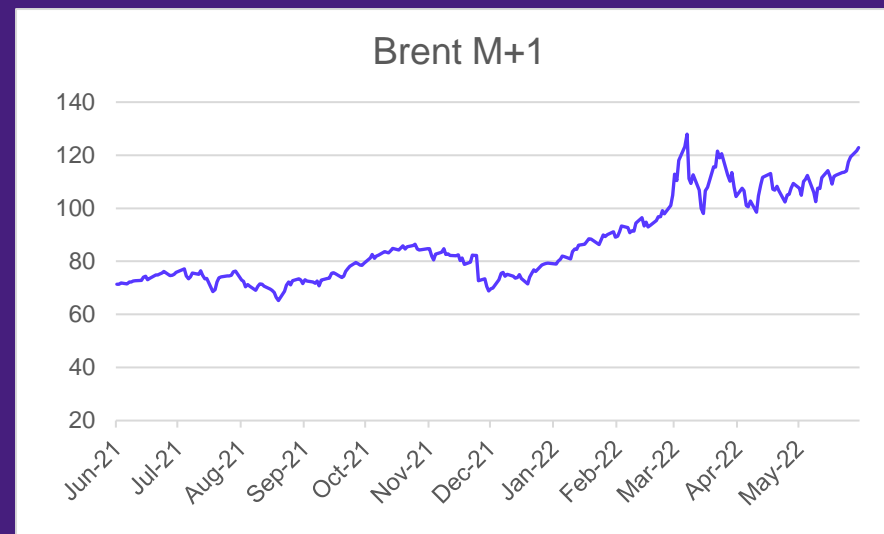
Low inventory levels in the US and the halt of Covid-19 restrictions in China added to the bullish sentiment.

Hence, Brent crude ended the May month 12% higher at \$122.84 a barrel, marking the sixth straight month of gains. It has risen more than 70% over the period.

### Evolution since Last Month



+12%



### U.S. Crude Oil Inventories

Release Date	Actual	Forecast
May 25, 2022	-1.019M	-0.737M
May 18, 2022	-3.394M	1.383M
May 11, 2022	8.487M	-0.457M
May 4, 2022	1.302M	-0.829M
Apr 27, 2022	0.692M	2.000M

## Insight of the Month

The EEX exchange has published a revised auction calendar for carbon allowances this year that trims supply as of 7 June, it said. EEX will hold auctions on behalf of EU member states for a total volume of allowances of nearly 406m in 2022, down from the 418m EUAs last year.

The UK has raised the cost curb measure for its UKA emissions certificates by around 6% month on month to GBP 117.71/t, according to the government.

## Market Evolution since last Month

European carbon prices ended the month little changed.

The European carbon market appears to have stabilized somewhat following the rather sharp fluctuations in the wake of the EU decision to release an extra 250 million quotas into the market. The decision caused a big price fall earlier in May, but for the last couple of days, EUAs have seen a neutral sentiment.

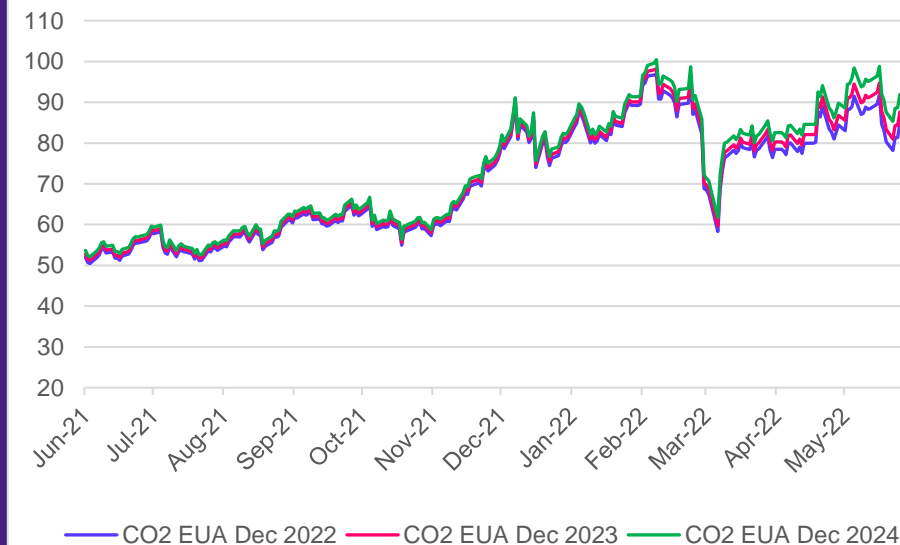
General uncertainty relating to the global economy and low liquidity provided a further boost to the downside. Hence, EUAs expiring in Dec-2022 lost 0.5% month-on-month at 84.02 EUR/tonne.

Evolution  
since Last Month



-0.5%

EUAs Certificates Prices (EUR/tonne)



Average EUR/tonne	M	M-1	YTD
EUAs Dec 2022	85.7832	81.2175	83.3685
EUAs Dec 2023	88.6991	83.3035	85.1042
EUAs Dec 2024	92.7000	85.8495	87.4913



## Insight of the Month

Germany’s BNA network regulator has launched its sixth hard coal exit tender for bids to close 699 MW of generation capacity in 2025. Hard coal-fired power plant operators can submit their bids until 1 August, with closures to take place in 2025 and bids capped at EUR 98,000/MW, according to the BNA. The BNA was due to publish the results of the tender between late September and early November. Should the tender be undersubscribed, the BNA can force older units to exit the market, with some of the active plants dating back to the 1940s and 1950s. Germany aims to reduce its fleet of hard coal and lignite-fired capacity to roughly 25.1 GW by the end of 2025, down from 34.4 GW at the end of 2021.

