

ceegex

CENTRAL EASTERN EUROPEAN
GAS EXCHANGE



Global & Regional Market Analysis

NATURAL GAS, 2023

17/01/2024

STORIES OF THE YEAR 2023

January

- ACER published the first **LNG assessment price** for NW Europe
- EU selected gas capacity platform **PRISMA to operate AggregateEU platform** for joint gas buying tenders

February

- EU's **gas price cap (MCM) came into force**
- **Earthquakes rocked Turkey & Syria**, but TurkStream was not damaged
- **Freeport LNG exported its first cargo** since an explosion and fire in June 2022

March

- EU ministers extended the **15% gas reduction targets** for another year
- 4 LNG terminals were affected by a **French energy worker's strike**
- MOL carried out 3 successful shallow **gas drillings** in Eastern Hungary

April

- The **1st joint gas buying tender** took place through the AggregateEU platform
- **Hungary and Russia reached new gas, oil and nuclear agreements**
- Azerbaijan, Bulgaria, Hungary, Romania and Slovakia signed a MOU about the **Solidarity Ring**

May

- EU's gas price cap (MCM) was **extended** to all European hubs
- The 11th Russia sanctions package was **not amended** with the ban of gas pipelines
- Hungary announced a **gas purchase agreement with Qatar**

June

- Planned an unplanned maintenances on **Norwegian infrastructure**
- Gazprom stopped flows via **Turkstream** due to planned annual maintenance
- OMV Petrom and Romgaz approved the continuation of the **Neptun Deep project**

July

- **Norwegian maintenances** continued
- **Heatwaves** in South-Europe & East Asia
- **2nd round** of the EU's joint gas buying
- **Hungary and Azerbaijan continued negotiations** to deliver 2bcm gas annually
- **PPD was fined by MEKH** for manipulative bidding behaviour in capacity auctions

August

- Concerns about **possible strikes at 3 Australian LNG terminals**
- **EU storages reached 90%**
- Ukraine will not negotiate with Russia on the extension of the **transit agreement expiring** by the end of 2024
- Hungary reached **gas deals** with Turkey, Serbia and Qatar

September

- **Strikes at 2 Australian LNG plants**
- A planned **maintenance at the Norwegian Troll field** was extended
- Russia pledged to **guarantee energy supply to Hungary**

October

- Australian LNG workers formally **ended the dispute**
- escalating conflict between **Israel and Hamas**
- **Balticconnector leakage**
- Bulgaria announced a **10.2 EUR/MWh transit tax on Russian gas**
- **Closure of Groningen**
- **3rd round** of the EU's joint gas buying

November

- Russian gas transit via Bulgaria persisted despite new tax
- Yemen's Houthi rebels seize cargo ship in **Red Sea**
- Prospect of **colder weather**
- MOL involved in development of gas field in Kazakhstan

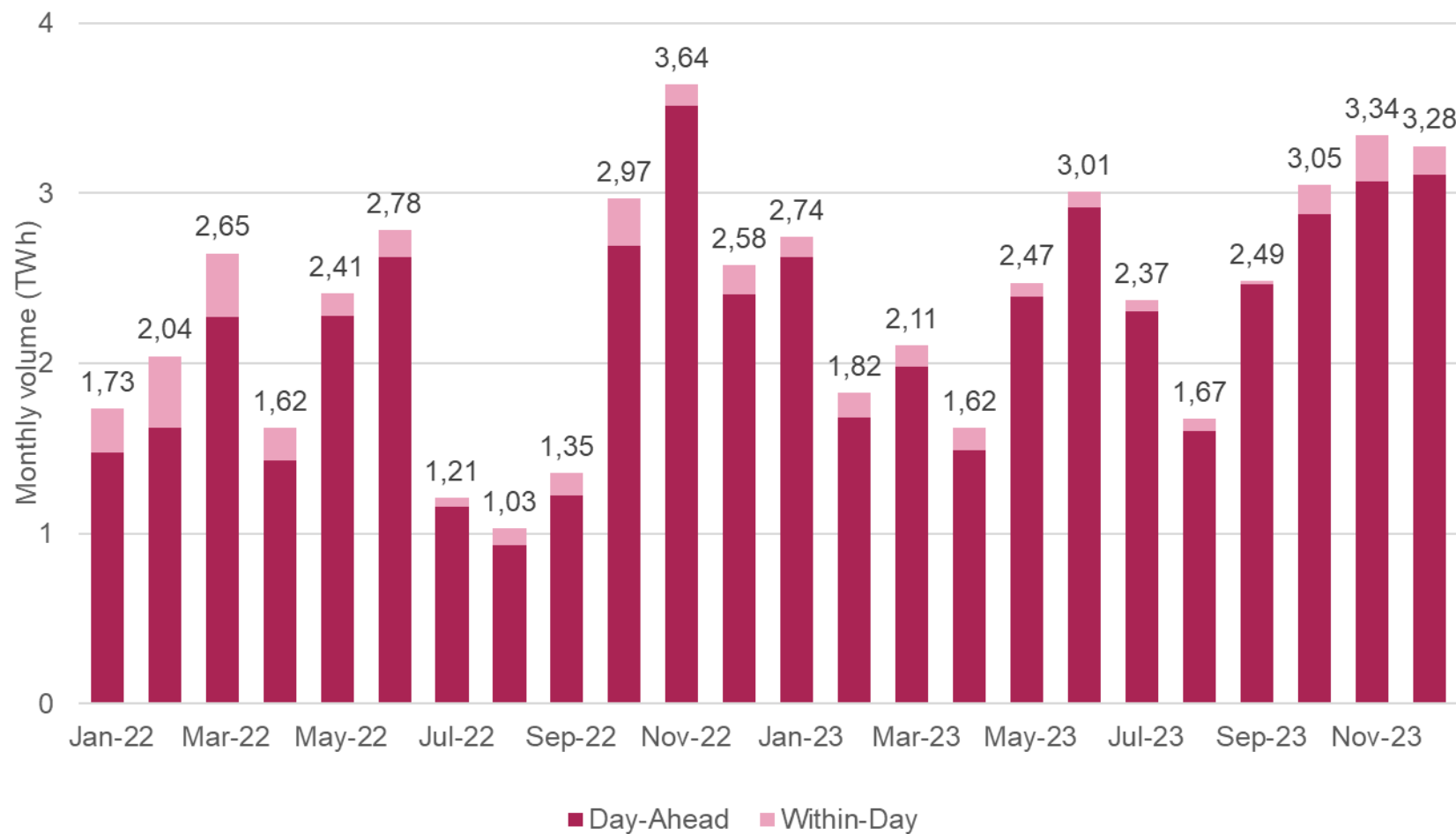
December

- EU ministers agreed to **energy measures extension**
- **Bulgaria suspended the tax** on transit gas flows
- Serbia has finished the construction of a new interconnector to Bulgaria
- **4th round** of the EU's joint gas buying

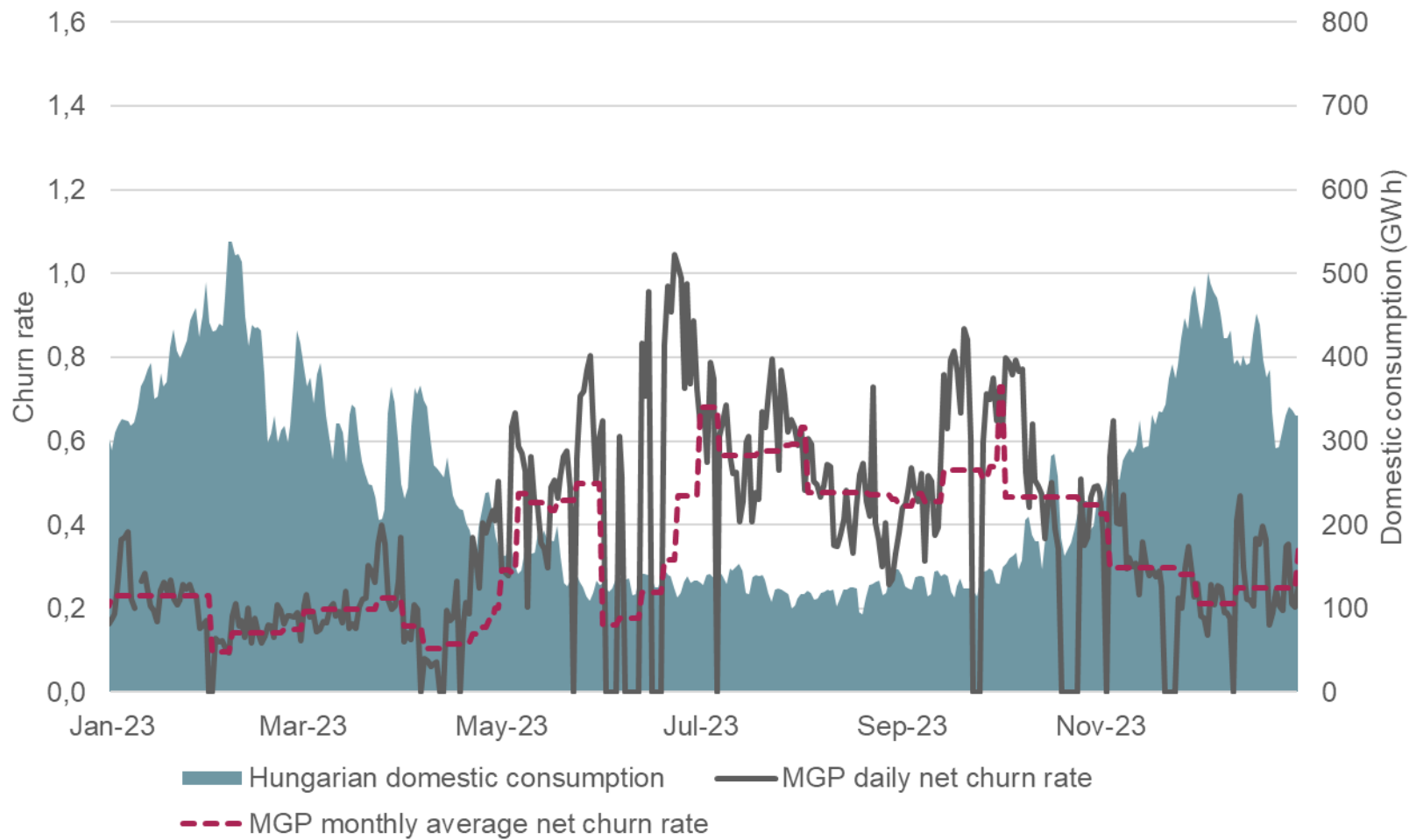
TRADED VOLUMES

EXPERT OPINION:

- » **DA traded volumes increased** in 2023 YoY.
- » The trend was similar to the previous year, but the difference was caused by **significantly higher summer volumes** in 2023.
- » It was most probably due to high **injections** and exports to UA (favourable winter summer spread). In addition, withdrawals had started only in November, with 1 month delay.
- » **WD volumes remained low** in 2023 which might be attributed to the start of the linepack flexibility service (LPFS).



