ceegex

CENTRAL EASTERN EUROPEAN
GAS EXCHANGE

Global & Regional Market Analysis

NATURAL GAS, October 2023

22/11/2023

STORIES OF THE MONTH

OCTOBER 2023

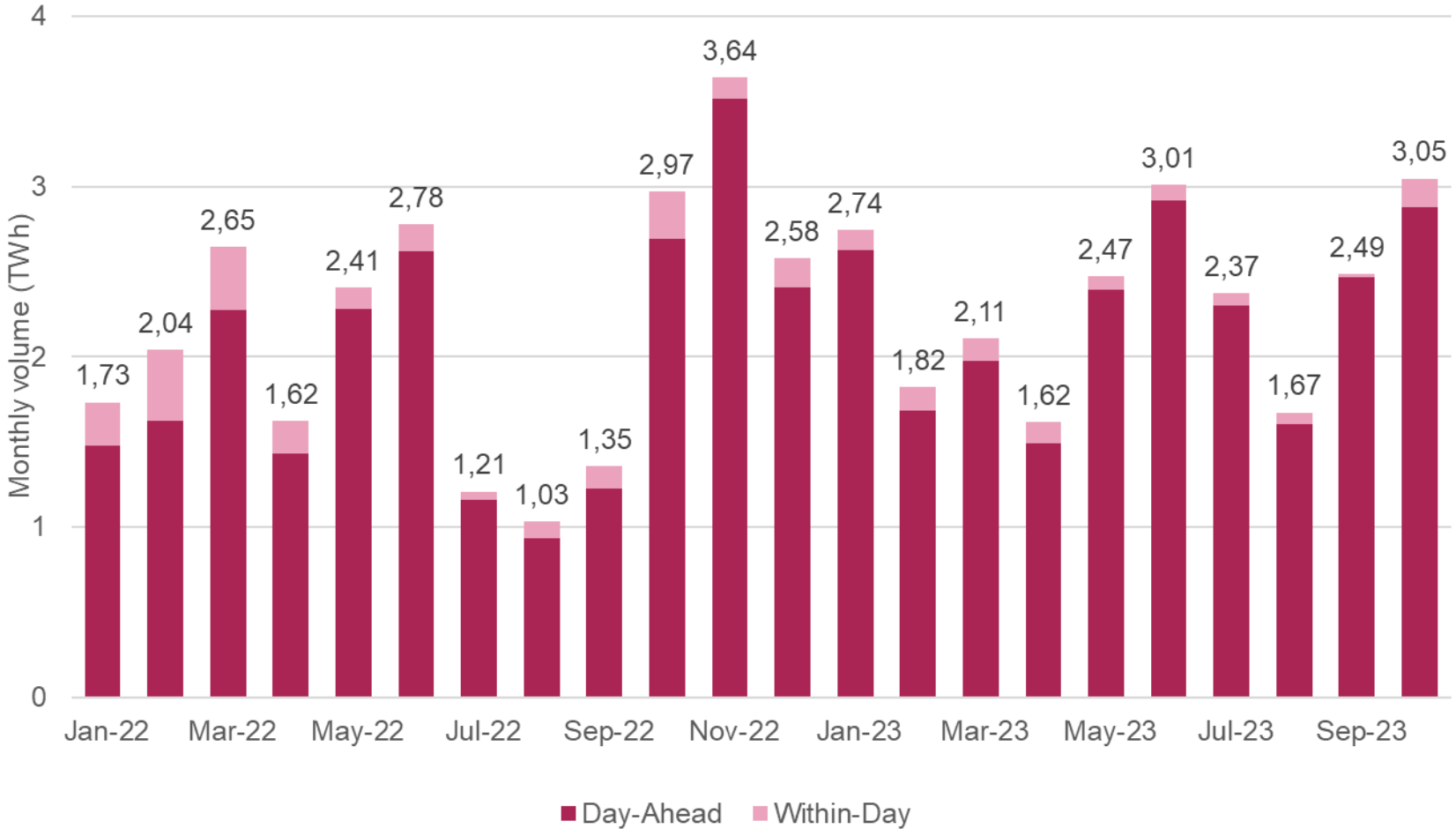
- **Australian LNG** workers at Chevron were planning a strike at the beginning of the month, but **on 30 Oct union workers formally ended the dispute.**
- Energy prices rose on 7 Oct amid supply concerns relating to the **escalating conflict between Israel and Palestinian militant group Hamas**.
- Bulgaria announced a **10.2 EUR/MWh transit fee on Russian gas**. Hungary and Serbia strongly opposed Bulgaria's decision to introduce the new tax on natural gas transported via Bulgaria from the Turkstream pipeline to Europe.
- In the **third round of the EU's joint gas buying** offers were collected between 3-4 Oct to supply 16.5 bcm.
- **EC is planning to extend emergency energy market measures** introduced in 2022 (e.g. price cap). The proposal will be presented in November and Member States will approve it is December.
- Finnish authorities confirmed an **anchor from a Hong Kong-flagged vessel caused the damage to the Balticconnector**. The repair of the pipeline is expected to take months.
- On 2 Oct EU approved a 106 million EUR grant for **Greece's LNG Alexandropoulis terminal.** Commercial operations are planned to begin from 2024.
- **Hungary and Slovenia** signed an agreement to **build a gas interconnector within two years,** that will allow the transportation of 440 mcm/y of natural gas in both directions.
- The **Serbia-Bulgaria gas interconnection (IBS)** was 98% ready by the end of October, **operation is expected to commence by the end of the year**. The pipeline will be 170 km long and have 1.8 bcm/y capacity with reverse flow capability.

 Sources: Argus, Bloomberg, CEEnergy News, ICIS, IEA, Euractiv, EC, Financial Times, G7, Montel, NRGreport, Portfolio, Platts, Reuters

TRADED VOLUMES

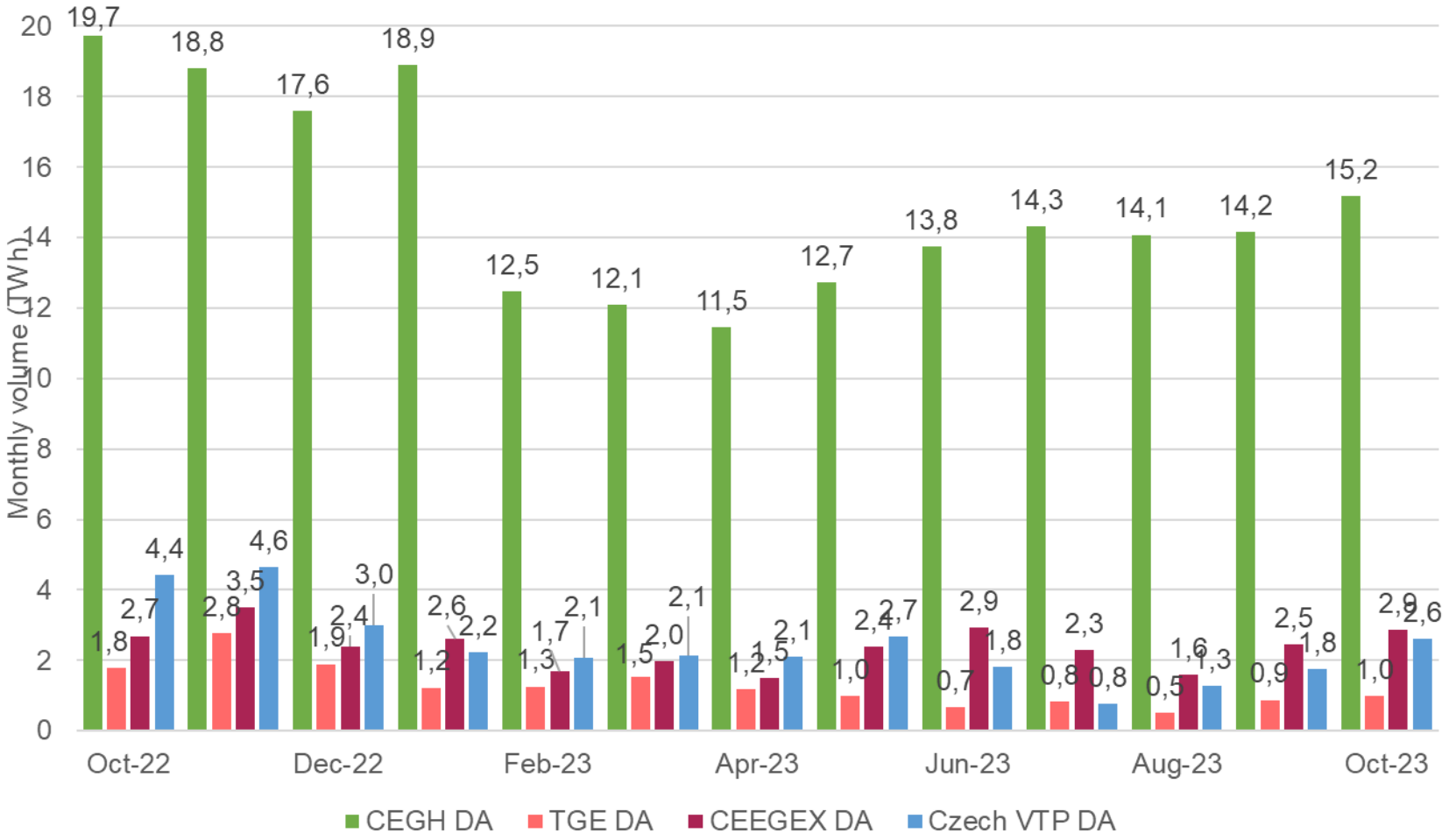
EXPERT OPINION:

- CEEGEX DA traded further increased in October MoM and YoY.
- The CEEGEX-CEGH spread flipped to the negative territory making imports from Austria less profitable.
- Exports to Ukraine and injection into Ukrainian storages continued in October.
- **Withdrawals had not started in October**.



