ACER

European Union Agency for the Cooperation of Energy Regulators

ACER

Market Correction Mechanism

Effects Assessment Report

1 March 2023

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1. Executive Summary

1.1. The mandate and the Agencies' reports

Council Regulation (EU) No 2022/2578 on *Establishing a market correction mechanism to protect citizens and the economy against excessively high prices* ('MCM Regulation') 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 introduction[1] of the market correction mechanism ('MCM').

ACER and ESMA were tasked with publishing two preliminary reports[2], concerning the adoption of the MCM and focusing on the developments in the *financial and energy markets and on security of supply* by 23 January 2023, and a final report by 1 March 2023.

This ACER Market Correction Mechanism Effects Assessment Report ('Report') of 1 March 2023 offers a more comprehensive outlook of the effects prompted by the MCM, than the preliminary data report. It also aims to assist the European Commission on specific tasks pursuant to Articles 8 and 9(2) of the MCM Regulation, namely assessing:

- the technical aspects of the potential extension of the MCM to derivatives traded at EU Virtual Trading Points ('VTPs') other than the Dutch Title Transfer Facility ('TTF') as of 31 March 2023[3];
- the functioning of elements of the MCM, to the extent that the short application period of the mechanism (since December 2022) allows.

Given their different legal mandates, ACER and ESMA deliver separate reports in relation to the MCM. ACER focuses on energy market developments and security of energy supply, while ESMA focuses on the impacts in the derivatives market and hedging, clearing and risk management.

1.2. The MCM seems to not have a discernible gas market impact to date

In its preliminary report, ACER used ten indicators to measure the impact of the MCM during the first four weeks following the adoption of the MCM Regulation. The indicators sought to identify impacts related to energy markets and security of supply. In the analysis, ACER found that no significant impacts could be directly and unequivocally attributed to the adoption of the MCM in the observed period.

[1] The MCM Regulation is bidding as of 22 December, while the political agreement was reached on 20 December 2022. The report often refers to 'the adoption of the MCM Regulation' and often displays statistical data already as of 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.

[2] See ACER MCM Preliminary Data Report of 23 January 2023.

[3] In accordance with Article 9(2), and on the basis of the ACER and ESMA final reports, the European Commission, shall by means of an implementing act, define the technical details of the application of the MCM to derivatives linked to other VTPs by 31 March 2023. That implementing act shall be adopted in accordance with Article 11(2).

This longer observation period (from 20 December 2022 to 28 February 2023) enabled a deeper check for evidence of whether market participants had started changing their trading behaviour in response to the MCM Regulation[4]. The current reporting period includes the period from 15 to 28 February 2023, when the MCM for the first time could have been activated provided that the two price conditions set in the MCM Regulation were met[5].

Despite the longer timeframe, by 1 March 2023, neither ACER nor ESMA have identified significant impacts (positive or negative) that could be unequivocally and directly attributed to the adoption of the MCM. Once again, one should not infer from this outcome that the MCM might not have any impacts on financial and energy markets or on security of supply in the future.

1.3. Market dynamics are driving prices

Gas prices have continued to fall further from the end of January 2023 (following the publication of the preliminary report) and remain significantly lower compared to the months prior to the adoption of the MCM Regulation. ACER links the fall of prices to the favourable gas market fundamentals (e.g. warmer weather, continued reduction of gas consumption, above average LNG supply, above average gas in storage, etc.) during the last months of 2022 and the first months of 2023.

The combined factors that drove the changing market dynamics since November/December 2022 have continued into the first two months of 2023. During the summer of 2022, front-month TTF gas prices were above 180 EUR/MWh for several weeks and peaked in August, during the gas storage filling season. However, since the end of September 2022 gas prices have progressively fallen, staying at levels below the MCM activation threshold. For example, between end-December 2022 and mid-February 2023 front-month TTF prices have dropped by circa 50% to current levels of around 50 EUR/MWh.

As stated in ACER's preliminary report, the price fall from the end of September 2022 was a result of a range of factors. Among them is demand reduction[6] in energy-intensive industries due to the high price levels. Industrial consumption remains suppressed despite the relative lower prices in 2023. The introduction of energy efficiency measures adopted by industrial sectors has contributed to a fall in consumption. Storage levels[7] remain above last years' averages[8], and is contributing to driving prices down. As of 25 February 2023, storage levels were at 62.4%. This is in contrast to 32% on 25 February 2022 and 53% measured on a four year average (i.e. for 25 February in the years 2019-2022). Moreover, temperatures during winter 2022/2023 (including the two winter months after the adoption of the MCM Regulation) have been significantly warmer than usual in Europe. This has contributed to

[4] At the time of the drafting of the Preliminary Data Report, various participants informed ACER about such potential implications.

[5] The MCM is a price intervention mechanism targeting financial derivatives traded at EU exchanges with an expiration date of one month to twelve months maturity. According to Article 4 of the Regulation, the mechanism is activated along the description provided in footnote 1. The price basket of selected LNG markers (including the front-month NBP derivative settlement price) is referred under Article 2(6).

[6] 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. (See Council Regulation (EU) 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas.)

[7] Storages are a key flexibility source in winter.