CEEGEX CHURN RATE



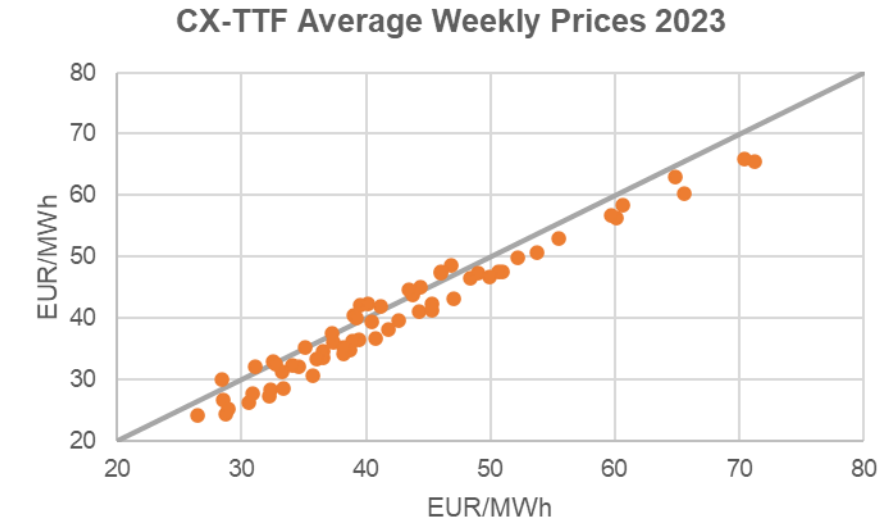
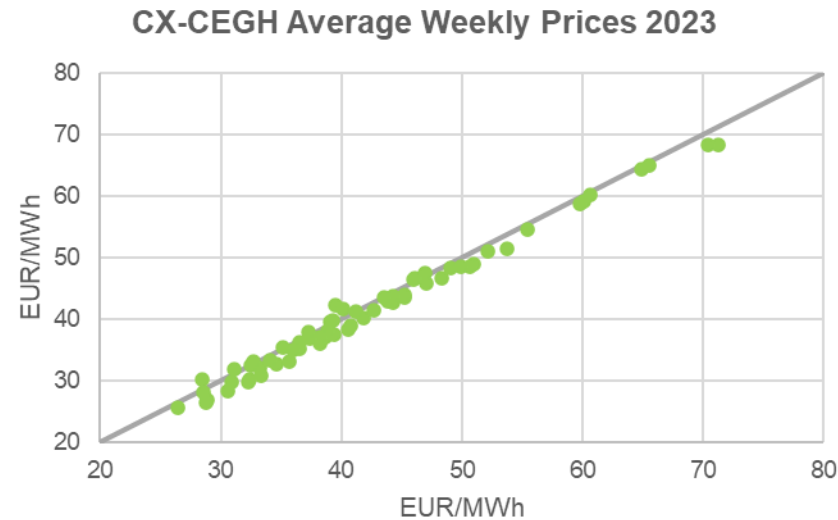
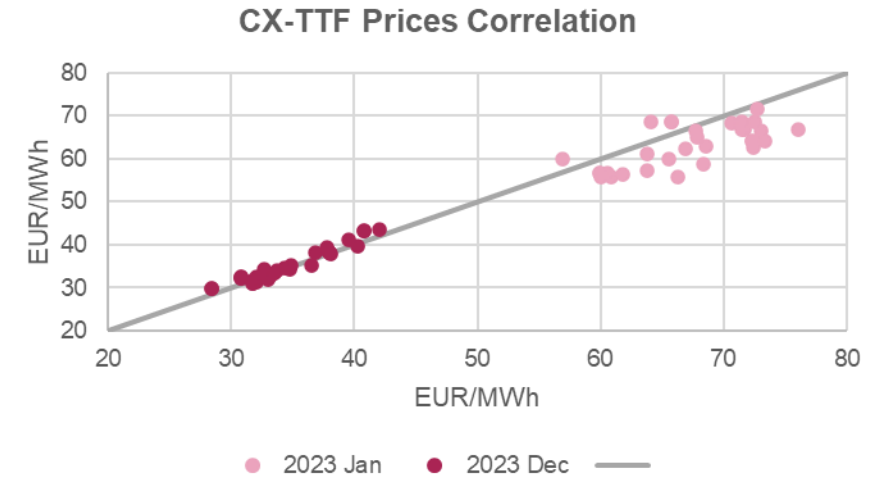
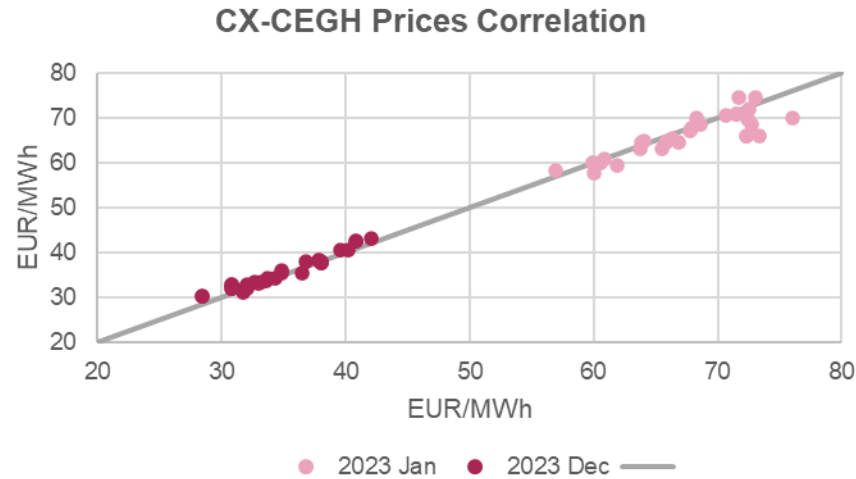
EXPERT OPINION:

- » 2023 CEEGEX yearly average churn rate was above 2022, because **traded volumes increased, while gas usage lowered.**
- » The domestic consumption further decreased in 2023 as consumers were trying to save more energy than in the last year due to the higher energy prices. Energy efficiency investments and mild weather had also contributed to energy savings.

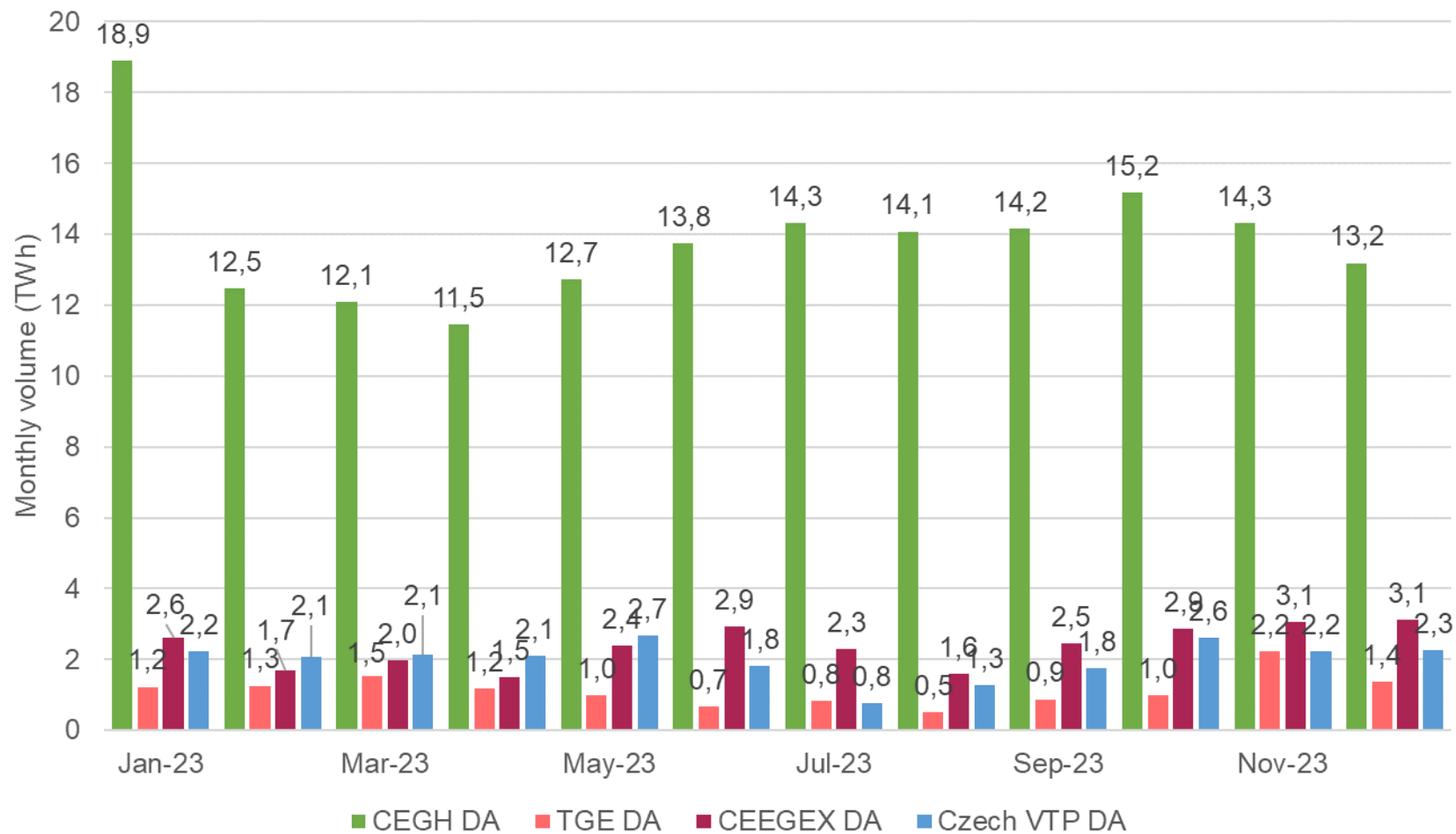
CEEGEX-CEGH, CEEGEX-TTF CORRELATION

EXPERT OPINION:

- » In 2023 the daily **CEEGEX - CEGH** and **CEEGEX - TTF** correlations remained **strong**, its values were above 0.97 (similar value to 2022).
- » The CEEGEX – CEGH correlation was stronger than the CEEGEX – TTF correlation.
- » In the first half of last year the prices lowered continuously, this caused that the correlations were wider.



