



European Union Agency for the Cooperation
of Energy Regulators

The background of the cover is a photograph of an industrial facility, likely a power plant or refinery. It features large, curved metal structures, walkways with railings, and a worker in an orange protective suit and white hard hat. The sky is a deep blue.

ACER

Market Correction Mechanism

Preliminary data report

23 January 2023

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Preliminary data report

23 January 2023

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Table of Contents

1. Executive Summary.....	4
2. Gas price developments	9
2.1. Observed results and market effects related to price developments	9
2.2. Potential market effects and risks related to price developments	16
3. Gas flow developments.....	17
3.1. Observed results and market effects related to flow developments.....	17
3.2. Potential market effects and risks related to flow developments	25
4. Gas trading developments.....	26
4.1. Observed results and market effects related to trading developments	26
4.2. Potential market effects and risks related to trading developments.....	32
Table of figures	33
List of abbreviations	34

1. Executive Summary

The mandate and the Agency reports

Council Regulation (EU) No 2022/2578 on *Establishing a market correction mechanism to protect citizens and the economy against excessively high prices* tasks the European Union Agency for the Cooperation of Energy Regulators ('ACER') and the European Securities and Markets Authority ('ESMA') with the publication of a Report to assess the market effects resulting from the introduction¹ of the market correction mechanism ('hereinafter MCM'). As part of this task, ACER and ESMA shall publish a preliminary data report concerning the introduction of the MCM by 23 January 2023, focusing on the developments in the *financial and energy markets and on security of supply* so far. A final report will be produced by 1 March 2023, offering a more comprehensive outlook.

The two Agencies deliver independent preliminary reports. Given the different legal mandates and respective focus of ACER and ESMA,

- The ACER preliminary data report focuses on assessing the current energy market developments, including EU hubs and liquefied natural gas ('LNG') price developments, demand and supply developments and infrastructure utilisation and bottlenecks, security of supply, as well as observations on traded volumes in selected EU hubs and for selected products. The focus of the ACER report is in line with the Agency's legal mandate to monitor the functioning and transparency of energy markets.
- The ESMA preliminary data report focuses on market indicators aimed at assessing the potential effects of the adoption of the Regulation on energy derivative markets, including evolution of volumes and open interests and potential shift of activity from trading venues to over-the-counter ('OTC') trading. The ESMA report also includes a more qualitative analysis of the risks to Central Clearing Counterparties ('CCPs') risk management and the potential impact on the clearing of energy derivatives arising from the introduction of the MCM. The focus of the ESMA report is in line with the legal mandate entrusted to ESMA to contribute to the stability and effectiveness of the financial system, notably through the transparency, efficiency and orderly functioning of financial markets.

No significant impacts can be attributed to the adoption of the MCM

The MCM is a price intervention mechanism targeting financial derivatives traded at EU exchanges with an expiration date of a month to twelve months maturity. According to Article 4 of the Regulation, the mechanism is activated if the following two conditions are met: the front-month TTF (i.e., Title Transfer Facility) derivative settlement price is above 180 EUR/MWh for three consecutive trading days and, it is 35 EUR/MWh higher than an EU reference price. The latter is built on Article 2(6) and refers to a price basket of selected LNG markers (including the front-month NBP derivative settlement price). The correction mechanism could be activated as of 15 February 2023, provided that both of the aforementioned price conditions occur.

The main purpose of this report is to capture the impact of the MCM following its adoption by the Council and to identify potential effects related to financial and energy markets and security of supply. So far,

¹ Across this report, 'the adoption of MCM Regulation' refers to 20 December 2022. The mechanism could be activated as of 15 February 2023. 'MCM activation' refers to the 20-day period when the MCM is activated as a market correction event. Such a market correction event would occur when the front-month TTF derivative settlement price exceeds 180 EUR/MWh for three working days while simultaneously exceeding a reference price formed by LNG import price indexes and the front-month NBP settlement price by 35 EUR/MWh.

ACER and ESMA have not identified significant impacts (positive or negative) that could be unequivocally and directly attributed to the adoption of the MCM. However, one should not infer from this that the MCM might not have any impact on financial and energy markets in the future.

Market dynamics driving prices

The adoption of the Regulation coincided with a time when prices were significantly lower compared, notably, to the second half of 2022. ACER cannot conclude that the market dynamics in the first weeks of 2023 are a direct or indirect effect of the approval of the MCM Regulation.

There are different factors that explain the changing market dynamics since December 2022 and extending into the first weeks of 2023. During 2022, front-month TTF gas prices were above 180 EUR/MWh for several weeks and reached their peak in August, during the gas storage filling season. However, prices have fallen to levels below the MCM activation threshold since end-September 2022. More specifically, between 20 December 2022 and 18 January 2023 front-month TTF prices further dropped by circa 40% to levels of 65 EUR/MWh in mid-January 2023.

The price drop since end September resulted from a combination of factors. Among them is demand reduction² in energy-intensive industries due to the high price levels. The introduction of energy efficiency measures adopted by both industrial and household sectors have equally contributed to a fall in demand. Storage filling levels³ are above last years' averages⁴, and have also contributed to driving prices down. Filling levels stand at 80.5% as of 18 January 2023 (in contrast to 47% in January 2022 and 65% in the last four years' average). Moreover, in the immediate month after the Regulation's adoption, winter weather has been significantly milder than usual in Europe, which, together with rising power generation from renewables and nuclear production gradually recovering, has also reduced gas demand. This took place alongside an overall gas supply situation that remained robust, with in particular LNG imports reaching record high levels and storages.

From a global perspective, this should be seen in the context of gas consumption in Asia during the last months of 2022 remaining limited, not least in light of moderate-to-low economic growth in China. Consequently, global demand and price competition for LNG volumes have not picked up. In that context, the spread between the TTF front-month price and the EU LNG import price has narrowed, hovering between 5 and 8 EUR/MWh during the first weeks of January 2023. This relatively narrow spread was in turn supported by new LNG import terminals entering into operation in North West Europe. The addition of regasification capacity impacts the second condition for the activation of the MCM as it reduces the spread between the LNG import price to the EU and the TTF.

Potential effects and risks to be monitored going forward

ACER and ESMA have designed the two preliminary reports in close cooperation and taking advantage of the different, yet complementary, perspectives of energy and financial market regulators. The two reports focus on factors relevant for the observed effects assessment, while they also include elements to assist the detection of potential effects and identify risks that need to be monitored in the future. To

² Member States agreed to reduce their gas demand by 15% compared to their average consumption in the past five years, between 1 August 2022 and 31 March 2023 with measures of their own choice.

³ Storages being a key flexibility source in the winter.

⁴ EU gas storages were filled in 1 November 2022 at 95%, seven percentage points above the last 4 years average. The Regulation (EU) 2022/1032 with regard to gas storage, requires Member States to fill EU storage sites to at least 90% of their capacity by 1 November each year (the target for the first year, 2022 being only 80%) and to follow a certain filling trajectory and measures to achieve the established threshold.

that end, both Agencies are proposing indicators to continue monitoring market developments and help detect potential impacts of the MCM.

These indicators aim at identifying a number of potential effects that were discussed during the negotiations of the MCM Regulation. In this Report, ACER does not discuss the likelihood of these effects being realised. ACER's view on the impact of the MCM will be more thoroughly discussed in the 1 March effects assessment report. The Regulation itself recognises several potential risks in Articles 4, 6 and 8.

- By limiting the key price discovery function of markets, the MCM might not come without consequences on market participants' trading behaviour and may have an effect on the ability of all market participants to effectively manage their risks.
- The MCM could potentially lead to the relocation of trading volumes from EU gas exchanges to over-the-counter markets⁵ and / or to other organised marketplaces within or outside the EU, such as the British National Balancing Point (NBP) or the Chicago Mercantile Exchange (CME).
- The MCM could have a potential impact on security of energy supply if, for example, the price levels put in place via activation of the MCM were to lower the attractiveness of EU markets for global LNG supply.
- The MCM could potentially lower levels of market-based gas flows between the Union's different market areas, which would lead to a less integrated internal gas market.

At the same time, the MCM could already impact gas markets ahead of an activation event. For example, exchange Central Clearing Counterparties⁶ may increase the margins required for traders to conclude transactions. This measure could be applied should the MCM impact the credit margin models as well as in the default management procedures. These procedures are required under EU regulations⁷ and are assessed in the ESMA Report.

ACER notes that the MCM Regulation includes several safeguards aimed at preventing some of the risks referred to in this report⁸. Notably, the Regulation establishes a dynamic bidding price limit 35 EUR/MWh above a basket of indexes reflecting LNG import prices. In this way, the MCM aims at preserving the incentives to import LNG to the EU. Moreover, this dynamic bidding price limit - as opposed to a static one - is intended to mitigate possible adverse effect of the MCM on the orderly functioning of derivative markets, reducing in this way the risks for central counterparties. The assessment to be carried out by ACER and ESMA will review the effects of these design features based on the indicators proposed in these two reports.

⁵ OTC markets comprise decentralised networks of buyers and sellers. Financial institutions acting as brokers tend to intermediate trading activity. OTC trading can also take place bilaterally, whereby the counterparties have direct relationships with each other. In contrast, exchange trading takes place on a multilateral basis with a single centralised order book by exchange operators and all buyers and sellers interacting with each other at the same time).

⁶ Central Clearing Counterparties are financial institutions that take on the counterparty credit risk between the parties concluding a transaction, providing clearing and settlement services for the trades. Seated between the trading counterparties, CCPs are becoming the buyer to every seller and the seller to every buyer. See further considerations in [ESMA's site](#).

⁷ If a clearing participant defaults, the CCP must continue to meet its obligations to the other counterparties. CCPs manage this risk by holding prefunded financial resources in the form of margin and a default fund. Clearing participants must meet any margin requirements and contributions to the default fund by posting collateral (cash or high-quality liquid assets) with the CCP, in accordance to the relevant regulations.

⁸ See Recitals 22-23 of the MCM Regulation.

Indicators proposed to assess and monitor the effects of the Market Correction Mechanism

To assess potential MCM effects, ACER proposes to use eleven market indicators. These are distributed across three areas – gas prices, flows and trades – and are presented under the three sections below:

- The first section looks at gas price aspects, assessing the development of selected gas price indexes and the evolution of price spreads between gas hubs.
- The second section reviews gas demand and supply dynamics, gas flows and infrastructure use evolution.
- The third section looks at gas trading activity developments at both exchanges and OTC gas markets.

For each indicator, ACER first assesses their results prior to and after the adoption of the MCM Regulation, i.e., as of 22 December 2022. Next, ACER outlines the key observed results and market effects so far. Finally, and for each of the three sections, ACER lists the main considerations about the related risks to be monitored in the future.

Some indicators could show impacts with a certain delay, while others may provide information earlier, i.e., also before a potential activation of the mechanism. ACER and ESMA, in their distinct reports, also point out that some effects, like energy companies' risk strategy assessments, could already be under review, independently of the activation of the mechanism.

Disclaimer on the data series used for the proposed indicators

The analysis presented in the preliminary data reports has certain limitations, since it has been compiled in a short period of time⁹. The MCM Regulation was published on 22 December in the Official Journal of the European Union ('EU'), and the publication deadline for the preliminary data report is 23 January. The two reports build on various data sources, including both Agencies' own ones as well as commercial data. Consequently, the data granularity of the reports differ.