[8] EU gas storages were filled in 1 November 2022 at 95%, seven percentage points above a four year 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.

reducing households' gas consumption for heating purposes. In addition, rising power generation from renewables (mostly wind electricity generation) and the recovery of nuclear production have offered alternative supply sources in power generation, and led to reduced gas demand. This stands alongside an overall gas supply situation that remains robust with LNG imports to Europe reaching record high levels.

Global gas consumption has remained reasonably stable. Asian demand remained relatively low, in part due to moderate-to-low economic growth in China despite the lifting of Covid-19 restrictions since early January 2023. Going forward Chinese LNG demand remains a key factor. If it were to further rebound in the second-half of 2023, it could push global LNG prices upwards and more importantly limit the accessible LNG spot volumes and short-term cargoes' redirections; this by virtue of China using them rather than reselling the volumes contracted long-term[9].

By the end of February 2023, price competition for LNG volumes has declined slightly. This is despite Asian LNG spot price indexes having surpassed European spot LNG price references in recent months. In that context, the spread between the TTF front-month price and the EU spot LNG import price remains relatively narrow, hovering between 3 and 6 EUR/MWh during February 2023, well under the MCM activation condition. This significantly narrower spread (compared to August 2022, when the spread between TTF and EU spot LNG prices reached 42 EUR/MWh) has been supported by new LNG import terminals entering into operation in North West Europe. By the end of 2023, it is anticipated that EU LNG, together with the UK LNG, import capacity would rise by 25% in comparison to autumn 2022[10].

1.4. What are the challenges of extending the MCM to derivatives linked to other EU Virtual Trading Points?

The MCM Regulation tasks ACER and ESMA to provide input to the European Commission for its decision concerning the extension of the MCM to derivatives traded at EU Virtual Trading Points (VTPs) other than TTF. The European Commission's implementing act is foreseen as of 31 March 2023. Both ACER and ESMA shall also assist the Commission in establishing the technical conditions for such extension.

The decision concerning the extension of the MCM to derivatives traded at other EU VTPs has political and technical connotations. The political considerations build on the agreement reached by the Council in December 2022 to implement the MCM across the EU and thus treat market participants and market operators equally across the EU. As stated in the MCM Regulation[11], the political intention was to avoid fragmented action that could divide the integrated gas market, thereby calling for a common approach in the spirit of solidarity seeking to extend the MCM to the derivatives traded at all EU VTPs.

The legislation also provides technical considerations. In this context, ACER highlights the relevance of assessing the liquidity of the venues considered for such an extension. The liquidity is to be appreciated in conjunction with basic competition criteria[12] to avoid that a market participant triggers changes in its favour in an uncompetitive (and illiquid) market environment.

The extension to the remainder of the EU VTPs also raises some design related questions, namely whether:

[9] China has risen its domestic gas production by 14% since 2020, whilst increased pipeline gas imports by 33%, gas storage by 35% and regasification capacity by 19%. That setting is ensuing a greater flexibility for spot LNG procurement.

[10] See for example IEA and EIA assessments on the subject.

[11] E.g., Recital 53 of the MCM Regulation.

[12] Concentration ratios, for example.

- the MCM activation - in case of an extension - should be based on the prices of the derivative products traded at the individual VTPs or on a common basis (i.e. the TTF ICE Endex (front-month) price);
- the dynamic price bidding limits - in case of an extension - should be the same across all EU VTPs' gas derivatives or whether the dynamic price bidding limits of non-TTF EU gas derivatives should be different than the dynamic price bidding limits applied to TTF derivatives.

EU gas hubs play different roles with relevance for the issue of MCM extension

An assessment of the liquidity metrics reveals a significant disparity in the volumes and frequency of gas derivatives' trading between TTF and the other EU VTPs. Approximately 95% of derivatives traded in the EU in 2022 were related to TTF contracts. The German VTP, the so-called Trading Hub Europe (THE, hereafter referred as the German VTP), holds the second position with less than 1% of derivatives traded. The German VTP is followed by the Polish, Austrian, French, Spanish, Italian, Romanian, Belgian and Czech VTPs, each with even smaller shares. The number of trades and volumes negotiated at the exchanges placed at 'emerging' and 'incipient' hubs[13] is even more limited.

Extending the MCM to derivatives traded at non-TTF EU VTPs is likely to trigger certain costs. The implementation of the MCM carries an administrative and logistical burden, primarily for exchange operators, as well as for central clearing entities and its members (ESMA offers further considerations on the subject in its final report[14]). The MCM extension also entails some risks (although arguably relatively minor ones), associated with the possibility of draining trading activity if the mechanism is perceived as burdensome and/or discouraging for the market.

On the other hand, an extension would most probably have limited impact on price formation, in view of the relatively low volumes of non-TTF EU gas derivative products being traded at these VTPs.

These costs and limited impact on price formation should be assessed against the risk of current derivatives' trading activity shifting from TTF, and if so, to where this activity would most likely shift. In ACER's view, TTF trade is unlikely to shift to non-TTF EU VTPs, even if the latter were not subject to the MCM Regulation, as more attractive possibilities to avoid the MCM are already available to traders. In light of this, the inclusion of smaller and less liquid hubs does not seem necessary while it may result in negative consequences which could outweigh the benefits associated with such an extension. Hence, this may require closer assessment.