REGIONAL SCOPE DA MARKETS



EXPERT OPINION:

- » **Traded volumes moved similarly** throughout the year on CEEGEX and regional benchmarks
- » CEGH volumes were more consistent, with a smaller difference between minimum and maximum values.
- » After 2022 record, traded volumes on the CEGH spot market started to moderate. Domestic consumption in Austria decreased since 2021.
- » Based on 2019-2023 average traded volumes **CEEGEX is the 2nd biggest spot energy exchange in the CEE and SEE region.**

YOY OTC LIQUIDITY

EXPERT OPINION:

- » The 2021 energy crisis served as a catalyst for the reorganization of energy trading and as a result **more and more OTC trades was diverted to the exchanges**. During the turbulent period, in order to **avoid the increasing partner and non-performance risks**, the market participants turned to safer transaction forms, **despite the higher collateral requirements**.
- » In 2022 collaterals have decreased to a lesser extent than gas prices.
- » In 2023 gas prices moderated YoY and collateral requirements were also revised down.
- » Nonetheless, the **lower share of OTC deals have stabilised and trading shifted to exchanges permanently**.

Historical share of traded volumes on the main European gas hubs*

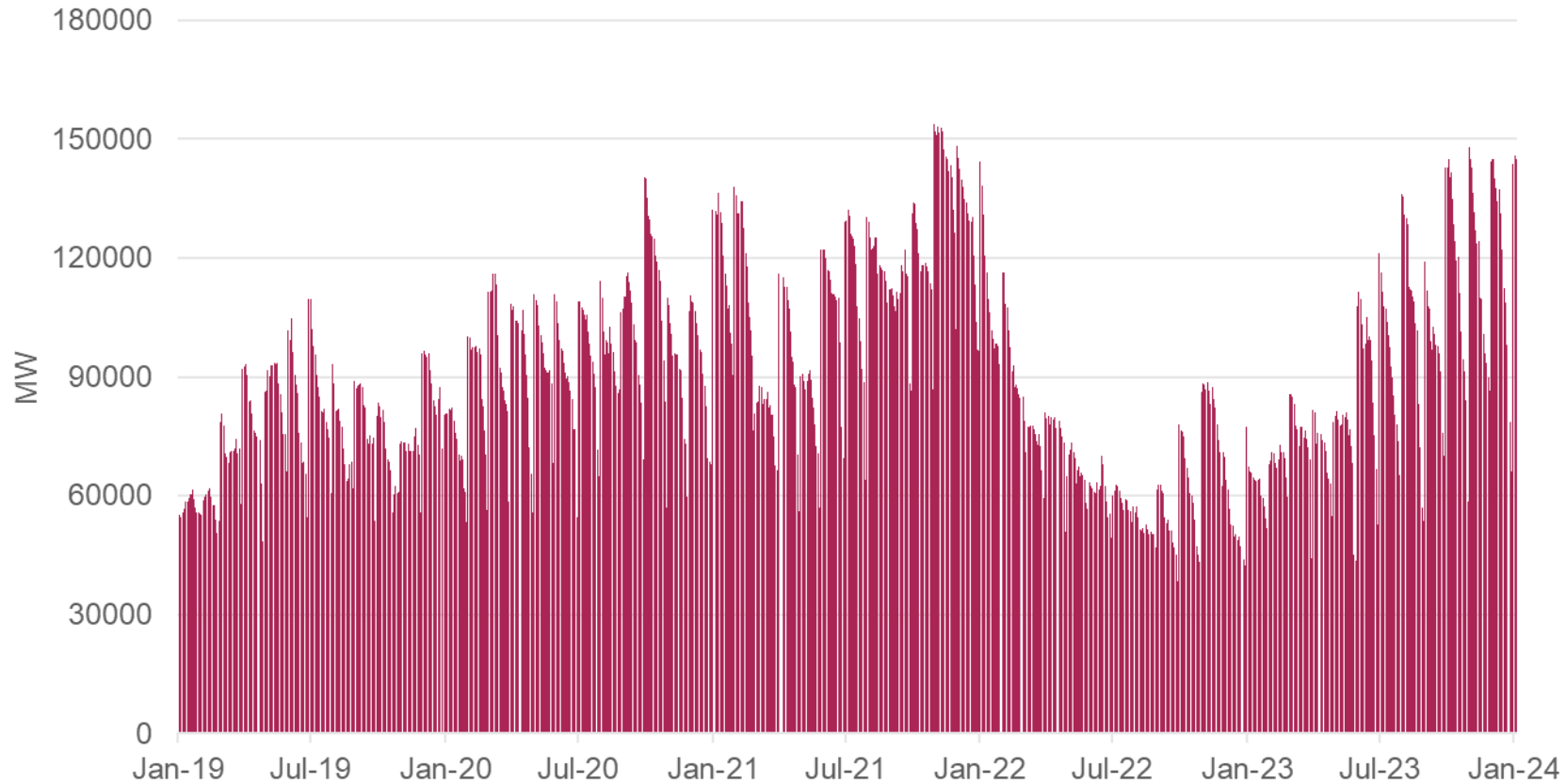


*TTF, THE, PEG, PSV, PVB, Zeebrugge, VTP, NBP

Sources: EC, Trayport

OPEN INTEREST

TTF MC1 Open Interest



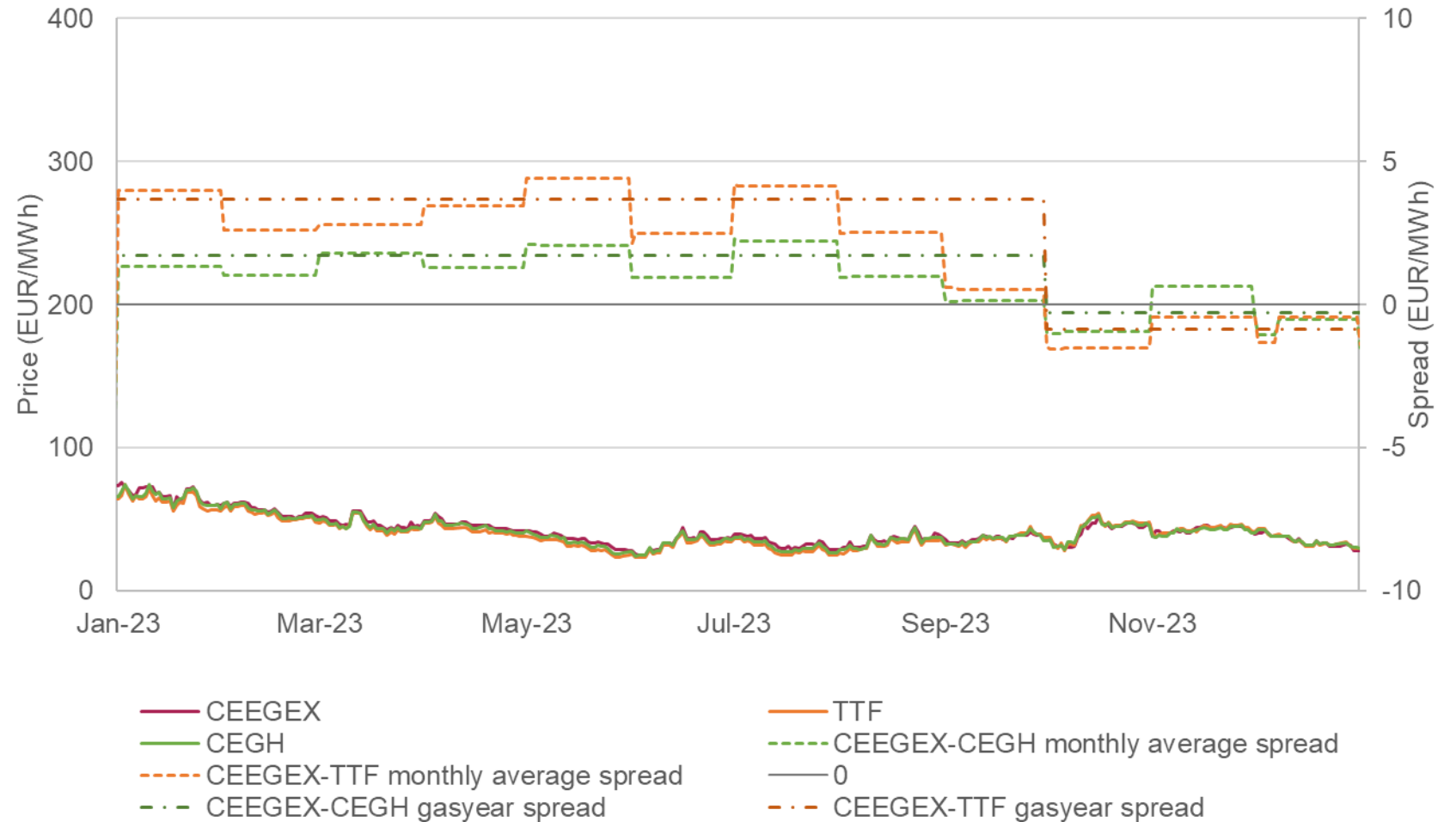
EXPERT OPINION:

- » Open interest is the **total number of futures contracts held by market participants at the end of the trading day**. It is used as an indicator to determine market sentiment and the strength behind price trends.
- » After the Ukrainian invasion the value of the open interest on TTF dropped and remained low during 2022.
- » In 2023 the **value of open interest increased despite high volatility and returned to crisis levels** at moderated prices.