It shall be noted that the 'market effects' assessed in this preliminary data report refer to the period from the end of December 2022 to mid-January 2023. The current data report is therefore not necessarily representative of the potential market effects that the MCM could produce in the future, as the period analysed in this preliminary data report is short and furthermore influenced by rather specific market conditions representative to the last four weeks.

Moreover, the indicators presented in this report are based on the data available at the time of its completion. While the analysis does not identify any particular MCM related effects yet, ACER sees value in presenting and discussing in this report those indicators that it intends to use in the final effects report, due on 1 March 2023. ACER welcomes stakeholder feedback to ensure that the indicators it intends to use are indeed relevant, objective and viewed in their entirety complete.

⁹ The ACER analysis is underpinned by a select number of indicators on the one hand and stakeholder calls on the other (e.g., ABN AMRO Clearing, European Energy Exchange (EEX), the European Federation of Energy Traders (EFET) and ICE Endex), both focusing on the evolution of the gas and electricity market and infrastructure.

ACER request for feedback

ACER invites stakeholders to provide input on this assessment. Stakeholders are welcome to provide their views on the following topics:

1. Are there any potential effects that could be triggered by the MCM, and early warning signs that should be monitored, that have not been identified in this ACER report?
2. Are there any indicators that you consider relevant for assessing the effects of the MCM that have not been discussed in this ACER report?
3. Are there any other points which you consider relevant to improve the ACER report on the effects assessment of the MCM that is due on 1 March 2023?

ACER welcomes input by 6 February 2023, to be submitted to: MCM_effects@acer.europa.eu.

2. Gas price developments

2.1. Observed results and market effects related to price developments

Assessing the evolution of gas prices is central to understanding the potential impact of the MCM on market dynamics. This section includes three indicators to measure price changes before and after the MCM Regulation was adopted. The indicators cover slightly different periods, shaped by data granularity and relevance of the observations:

1. The daily evolution of front-month hub gas prices and EU LNG reference prices from September 2022 to January 2023;
2. The evolution of gas and electricity future prices across 2023 and 2024; and
3. The progression of price spreads between EU gas hubs since November 2022.

At the end of the Section, some potential effects and risks related to price developments are summarised.

Price indicator 1: TTF front-month and LNG price evolution

Aim: The indicator measures the recent evolution of EU gas prices. It is related to the ACER mandate of calculating, on a daily basis, the price conditions based on Articles 3 and 4 of the MCM Regulation providing for the price monitoring and the activation of the MCM¹⁰.

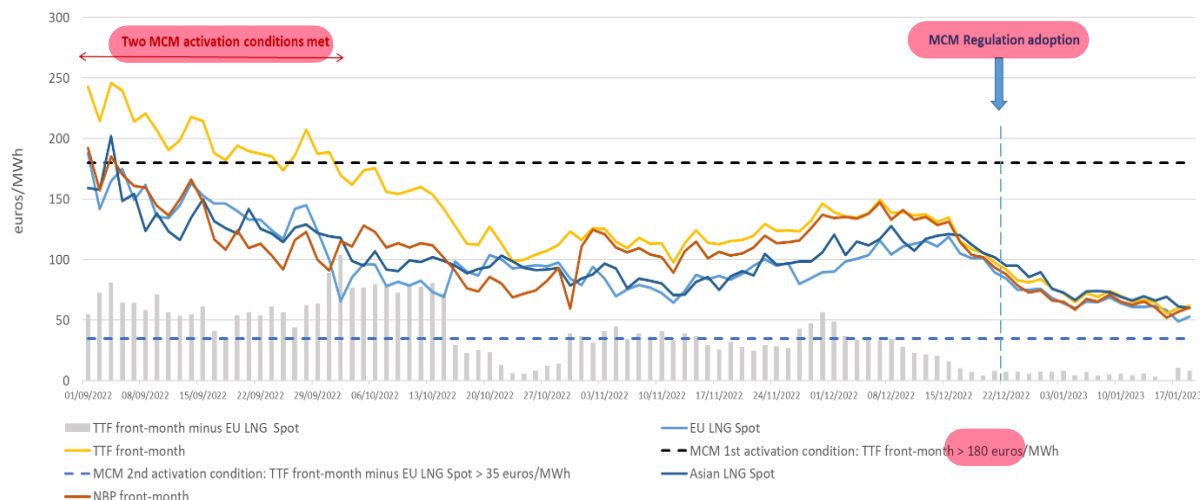
Relevance: This indicator is central to the activation of the MCM and to the assessment of its impact. By following a reference price basket composed of LNG and hub prices, ACER will be able to estimate when the MCM is likely to be triggered. A number of effects associated with the MCM will only be prompted as prices approximate the activation conditions or even when the MCM is activated.

Technical considerations: A market correction event occurs when the front-month TTF derivative settlement price *i*) exceeds 180 EUR/MWh for three consecutive trading days and *ii*) is 35 EUR/MWh higher than a reference price¹¹ formed by a basket of LNG import price indexes and the front-month settlement price of the British National Balancing Point (NBP) hub.

¹⁰ In accordance to Article 3, Price monitoring, ACER shall constantly monitor the development of a reference price, which is built on number of LNG price markers, and the front-month TTF derivative settlement price. ACER shall publish the daily reference price daily on its website no later than 23:59 CET. In accordance to Article 4, Market correction event, ACER shall publish a notice stating that a market correction event has occurred when the monitored front-month TTF derivative settlement price, exceeds 180 EUR/MWh; and the monitored reference price is 35 EUR/MWh higher than the monitored front-month TTF derivative settlement price for three consecutive working days.

¹¹ See Article 2(6) of the MCM Regulation for the complete definition 'reference price'.

Figure 1: Front-month TTF and NBP and EU LNG and Asian JKM reference price evolution (EUR/MWh) – 01 September 2022 – 18 January 2023



Source: ACER based on Platts and ICE Index

Note: EU LNG prices correspond to the average second half-month prices for delivery in North-West Europe and Mediterranean area assessed by Platts. It does not yet represent the reference price set in MCM Regulation.

Observed results in the context of market fundamentals

- TTF front-month prices have dropped by circa 40% from 20 December 2022 to 18 January 2023. The gas price drop has resulted from a combination of factors:
 - Weather has been significantly milder than usual in Europe, reducing demand driven by heating. That, together with still heavily subdued industrial consumption, which has not reacted to the gradually decreasing gas prices, rising power generation from renewable technologies - chiefly from wind – and gradually recovering nuclear electricity generation also scheduled to further rise has further reduced EU gas demand.
 - Supply has remained robust, in particular with LNG imports reaching record highs.
 - Moreover, assisted by demand and supply factors, EU storages are at high filling levels compared to previous years' levels (80.5% on 18 Jan 2023 in comparison to 47% one year before and 65% for the average of the last 4 years).
- Figure 1 shows that the MCM activation conditions have not been met since the adoption of the Regulation:
 - TTF front-month settlement prices have ranged between 55 and 105 EUR/MWh. This is at least 75 EUR/MWh below the price of 180 EUR/MWh that sets the first activation condition.
 - EU LNG spot prices, building on key LNG markers, have ranged between 50 and 100 EUR/MWh. The average price difference between TTF front-month prices and the EU LNG spot reference price has been 6.4 EUR/MWh, reflecting a decrease in congestion at EU LNG terminals. This implies that the second condition to activate the MCM has not been met either.

Observed market effects

- The approval of the MCM has not led to prices increasing and converging towards the first activation level (180 EUR/MWh).
- It cannot be concluded from the above-mentioned factors that the MCM has played a relevant role in reducing EU gas prices. Prices seem driven by fundamental supply and demand factors, not necessarily influenced by the MCM.

Price indicator 2: Electricity and gas future prices

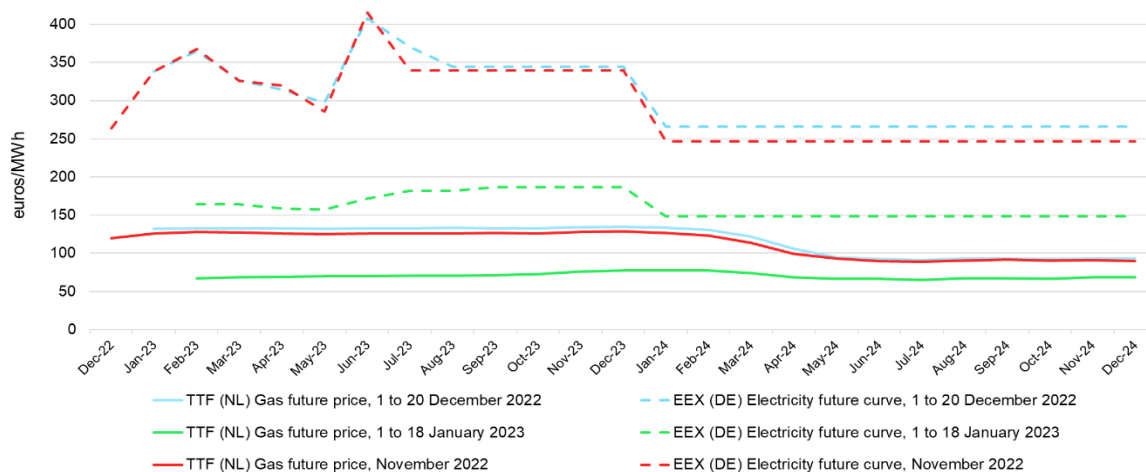
Aim: The indicator measures the evolution of the prices of the electricity and gas contracts concluded for delivery in future months.

Relevance: The indicator allows understanding whether and how the MCM affects the price level of future contracts.

Technical considerations: Electricity and gas futures and forwards are standardised contracts, traded at either regulated markets for the futures or OTC markets for forward, for a specific quantity at a predetermined price on a future delivery date. Market participants hedge their price and volume risks by purchasing and selling these contracts. Across 2022, large shifts have been registered in prices for future contracts, prompted by geopolitical tensions that have led market participants revising their future price expectations and supply portfolios. The analysis focuses on exchanges. Several delivery timeframes are assessed in order to understand whether a price change has occurred following the adoption of the Regulation and the expectations about the future evolution of prices.

Notwithstanding the fact that the MCM Regulation targets gas prices, the electricity future prices are also assessed. The prices of electricity and gas futures tend to be correlated and affect each other: gas fired-generation tends to set the marginal prices in many EU power markets, whilst gas consumption for electricity generation represents more than 20% of total EU gas consumption. Many vertically integrated gas and electricity companies use cross-commodity margin netting for gas and electricity future products¹².

Figure 2: Evolution of gas (TTF) and electricity (DE EEX) future prices across 2023 and 2024 – Contracts negotiated in November 2022, December 2022 and January 2023 (EUR/MWh)



Source: ACER based on ICE Endex and European Energy Exchange (EEX)

¹² Netting is a method of reducing risks in financial contracts by combining or aggregating multiple financial obligations to arrive at a net obligation amount. Netting is also used in trading to offset losses in one position with gains in another.

Observed results

- TTF future products' prices for delivery in 2023 have fallen by 57 EUR/MWh since the adoption of the Regulation¹³. In January 2023, contracts for delivery in the second half month of 2023 were traded at 73 EUR/MWh on average, whilst the contracts for delivery in the same period negotiated in December 2022 were negotiated on average at 130 EUR/MWh. Moreover, in December 2022, prices for gas delivery in the second half of 2024 still exceeded 90 EUR/MWh whilst in January 2023 the prices for delivery in the second half of 2024 are below 70 EUR/MWh.
- Electricity future prices for delivery in 2023 have fallen equally by 145 EUR/MWh between December 2022 and January 2023¹⁴. Prices for electricity future delivery across the year 2024 negotiated in January 2023 have fallen to 150 EUR/MWh.
- Future gas prices negotiated in January 2023 remain below the MCM first condition activation level (180 EUR/MWh) for 2023 and also for 2024.