Concretely, such trade would likely move to derivative markets located in jurisdictions and venues not subject to the MCM Regulation, such as ICE Futures Europe at London (IFEU) and/or increasing trading frequency at over-the-counter markets[15]. ESMA further discusses the alternative trading venues that market participants could opt to migrate to in order to circumvent the dynamic bidding limits related to the MCM. They include EEX Organised Trading Facility ('OTF'), within the EU but outside of the scope of the MCM Regulation[16]. Such views have been supported by engagements that ACER has had with

[13] Figure 18 (see Section 3.2) shows ACER's assessment from the Market Monitoring Report in relation to the EU gas hubs and in accordance to its liquidity metrics. 'Emerging' and 'incipient' hubs relate to those markets of more limited liquidity, particularly on forward and futures' products.

[14] See ESMA's report, more specifically, Sections 3 and 4.

[15] Different market participants could decide differently about shifting their trading activity. (The composition of their boards and the private ownership of these companies would influence this decision).

[16] See ESMA's report Section 3, which highlights relatively straightforward channels that provide for existing clients of ICE and EEX to continue trading outside of the scope of the MCM Regulation. As such, the effects of the MCM, once activated, could be largely confined to shifts towards ICE UK for ICE clients and to shifts towards the EEX OTF for EEX clients.

relevant financial and non-financial trading companies actively trading at EU VTPs and with trading associations (e.g., EFET[17], AIMA[18]).

On this basis, **ACER finds that there are valid arguments for extending the MCM only to VTPs where the liquidity of gas derivative trading is modest to high. ACER considers that the extension of the MCM to other VTPs would likely not lead to significant negative effects in gas markets.**

One single activation trigger and dynamic price bidding limit for all EU derivatives, referenced to TTF?

The limited trading activity of derivative products at most EU VTPs (with the exception of TTF) makes these local price signals significantly less robust and transparent, and more susceptible to changes triggered by a few players. This complicates the daily calculation of the MCM activation and the adaptation of its conditions to EU VTPs other than TTF. Therefore, ACER finds that there are strong arguments to base the MCM activation and de-activation for all VTPs only on its most liquid hub, namely TTF.

Concerning, the dynamic price bidding limit, the MCM Regulation refers to the possibility of implementing a dynamic price corridor[19], by linking the prices of other EU trading hubs to the corrected TTF price. The price corridor should be designed in a manner that it does not prevent market-based intra-EU flows of gas, or affects the stability and orderly functioning of energy derivative markets.

In ACER's view, it is uncertain whether a sound estimate for different dynamic bidding price limits for the derivatives traded at different EU VTPs could be technically established within the short timeframe provided by the MCM Regulation. To find the appropriate values, one would have to model multiple aspects, namely, transportation tariffs between adjacent hubs, the net firm supply positions resulting from exchange trades[20], whether the VTP has direct access to LNG imports or not, the types of maturities traded in the different locations and other financial elements[21]. If such a differentiation were to be done incorrectly, the different dynamic price limits could lead to negative consequences, such as promoting a potential shift in trading to the benefit or detriment of a VTP or incentivising sellers to sell gas at the VTPs with a higher price bidding limit.

Moreover, several other considerations matter. Even if the MCM were to be activated, spot prices and transactions concluded at the more physically oriented over-the-counter markets could flow gas where it is more needed. In addition, even if identical dynamic price bidding limits (for the derivatives being traded at different EU VTPs) were to be applied and the limit would partly limit intra-EU flows, they would apply only in exceptional circumstances. This would only occur if the market correction event

[17] The European Federation of Energy Traders (EFET) is an association of European energy traders in markets for wholesale electricity and gas.

[18] The Alternative Investment Management Association (AIMA) is the global representative of the alternative investment industry, with around 2,100 corporate members in over 60 countries.

[19] See Recital 14 of the MCM Regulation.

[20] Net firm supply positions resulting from the buying and selling at the exchange refer to the physical supply commitments that must be settled by trading participants. The net positions are communicated by the exchange operator or the hub operator to the TSO, which has then the responsibility for the physical balancing of the system (e.g., see EFET Guide on the Features of a Successful Virtual Trading Point for further considerations). Nominations for gas flows into and out of the system are made by the TSO, which transfers the gas at a virtual trading point to the entry and exit points. A lower ratio of net firm positions in relation to total trades appears in more liquid exchanges. These exchanges attract larger financial market participants who offset their physical positions at the time of contract maturity.

[21] E.g., the price levels between derivatives of different maturity would be driven by 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.

occurs. Under such critical gas market developments, in ACER's view, the suspension mechanism would be considered to alleviate potential obstacles to intra-EU-flows.

Given the above considerations**, ACER finds that there are strong arguments for using the same activation and de-activation conditions, making use exclusively of the Dutch TTF front-month price and the same dynamic price bidding limit at the EU VTPs (as selected for extension) pursuant to Articles 4(1) and 4(5) of the MCM Regulation.**

1.5. Are there technical reasons for changing elements of the MCM's design?

Article 8(4) of the MCM Regulation specifically tasks ACER and ESMA to assess whether the design reference price, the activation conditions and the dynamic bidding limit of the MCM need to be reviewed, in light of the developments observed in financial and energy markets and concerning security of supply.