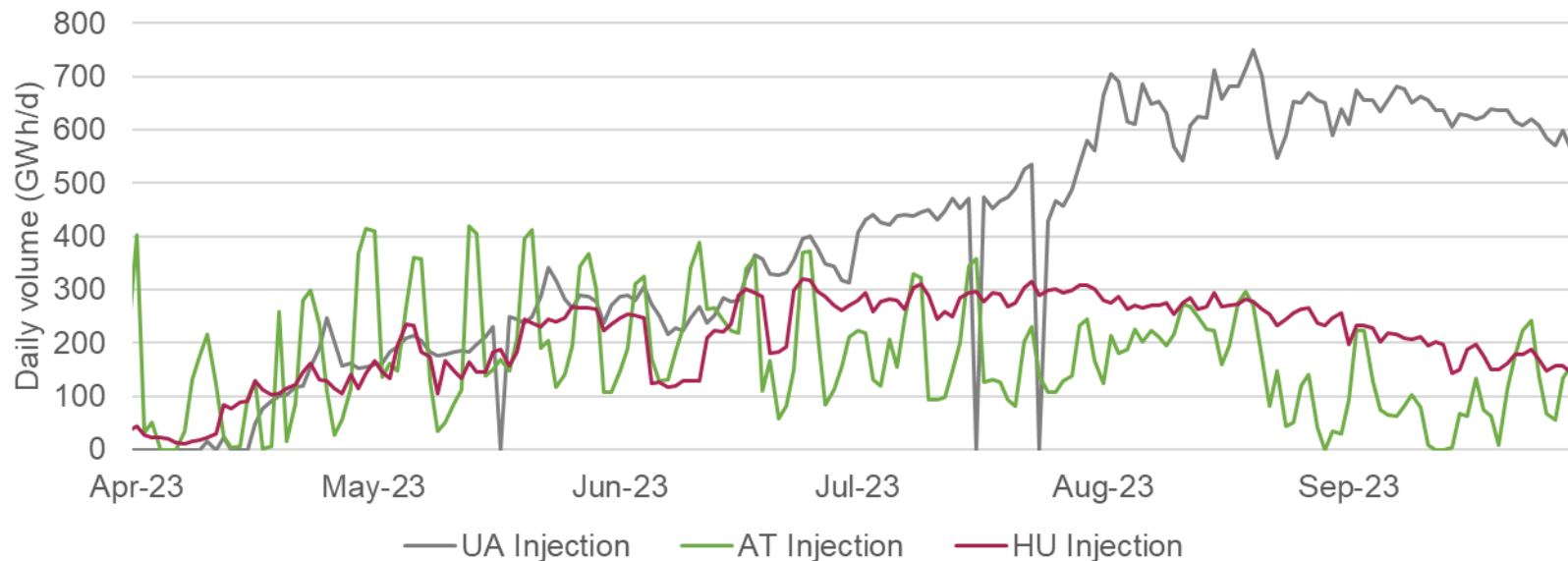
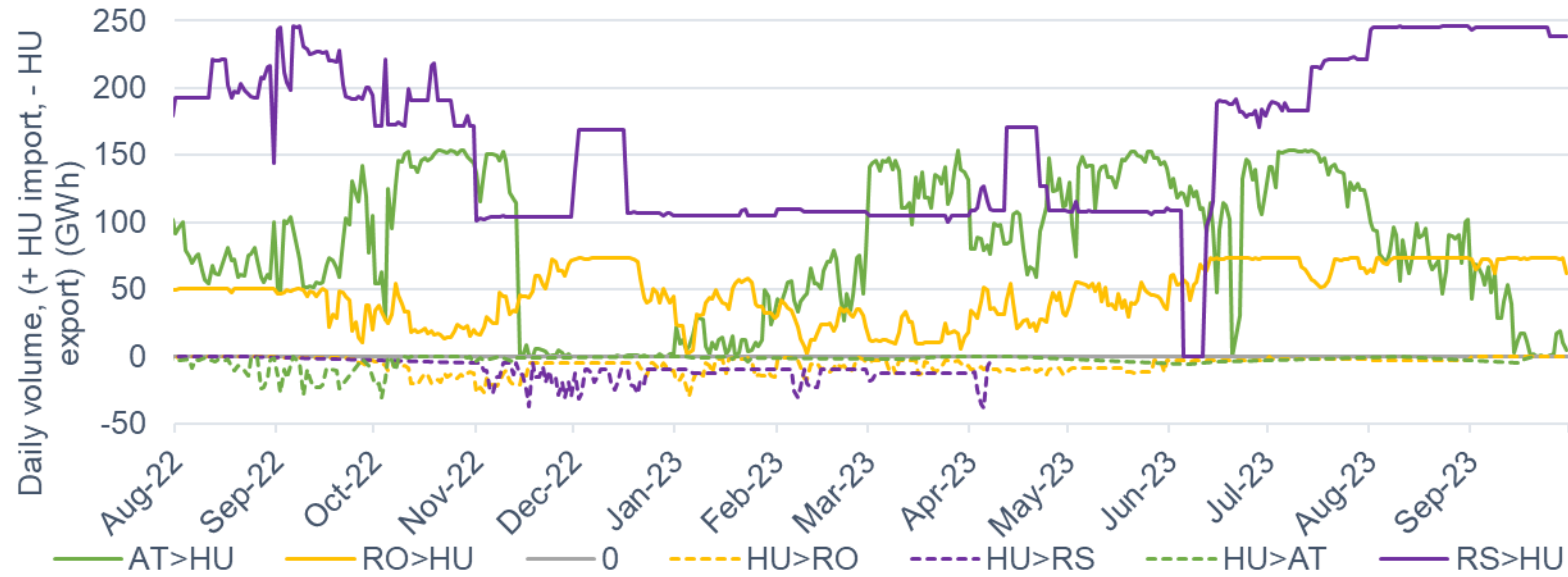
REGIONAL PRICES AND SPREADS

EXPERT OPINION:

- » **The correlation with CEGH and TTF continued to be strong.**
- » From the high prices of 2022 winter, regional prices gradually decreased until June and were less volatile in the second half of the year, the market situation has stabilised.
- » **In October 2023 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.



NEGATIVE CEEGEX - CEGH VTP SPREAD



EXPERT OPINION:

- » **During 2023 Q4** Hungarian DA and FM prices have **flipped to a discount** to Austria.
- » **Austrian gas imports** to Hungary in 2023 Q4 **have dropped**.
- » This was caused by two main reasons:
 - firstly, the almost **full gas storages** in Hungary,
 - and secondly, the **strong contractual imports**. Imports from Romania and Serbia were almost **at full capacity** at both interconnection points in the last two months until today.
- » Hungarian storage facilities were nearly **95%** full at the end of September, holding **~66.5 TWh**, which has increased to a very large extent compared to the same date last year (~70%, ~47 TWh).
- » The Ukrainian gas storages were still at **37%** capacity at the end of September, while the storages of the EU countries were almost **at full capacity**. Injections continued to **increase** in September in Ukraine.

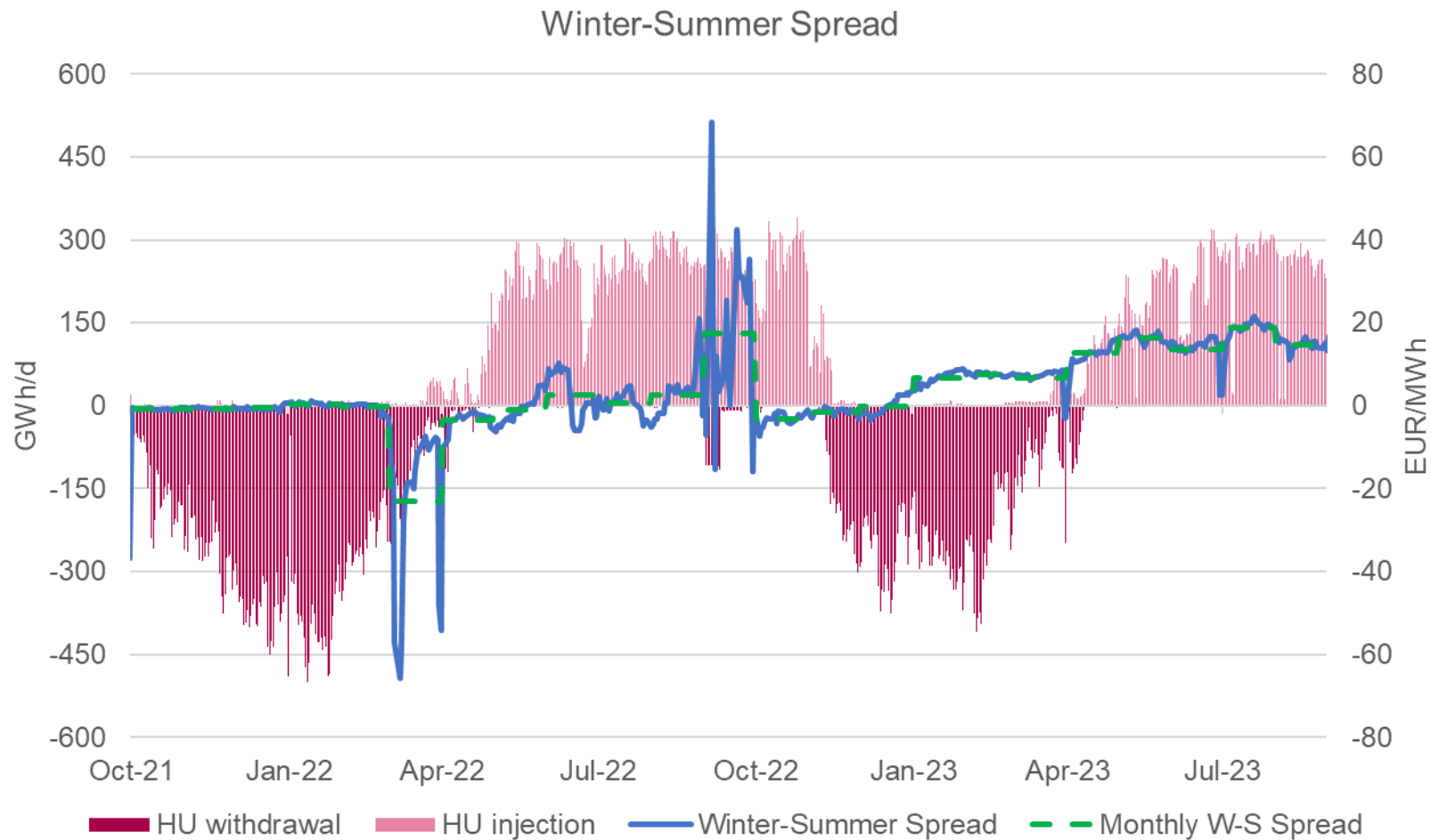
SPOT-FORWARD SPREAD



EXPERT OPINION:

- » In the past few years, **the spot-forward spread was mainly affected by sudden weather changes, storage levels and available supply.**
- » In February 2022 when the war between Russia and Ukraine outbreak both the spot and the forward market behaved in the same way, with heavily increasing prices.
- » By the second half of 2022, when the situation eased, the spot-forward spread widened, the uncertainty about future supply was only detectable in the forward market.
- » **This trend was still detectable in 2023, but high storage levels, mostly mild weather and sufficient LNG supplies closed the gap by the end of the year.**