Observed market effects

- The adoption of the Regulation has not prompted a rise in the future prices of gas or electricity.
- It can't be concluded whether and how far the Regulation has played a role in putting downward pressure on future prices. Fundamental supply and demand dynamics are the main drivers of the observed fall in gas prices.

Are market dynamics likely to activate the MCM?

- Whether and how long gas prices will remain below the MCM activation levels is difficult to foresee, not least given the high levels of market volatility in recent periods. Events such as production or transportation capacity outages, extremely cold temperatures, price competition to replenish underground gas storage stocks or specific developments (e.g. droughts) and global market dynamics have the potential to cause new price spikes.
- However, the current market indications, based on the prices of TTF gas contracts for future delivery for the two coming years (see [Figure 2](#)) suggest an expectation from market participants for prices to remain below the 180 EUR/MWh price level triggering the first MCM activation condition. Moreover, the entry into operation of additional new LNG import terminals in North-West Europe should contribute to reducing, rather than increasing, the spread between the TTF front-month price and the LNG reference price. This could potentially make it less likely for the second MCM activation condition to be triggered.
- In addition, some of the measures in the REPower EU Plan, aiming at the diversification of EU energy supply and better coordination of EU gas purchases combined with continuous demand savings, coordinated action refill underground gas storage stocks, gas infrastructure investments and accelerated roll-out of renewable energy, should potentially further contribute to putting downward pressure on prices.

¹³ Average drop value is assessed by comparing the average price difference of the derivative contracts for delivery at each individual future month from February to December 2023 that were negotiated in the two compared periods: From 01 to 20 December 2022 and from 01 to 20 January 2023.

¹⁴ See note above.

Price indicator 3: Hub price convergence

Aim: The indicator measures the price spread between a selection of gas trading hubs (i.e., Austrian, Czech and Slovak Virtual Trading Points, Belgian Zeebrugge, German Trading Hub Europe, British National Balancing Point, Italian Punto di Scambio Virtuale and Spanish Punto Virtual de Balance) against the Dutch TTF hub for day-ahead and month-ahead products

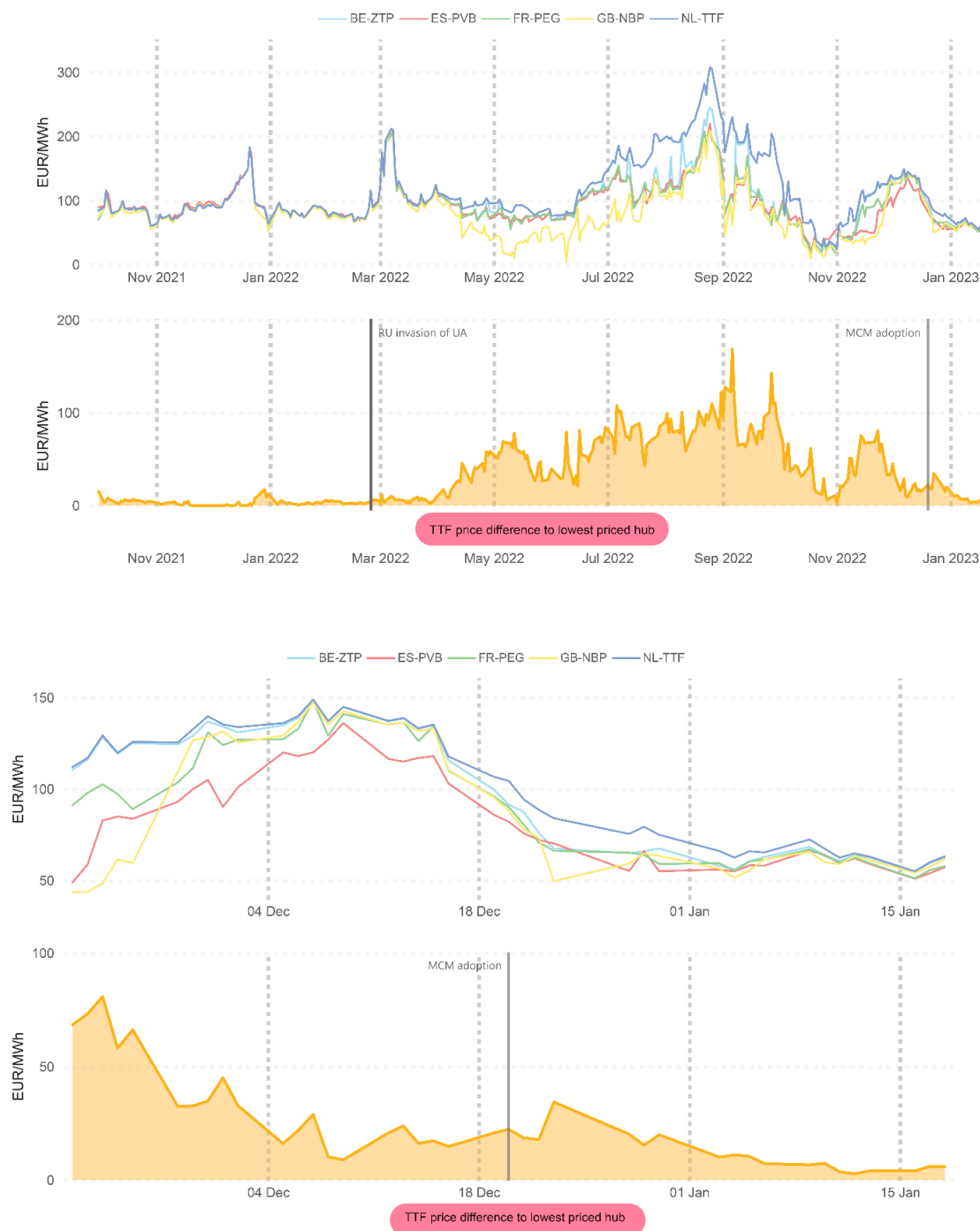
Relevance: The MCM could create price differences between EU gas hubs. This is particularly possible between those hubs subject and not subject to the MCM bidding limit. The indicator will help understand the evolution of prices between EU gas hubs.

Technical considerations: As of the entry into force of the MCM Regulation and until the implementing act pursuant to Article 9 of the MCM Regulation, the bidding limit on derivative contracts is applied only on the Dutch TTF regulated market. By 31 March 2023, the Commission will define the details of the application of the MCM to other EU gas hubs according to Article 9 of the MCM Regulation.

The graphs display first the price evolution of day-ahead products at selected European gas hubs, with a zoom into the last two months, and second, the percentage of trading days within the last months when month-ahead products price gap vis-à-vis the Dutch TTF hub benchmark stayed within predefined ranges.

Before the Russian invasion of Ukraine and the subsequent deterioration of natural gas supply to the EU, price spreads among European gas hubs were at relatively low levels i.e., between 0 and 2 EUR/MWh on most days. However, gas hub price spread dynamics between European hubs have changed significantly from the end of February 2022 onwards. Spreads in the approximate range of 20 and up to 100 EUR/MWh were registered between the Spanish PVB, French PEG, Belgian ZEE and UK NBP on the one hand and other European hubs such as TTF and THE on the other, from mid-April to mid-December 2022. This was a result of the physical pipeline congestion in North-West Europe and lower relative levels of regasification capacity (i.e. LNG terminal availability) in the same area. Additionally, hub price dynamics were heavily impacted by security of supply considerations namely the need to flow gas physically to certain locations, which fuelled growing spreads between these hubs.

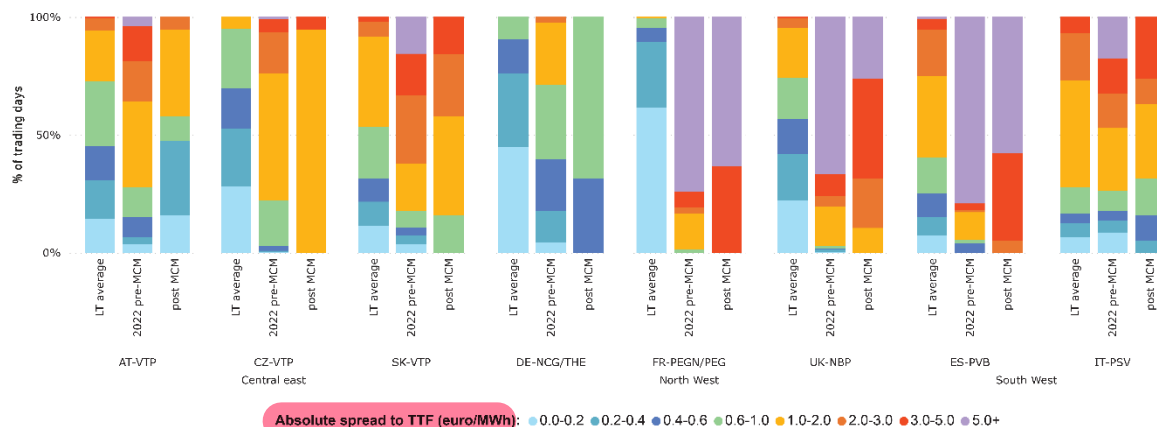
Figure 3: Day-ahead convergence between TTF and selected EU hubs – 1 January 2021 to 18 January 2023 and 20 November 2022 to 18 January 2023 (EUR/MWh)



Source: ACER based on ICIS

Note: The first graph shows the daily evolution of day-ahead prices traded at the five listed hubs, whilst the second graph shows the daily price spread between the Dutch TTF hub and hub with the lowest price of the other four hubs.

Figure 4: Month-ahead convergence between TTF and selected EU hubs for various timeframes – 2018 - to 18 January 2023 (EUR/MWh)



Source: ACER based on ICIS

Note: the long-term average (i.e. 'LT average') covers the period from 2018 to 2021; '2022 pre-MCM' covers the period from January 2022 to 19th December 2022 and 'post-MCM' covers the period from 20th December 2022 to 18th January 2023.

Observed results

Given the volatile market context, this indicator is sensitive when displayed over short time periods. In the analysed period going from 20 November 2022 to 18 January 2023¹⁵, and when setting a comparison date prior and after the MCM adoption in 20 December 2022:

- Average day-ahead prices at TTF have fallen by 57 EUR/MWh;
- Front-month average prices at TTF hubs have fallen by 55 EUR/MWh;
- The highest average day-ahead spreads are observed between the Dutch TTF and Spanish PVB. The latter has kept showing an average discount of circa 10 EUR/MWh in January 2023 as a result of a higher available LNG regasification capacity. The two hubs are not well connected in terms of physical transportation, which limits arbitrage among them.
- In the North-West and Central Europe, hub price spreads tend to still hover above transportation tariffs. The spreads reflect some infrastructure congestion at North-West LNG terminals and at the gas pipelines flowing gas in West to East direction. The gas networks at those regions had been dimensioned for a significantly larger reliance on supplies from Russia, from East to West. However the average spread for example between France and the Netherlands has dropped from 13 EUR/MWh in November-December 2022 to 5 EUR/MWh in January 2023 reflecting higher LNG capacity availability and lessening demand.
- Price convergence and price correlation between day-ahead and front-month products is below the historical levels. The average spread between the two products has been of 3.2 EUR/MWh from November-December 2022 and 1.8 EUR/MWh in January 2023, still well above the historical observations. While the Pearson coefficient has slightly deteriorated it is still above 0.9 across the analysed period¹⁶. These two hub products tend to strongly converge and closely correlate, as the front-month product is the future contract with the closest maturity. However, the ongoing volatility has made the spread to rise. The spread between spot contracts and futures is determined by specific developments in daily markets (which can affect spot prices but not necessarily front-month

¹⁵ A shorter reference period would provide misleading results.