Accordingly, ACER in Section 4 below has analysed the evolution of the eleven price indexes[22] used for the calculation of the reference price pursuant to Article 2(6) of the MCM Regulation. In addition, ACER has examined the periods and market conditions that would have led to the MCM activation if the MCM Regulation had been applicable in 2022.

ACER's considerations can be summarised as follows:

- **Elements of the reference price.** In ACER's view, the elements that constitute the reference price, established in Article 2(6), offer a valid proxy of global spot LNG prices. The price differences between the indexes chosen vary less than 8 EUR/MWh across the first part of 2023. At the same time, the inclusion of several indexes make the reference price more robust. As such, **ACER could not identify a need for revising the price references used for calculating the reference price**[23].
- **Activation conditions.** Forward TTF prices are well below the first activation threshold of 180 EUR/MWh, while the larger LNG import capacities becoming available have significantly reduced the congestion at North West European terminals, bringing the spread between TTF front-month prices and the MCM reference price down towards 3-6 EUR/MWh. Under these market circumstances, it would require a major supply or import infrastructure outage and/or a sudden critical market development to activate the MCM[24]. **ACER could not identify technical reasons to change the current activation or de-activation conditions.**
- **Dynamic bidding limit**. Similarly to the activation conditions, the use of the dynamic bidding limit seems unlikely in the short term under regular market circumstances. In this context, **ACER could not identify technical reasons to change the dynamic price bidding limit**.

These considerations reflect the current market dynamics as well as the current outlook for the European gas market.

[22] ACER has two LNG price assessments: one for North West Europe and the other one for South of Europe, whereas Article 2(6) fifth subparagraph refers more broadly to the 'daily price assessment carried out by ACER'.

[23] ACER finds it expedient to closely follow each price index over a longer period, including times of potential tighter supply scenarios.

[24] Maintaining an updated list of the market events and conditions that might lead to supply scarcity would be relevant to better understanding the drivers that might bring prices closer to the MCM activation levels. The work of the European Network of Transport System Operators (ENTSOG) related to the Winter Supply Outlook and the Gas Coordination Group's regular market updates could be leveraged for that purpose.

1.6. Potential effects and continuous monitoring of risks

ACER and ESMA continue to emphasise the need to regularly monitor gas markets and gas trading activities to identify risks and to assist in detecting potential impacts of the MCM in the future. To that end, ACER proposed a number of indicators, whose values are updated until the end of February 2023 in this Report. Section 5 summarises ACER's view of the potential risks associated with MCM adoption and activation. Other effects and risks are more related to the stability of the financial markets and are thus taken up in the ESMA Report.

ACER will continue monitoring the effects of the MCM on energy markets and on security of energy supply. ACER will also carry out the tasks it was assigned under the MCM Regulation including ACER's daily publication of the reference price and tasks related to the activation and/or deactivation and/or suspension of the mechanism. ACER also stands ready to provide further technical advice to the European Commission on these topics upon request.

2. Assessment of MCM market effects

2.1. Indicators to assess and monitor MCM effects

To assess the MCM effects on energy markets, and in line with its preliminary report, ACER proposes to use ten market indicators. The indicators are distributed across three areas, considering respectively market effects related to price evolution, to demand-supply balance and flows, and to trading activity. More specifically, the ten indicators are presented under the three sections below:

- The first section looks at gas price aspects, measuring 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 as well as their evolution.
- The third section looks at gas trading activity developments at both exchanges and OTC gas markets.

For each indicator, ACER first assesses the results prior to and after the adoption of the MCM Regulation. Next, ACER outlines the key observed results and market effects so far. In each of the three blocks, ACER has identified a number of risks that can be monitored using the indicators. Section 5 lists the main considerations about the identified related risks to be monitored in the future.

The preliminary report[25] described each indicator, discussing its relevance and offering technical considerations to interpret their values. In this report, the focus is on updating the indicators, explaining their values and reflecting on the observed effects.

2.2. Gas price developments: results and market effects

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:

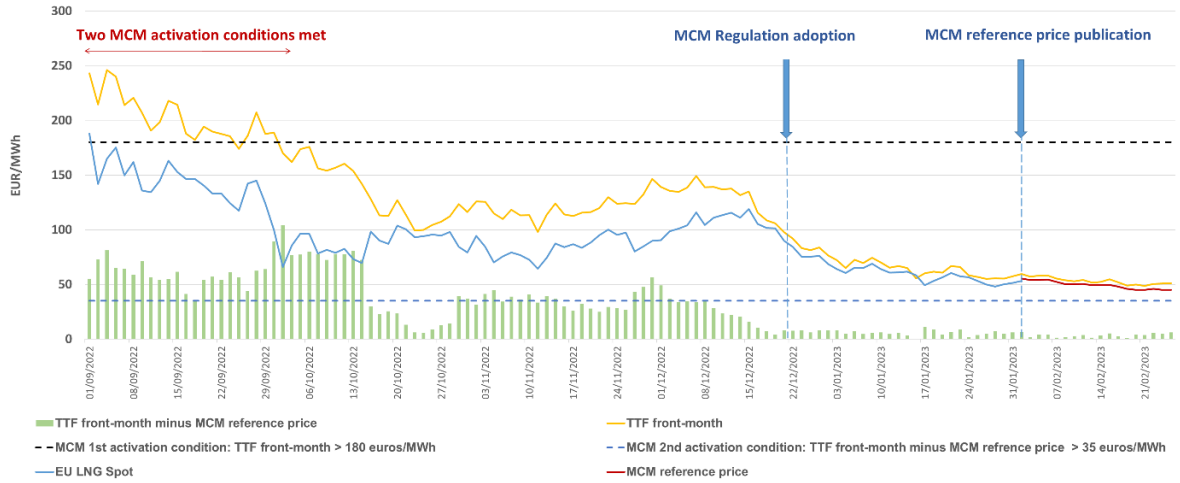
- The daily evolution of front-month gas hub prices and EU LNG reference prices from September 2022 to end- February 2023,
- The evolution of gas and electricity future prices across 2023 and 2024; and
- The progression of price spreads between EU gas hubs since November 2022.