Sources: CEEGEX

REGIONAL SCOPE DA MARKETS



EXPERT OPINION:

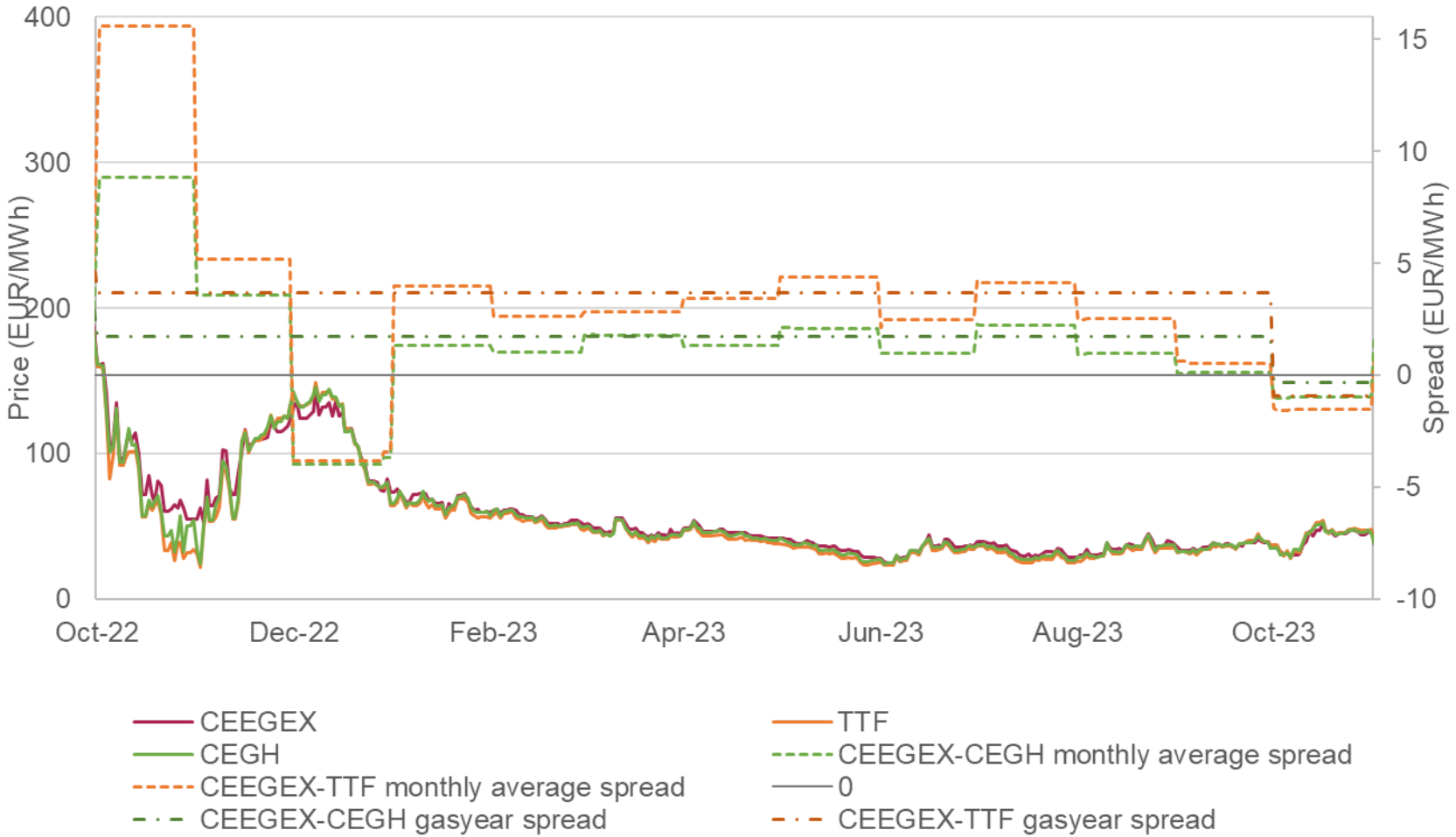
- Traded volumes increased on all regional hubs despite mild weather, but **industrial demand strengthened for the first time since 2022 February**.
- LNG imports to Europe remained low in October and injections continued throughout Europe.

Sources: CEEGEX, Refinitiv

REGIONAL PRICES AND SPREADS

EXPERT OPINION:

- The correlation with CEGH and TTF continued to be strong.
- **In October the spreads flipped to the negative territory.**
- Lower LNG imports to NW Europe and stable pipeline flows to CEE combined with almost 100% storages resulted in the discount of CEEGEX to CEGH DA and TTF DA.