¹⁶ Pearson correlation coefficients are used to measure how strong a relationship is between two prices. Its value ranges from -1 to 1. A correlation of 1 means that for every positive increase in one price, there is a positive increase of a fixed proportion in the other, while a coefficient of -1 indicates a strong negative relationship. A result of zero indicates no relationship at all.

ones) and the expectations as regards supply and demand fundamentals, the opportunity cost to hold money in future contracts, the costs of storing gas and the available arbitrage options.

- Price spreads between exchange and OTC traded products have not risen overall on average across the analysed period.

Observed market effects

- The MCM Regulation has not prompted rising price spreads between EU gas hubs.
- Price correlation between day-ahead and month-ahead products has not deteriorated in the observation period.

2.2. Potential market effects and risks related to price developments

- The MCM activation could result in higher settlement prices at EU gas hubs and in rising prices for EU LNG deliveries. A careful monitoring of the prices remains key to assess whether these effects are materialised. Market participants could increase their bids for both spot and future contracts in view of higher perceived risks related to uncertainty in the markets¹⁷ leading to potentially lower liquidity.
- The MCM could potentially limit the hedging instruments available to market participants. In this context, higher future contract prices and / or reduced future contract volumes could expose final consumers more often to spot market dynamics.
- The MCM activation could result in widening price spreads between hubs, related to the extent to which exchanges are subject or not to price limits. It should be noted that Article 9 of the MCM Regulation envisages extending the bidding limit to derivatives linked to other hubs as of April 2023.
- A rise in day-ahead hub prices relative to front-month prices could occur, if gas procurement shifts towards non-capped shorter-term markets from the markets where the cap has been activated.

All these risks shall be monitored in the future.

¹⁷ A number of stakeholders have referred to a so called a magnetic effect resulting from the market correction mechanism. The magnetic effect is defined as acceleration of the actual market prices towards the MCM bidding limit once the market considers that the sum of actual price levels and market risks perceived equal the bidding limit.

3. Gas flow developments

3.1. Observed results and market effects related to flow developments

This Section describes three indicators to assess the effects of the MCM on gas flows, namely gas demand, gas supply and utilisation of gas infrastructure. At the end of the Section, some potential effects and risks related to flow developments are summarised.

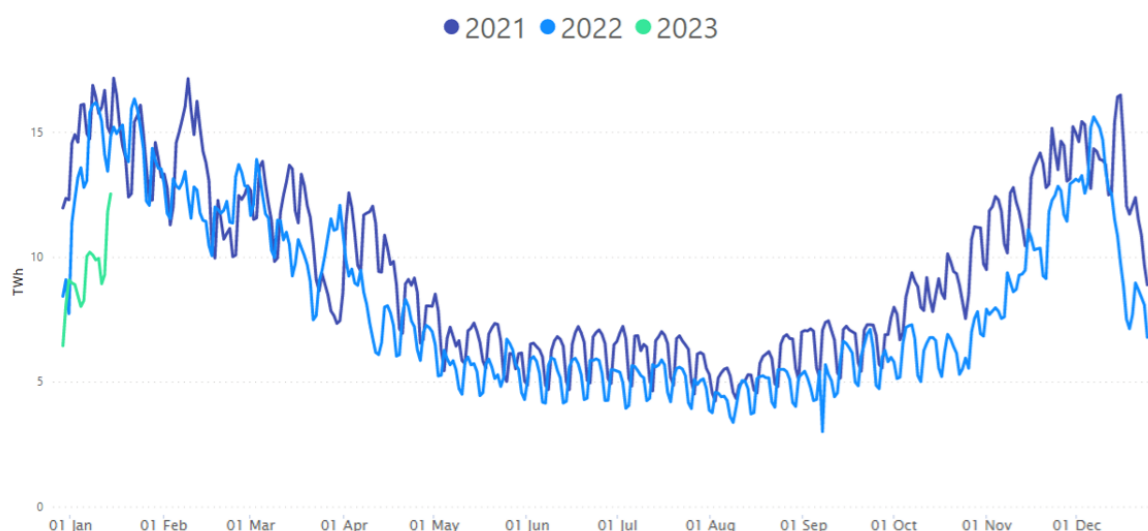
Flow indicator 1: Demand evolution

Aim: The indicator measures the daily evolution of gas demand for selected EU gas markets.

Relevance: A potential decrease in gas prices resulting from the MCM could lead to an increase in gas demand, which is contrary to the objective set in the EU gas saving targets¹⁸. While the MCM is not expected to reduce prices generally, lower prices tend to lead to higher demand, provided overall price levels are within a certain range of consumer willingness to pay. This indicator will serve to monitor gas demand in case such a scenario materialises.

Technical considerations: The daily demand data available to ACER is based on flows measured at networks exit points. The analysis chiefly leverages ENTSOG data and is complemented with TSOs and NRAs input. Based on the current data quality, to be further improved in the weeks and months ahead, the assessment can only be completed for some Member States. It should be noted that demand is heavily affected by multiple other factors such as weather patterns and economic activity. Hence, it would prove difficult to attribute potential changes in demand patterns solely to the MCM should the mechanism be activated in the future. The indicator further allows tracking demand reduction patterns.

Figure 5: Comparison of daily demand evolution at selected¹⁹ MSs (TWh/day)

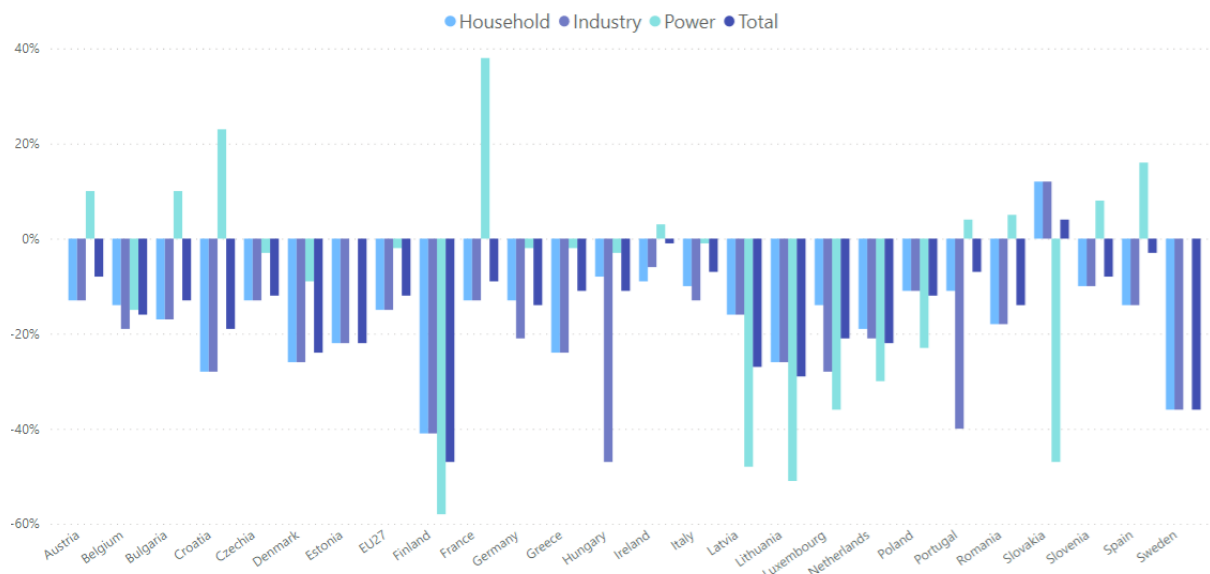


Source: ACER calculation based ENTSOG Transparency Platform and German Trading Hub Europe

¹⁸ See footnote 2 and Article 6(2)(b) of the MCM Regulation.

¹⁹ Belgium, Bulgaria, Estonia, France, Croatia, Hungary, Italy, Latvia, Netherlands, Poland, Portugal, Romania, Slovenia and Germany considered.

Figure 6: Total and sectorial demand evolutions across Member States – 2022 vs 2019-2021 average - %



Source: Bruegel European natural gas demand tracker

Observed results

- EU total gas demand has fallen by 29% from 20 December 2022 to 17 January in comparison to the same period of last year. Accumulated heating-degree days²⁰ were 23% lower in the period from 20 December 2022 to 17 January 2023 compared to one year before, that resulting in lessened gas consumption for heating purposes.
- Demand has continued falling year-on-year since the adoption of the MCM Regulation. The relative drop in demand has even intensified in view of the significantly milder temperatures registered in the last weeks and the rising renewable power generation, energy efficiency improvements, coupling with higher nuclear generation prospects. Industrial consumption has been steady in spite of occasionally lower gas prices. The analysis provided in Section 1 contains most considerations of why these reductions happened.
- The drop in demand across January year-on-year has been most significant in Hungary (-40%), Germany (-35%) and Netherlands (-34%), while in Poland demand has only fallen by 15%. Weather specifics and the role of gas in the power generation portfolio and industry explain some of the differences. Figure 6 offers an overview of sectorial demand evolution per Member State in 2022 in comparison to 2021, reductions being different across sectors and countries.
- Overall, during the year 2022, more modest drops have been registered in gas consumption for power generation (-3%), whilst industrial gas consumption (-21% on average) and households' consumption have registered larger falls²¹.

²⁰ A heating degree day (HDD) is a measurement designed to quantify the demand for energy needed to heat a building. It is the number of degrees that a day's average temperature is below 18° Celsius, which is the temperature below which buildings shall be heated. The relation between HDD days and weather driven demand tends to be linear. However, the relative drop in the percentages of the two data series can diverge in accordance to building quality and heating system technologies and efficiencies, set temperatures for heating and number of heating hours.

²¹ See for example [Bruegel European natural gas demand tracker](#), analysing demand evolution per sector and Member States across 2022.

Observed market and security of supply effects

- No rise in demand has been observed since the MCM Regulation was introduced. On the contrary, demand has kept decreasing consistently assisted by milder weather. Despite lower prices demand reductions are in line with Member States' gas saving objectives, led by industrial demand efficiencies and destruction, which has characterised the second half of 2022.

Flow indicator 2: Supply evolution

Aim: The indicator measures the evolution of gas supply into the EU and allows comparing gas import volumes and storage withdrawals before and after the adoption of the MCM. It also allows assessing the evolution of gas imports after specific events such as the activation of the MCM or significant changes in trading activity resulting from the activation of the MCM.

Relevance: The MCM could potentially create barriers to EU gas imports and limit supply volumes arriving to the EU. These could occur, for example, from the limitation applied to hedging products at exchanges or as a result of supply contract litigation.

The indicator aims at monitoring the evolution of import flows to identify potential changes and assess whether such changes could have been caused by the MCM. The indicator will monitor the evolution of LNG imports to the EU including potential decreases.

Technical considerations: The evolution of gas imports to the EU is monitored together with the evolution of demand. These two elements drive price fundamentals and by tracking these two indicators, ACER will have a basic check on markets and whether they are reasonably well supplied.