WINTER-SUMMER SPREAD



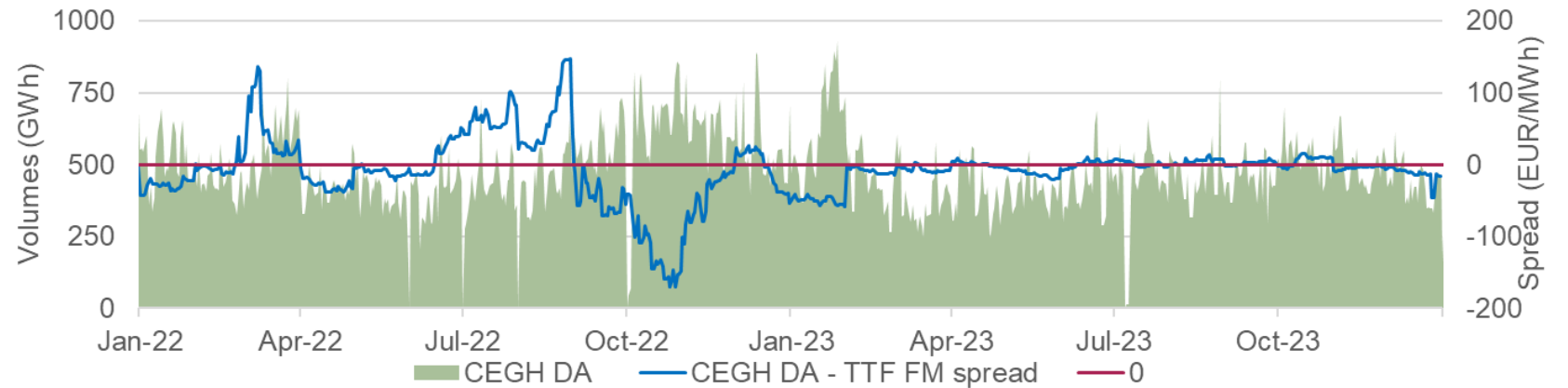
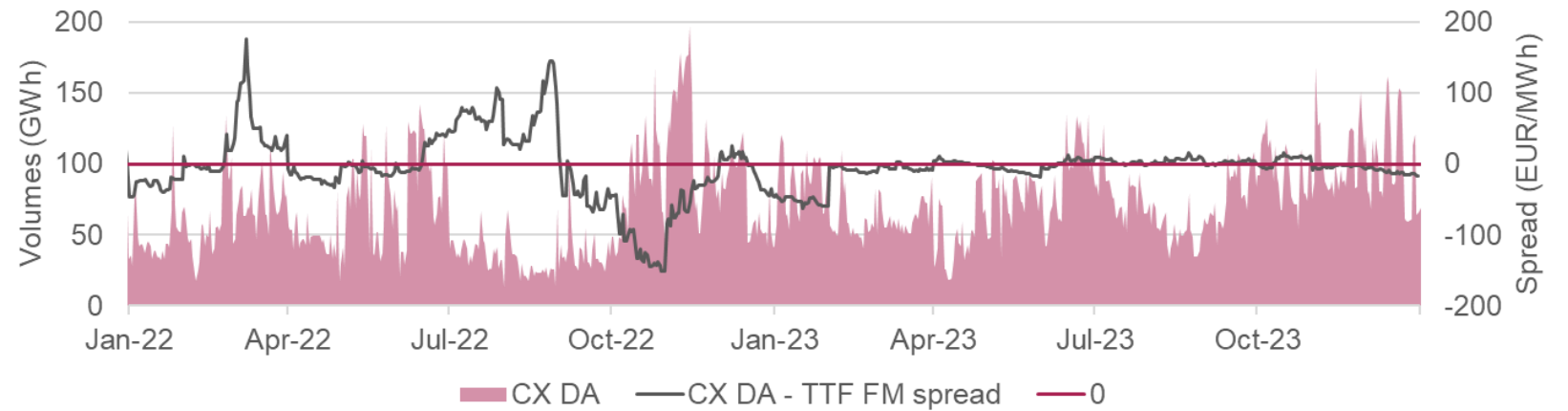
EXPERT OPINION:

- » **Before 2019**, the winter-summer spread was **close to zero**, fluctuations of a maximum of **2-3 EUR/MWh** were experienced.
- » **Between 2020 and 2022** there were some **larger swings**, for example on September 29, 2021, when the winter-summer spread was **-37 EUR/MWh**. This was due to the **coronavirus pandemic** and the **resulting economic crisis**.
- » **Since 2022**, larger jumps have been observed, and **since January 2023**, an almost **continuous increase** has been observed in the winter-summer spread. These increases are due to the **Russian-Ukrainian war**.
- » **In 2023 Q2-Q3**, the average of winter-summer spreads is **around 20 EUR/MWh**, which represents a very large change from the original value close to 0.

TTF FM-SPOT SPREADS

EXPERT OPINION:

- » Since 2023 February the spreads have remained around 0, which meant **there was no real incentive to trade spot volumes versus long term contract volumes** as opposed to 2022.
- » CEEGEX, CEGH spot and TTF FM prices were more correlated in 2023 YoY and these markets became more stable.



JAPANESE CANDLES LAST 3 MONTHS

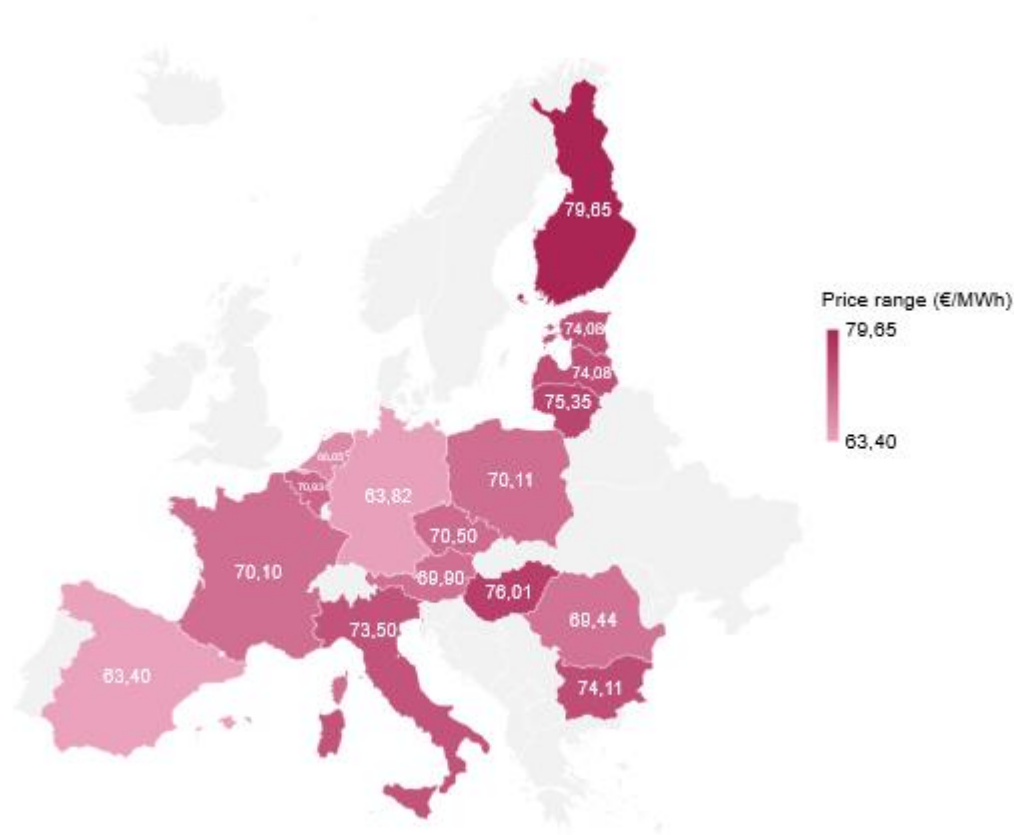


EXPERT OPINION:

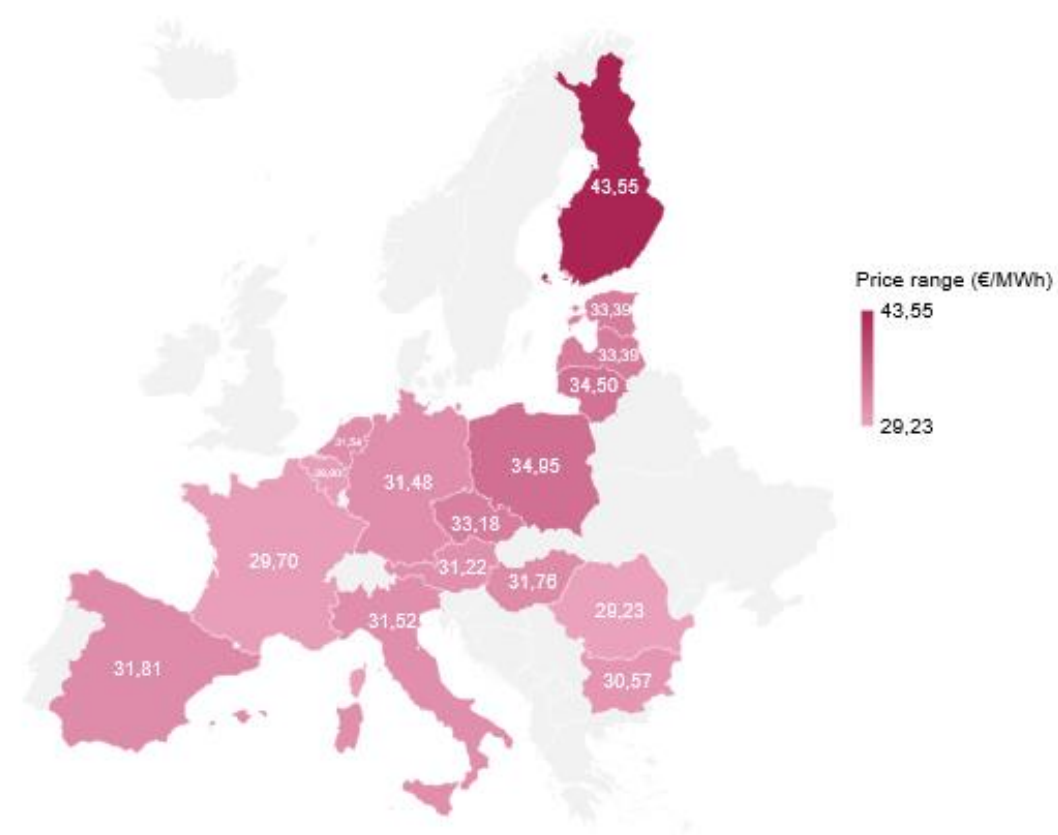
- » In 2023 the prices and volatility moderated YoY
- » One spike on 24 January due to a single high trade (15 EUR/MWh above the AVG daily price) at the opening, but further trades were in line with price levels of the previous days
- » On October 8, **natural gas and oil prices also increased due to various geopolitical events**, but they began to stabilize towards the end of year.
- » The following events might have had an impact on the price change:
 - Israel-Hamas conflict
 - Balticconnector gas leak
 - Australian LNG strike
 - Bulgarian tax