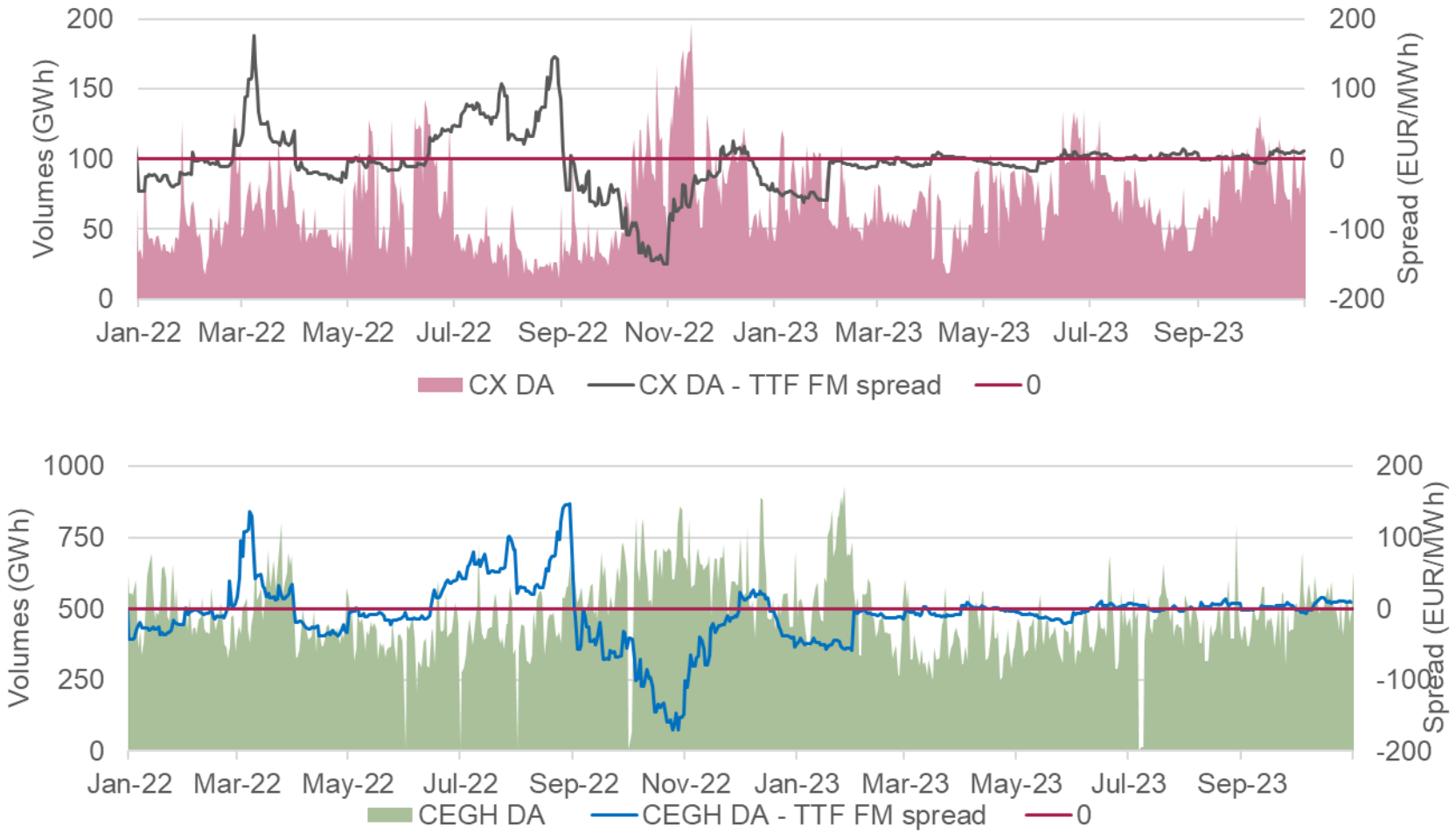


Sources: CEEGEX, EEX

TTF FM-SPOT SPREADS

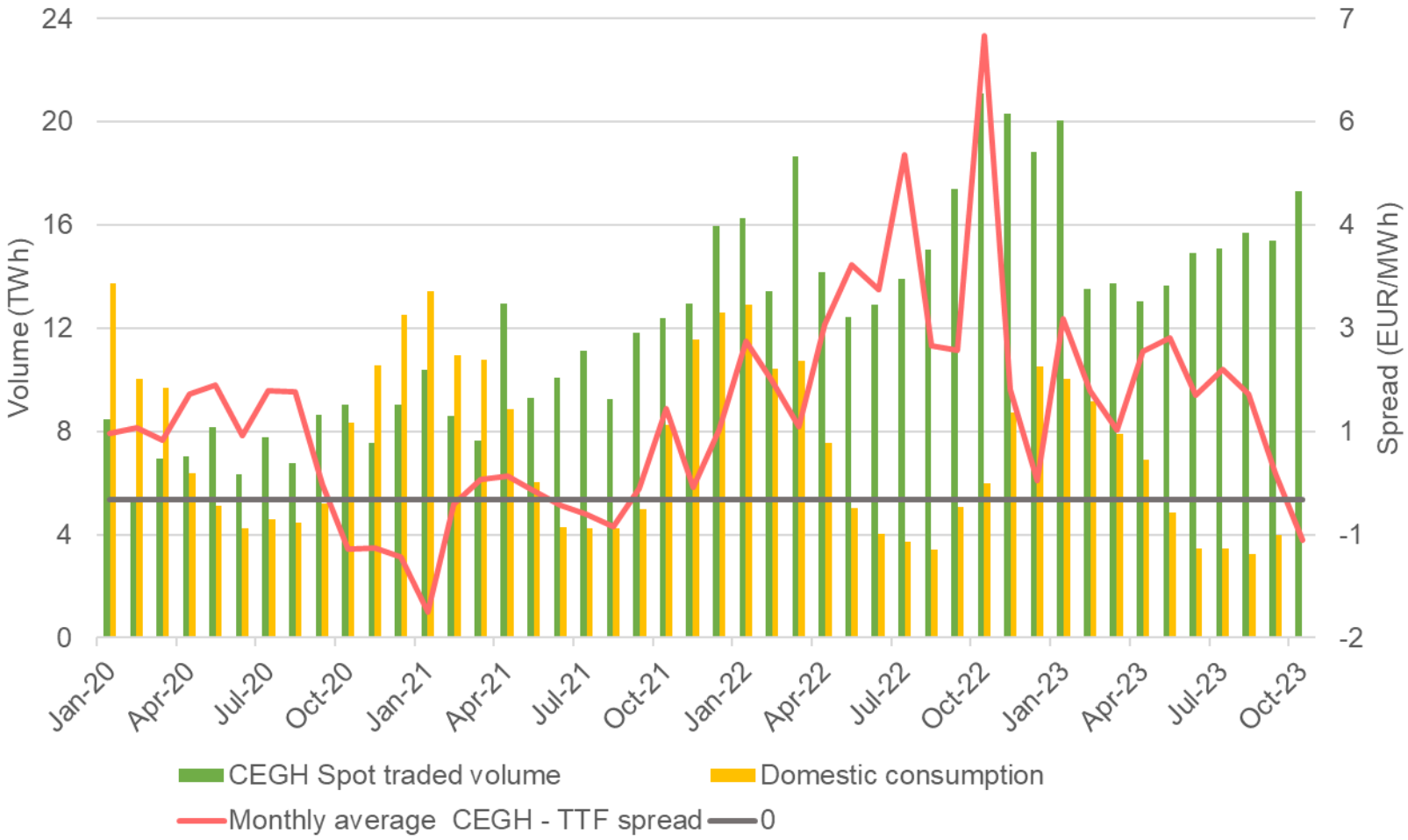
EXPERT OPINION:

- **Since February the spreads have remained around 0**, which meant there was no real incentive to trade spot volumes.



Sources: CEEGEX, EEX

CEGH AT SPOT VOLUMES



EXPERT OPINION:

- After last year's record, traded volumes on the CEGH spot market started to moderate. There is no sign of a fallback, this year's volumes only decreased slightly so far compared to the same period in 2022. The only big difference is between **Oct-22** and **Oct-23**, with **21 TWh** compared to **17 TWh**.
- **Domestic consumption in Austria decreased significantly since 2021**, however CEGH managed to increase their market share.
- The CEGH – TTF spread remained mostly positive in recent years, but started to reverse, which may be the reason why traded volumes are not reaching last year's levels this autumn.
- AT cross border flows: spot capacities were exploited at a higher rate in 2022 Oct vs 2023 Oct

Sources: CEGH, E-control

AUSTRIA-RUSSIA GAS DEAL

- Austrian gas giant **OMV signed a supply contract with Gazprom in 2018**, which it plans to remain committed to until its expiration in 2040.
- Deal volume is **not publicly disclosed**, only estimates can be made
  - The market **share of Russian gas in Austria averages about 55%** each year, albeit with large fluctuations since the war
  - **OMV provides around 30% of Austria's supply** (with most of its gas coming from Russia)
  - **Austrian annual consumption is ~9 bcm**, suggesting that OMV might import 3bcm or somewhat less from Russia
- In the past, these **volumes were imported on the Russia-Ukraine-Slovakia-Austria route.** However, Ukraine recently announced that it will cease to transport Russian gas, so **Austria must find an alternative route for these imports.**
  - **Turkstream** has roughly equal spare capacity to the estimated OMV imports, but of course Austria is not guaranteed to be able to secure all spare capacity.
  - Alternatively, Russia might export the gas in **LNG form to Germany,** which transits it to Austria through the abundant interconnector capacities.
  - Other LNG routes (e.g. via Italy) are also possible, though less convenient.

Sources: ICIS, Reuters

JAPANESE CANDLES LAST 3 MONTHS

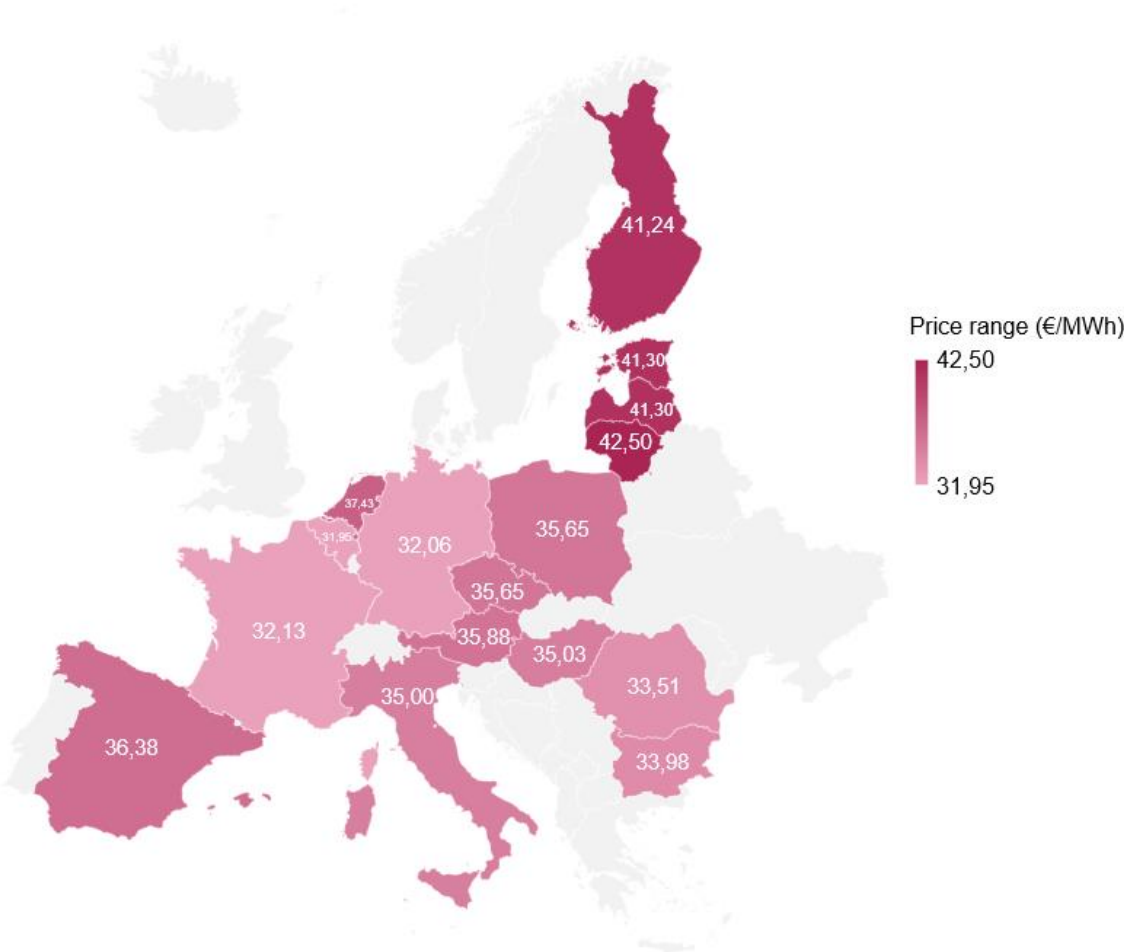
EXPERT OPINION:

- In early October **renewed fears in relation to Australian LNG strikes and the escalation of the Middle East crisis** added bullishness to prices.
- However, **98% storages, the clarification of the Balticconnector leakage and mild weather** contributed to the bearish sentiment in the second half of the month.
- Current price swings are (below 5 EUR/MWh) moderate in comparison to 2022.