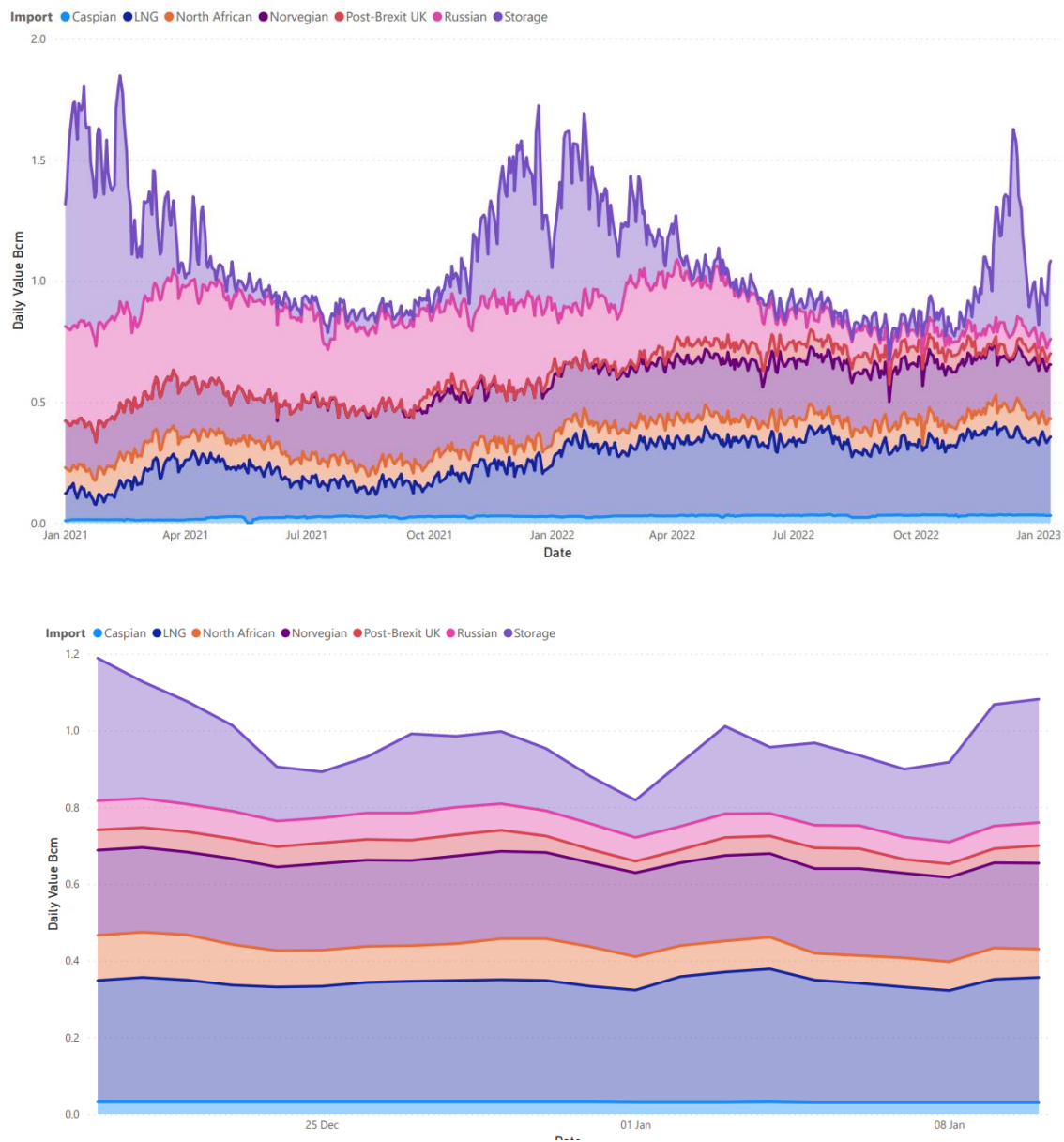
Import flows can be monitored for individual markets or at an aggregated level. More detailed assessments on intra-EU flows will be developed for the suspension monitoring pursuant to Article 6(2)(c) of the MCM Regulation.

ACER will also integrate in this analysis, to the extent possible, the data from the LNG price benchmark that the Agency is mandated to complete according to Regulation 2022/2576. This could provide information on LNG import dynamics potentially showing, for example, the diversion of cargoes that were initially planned for delivery in the EU.

Finally, this indicator can allow estimating the extent to which the missing Russian pipeline flows are replaced by additional LNG and pipeline volumes and offer insights about supply security²².

²² Alongside with the provisions of Article 6(2)(a) of MCM Regulation focusing on gas supply security.

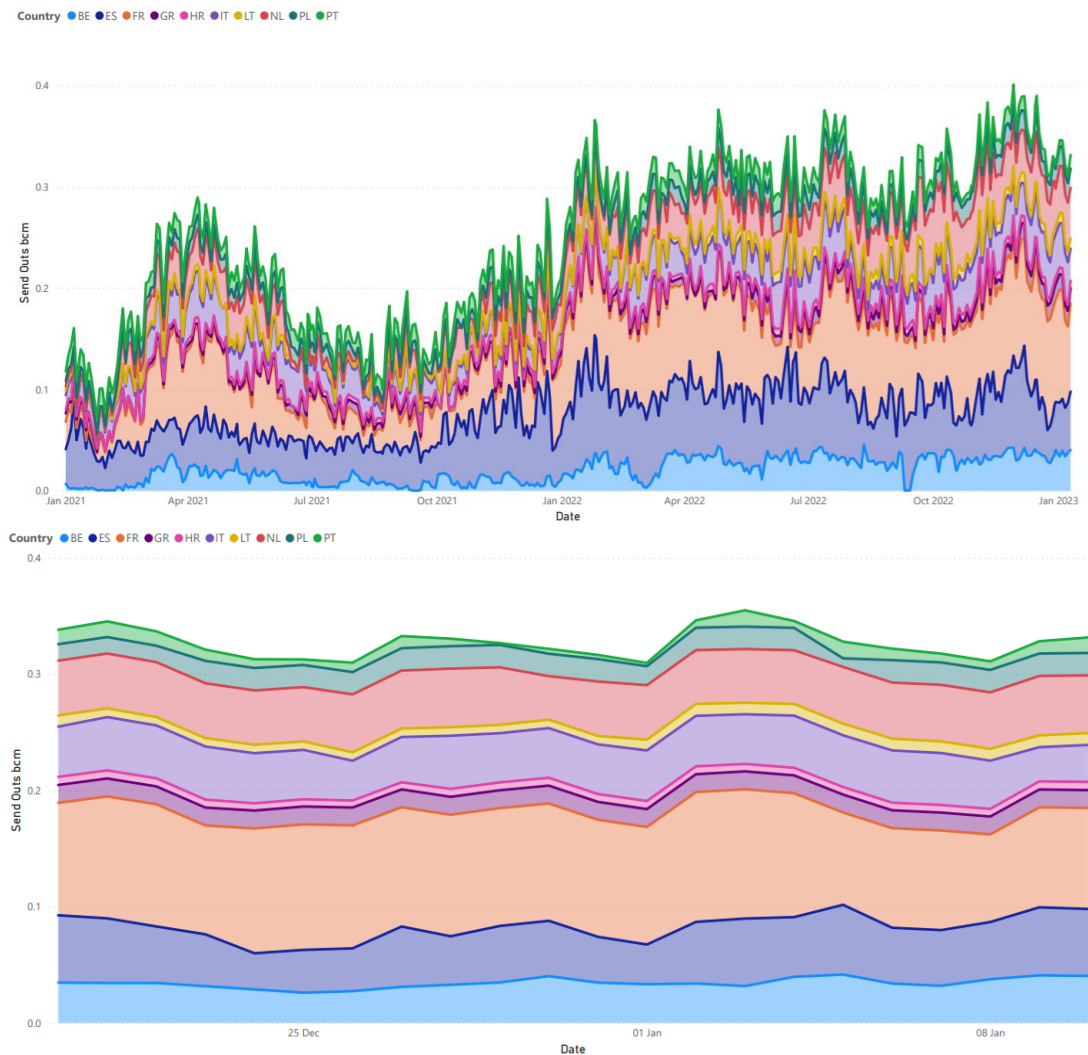
Figure 7: Daily evolution of imports by supply route from January 2021 to January 2023 for different timeframes (bcm/day)



Source: ACER calculation based ENTSOG TP

Note: a) January 2021 – January 2023 and b) 20 December 2022 – 11 January 2023

Figure 8: Daily evolution of EU LNG imports from January 2021 to January 2023 for different timeframes (bcm/day)



Source: ACER calculation based on GIE ALSI

Note: a) January 2021 – January 2023 and b) 20 December 2022 – 11 January 2023

Observed results

- Since the introduction of the MCM, total EU gas imports have fallen by 13.4% in comparison to the same period one year before. The drop is consistent with demand evolution.
- Overall the loss in Russian pipeline flows (– 26.1 bcm flown in the period from 1 October to 11 January in winter 2022-2023 in comparison to the same period in 2021-2022) continues to be partially offset by rising EU LNG deliveries (+ 13.2 bcm for the same period in 2022-2023) next to minor pipeline delivery increases from exporting countries, such as from Norway.
- The drop in EU gas supply has been overall well aligned with the total decrease in EU gas demand registered so far. In fact, storage withdrawals have declined by more than 30% in the period October 2022 to January 2023 in comparison to the same period in winter 2021-2022. This shows that, despite less Russian supply, the combination of record LNG deliveries and subdued demand has not made higher storages outflows necessary to meet EU winter demand for winter 2022-2023 so far. Storages remain well replenished at 80% on the third week of January and could well end this winter above 40% if the demand patterns and EU imports remain unchanged.

- Net flows across the interconnectors with the UK have been in a dominant export direction from the UK to the EU since the publication of the Regulation. This had been observed also in the previous couple of months. Overall, in past years, these interconnectors had played an export function to the UK (and not to continental Europe) bringing Russian volumes and continental stored gas to the UK, mainly during the winter. Today, the UK tends to send LNG flows into continental Europe, given the higher relative LNG capacity availability in the UK resulting from restricted supply at TTF and some higher prices at North-West European hubs.
- LNG imports attracted on spot and short-term basis²³ account today for around 35% to 40% of total EU LNG supplies, whilst those originating from long and mid-term portfolio contracts cover the rest. The main EU LNG supplier is currently the US (40% throughout 2022), followed by Qatar and Russia. France has overtaken Spain as the top EU LNG importer, exhibiting the sharpest year-on-year increase among EU importers. The Netherlands, Italy and Belgium follow as third, fourth and fifth largest LNG importing Member States.

Observed market effects

- Gas supply has remained reasonably stable following the adoption of the MCM Regulation and security of supply has been well ensured in the past months. Demand reduction and the mild weather conditions have contributed to ensuring security of supply.
- The lost import volumes from Russian pipeline supplies in the course of 2022 have been partially replaced by higher LNG imports as well as by higher pipeline imports (e.g., from Norway). This, together with higher levels of underground gas stocks, is contributing to ensuring security of supply in the EU.

Flow indicator 3: Utilisation ratios of gas infrastructure

Aim: This indicator measures the utilisation rates of selected EU gas infrastructure. It should allow the capturing of significant changes affecting the transport of gas across the EU, including effects related to the MCM.

Relevance: While there is a general consensus that the effects of the MCM mostly affect trading dynamics, its effects on supply volumes to the EU and on intra-EU gas flows are more difficult to isolate. The analysis of infrastructure utilisation ratios can provide a good indication of significant changes in supply flows. Furthermore, this indicator can anticipate unexpected problems related to security of supply, for example by allowing to identify sudden changes in infrastructure utilisation patterns.