[25] See footnote 2.

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

Aim: The indicator measures the daily evolution of EU gas prices. It is related to the ACER mandate of calculating the price conditions based on Articles 3 and 4 of the MCM Regulation on price monitoring and the activation of the MCM[26].

Figure 1: Front-month TTF, EU LNG spot and MCM reference price evolution – 01 September 2022 – 25 February 2023 (EUR/MWh)



Source: ACER based on Platts, Argus and ICE Endex

Note: EU LNG Spot prices correspond to the average second half-month prices for delivery in North-West Europe and Mediterranean area, assessed by Platts. The actual reference price, as set in MCM Regulation, is calculated from 1 February 2023. The evolution of the eleven price indexes that conform the MCM reference price is shown in Figure 23.

Observed results in the context of market fundamentals

- TTF front-month prices have dropped by circa 50% from 20 December 2022 to 25 February 2023. The gas price drop has resulted from a combination of factors:
  - Temperatures have been milder than usual in Europe, reducing gas demand for heating. That, together with still heavily subdued industrial consumption, so far not responsive to the gradually decreasing gas prices, rising power generation from renewable technologies – chiefly from wind – and gradually recovering nuclear power generation – scheduled to further rise in the coming months – has reduced overall EU gas demand. (See extended considerations under Section 2.3., Flow Indicator 1).
  - Supply has remained robust, in particular with LNG imports reaching record highs.
  - Moreover, assisted by the above-mentioned demand and supply factors, EU storages are at high filling levels compared to previous years' levels. As of 25 February 2023, storage levels were at 62.4%. This is in contrast to 32% on 25 February 2022 and 53% measured on a four year average (i.e. for 25 February during 2019-2022).

[26] In accordance with Article 3 on 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 with Article 4, market correction event, ACER shall publish a notice stating that a market correction event has occurred.

- 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 50 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 45 and 100 EUR/MWh. The average price difference between TTF front-month prices and the EU LNG spot reference price has been 4.9 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.

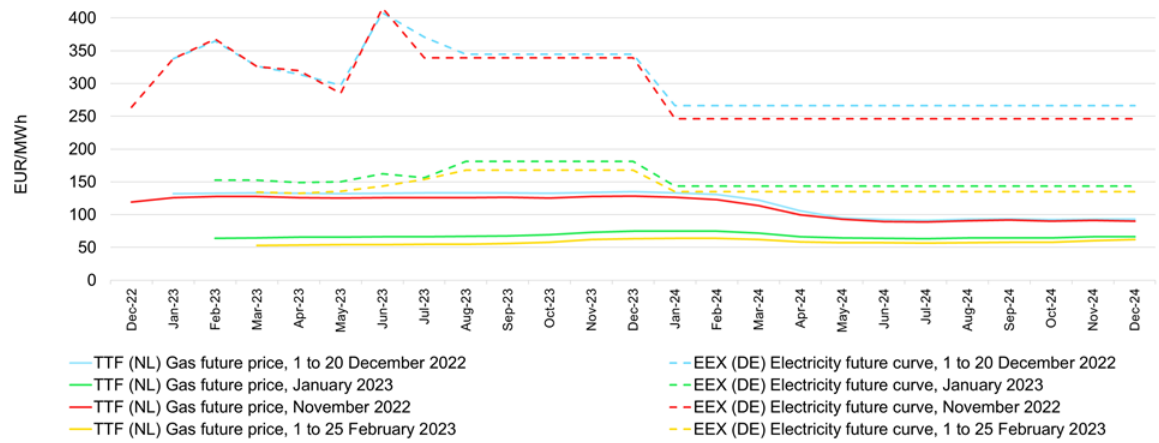
Observed market effects

- The adoption of the MCM has not led to price increases or convergence towards the first activation condition (180 EUR/MWh).
- It cannot be concluded from this that the MCM has played a relevant role in reducing EU gas prices. Prices seem driven by fundamental supply and demand factors.

Price indicator 2: Electricity and gas future prices

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

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



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

Observed results

- TTF future prices for delivery in 2023 have fallen by 73 EUR/MWh since the adoption of the MCM Regulation[27]. In February 2023, contracts for delivery in the second half of the year 2023 traded at 60 EUR/MWh on average, whilst the contracts for delivery in the same period concluded in December 2022 were priced on average at 133 EUR/MWh. Moreover, in December 2022, prices for

[27] The value is calculated based on the average price differences of derivative contracts for delivery for every future month from February to December 2023 for the two compared periods: from 1 to 20 December 2022 and from 1 to 25 February 2023.

gas delivery in the second half of 2024 still exceeded 90 EUR/MWh, whilst in February 2023 the prices for delivery in the second half of 2024 were below 60 EUR/MWh.