NATURAL GAS PRICES SNAPSHOT

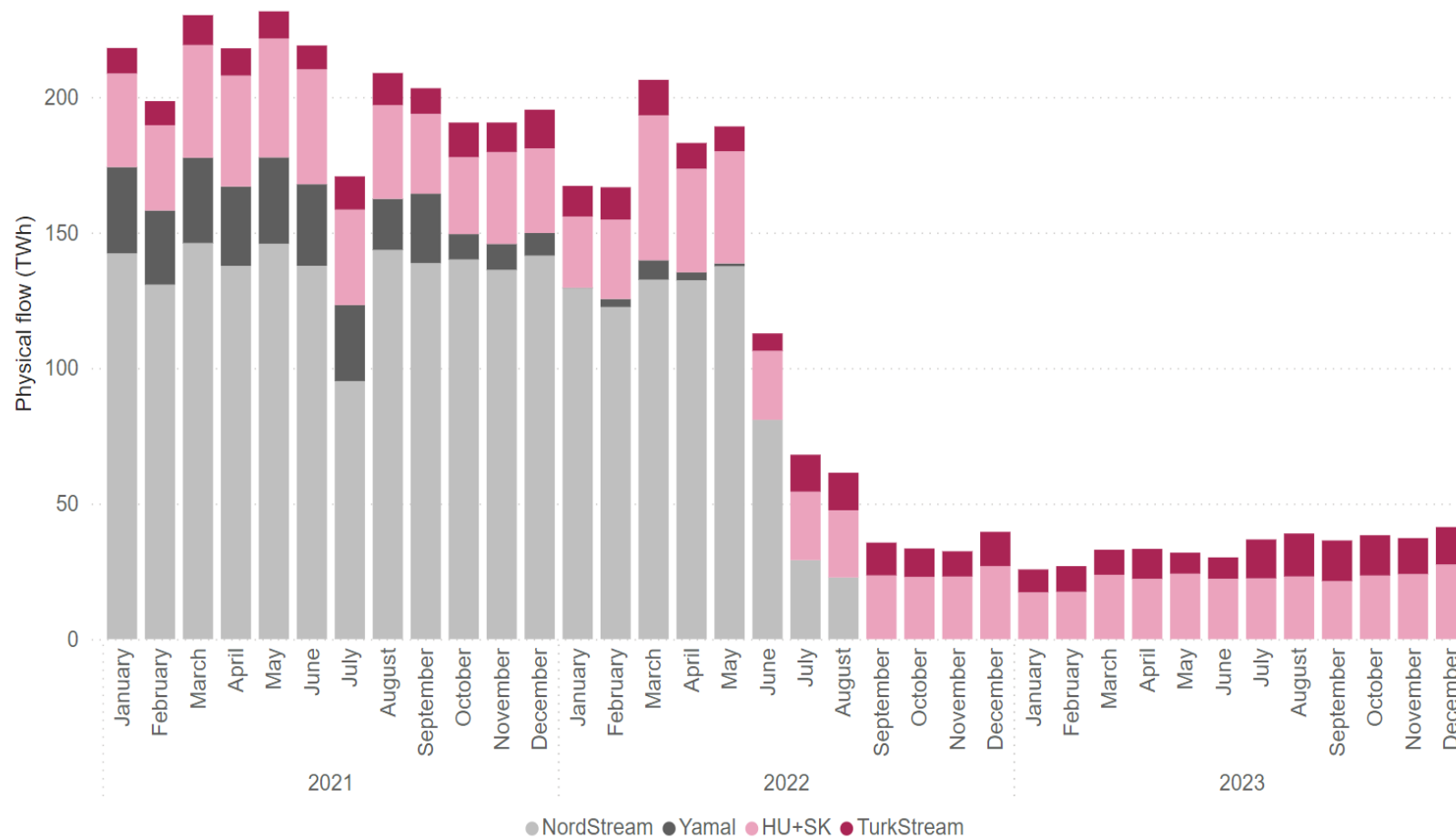
02/01/2023



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RUSSIAN GAS EXPORTS



EXPERT OPINION:

- » Russian exports to Europe via the Yamal and Nord Stream pipelines had not commenced in 2023.
- » However, volumes via TurkStream and the remaining flows from Ukraine have stabilized.
- » Natural gas deliveries via **TurkStream** fell during annual planned maintenances, but since then **started to increase, averaging around 14.5 TWh monthly**.
- » The volume change on the TurkStream pipeline is due to Hungary's new contract with Russia negotiated in April 2023.

STABILIZATION OF GAS AND CARBON MARKETS



EXPERT OPINION:

- » Due to stable Russian volumes in 2023, gas and carbon prices stabilized.
- » Despite Ukraine announcing that it will not transport Russian gas after the 2024 expiration of the current transit contract, Russian exports were stable in volume to date.
- » However, Europe must eventually find alternative sources or routes for these volumes, that have historically exceeded 12 bcm in most years.
- » Experts see a combination of upscaled LNG imports and potentially, using remaining southern routes from Russia (such as TurkStream), as a viable solution.
- » Historically, **carbon prices usually tended to move together with gas prices**. This had changed during the energy crisis between 2021-2022. In 2023 movements started to be similar again on these two commodity markets.

EU JOINT GAS PURCHASING MECHANISM

First round (Apr 25 - May 10):

- » Total volume of **11 bcm of gas demand** (LNG demand represented 2 bcm, 9 bcm is requested for delivery via pipeline)
- » **63 European companies** have submitted requests

Second round (June 26 – July 10):

- » Covered **16 bcm of gas deliveries** (~ half of the demand was LNG)
- » Requested by **49 companies**

Third round (Sept 27- Oct 4):

- » Aggregated demand was **record 16 bcm**
- » Submitted by **39 European companies**

Fourth round (Nov 28 – Dec 5):

- » Aggregated demand was **10 bcm**
- » **Matched 7 bcm of aggregated demand** with relevant offers

About the four tenders:

- » have covered **25 delivery points and 2 LNG virtual points** (North-West, and South-East).
- » **more than 54 bcm of gas demand** from European companies have been aggregated
- » **more than 61 bcm have been offered** by international suppliers.
- » AggregateEU has matched more than **42 bcm** to cover European demand.

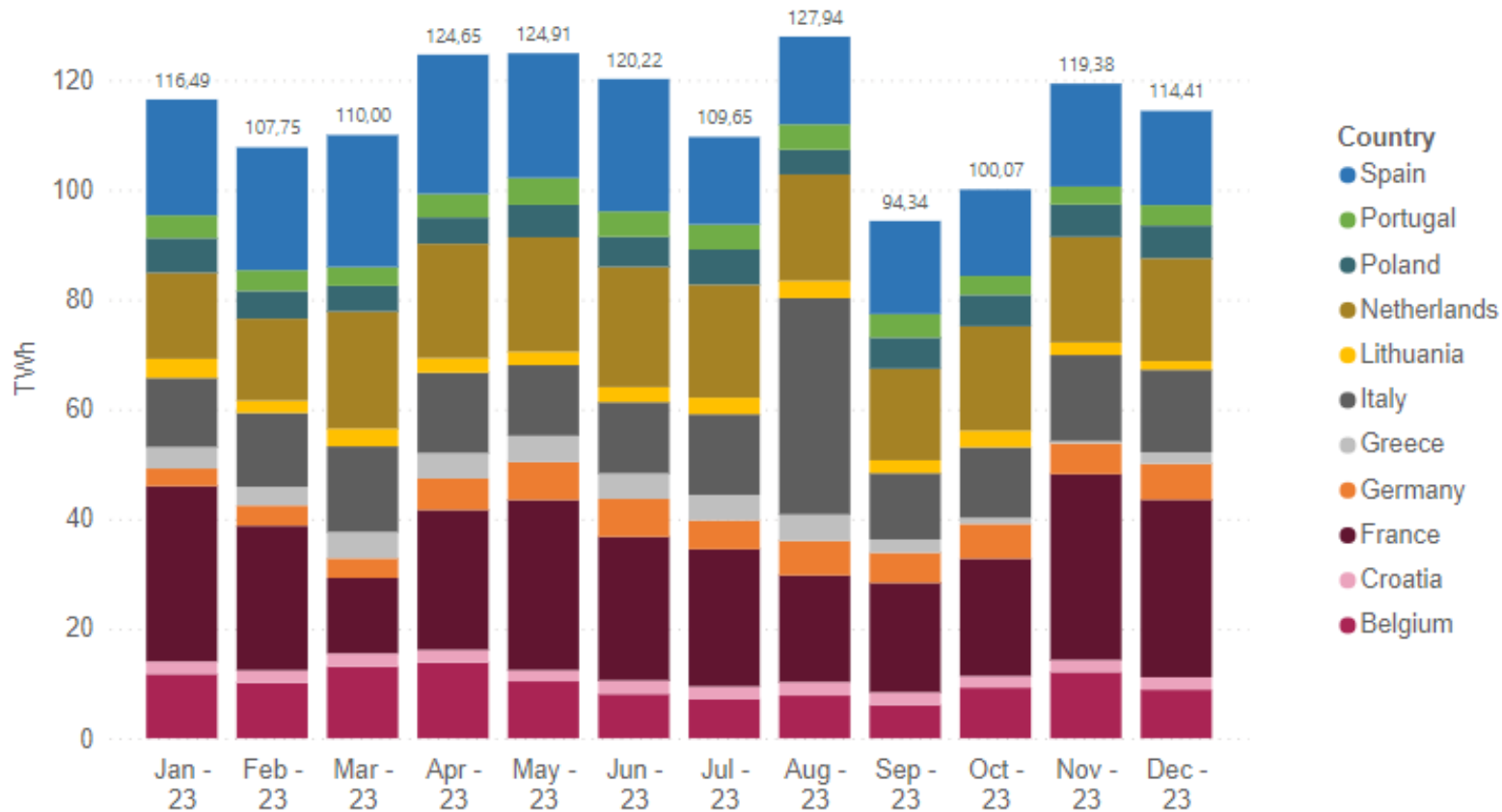
From **the professionals' point of view** the mechanism is **not supported due to other existing working solutions.**

Remarks by Executive Vice-President of the EC Šefčovič on the results of the third joint EU gas purchasing tender: **„a system that works should be a system that stays.”**

Nonetheless, there is lack of transparency regarding to data provided by the AggregateEU. Further shortcomings were articulated recently by industry representatives.

On 21 Dec, the **council adopt Commission's proposal of a 12 month extension of emergency Regulation EU/2022/2576**

LNG SEND-OUTS BY EUROPEAN COUNTRIES*



EXPERT OPINION:

- » **European LNG imports slightly (~4%) increased YoY.**
- » LNG send-outs were stable between 107-127 TWh, except for September and October. Most probably the drop was caused by lower demand amid milder weather.
- » Spain, France, Italy and the Netherlands sent out the highest volume of LNG
- » Europe has added six LNG terminals in 2023

• Excluding UK, Finland (data not available)