Technical considerations: The utilisation of EU gas infrastructure can be monitored by comparing parameters such as the firm technical capacity and daily flow nominations. The ratio between these two parameters determines the actual utilisation of each piece of infrastructure. Flows are close to the maximum technical capacity when utilisation ratios are between 60% to 90%, and the use of the infrastructure at these referred levels are optimised. Low utilisation ratios can signal an inefficient use of the infrastructure. Utilisation ratios above 90% could be close to congestion, and could potentially restrict gas flows between Member States.

Congestion patterns are also important in the analysis. Revised price dynamics prompted by the MCM activation could lead to a reconfiguration in flows, change in infrastructure utilisation patterns and/or the appearance of congestion across selected interconnection points. Congestion could potentially create

²³ Spot volumes refer to discrete cargoes offered by LNG producers or trade portfolio aggregators for usual delivery within 3 months of the transaction date. Those cargoes tend to shore according to regional price signals. Short-term supplies refer to bilateral supply contracts of a reduced duration, ranging from a few months to a few years (i.e., up to 4). These cargoes are often subject to short-term redirections and/or price arbitrages, stemming from their higher end-point flexibility along with different profit opportunities per varying shipping costs and regional hub prices.

areas of relatively higher and lower prices in the EU where gas cannot sufficiently move from lower to higher priced areas.

The utilisation rates of LNG regasification terminals provide information on the availability of LNG import capacity to the EU. This indicator presents how LNG imports are distributed within the EU and can signal potential bottlenecks for LNG volumes replacing the missing Russian imports. New LNG import capacity (e.g. in France, the Netherlands and Germany) is a step to re-establish price convergence and acting upon the infrastructure bottlenecks to reduce the price pressure on flowing gas to North-West Europe.

The internal bottlenecks, i.e., the interconnection points already congested, need action by the relevant TSOs and NRAs, including in some cases new investments. Once these congestions are resolved, other bottlenecks in the EU may be revealed. The assessment of internal congestion patterns and subsequent needs for action merits a closer analysis which ACER will undertake in a separate report.

Figure 9: Overview of the utilisation ratio in selected EU IPs– January 2018 – January 2023 – (% of technical capacity)

Flow Direction	Interconnection Point	Average utilisation 2018-2021	Average utilisation 2022	Average utilisation 01/11/22 to 19/12/22	Average utilisation 20/12/22 to 11/01/23
AT to DE	VIP Oberkappel	10%	5%	30%	13%
AT to IT	Tarvisio-Arnoldstein	67%	26%	9%	3%
BE to DE	VIP THE-ZTP		138%	119%	145%
BE to FR	Virtualys	26%	0%	0%	0%
BE to NL	VIP-BENE	24%	79%	64%	93%
DE to AT	VIP Oberkappel	52%	79%	28%	22%
DE to BE	VIP THE-ZTP		0%	0%	0%
DE to FR	VIP France - Germany	45%	14%	0%	0%
DE to NL	VIP TTF H		46%	55%	49%
ES to FR	Vip Pirineos	3%	33%	52%	51%
FR to DE	VIP France - Germany	0%	44%	45%	64%
FR to ES	Vip Pirineos	41%	15%	5%	5%
IT to AT	Tarvisio-Arnoldstein	0%	3%	8%	12%
NL to DE	VIP TTF H		70%	117%	95%
NL to DE	VIP TTF L	44%	30%	36%	33%
NO to NL	Emden	2%	35%	25%	28%
PL to DE	Yamal	77%	1%	0%	0%
PT to ES	VIP Iberico	4%	12%	14%	8%
UK to BE	Zeebrugge IZT	18%	71%	56%	96%

Source: ACER calculation based ENTSOG TP

Note: Utilisation ratios are assessed dividing flows by firm maximal capacity. The ratios might move above 100% in case flows are underlined by interruptible capacity. Historical utilisation ratios at some Virtual Interconnection Points (VIPs) haven't been included as a result of the entry in operation of the virtual interconnection in later dates.

Figure 10: Overview of the utilisation ratio in EU LNG terminals – January 2018 – January 2023 (% of technical capacity)

Country	LNG Terminal	Regasification capacity (bcm/y)	Average utilisation 2018-2021	Average utilisation 2022	Average utilisation 01/11/22 to 19/12/22	Average utilisation 20/12/22 to 11/01/23
BE	Zeebrugge LNG Terminal	11.4	29%	61%	84%	73%
DE	Wilhelmshaven LNG Terminal 1 (FSRU)	7.5		35%	53%	47%
ES	Barcelona LNG Terminal	17.1	23%	23%	0%	13%
ES	Bilbao LNG Terminal	7	60%	76%	56%	59%
ES	Cartagena LNG Terminal	11.8	16%	37%	20%	22%
ES	Huelva LNG Terminal	11.8	33%	39%	27%	28%
ES	Mugardos LNG Terminal	3.6	42%	55%	82%	67%
ES	Sagunto LNG Terminal	8.8	16%	46%	44%	28%
FR	Dunkerque LNG Terminal	13	25%	75%	69%	63%
FR	Fos Cavaou LNG Terminal	8.5	48%	92%	114%	114%
FR	Fos Tonkin LNG Terminal	1.5	49%	51%	76%	66%
FR	Montoir de Bretagne LNG Terminal	10	53%	86%	102%	108%
GR	Revythoussa LNG Terminal	7	27%	40%	74%	65%
HR	Krk LNG Terminal (FSRU)	2.6	60%	87%	94%	89%
IT	FSRU OLT Offshore LNG Toscana	3.5	41%	65%	86%	82%
IT	Panigaglia LNG Terminal	3.4	42%	54%	57%	63%
IT	Porto Levante LNG Terminal	9	89%	89%	99%	97%
LT	FSRU Independence	4	37%	72%	84%	81%
NL	EemsEnergy LNG Terminal	8		43%	24%	28%
NL	Rotterdam Gate Terminal	12	41%	92%	96%	92%
PL	Świnoujście LNG Terminal	6.2	61%	80%	97%	93%
PT	Sines LNG Terminal	7.6	77%	82%	53%	49%

Source: ACER calculation based GIE ALSI

Observed results

- Interconnection points flowing gas across North West Europe in West to East direction, including entry and exit-IP sides in the Netherlands, Belgium and Germany, remain most highly utilised in relative terms (i.e., in relation to technical capacity). Selected ones such as the VIPs from Belgium and the Netherlands into Germany are physically congested.
- Overall, the utilisation ratios of the North West Europe pipelines considered has slightly dropped on a rolling monthly basis since the MCM adoption in December 2022, although results are case specific and some utilisation ratios increased. This could be the result of demand developments and the entry in operation of the new German regasification terminal.
- The utilisation of most LNG terminals in Europe has remained relatively high since the adoption of the Regulation, although some are utilised at a slightly lower levels by the end of the year 2022. This is a reflection of the milder demand and incremental regasification capacity added at several North-West European ports. In most Spanish terminals, available capacity remained high, but interconnections with the rest of the continent are weaker, translating for example in price discounts at Spanish Punto Virtual de Balance hub.

Observed market effects

- Intra EU-gas flows have not experienced significant variations since the introduction of the MCM Regulation. The 1 March report as referred under Article 9(5) of the MCM Regulation, will analyse more thoroughly the evolution of cross-border flows at relevant interconnector points, with a focus on the TTF Virtual Trading Point, and will take advantage of a longer observation period.
- While congestion remains highest in North West Europe, some actions managing the changed gas flow patterns from West to East have already been taken. This includes boosting compression power (Belgium, France, the Netherlands), reallocating unused capacity to a different border (Germany), offering unused capacity as day-ahead/within-day interruptible (France), adding LNG receiving capacity (Germany and the Netherlands) or planning pipeline capacity expansions (Belgium) to alleviate physical congestion.

3.2. Potential market effects and risks related to flow developments

- The activation of the dynamic bidding limit could lessen the incentives to reduce gas demand compared to a situation where the MCM conditions are not activated²⁴. This concern is included in the MCM Regulation under Article 6(2)(b).
- The MCM could potentially limit gas supply imports to the EU, thus making it relevant to apply adequate monitoring processes:
 - Upon activation, the MCM sets a dynamic bidding limit that of 35 EUR/MWh above the reference price formed by LNG import marker prices to the EU. The objective of this price addition is to ensure that LNG volumes continue to arrive in the EU as before the activation of the MCM. At the same time, the limited hedging opportunities resulting from the MCM bidding limit could reduce, even if just marginally, the incentives to attract LNG volumes to the EU and limit, as a consequence, LNG imports. The supply drop would be more noticeable for spot LNG cargoes, which are subject to higher global price competition, than those cargoes originating from long-term portfolio contracts.
 - The MCM could potentially lead to contract litigation from those parties that perceive themselves at a disadvantage per the MCM price limits, as reflected in Article 6(2)(f) of the MCM Regulation.

All these risks shall be monitored in the future.

²⁴ The MCM effects on demand may be direct, but not easy to isolate. It can be anticipated that demand will already decrease to a relatively low level by the time EU gas prices reach the MCM activation levels and will not worsen the balance in case of supply scarcity.

4. Gas trading developments

4.1. Observed results and market effects related to trading developments

This Section includes indicators aimed at monitoring any possible effects of the MCM regulation on trading activity at EU gas hubs'. The analysis focuses on the evolution of gas volumes transacted at trading venues with a particular focus on trading activity at the TTF, primarily using data reported by market participants under REMIT. ACER's trading analysis is complementary to ESMA's report, because it shows the evolution of physical volumes as traded as opposed to notional values (from ESMA). This Section includes indicators aimed at monitoring any possible effects of the MCM Regulation on trading activity at EU gas hubs'. The analysis focuses on the evolution of gas volumes transacted at trading venues with a particular focus on trading activity at the TTF, primarily using data reported by market participants under REMIT. ACER's trading analysis is complementary to ESMA's report.

ACER's trading indicators include:

- Total volumes²⁵ traded at different trading venues and the evolution of the split between volumes traded on exchanges and via brokers
- The breakdown of these traded volumes per type of contract (e.g. day-ahead, month-ahead, etc.)
- The evolution in the number of active market participants

At the end of the Section, some potential effects and risks related to trading developments are summarised.