South Africa has exported an estimated 2.2m tonnes of coal to west European destinations since Russia’s invasion of Ukraine in late February triggered a rush to source alternative origin material.

## Market Evolution since last Month

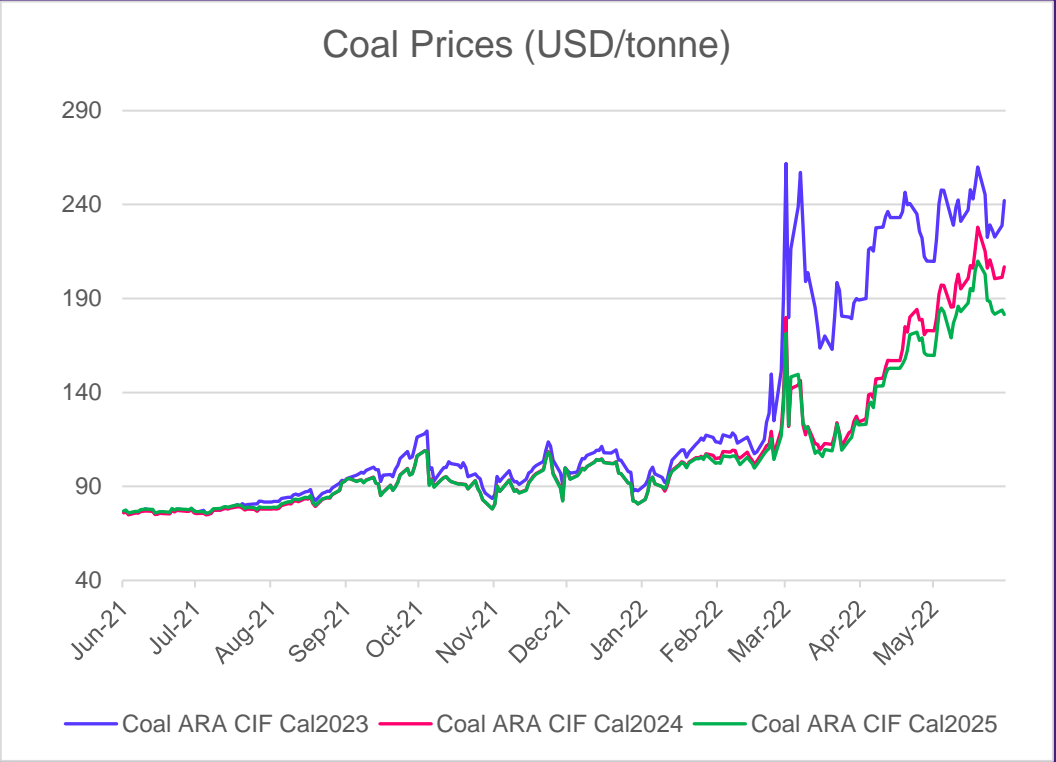
European coal prices increased sharply in May as imports from Russia are declining ahead of the upcoming total ban set for August 10. Europe is importing high amounts of coal from other parts of the world, primarily the US, Colombia and South Africa, but it is far from certain, that these countries will be able to keep up the high exports to Europe.

The ARA CIF 2023 contract hit its highest level of 249.98 USD/tonne on May, while the lowest level of 209.73USD/tonne on May 2.

Evolution  
since Last Month



Y+1  
+25%



Average USD/tonne	M	M-1	YTD
ARA CIF 2023	236.1723	224.3780	176.9059
ARA CIF 2024	200.4614	157.9955	138.2631
ARA CIF 2025	185.3200	150.7840	132.8187

# Net Zero News

June 2022

# Powering sustainable pharma.

The manufacture of pharmaceuticals may not be associated with carbon emissions to the same degree as aviation or agriculture. That said, the pharma industry, which includes some of the world's most trusted brands, bears a heavy weight of customer expectation to be seen to be doing its part in the fight against climate change.

While a deep carbon footprint may be a common hallmark of many energy intensive pharmaceutical manufacturing processes, emissions levels can be reduced by adopting a sustainable approach to process efficiency, energy generation and energy procurement. "Powering sustainable pharmaceutical manufacturing", is a new white paper from Enel X. In it, we explore ways in which pharmaceutical manufacturers can:

- Reduce carbon emissions
- Increase profitability
- Enhance operational resilience
- Support a dynamic grid system

[DOWNLOAD WHITE PAPER](#)

enel x





# Get in touch



## Michael Mahon

Customer Operations Success Manager  
Enel X Ireland

E: [michael.mahon@enel.com](mailto:michael.mahon@enel.com)  
T: +353 87 358 3574



## David Johnston

Customer Success Manager  
Enel X UK


E: [david.johnston@enel.com](mailto:david.johnston@enel.com)  
T: +44 (0)7785 957788



## Piotr Raczkowski

Energy Advisor  
Enel X Polska Sp. z o.o.

E: [piotr.raczkowski@enel.com](mailto:piotr.raczkowski@enel.com)  
T: +48 793 333 705

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