AUSTRALIAN LNG STRIKES

Gorgon plant

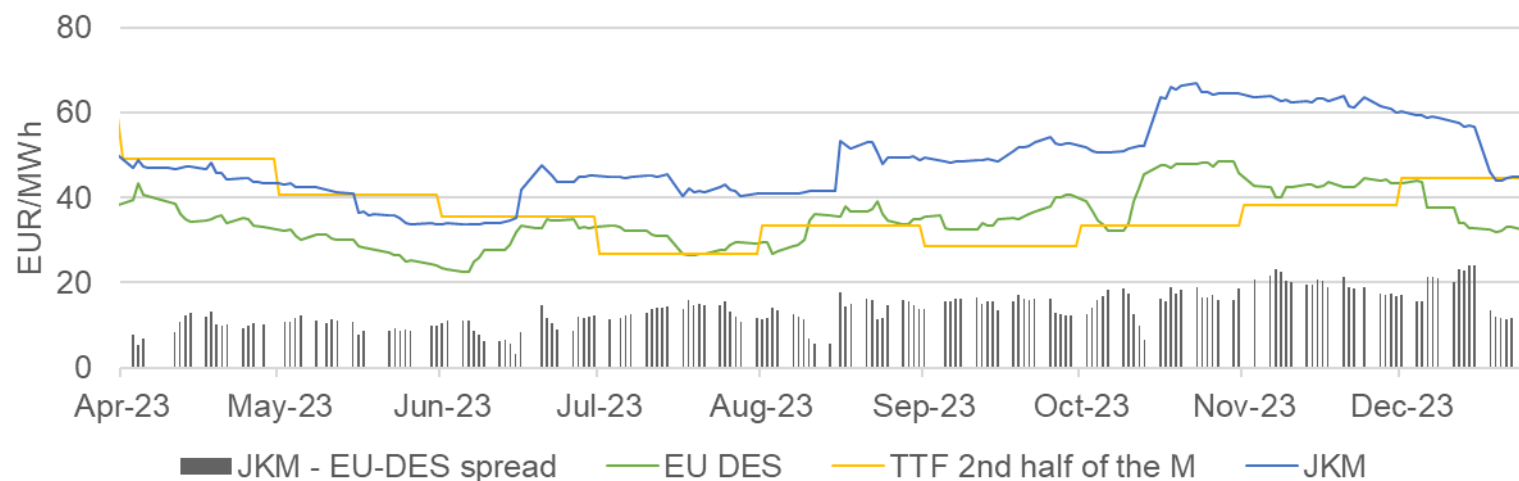
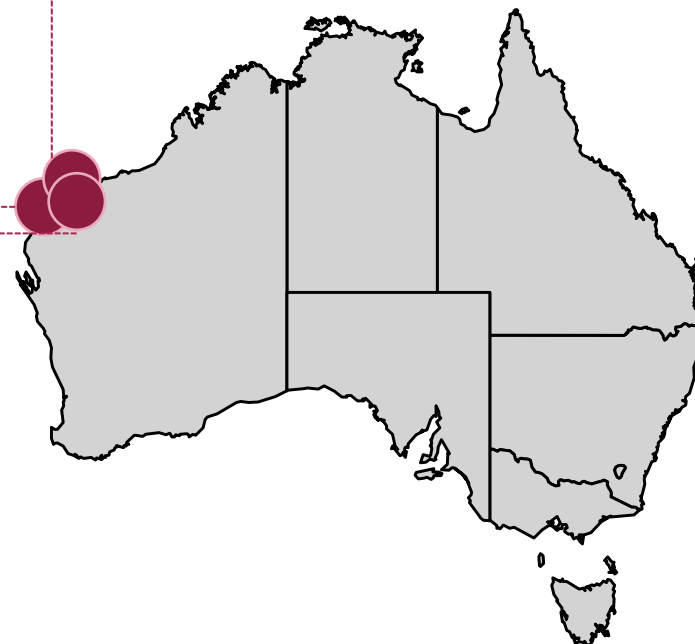
- » 3 LNG train
- » 190 TWh/y LNG facility
- » capacity to supply 80 GWh/d gas

Wheatstone facility

- » 2 LNG train
- » 110 TWh/y LNG facility

Karratha Gas Plant

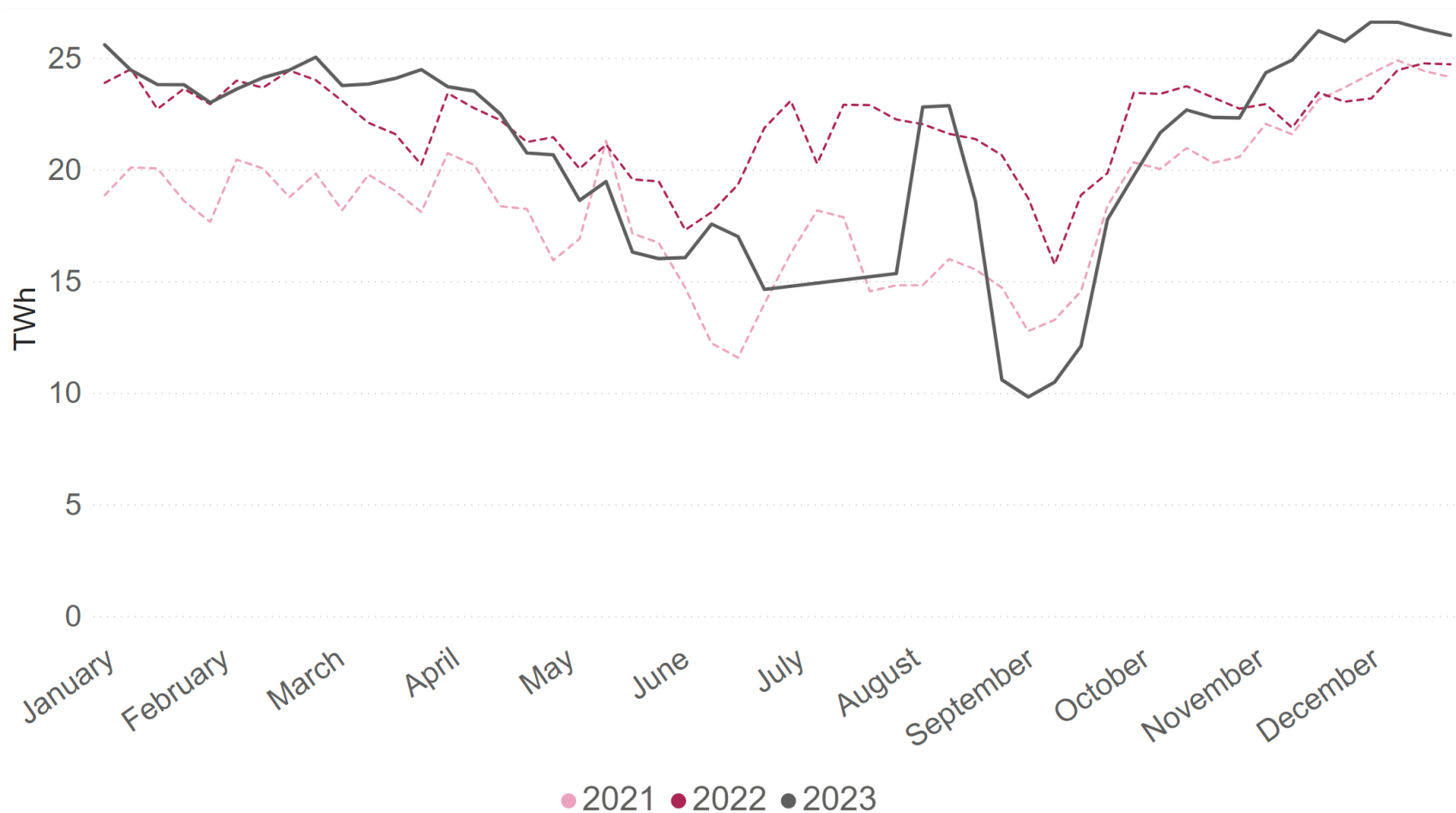
- » 5 LNG train
- » 200 TWh/y LNG facility



EXPERT OPINION:

- » **Chevron's and Woodside's workers** voted for industrial action in the beginning of August, however Woodside reaches an in-principle agreement by August 24.
- » **The strikes**, which began on 8 September at Wheatstone and Chevron's other Australian LNG facility in Gorgon, after negotiations between the company and the unions **over wages and working conditions broke down**.
- » **Workers at Chevron and the company reached an agreement** on Oct 18 before strikes were to resume.
- » **If supply from Australia is reduced, Asian buyers could turn to other LNG suppliers**, competing with Europe, for the duration of strikes. This is spurring temporary spot price volatility in the European gas market.

NORWEGIAN GAS IMPORT EUROPE



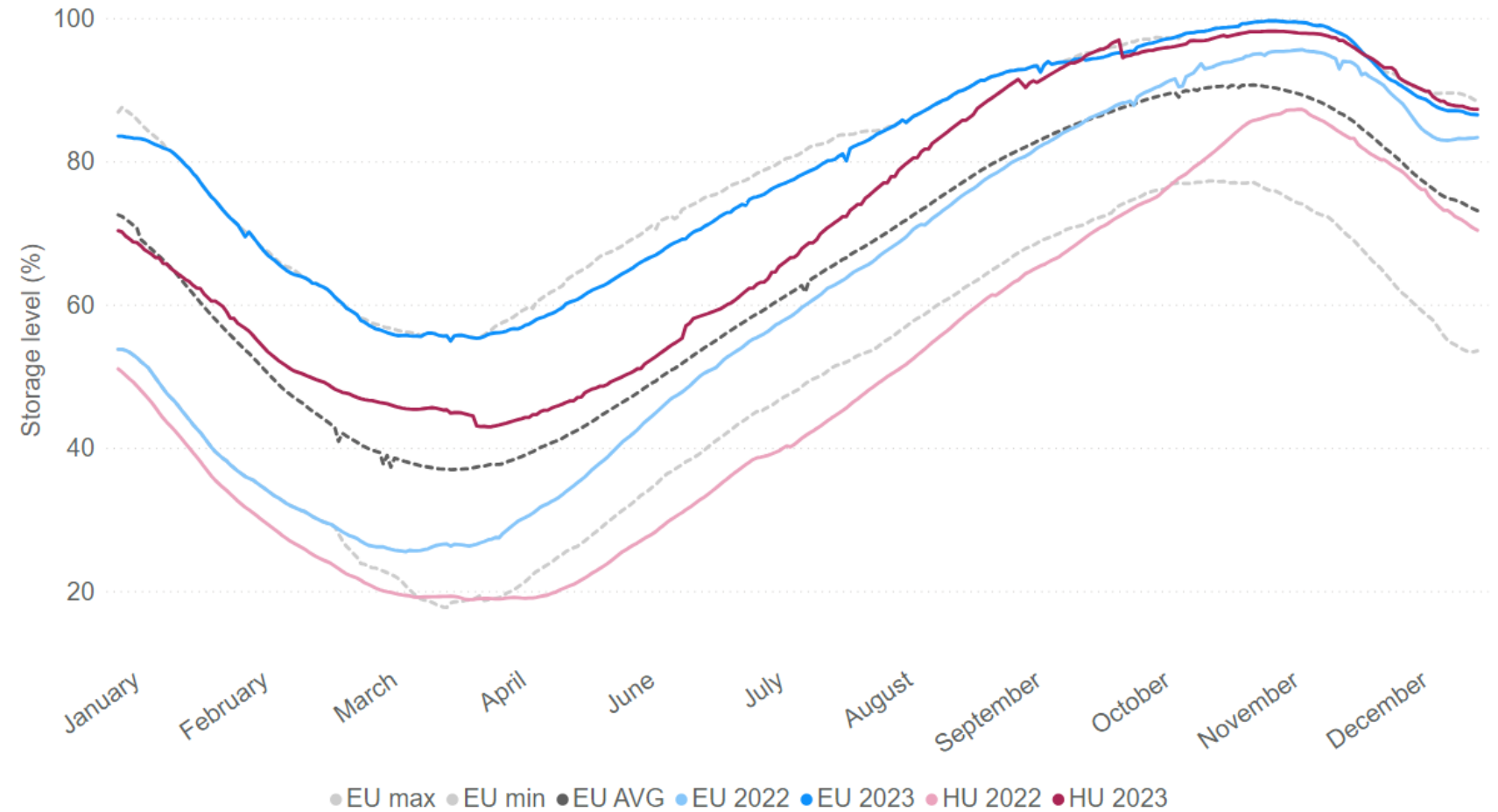
EXPERT OPINION:

- » **Norway has become the largest supplier of natural gas to Europe** after the continent cut ties with Russia following its war in Ukraine.
- » In 2023, **more extensive maintenance was needed in Norway**, after some deferrals of near-capacity operation of the network and export terminals in the previous year.
- » Pipeline gas supply to Europe between **January and August had dropped 6.4%** and **Norway's natural gas output hit a four-year low in September**.
- » Norway's export of natural gas via pipelines to Europe **hit an all-time high in December** but still declined by 6.7% overall in 2023 following lengthy maintenance outages.