- Electricity future prices for delivery in the second half of 2023 have fallen by 155 EUR/MWh between December 2022 and February 2023[28], moving from 340 EUR/MWh to 185 EUR/MWh. In addition, the average price of the contracts concluded in February 2023 for electricity future delivery in 2024 were 135 EUR/MWh.
- The prices of the contracts concluded in February 2023 for future gas delivery in 2023 and 2024 remain below the MCM's first activation condition (180 EUR/MWh). The Pearson correlation coefficient between electricity and gas future prices has hovered between 0.45 and 0.60, with no significant moves before and after the adoption of the MCM Regulation. The high correlation values show that the prices of the two commodities are reasonably connected[29], although different market specifics (e.g., power generation portfolios, demand seasonality, etc.,) result in certain differences.

Observed market effects

- The adoption of the MCM Regulation has not prompted a rise in the future prices of gas or electricity.
- It cannot be concluded from this that the MCM Regulation has played a role in putting downward pressure on future prices. Rather, fundamental supply and demand dynamics are the main drivers of the observed fall in gas prices.

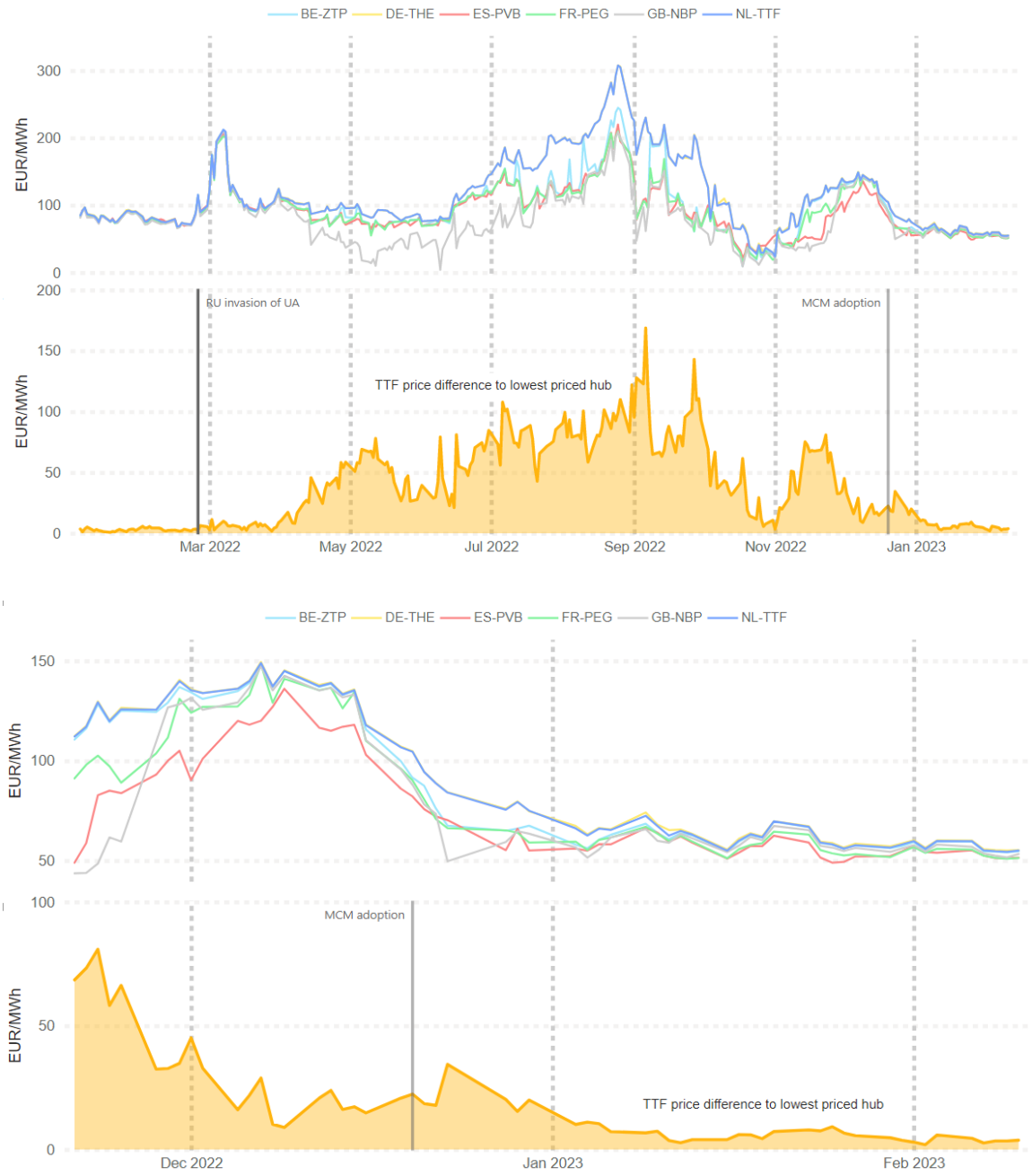
Price indicator 3: Hub price convergence

Aim: The indicator measures the price spread between a selection of gas trading hubs (e.g., Austrian, Czech Virtual Trading Point, Belgian Zeebrugge Trading Point, 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.