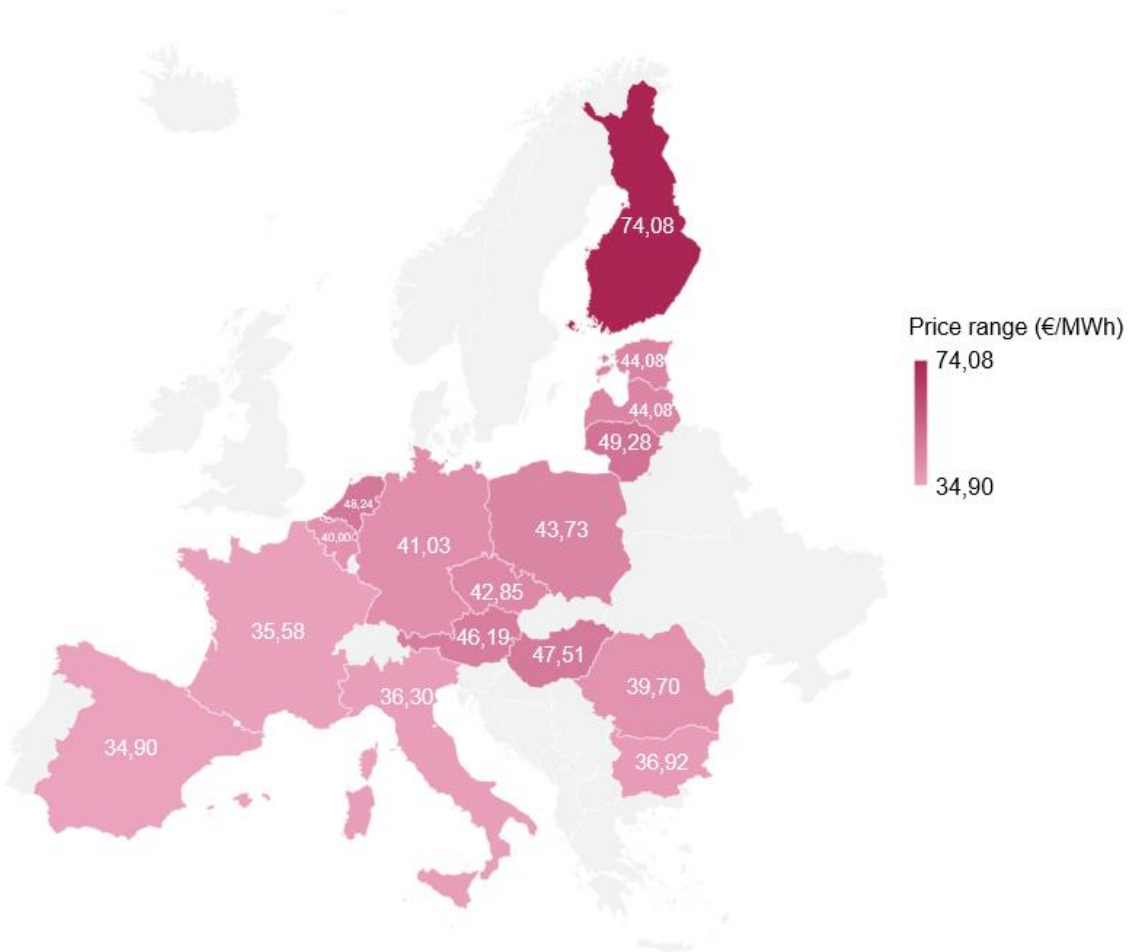
Sources: CEEGEX, ICIS, Refinitiv

NATURAL GAS PRICES SNAPSHOT

02/10/2023



31/10/2023



Sources: CEEGEX, ICIS, Refinitiv

BALTICCONNECTOR GAS LEAK

The Balticconnector is a two-way natural gas pipeline between Inga in Finland and Paldinski in Estonia, which was damaged and stopped working temporarily on October 8, 2023.

Main features:

- Operated by **Gasgrid** Finland and Estonian's **Elering**.
- Balticconnector started commercial operations on January 1, **2020**.
- In the first month of operation, it provided **more than a third of Finland's gas demand**, ~885 GWh.
- After the commissioning of the gas interconnection between Poland and Lithuania in 2022, Estonia and Finland joined the Polish and internal EU gas markets thanks to the Balticconnector.
- It consists of a **77-kilometer-long submarine pipeline**.
- It can transport up to **7.2 mcm/day** (80 GWh/day) in both directions.
- Its main goal is to integrate the region's gas markets, mainly for the purpose of **independence from Russian gas**.

The gas leak:

- At 2 AM on October 8, Elering experienced a **strong pressure drop** in the pipeline.
- According to the hourly data, the **pipeline pressure dropped** from 34.5 bar first to 12 bar and then to 6 bar an hour later.
- The contents of the gas pipeline leaked into the sea.
- The valves of the pipeline were closed to prevent further gas from escaping to the nature.
- Balticconnector was transporting ~30 GWh per day from Finland to Estonia at the time of the incident.
- The repair processes may take several months, according to some sources, the **gas pipeline may not be used again until April 2024**.
- At first, what happened was believed to be sabotage.
- The Russians were blamed, among others, and suspicions of a terrorist act also arose because of the Israel-Hamas conflict that day.
- It has now been revealed that a Hong Kong trading ship may have been responsible for the damage, its broken anchor causing the damage to the gas pipeline.

Gas supply of affected countries:

- According to both Gasgrid and Elering, their country's gas supply will continue to be secured.
- Gasgrid can still import LNG from the new Inkooi and Hamina terminals and rented a floating storage from which it can import LNG.
- Elering said that Estonia will continue to be supplied with gas from Latvian storage facilities and the Lithuanian LNG import terminal.
- Both natural gas transport organizations continue to maintain their independence from Russian gas.

Sources: Reuters, BBC, Argusmedia

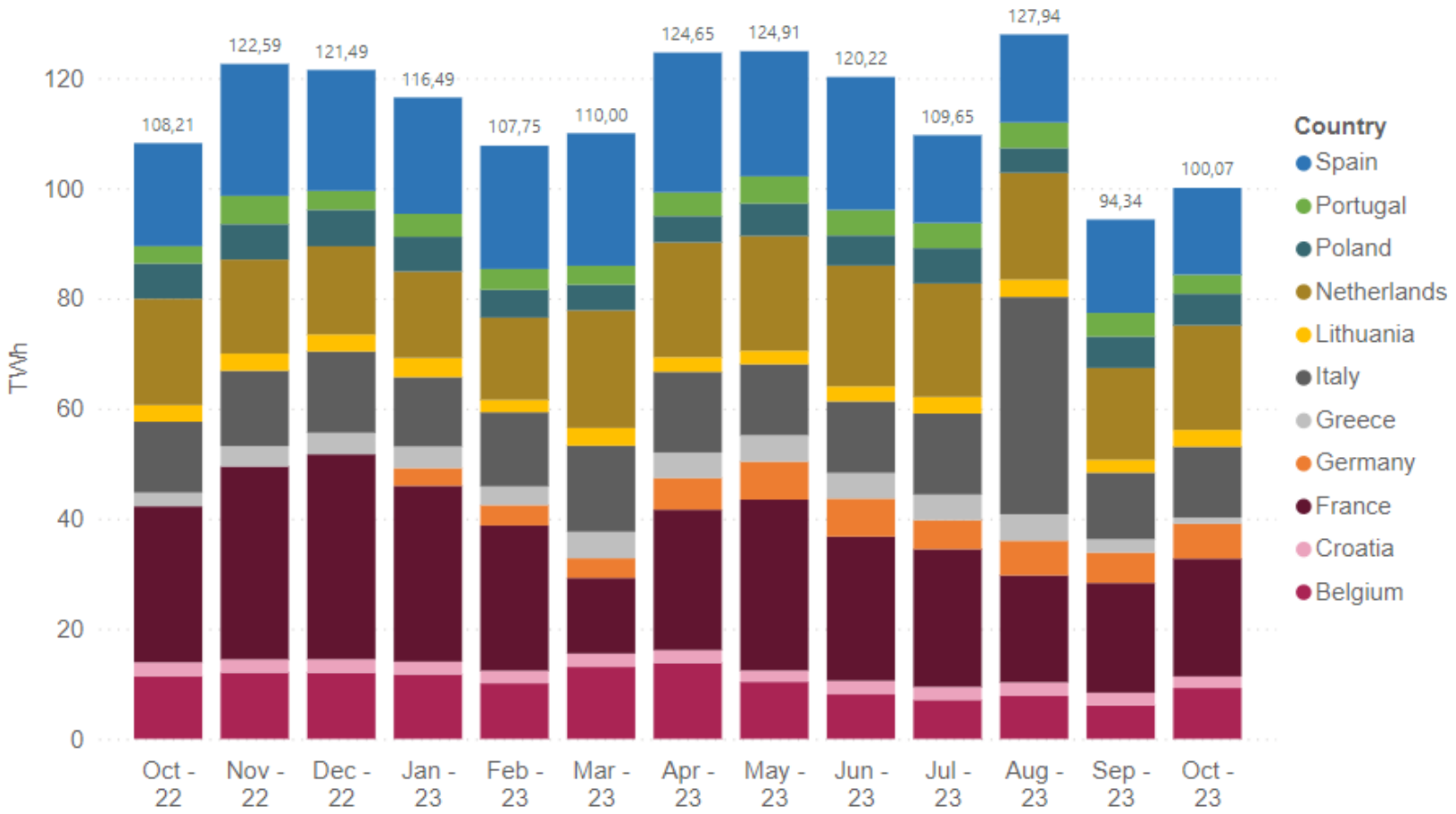
GEOPOLITICAL EVENTS ON NATURAL GAS & OIL PRICES