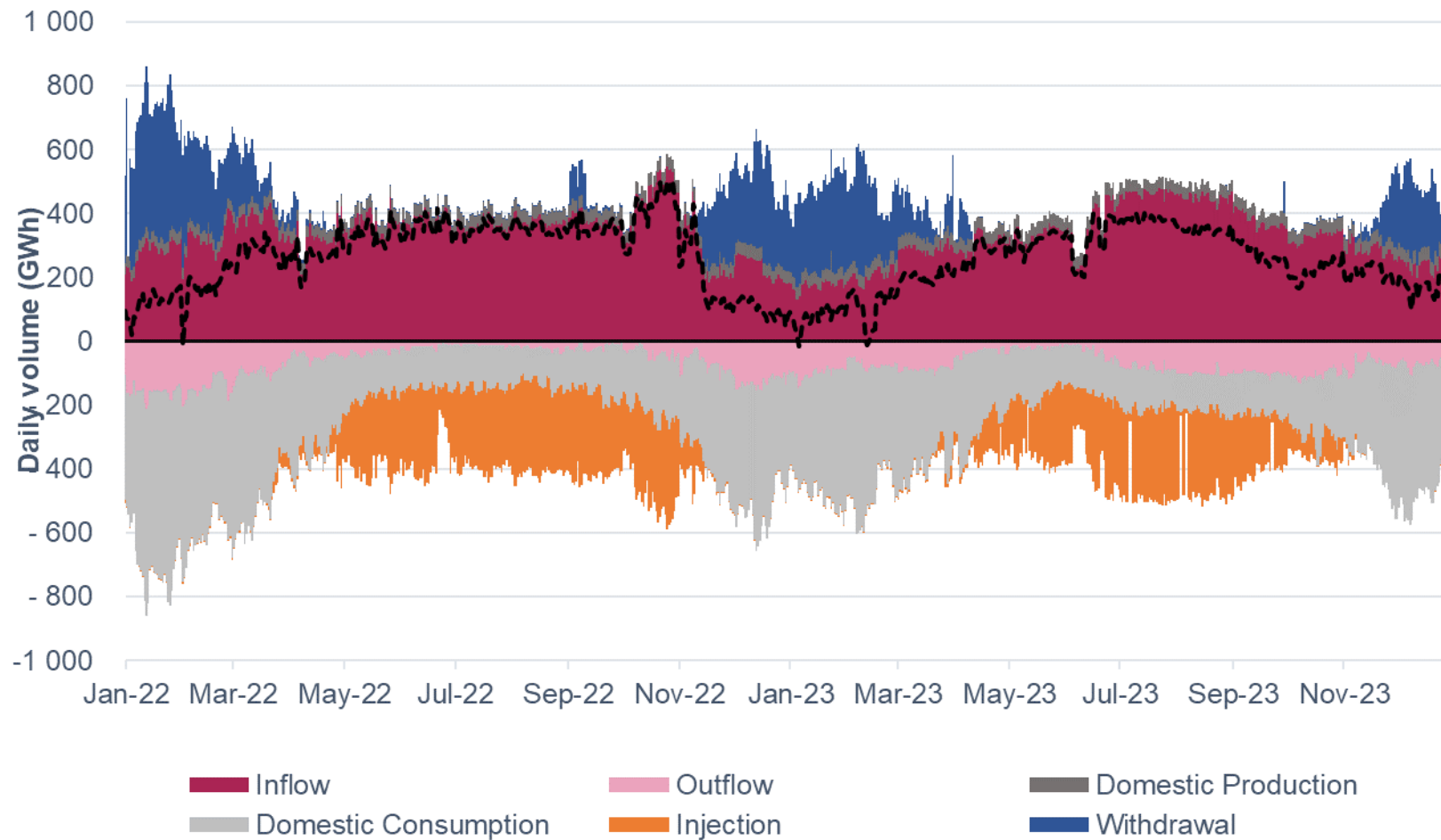
GAS STORAGE LEVEL IN EU AND HU

EXPERT OPINION:

- » The storage levels for the whole year were 20-30% higher compared to 2022
- » Some countries had already reached on 31 July the 90% target (BE, CZ, ES, HR, SE, SK)
- » Storages in Hungary and aggregated in EU reached almost 100% in November
- » After the gas crisis, the higher storage levels were priority in the EU
- » The pace of injections was high in Hungary despite the significant increase of storage tariff rates from April.
- » The injection fee increased by 800%, the withdrawal fee will increase by 550%, the multiplier of the formula for calculating the storage capacity fee will increase by 20% in comparison to the average between 2019-2022.



HUNGARIAN GAS MARKET BALANCE

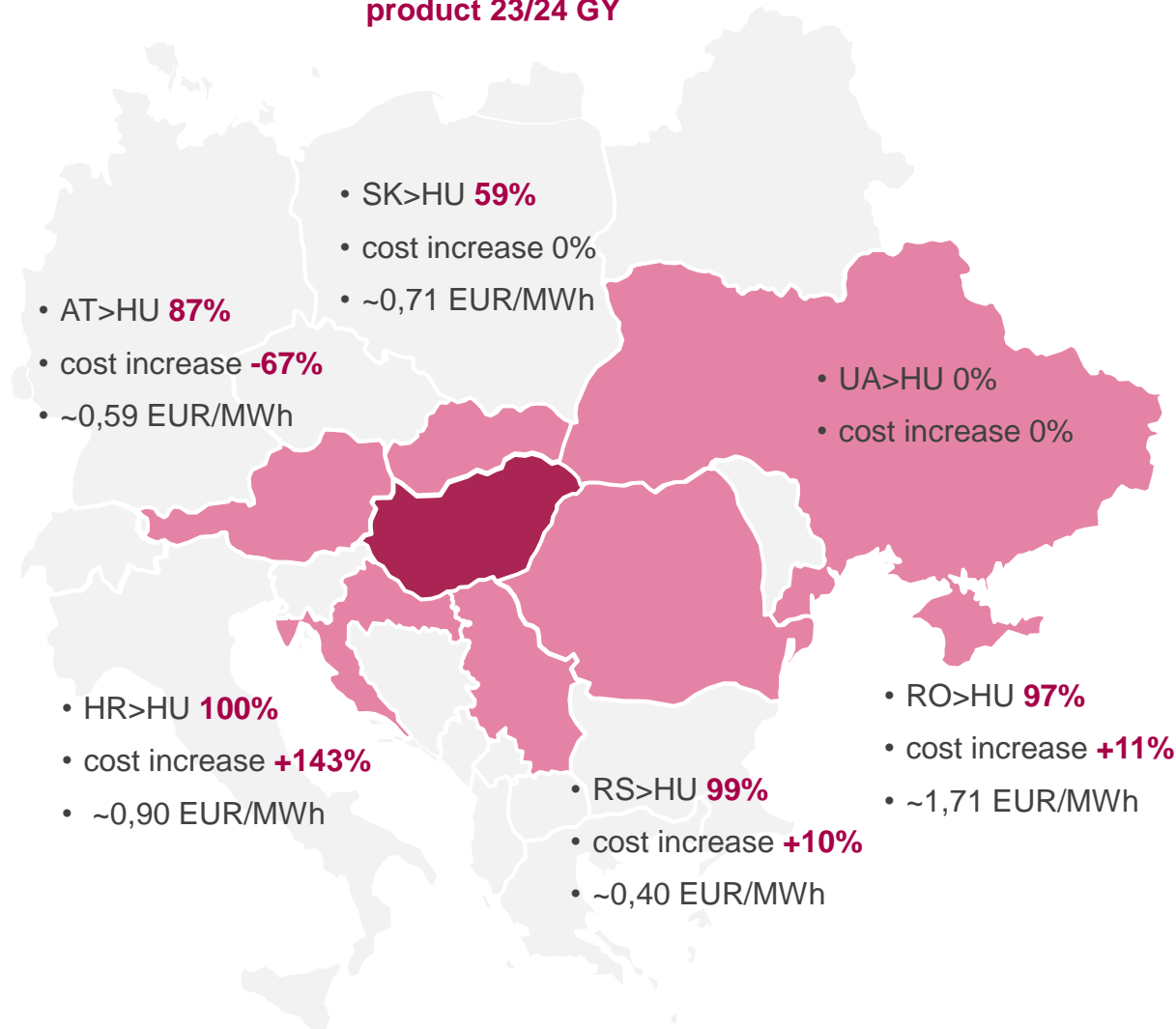


EXPERT OPINION:

- » **Gas consumption decreased YoY**, except for Q4, when temperatures dropped below seasonal values
- » **Overall imports have lowered YoY despite higher flows from RS** mostly due to the drop of AT imports, while exports to UA ramped up.
- » During the winter of 22/23 inflow reached its minimum. At that time the consumption were covered from the storages, withdrawal increased
- » Exports increased from July, mainly because of the injection to UA (from July to October), and outflow to Slovakia (from November to December)

YEARLY IP CAPACITY AUCTIONS IN JULY

Yearly Firm Bundled Capacity product 23/24 GY



Yearly Firm Bundled Capacity product 22/23 GY

- SK>HU 0%
 - cost increase 0%
- UA>HU 0%
 - cost increase 0%
- AT>HU **100%**
 - cost increase +262%
- RO>HU **100%**
 - cost increase +94%
- HR>HU **46%**
 - cost increase 0%
- RS>HU **72%**
 - cost increase 0%

EXPERT OPINION:

- » AT>HU: As last year, there was an overbooking for the capacity, but there were fewer participants and auction rounds which meant a lower auction premium.
- » RO>HU: This year, more market participants took part in the auction, the premium increased. The allocated volume was three times higher than last year.
- » HR>HU: Most probably the same two companies took part in the auction, bidding for the same volume as last year.
- » SK>HU: It was the first time when someone booked annual capacity for this interconnection point. The auction ended in the first round with no auction premium.
- » RS>HU: There was only one participant, but the capacity allocated was 30% higher, than last year.
- » TSO capacity tariffs increased from Oct
- » TSO Entry fee change: +9,8% (YoY), TSO Exit fee change: +5,1% (YoY)