[28] See footnote 27 above.

[29] Gas-fired plants often set marginal electricity prices in EU power markets. The Pearson correlation method is the most common method measuring linear correlation. It assigns a value between − 1 and 1. When the coefficient is 0 there is no correlation, 1 stands for complete positive correlation, and − 1 represents a complete negative correlation. A correlation value of e.g., 0.7 would indicate that a significant and positive relationship exists between two values. A positive correlation signifies that if variable A goes up, then variable B also goes up, whereas when the correlation value is negative, then if A increases, B decreases. The correlation does not underpin necessarily a cause and effect relation, until it is proven.

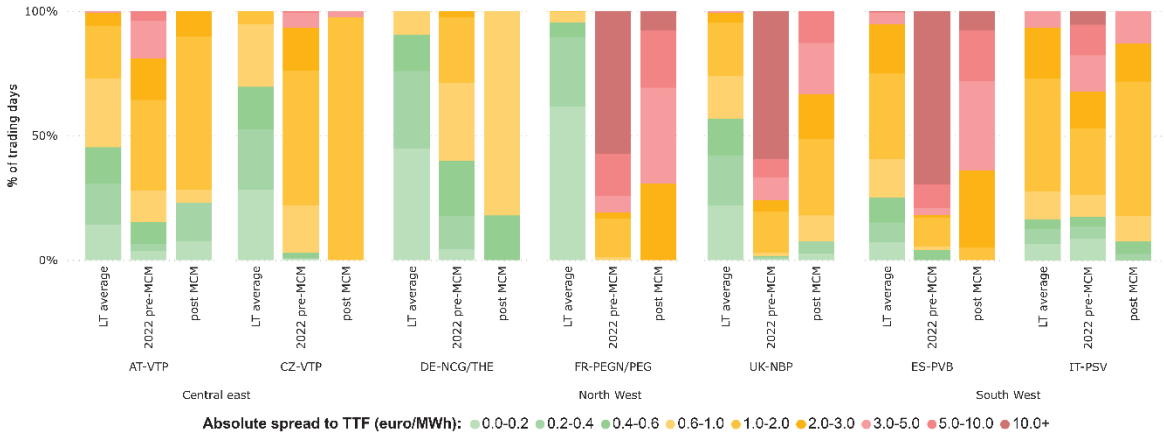
Figure 3: Day-ahead convergence between TTF and selected EU hubs – 01 January 2021 to 10 February 2023 and (zoom in) 20 November 2022 to 10 February 2023 (EUR/MWh) –



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.

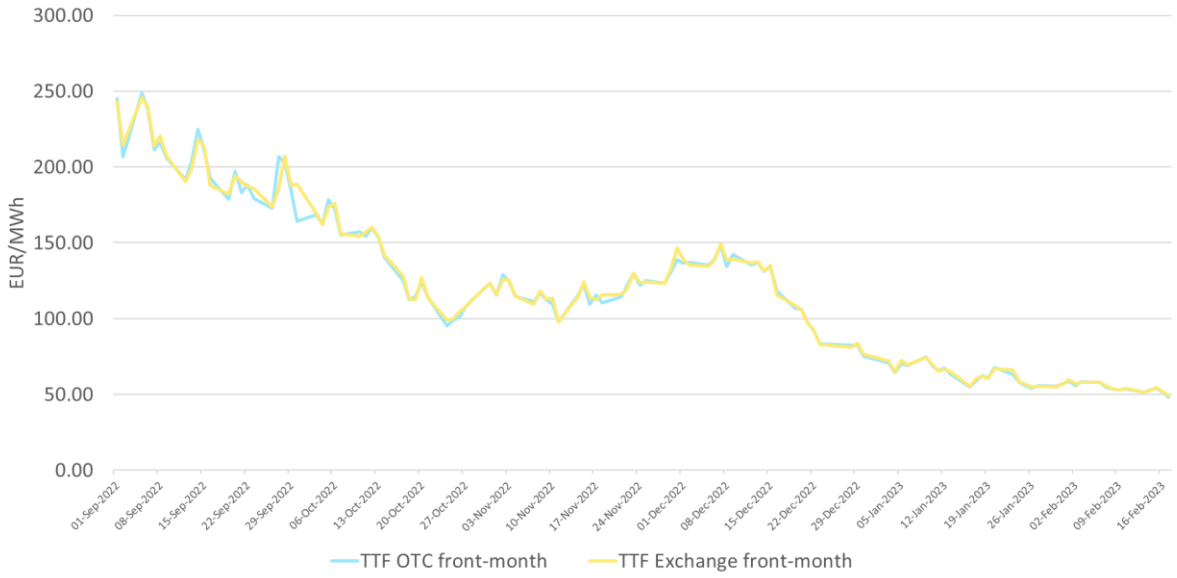
Figure 4: Month-ahead convergence between TTF and selected EU hubs for various timeframes – 2018 - to 17 February 2023 (EUR/MWh)



Source: ACER based on ICIS

Note: the long-term average (i.e. 'LT average') covers the period from 2019 to 2021; '2022 pre-MCM' covers the period from January 2022 to 19 December 2022 and 'post-MCM' covers the period from 20 December 2022 to 17 February 2023.