EXPERT OPINION:

- On October 8, **natural gas and oil prices also increased due to various geopolitical events**, but they began to stabilize towards the end of October.
- The following events might have had an impact on the price change:
  - Israel-Hamas conflict
  - Balticconnector gas leak
  - Australian LNG strike
  - Bulgarian tax

Sources: CEEGEX, Refinitiv

LNG SEND-OUTS BY EUROPEAN COUNTRIES*



EXPERT OPINION:

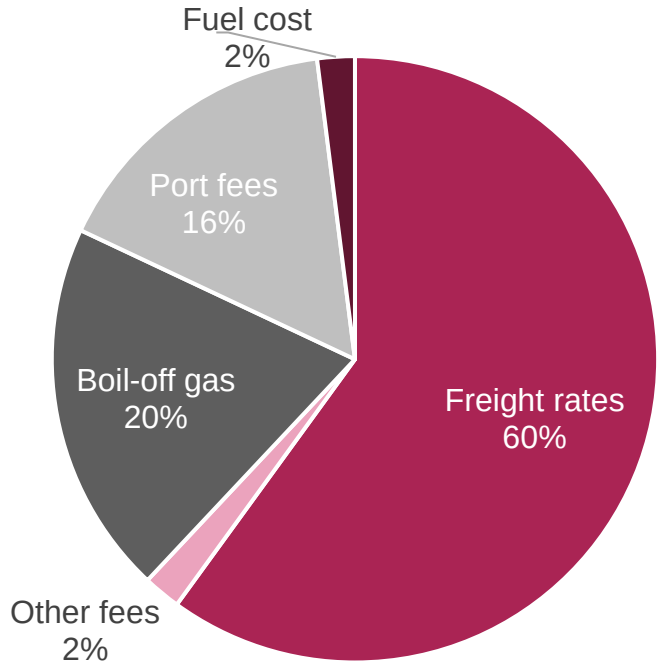
- In October LNG send-out increased month-on-month, but remained below record levels.
- **Europe's buildout of LNG capacity, has outpaced the LNG demand.** The gap between Europe's LNG capacity and demand continues to widen.
- Europe has added six LNG terminals in 2023.
- LNG import have flattened and the gas consumption keeps declining.

- Excluding UK, Finland (data not available)

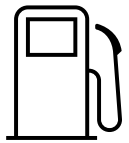
Source: Alsi, Reuters

LNG RISING FREIGHT RATE

- **Record-high** European seasonal **storage inventories** has made alternative, more **expensive storage options** profitable.
- One such option involves floating loaded LNG cargoes to later dated winter contracts. **The shift is** clearly **reflected in LNG freight rates**, with the Spark Atlantic spot freight assessment rising $66 k/day (+ 87%) since the beginning of August.
- While **freight rates** typically follow a **seasonal pattern**, reaching their **peak in Q4**, this year's rally has **started earlier than usual**. This early surge is a response to the unusually low availability of conventional European storage flexibility in September.

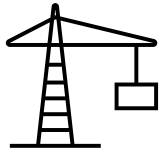


- **Freight rates:** This corresponds to the price to charter a vessel. It covers the shipowner's costs which are made of the operations and maintenance costs, and the recovery of the sunk costs and of the purchase costs of the vessel, plus a profit margin.

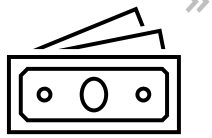


- **Fuel cost**: The fuel cost corresponds to the fuel consumption multiplied by the cost of fuel. Most LNG ships can burn fuel oil, boil-off gas, or a combination of both in their boilers. As a result, the cost of fuel usually encompasses the cost of the boil-off gas and is therefore linked to the opportunity cost of gas. Fuel costs (US$) are the product of fuel consumption (ton/day) and the price of fuel (US$/ton), multiplied by the number of days of the route (days)

- **Boil-off gas**: The boil-off gas is the evaporated or boiled gas formed due to the heat entering the cryogenic tank during storage and transportation, regardless of whether it is used as a fuel. Boil-off costs (US$) are calculated as the difference between the volume of LNG at the origin port and the volume of LNG at the destination port (m3 LNG) considering boil-off rates, multiplied by a reference price of natural gas (US$/m3LNG)



- **Port fees**: At loading and unloading ports, fees must be paid to port authorities and service providers. Depending on the port location, the components and level of expense associated with loading and unloading can vary.



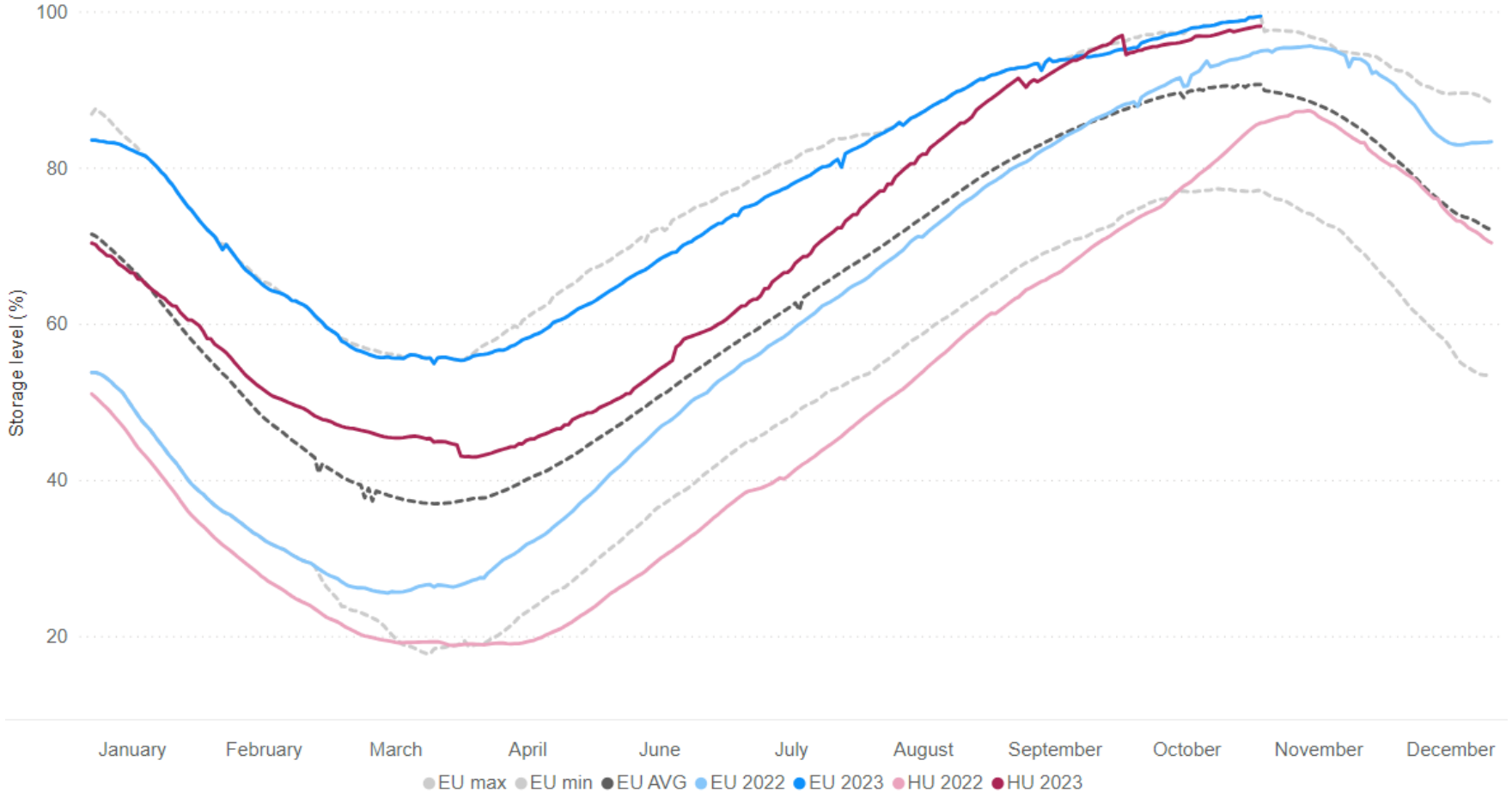
- **Other fees**: Other expenditures include a variety of fees based on the cargo route as well as internal shipping costs. For example, canal fees, must be paid to use the transcontinental Suez and Panama canals, as well as ship and cargo insurance must generally be paid to be able to operate the LNG vessel.