Trading indicator 1: Traded volumes at organised markets

Aim: This indicator measures the total traded volumes at EU gas hubs at different trading platforms and across different periods, before and after the MCM introduction

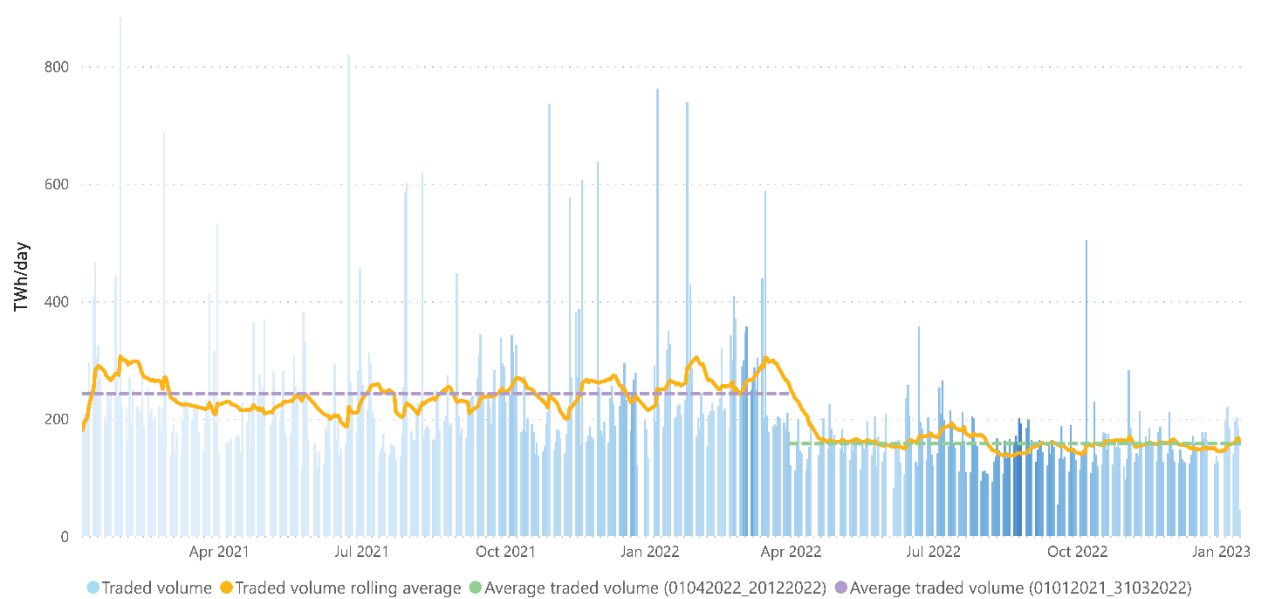
Relevance: The MCM could potentially lead to a shift in trading activity from exchanges to OTC brokered trading platforms or trading venues outside the EU. This could result in a decrease in traded volumes of products subject to the MCM.

Technical considerations: Across 2022, the record-high prices and the general high-risk trading environment forced market participants (particularly those of smaller size) to diminish their hub trading activity. Volumes traded at EU hubs' declined significantly in comparison to 2021, with the change particularly notable from April 2022 onwards, amidst caution not to take long-term positions in a very unstable environment. The more stringent financial requirements and the difficulties to meet collateral and margin call requirements at increased market prices contributed to the drop in liquidity.

In parallel, and from Q4 2021, trading activity has been migrating from the broker-executed OTC markets towards exchange executed trades. While OTC traded volumes accounted for close to 50% of total gas traded volumes in 2021 that percentage had dropped to below 30% in December 2022. Market participants continuing to trade showed a preference to cover their positions at exchanges, where volumes are centrally cleared thus lowering exposure to credit default risks.

²⁵ Physical volumes differ from the notional volumes (in Euros) presented by ECB.

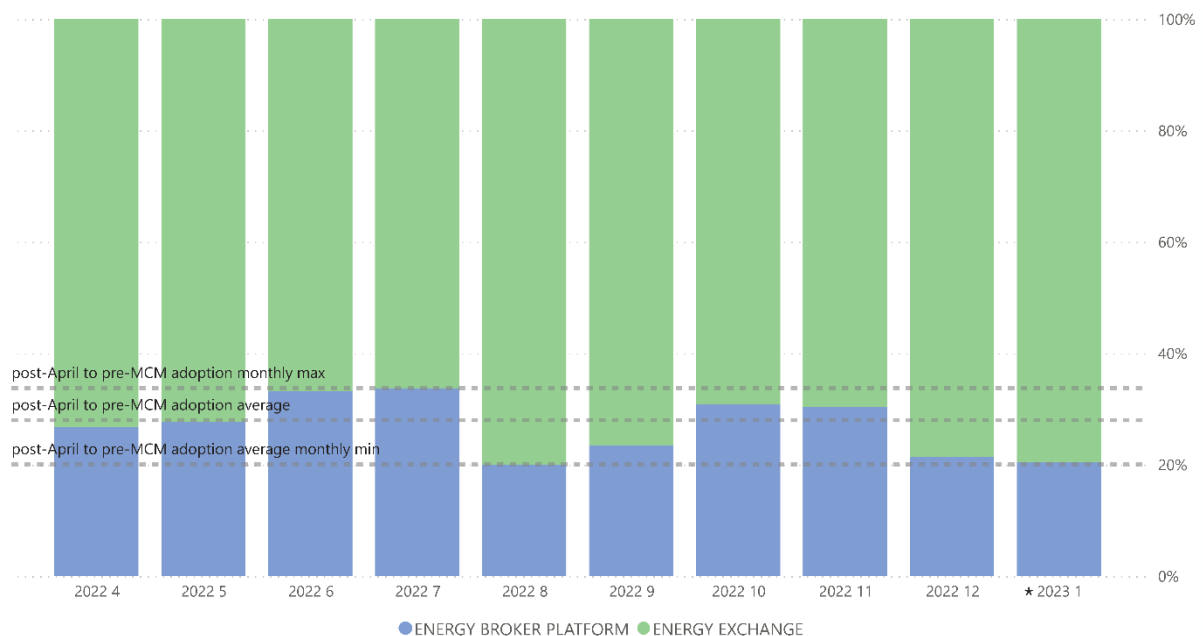
Figure 11: Total daily traded volumes at the TTF hub– 1 January 2021 – 13 January 2023 (TWh/day)



Source: ACER calculation based on REMIT

Note: The rolling average corresponds to the average trades concluded in the preceding 30 days. The intensity of the colour of the bars is related to the TTF front-month price, with darker tones corresponding to higher price levels.

Figure 12: Share of brokered and exchange traded volumes at TTF – 1 April 2022– 13 January 2023 (% of total hub traded volumes)



Source: ACER calculation based on REMIT, based on physical volumes

Note*: Includes data up to 13th January

Observed results

- Since the adoption of the MCM Regulation, traded volumes of TTF contracts have not significantly deviated from the average daily traded volumes observed in the period from 1 April 2022 until 13 January 2022.
- The majority of TTF traded volumes continue to be transacted via exchanges following the adoption of the MCM Regulation; no migration of trading activity from exchange-based to broker-based can be observed in the data thus far. In the short observation period following the adoption of the MCM Regulation, the share of TTF brokered traded volumes was approximately 20% of the total – a share lower than the monthly average observed between 1 April 2022 and 13 January 2023 but in line with the December share prior to the adoption of the MCM Regulation.

Observed market effects

- Total traded volumes at both TTF exchange(s) and trading platforms are at relatively similar levels as they were prior to the introduction of the MCM Regulation. However, these volumes are still significantly below levels seen in 2021 or preceding years.
- In the last week of 2022, trading activity at EU gas hubs declined. This decrease cannot be directly attributed to the MCM as trading activity usually decreases in the last week of a calendar year. Activity later returns in the first weeks of the next year. This also occurred in the first 13 days of January 2023.
- Exchange and OTC trading platforms' operators report that the market is generally working under normal conditions. In their view, this is the result of the current prices being well below the MCM activation conditions.

Trading indicator 2: Breakdown of traded volumes per product type

Aim: Measure the relative volume share of the different hub products traded at EU-organised markets, prior to the entry into force of the MCM. Measure also the number of trades concluded for each product type.

Relevance: Understand if there was a relative rise or drop of the total volumes traded per hub product following the adoption of the MCM Regulation.

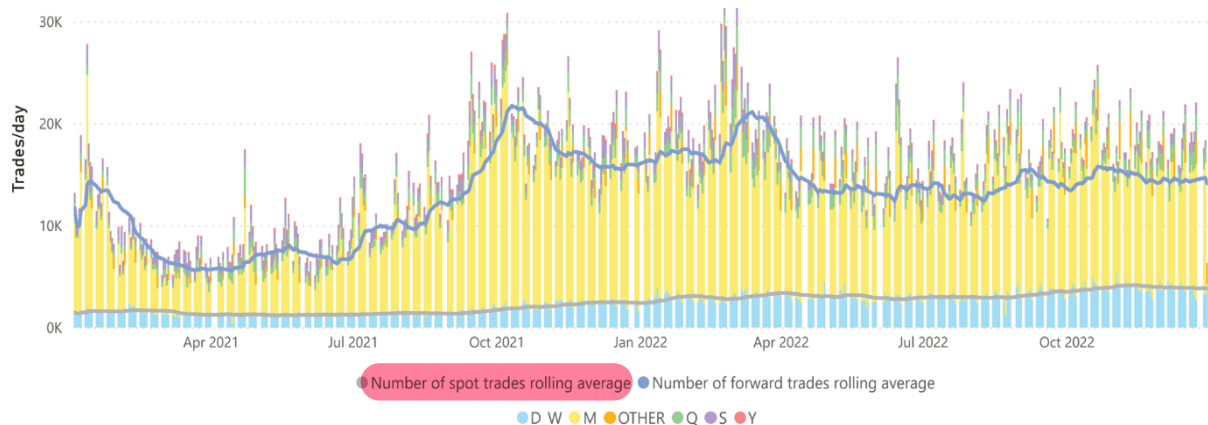
Technical considerations: On average, contracts for monthly delivery, followed by seasonal delivery, represent the largest share of total hub traded volumes. Beyond their role to assist the valuation of the supply portfolio over monthly horizons, month-ahead products attract a relevant share of speculative trading, involving financial players. The growing use of the month-ahead products in the price formulas of long-term hub-indexed contracts supports the use of month-ahead products in risk-hedging strategies. Seasonal hub products serve a different purpose and cover the summer and winter price positions closely linked to underground storages' operations (injections and withdrawals).

Figure 13: Breakdown of traded volumes per product type at TTF – 2021 (% of traded volumes)



Source: ACER calculation based on REMIT

Figure 14: Product trading frequency at TTF exchanges (weekday number of trades of the product)



Source: ACER calculation based on REMIT data

Observed results

- The share of products for delivery in the very short term (e.g., spot products) among total traded volumes at the TTF has not deviated substantially from the average observed before the adoption of the MCM Regulation.
- The daily average number of trades for front-month products has not deviated substantially in comparison to December 2022. Likewise, the number of trades for day-ahead products has been stable after the adoption of the Regulation.

Observed market effects

- The publication of the MCM Regulation has not prompted a discernible shift in trading activity from derivatives into short-term products. This might be linked to the fact that gas prices are much lower than in the previous months.

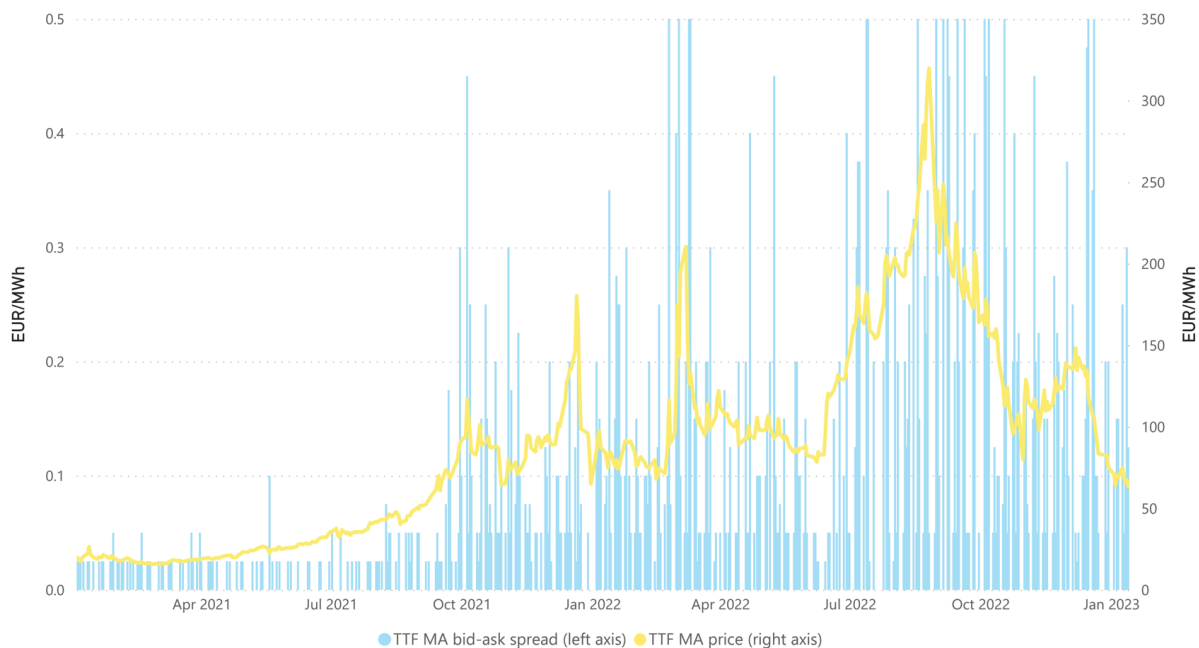
Trading indicator 3: Bid-ask spread of hubs products.

Aim: Measure the evolution of the bid-ask spread of day-ahead and front-month products.

Relevance: The size of the bid-ask spread is a measure of transaction costs and liquidity. The lower the bid-ask spread, the lower the transaction costs and the higher the liquidity. If the adoption of the MCM Regulation were to result in a relative rise or fall of the bid-ask spreads, this trading indicator would provide guidance concerning the evolution of market liquidity.

Technical considerations: The bid-ask spread is the difference between the prices available in the order book for an immediate sale (offer) and an immediate purchase (bid) of a physically settled gas product. Bid-ask spread tend to be independent of the actual price of gas, as it represents the highest price that a buyer is willing to pay for an asset and the lowest price that a seller is willing to accept.

Figure 15: Evolution of the TTF front-month hub product price and its bid-ask spread – January 2021 – January 2023 (EUR/MWh)



Source: ACER calculation based on ICIS Heren

Observed results

- The publication of the MCM Regulation has not prompted a discernible change in the bid/ask spread of TTF front-month products.

Observed market effects

- The value of the price spread seems to correlate with total trading activity at the hub, and also partly with the absolute price level of the front-month product on the trading day.
- Since October 2021, the higher price environment diminished total traded volumes, which also prompted some rising bid-ask price spreads. Moreover, and from the observed results, in those days when prices reached record highs, the price spreads tended to also rise. A reduced volume of orders and active players on those days could have led to somehow higher concentration and hence rising bid-ask price spreads. Bid-ask spreads tend then to partly fall at days with more modest prices,

although the correlation is not always maintained and other factors could influence the outcome (i.e., price spreads normalising after some days with maintained price levels).

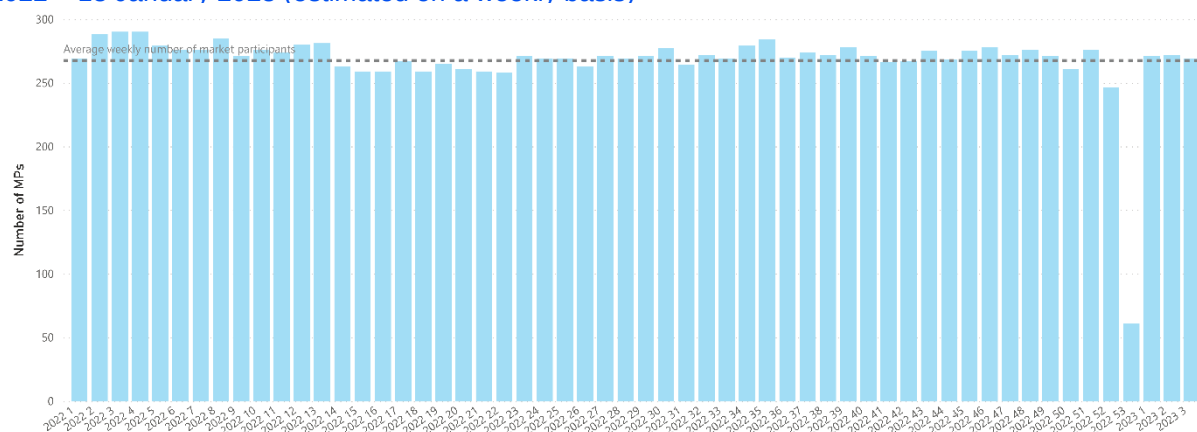
Trading indicator 4: Evolution of the number of market participants

Aim: The indicator measures the number of total active participants at various trading hubs.

Relevance: Liquidity and competition of individual hubs are driven by, among other factors, the number of active participants. One way to understand if the MCM Regulation has resulted in a change is to follow the evolution of the total number of market participants and specifically identify what type of market participants might have terminated their trading activity.

Technical considerations: The number of market participants are estimated based on registered users with at least one trade of standard contract for delivery at relevant VTPs during the analysed period.

Figure 16: The number of market participants trading TTF derivatives on energy exchanges – 1 January 2022 – 13 January 2023 (estimated on a weekly basis)



Source: ACER calculation based on REMIT data, Trayport and hub operators

Observed results

- The number of active market participants at TTF derivatives has not changed since the adoption of the MCM Regulation.

Observed market effects

- A discernible drop in the number of market participants trading at TTF has not occurred.

Other observations

- Open interest refers to the total number of futures contracts that are outstanding (i.e. that have not been settled) by market participants at the end of a trading day. This is a key indicator not discussed by ACER, as ESMA takes the lead in assessing the data and the evolution of the indicator and its impact. Overall during 2022, a decrease in the total number and volume of open positions has been observed. This drop occurred ahead of and unrelated to the MCM Regulation. Chiefly financial market participants and hedge funds closed their preceding positions to reduce exposure under the high-price and volatile EU market environment.

4.2. Potential market effects and risks related to trading developments

- Exchange operators suggest that exchange trading activity could drop significantly²⁶ should exchange prices approach the first activation threshold of 180 EUR/MWh. The spread between the 'reference price', built on LNG price markers, and TTF front-month prices, would also influence such a change²⁷.
- Part of the trading activity that could potentially leave the exchanges could shift to OTC. However, there are factors suggesting that not all the trading activity potentially moving away from exchanges would move to OTC:
 - Financial traders could exit markets and invest in other assets if they perceive that they can be trapped in adverse commercial positions;
 - Smaller physical traders could face difficulties to secure bilateral trading agreements at higher OTC prices.
 - Larger physical traders could face trading limitations due to credit restrictions²⁸.
- Trading activity could move outside of the EU to venues not subject to the dynamic price cap, such as the British National Balancing Point, which would be used as a proxy hedge of gas for EU delivery, as also reflected as a potential outcome in Article 8(3)(b) of the MCM Regulation.
- A decrease in total EU hub traded volumes could negatively impact price formation, as a result of higher market concentration and reduced price transparency.
- A shift in trading activity could potentially occur from price-capped derivative products to shorter-term products that are not subject to the MCM bidding limit.
- Higher counterparty default risks could also materialise. The ESMA report further elaborates on this matter.
- The drop in trading activity and the rising collaterals required by exchange operators could result in increasing bid-ask spreads at EU gas trading venues. The ESMA report further elaborates on this matter.

²⁶ Some increase in trading activity could potentially still occur at other EU exchanges by means of diverting trades previously concluded at TTF. Factors such as the possibility to secure transportation capacity as well as the evolution of hub price spreads would influence that setting. For example, market participants previously hedging their derivative contracts at TTF (in order to take advantage of its higher liquidity) that they intended to deliver later at neighbouring gas hubs –, could shift their trading activity into exchanges placed at the end-market where they deliver to reduce risk exposure to price spreads.

²⁷ The MCM Regulation requires to meet a second condition before the market correction is activated: the spread between the reference price (built on several markers, including LNG markers) and the TTF front-month must be above 35 EUR/MWh. Moreover, the Regulation establishes a dynamic bidding limit, which enables to submit orders at a level of LNG prices plus 35 EUR/MWh and even above 180 EUR/MWh if the level of LNG prices dictates so.

²⁸ Credit lines in energy trading are more limited given last year's high price environment.

Table of figures

Figure 1: Front-month TTF and NBP and EU LNG and Asian JKM reference price evolution (EUR/MWh) – 01 September 2022 – 18 January 2023	10
Figure 2: Evolution of gas (TTF) and electricity (DE EEX) future prices across 2023 and 2024 – Contracts negotiated in November 2022, December 2022 and January 2023 (EUR/MWh)	11
Figure 3: Day-ahead convergence between TTF and selected EU hubs – 1 January 2021 to 18 January 2023 and 20 November 2022 to 18 January 2023 (EUR/MWh)	14
Figure 4: Month-ahead convergence between TTF and selected EU hubs for various timeframes – 2018 - to 18 January 2023 (EUR/MWh)	15
Figure 5: Comparison of daily demand evolution at selected MSs (TWh/day)	17
Figure 6: Total and sectorial demand evolutions across Member States – 2022 vs 2019-2021 average - %	18
Figure 7: Daily evolution of imports by supply route from January 2021 to January 2023 for different timeframes (bcm/day)	20
Figure 8: Daily evolution of EU LNG imports from January 2021 to January 2023 for different timeframes (bcm/day)	21
Figure 9: Overview of the utilisation ratio in selected EU IPs– January 2018 – January 2023 – (% of technical capacity)	23
Figure 10: Overview of the utilisation ratio in EU LNG terminals – January 2018 – January 2023 (% of technical capacity)	24
Figure 11: Total daily traded volumes at the TTF hub– 1 January 2021 – 13 January 2023 (TWh/day)	27
Figure 12: Share of brokered and exchange traded volumes at TTF – 1 April 2022– 13 January 2023 (% of total hub traded volumes)	27
Figure 13: Breakdown of traded volumes per product type at TTF – 2021 (% of traded volumes)	29
Figure 14: Product trading frequency at TTF exchanges (weekday number of trades of the product)	29
Figure 15: Evolution of the TTF front-month hub product price and its bid-ask spread – January 2021 – January 2023 (EUR/MWh)	30
Figure 16: The number of market participants trading TTF derivatives on energy exchanges – 1 January 2022 – 13 January 2023 (estimated on a weekly basis)	31

List of abbreviations

Acronym	Meaning
BBL	Balgzand Bacton Line
BCM	Billion cubic meter
CCP	Central Counterparty Clearing
CME	Chicago Mercantile Exchange
CR 3	Concentration 3 indicator
DA	Day-ahead
EEX	European Energy Exchange
EFET	European Federation of Energy Traders
ENSTOG	European Network of Transmission System Operators for Gas
ESMA	European Securities and Markets Authority
EUROPEX	Association of European Energy Exchanges
ICE-ENDEX	Intercontinental Exchange Energy Index
IP	Interconnection Point
LNG	Liquefied Natural Gas
MS(s)	Member State(s)
NBP	National Balancing Point
NRA	National Regulatory Authority
NWE	North-West Europe
OTC	Over-the-Counter
PEG	Point d'Echange Gaz
PSV	Punto di Scambio Virtuale
PVB	Punto Virtual de Balance
TSO	Transmission System Operator
TTF	Title-Transfer Facility
VTP	Virtual Trading Point