Sources: timera, montel,lngprime

GAS STORAGE LEVEL IN EU AND HU

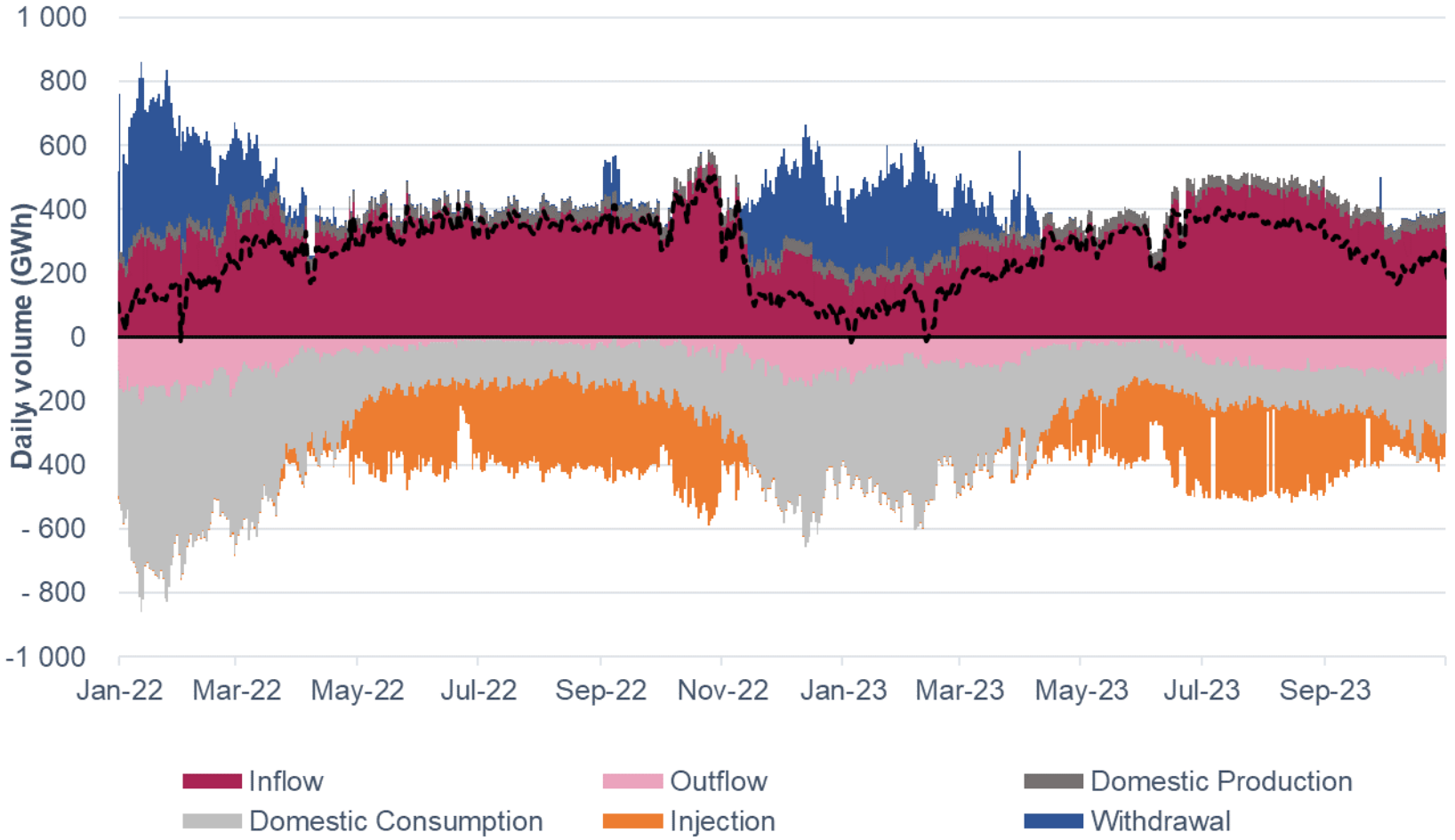
EXPERT OPINION:

- Aggregated EU storages were at **99% on 31 Oct.**
- Withdrawals had started in some countries already in September, but most member states continued injections due to warm weather.
- Hungary **reached 98%** on 31 Oct.
- Hungarian injections started to slow down by the end of September.
- **EU final target by Nov: 90%**



Sources: CEEGEX, FGSZ, AGSI, EUR-Lex, ICIS

HUNGARIAN GAS MARKET BALANCE



EXPERT OPINION:

- Gas consumption remained on similar level YoY.
- The pace of injections slowed down but continued in October.
- **Flows from RS remained close to maximum capacity despite news about the new Bulgarian tax.**
- **Imports from AT disappeared**, but RO>HU flows increased.
- Parallel to the drop of Austrian imports, Slovakian exports increased.
- Since June **export volumes have ramped up**, especially in the direction of UA.

Sources: ENTSO-G, FGSZ

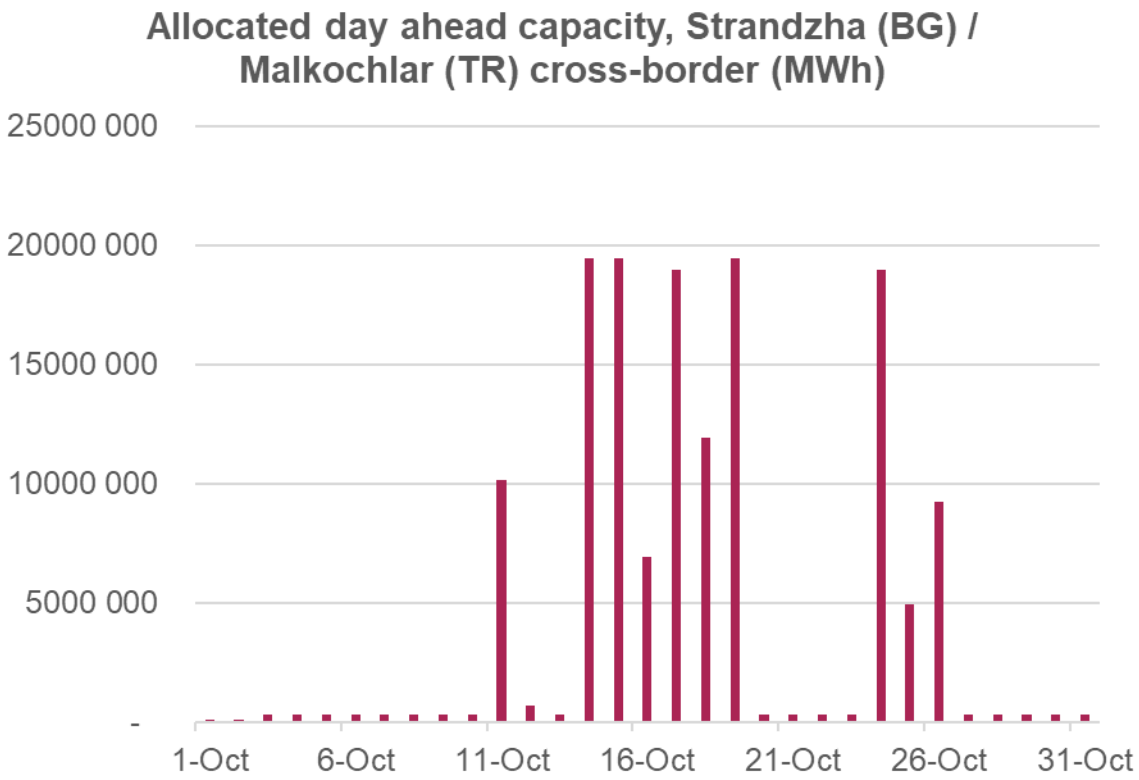
BULGARIAN GAS TRANSIT FEE

Bulgaria announced a new tax on 11th October:

- The new tax entered into force on 13th October.
- Energy contribution rate: 10.2 EUR/MWh for natural gas transiting Bulgaria.
- Previous tax (entry+exit): approx. 1 EUR/MWh
- Initially to be levied on Bulgartransgaz (Bulgarian TSO), later amendment: on importers, mainly to reduce Gazprom's revenues
- MVM Gazprom long term contract: 3.5 bcm/year of supply on the southern flow, costs up to Hungarian entry point to be borne by Gazprom
- **Concerns from neighboring countries:** relevant politicians in Hungary, Serbia, North Macedonia and Bosnia and Herzegovina believe that the increase in transit fees could lead to price increases or even endanger security of supply. Hungary has urged the EC to initiate an infringement procedure against Bulgaria
- **There are doubts in Bulgaria too:** Bulgarian President Rumen Radev has appealed to the Constitutional Court, saying that the increase in the transit tax is damaging both Serbian and Hungarian interests

- **Possible Bulgarian targets for the tax:**
  - to generate additional revenue, to reduce the Bulgarian budget deficit
  - Bulgaria and other European countries to become independent from Russian fossil fuels (also an EU objective)
  - Lukoil (Gazprom subsidiary) to be forced to sell Neftohim Burgas oil refinery by extra taxes and stopping processing of Russian oil, gas market pressure could be a tool as well

Bulgarian gas transit costs:



Sources:

ENSTOG WINTER OUTLOOK- BASE SCENARIOS

Base scenarios:

- The European Network of Transmission System Operators for Gas (ENTSOG) released its **annual analysis of the gas supply outlooks of the EU** in 2023/24 Winter and Summer
- The core of the analysis is a **set of simulations** considering a range of different scenarios for winter severity as well as available LNG supply or Russian supply
- **Highlights and summary of results:**
  - Supposing a winter of expected severity (**Reference Winter scenario**) and LNG supply (**Reference LNG scenario**), the target storage level of 30% at the end of winter can be reached
  - A **Cold Winter** scenario however (corresponding to a 20-year extreme) leads to failing to reach the target storage levels as well as demand curtailments in most cases
  - Except some extreme cases, the study finds that **Russian supply is not strictly necessary for satisfying EU demand**

Winter Demand	RU Supply	LNG scenario	Demand curtailment	Final UGS filling level
Reference Winter	Minimised	Ref	No	32%
		Low	No	23%
	Disrupted	Ref	No	32%
		Low	No	12%
Cold Winter	Minimised	Ref	7%	9%
		Low	17%	9%
		Max	No	13%
	Disrupted	Ref	9%	9%
		Low	21%	9%
		Max	3%	9%
Cold Winter -15%	Minimised	Ref	No	32%
		Low	3%	9%
	Disrupted	Ref	No	27%
		Low	7%	9%
		Max	No	32%

Sources: ENTSO-G

ENSTOG WINTER OUTLOOK – ALTERNATIVE SCENARIOS

Alternative simulations:

- In **high demand situations**, demand curtailments are most needed on peak days in the cold winter scenario
- Differences between demand curtailments:
  - ES, PT: **least significant demand curtailments**, several terminals on the Iberian peninsula
  - FI, EE, LV, LT: **significant demand curtailments** in cold winter scenario, supply bottleneck between PL and LT
  - HU, RO, BG, HR, BIH: **significant demand curtailments** in Russian supply disruption scenario, higher dependence on Russian pipeline supply

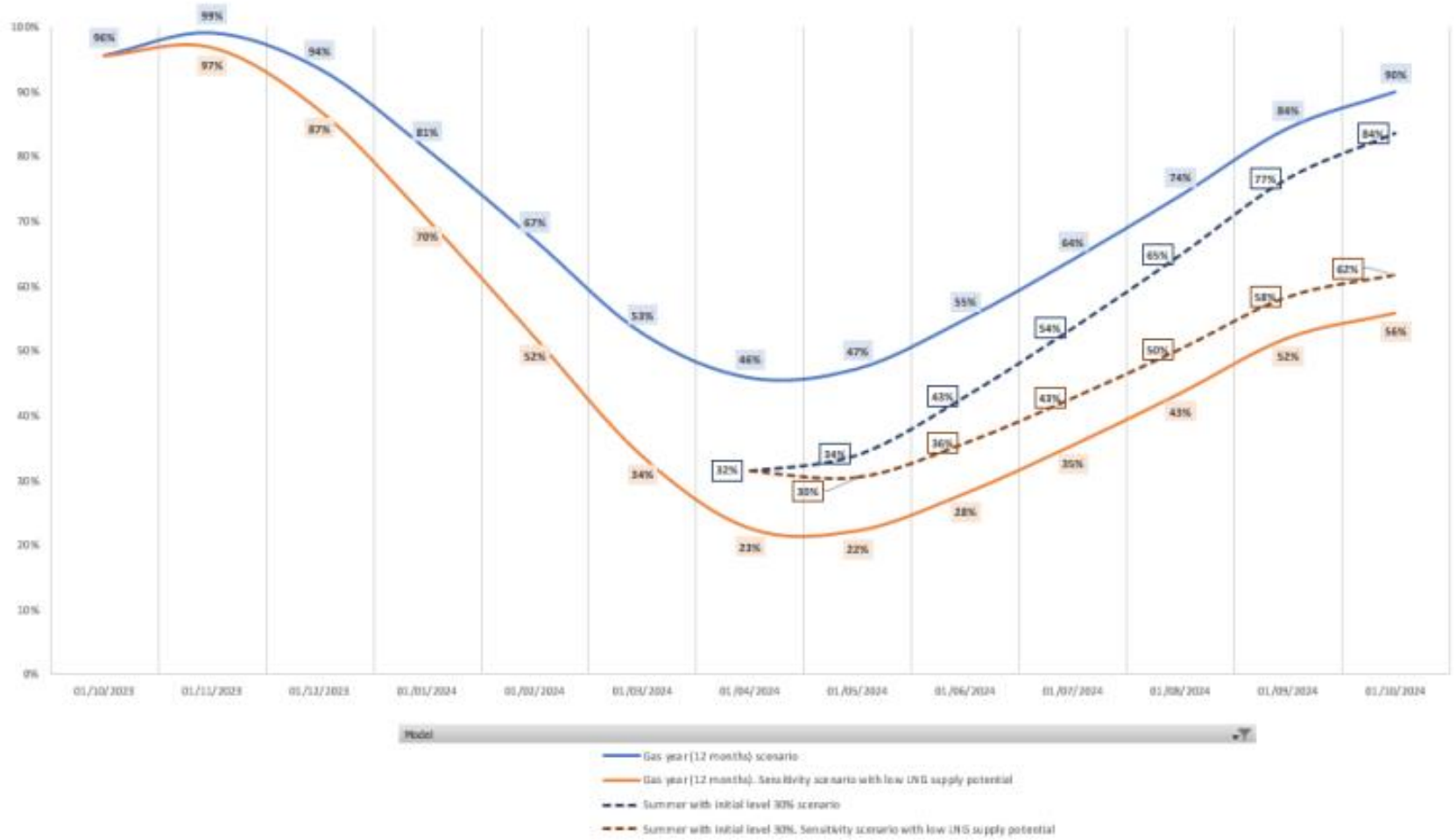
Winter demand	RU supply	High Demand Situation	LNG Scenario	Demand curtailment
Reference	Minimised	2-week Cold Spell	Reference	-
			Low	2%
		Peak Day	Reference	0%-11%
			Low	0%-11%
	Disrupted	2-week Cold Spell	Reference	-
			Low	6%
		Peak Day	Reference	9%-14%
			Low	9%-14%
Cold Winter	Minimised	2-week Cold Spell	Reference	0%-11%
			Low	3%-11%
		Peak Day	Reference	0%-23%
			Low	0%-23%
	Disrupted	2-week Cold Spell	Reference	0%-19%
			Low	13%-19%
		Peak Day	Reference	2%-24%
			Low	2%-24%
Cold - 15%	Minimised	2-week Cold Spell	Reference	-
			Low	-
		Peak Day	Reference	1%-9%
			Low	1%-9%
	Disrupted	2-week Cold Spell	Reference	1%-9%
			Low	0%-5%
		Peak Day	Reference	0%-11%
			Low	0%-11%

Sources: ENTSO-G

ENSTOG WINTER OUTLOOK – ALTERNATIVE SCENARIOS

Storage level simulations:

- **Full year simulation:**
  - **46**% storage level required on 2024.04.01. to reach 90% on 2024.10.01.
  - With 30% storage level on 2024.04.01. 84% possible on 2024.10.01.
- **Low LNG supply all year:** 56% storage level possible on 2024.10.01.
- **Low LNG supply summer:** 62% storage level possible on 2024.10.01.



Sources: ENTSO-G

IEA WEO - SCENARIOS

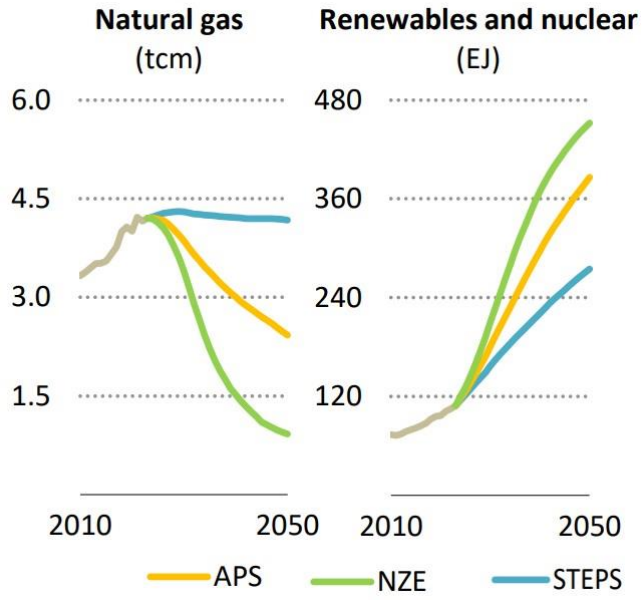
Natural gas prices by scenario (USD/MBtu)								
			STEPS		APS		NZE	
	2010	2022	2030	2050	2030	2050	2030	2050
US	5.8	5.1	4.0	4.3	3.2	2.2	2.4	2.0
EU	9.9	32.3	6.9	7.1	6.5	5.4	4.3	4.1
China	8.8	13.7	8.4	7.7	7.8	6.3	5.9	5.3
Japan	14.6	15.9	9.4	7.8	8.3	6.3	5.5	5.3

Gas price forecast by scenarios:

- **STEPS**: prices stay elevated compared to pre-crisis levels
- **NZE**: a glut of gas supply forms in the mid-2020s causes falling prices
- **APS**: the prices are decreasing, but they are not reaching the levels of the NZE scenario prizes

The role of gas, renewables and nuclear:

- **STEPS**: gas will preserve its dominance
- **NZE**: renewables and nuclear will dominate
- **APS**: balanced proportion

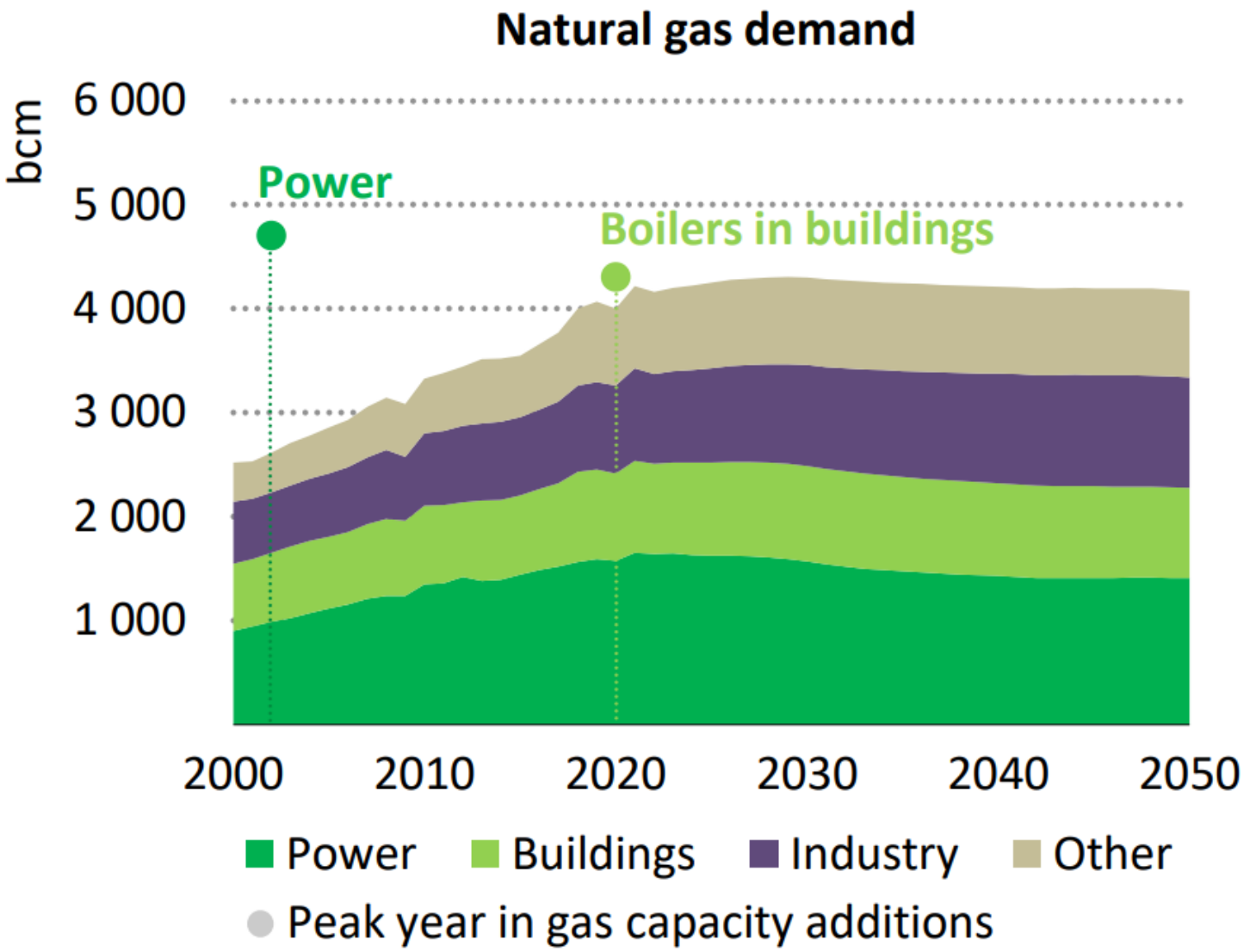


EXPERT OPINION:

- IEA publishes its World Energy Outlook report annually
- The report based on **three scenarios:**
  - **Stated Policies Scenario (STEPS):** based on current policy settings, support clean energy
  - **Announced Pledges Scenario (APS):** explores what the implementation of national energy and climate goals, would mean for the energy sector
  - **Net Zero Emissions by 2050 Scenario (NZE):** a normative scenario that shows a pathway for the global energy sector to limit global warming to 1.5 °C. 2050

Sources: IEA

IEA WEO - NATURAL GAS MARKET



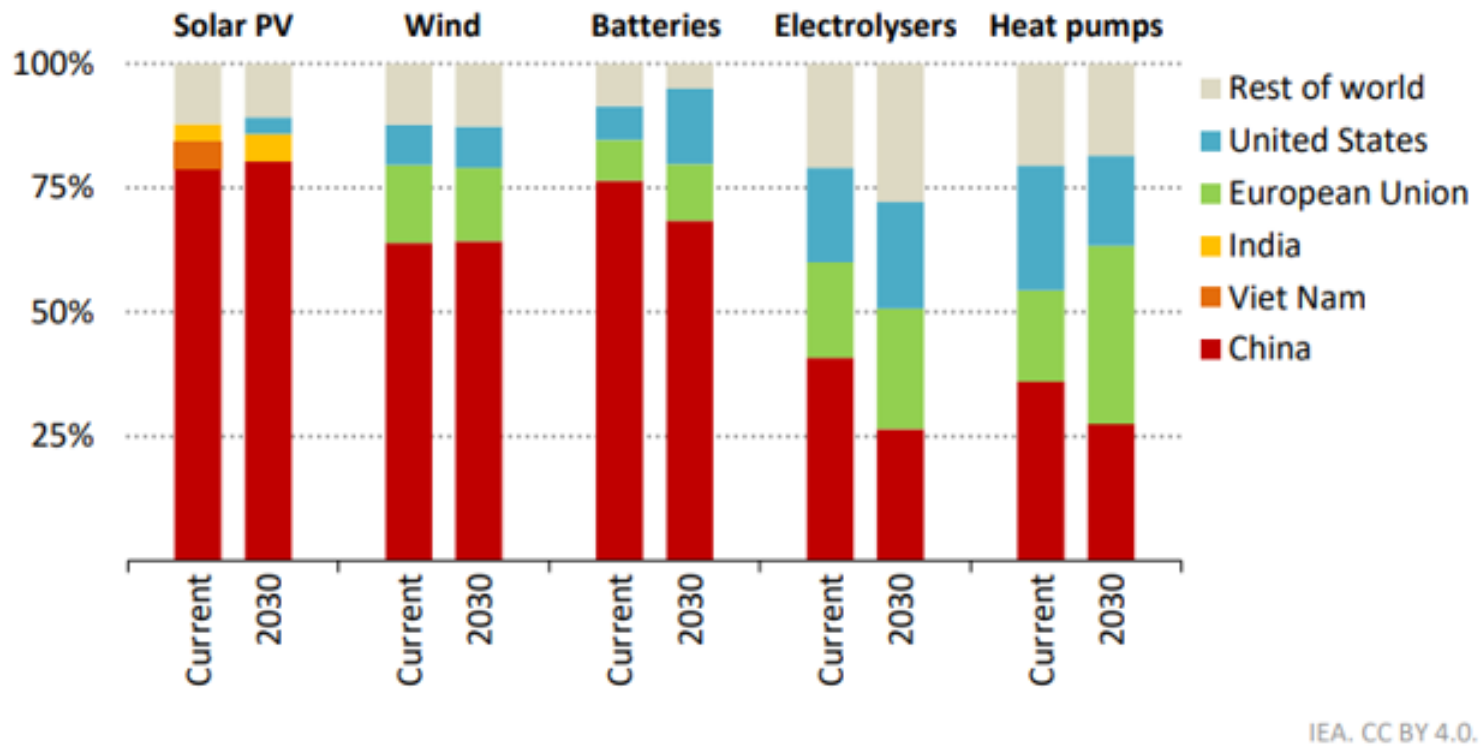
EXPERT OPINION:

- The EU's gas market was **resilient against the energy crisis** and energy markets helped to mitigate the supply risks.
- The supply and demand balance at the European gas market improved, because of more LNG imports and decreased gas demand. Thanks to this, the gas prices are closer to the pre-crisis levels.
- Natural gas **demand is expected to remain similar to current levels** on a long term.

Sources: IEA

IEA WEO - CLEAN ENERGY TECHNOLOGIES

Share of top three manufacturing regions for key clean energy technologies in 2023 and 2030 based on announced projects



Announced projects – if all realised – will alter the global distribution of manufacturing capacity for batteries, electrolysers and heat pumps

EXPERT OPINION:

- Rapidly increasing energy needs
- All Scenarios: **increase the pace of clean energy deployment**
- Emphasis on boosting the share of renewables in electricity generation
- Different measures by regions
- Renewable electricity generation, electric cars, improving energy efficiency
- Solar PV and wind are reshaping electricity supply
- More geographically concentrated than fossil fuel supply chains
- China's influence (in all Scenarios) remains strong

Sources: IEA