Figure 5: Month-ahead price convergence between over-the-counter and exchange traded products at TTF – September 2022 to February 2023 (EUR/MWh)



Source: ACER based on ICIS (for OTC prices) and ICE (for exchange prices)

Observed results

Given the volatile market, this indicator is sensitive when displayed over short time periods. In the analysed period from 20 November 2022 to 25 February 2023[30], and when setting a date for comparison, prior to and after the date of MCM's adoption, on 20 December 2022:

- Average day-ahead prices at TTF have fallen by 65 EUR/MWh,
- Front-month average prices at TTF hubs have fallen by 64 EUR/MWh,
- The highest average day-ahead spreads are observed between the Dutch TTF and the Spanish Punto Virtual de Balance and the Trading Region France. The two latest hubs show an average discount relative to TTF of 3 EUR/MWh in February 2023, as a result of a higher available LNG regasification capacity in Spain.
- In February 2023, the price spreads between the North West and Central Europe hubs have moved closer to transportation tariffs (and on certain days and hub-pairs, even below, e.g., between TTF and the German VTP), reversed the situation registered in recent months, when spreads hovered above tariffs. Spreads hovering above tariffs reflect infrastructure congestion at the gas pipelines flowing gas in a West to East direction or at the North West European LNG terminals (the reason being that the gas networks in the region have been dimensioned for a significantly larger reliance on supplies from Russia, i.e., from East to West). However, the average spread between France and the Netherlands has for example dropped from 13 EUR/MWh in November-December 2022 to 3 EUR/MWh in February 2023, reflecting the lessening demand in conjunction with higher availability of LNG capacity.
- The high price convergence and the historical price correlation between day-ahead and front-month products slightly declined during 2022, but remained strong. In addition, the correlation values have improved in the last months again, in comparison to the end of 2022. The average spread between the two trading products was 3.2 EUR/MWh from November-December 2022, and 0.9 EUR/MWh in February 2023. While the Pearson correlation coefficient has slightly deteriorated over the five year average, it is still above 0.9 during 2023[31]. Day-ahead and front-month products tend to strongly converge and closely correlate, as the front-month product is the future contract with the closest maturity to day-ahead. However, the ongoing volatility has increased the spread between them. The size of the spread between spot contracts and futures is determined by specific developments in daily markets, where certain conditions can affect spot prices but not necessarily front-month ones. Next to that, 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 can lead to price differences.
- 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.
- To ACER's knowledge, no contractual disputes have been initiated requesting the revision of the TTF price reference in view of the MCM Regulation. As stated in Section 5 dedicated to this issue, ACER recommends that this risk is closely followed.

[30] A shorter reference period would provide misleading results.

[31] See footnote 29 on the Pearson correlation coefficients.

2.3. Gas flow developments: results and market effects

This section describes three indicators used to assess the potential impacts of the MCM on gas flows, specifically gas demand, gas supply and the utilisation of gas infrastructure.

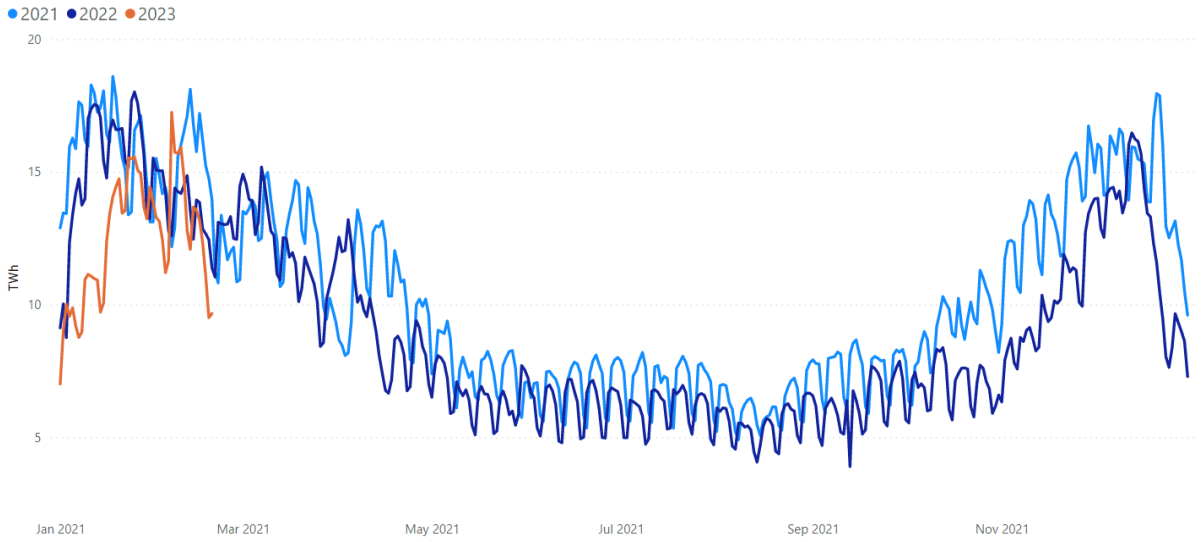
ACER's flow development indicators include:

- Demand evolution;
- Supply evolution; and
- Gas infrastructure utilisation with a focus on selected interconnection points and LNG terminals.

Total Flow indicator 1: Demand evolution

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

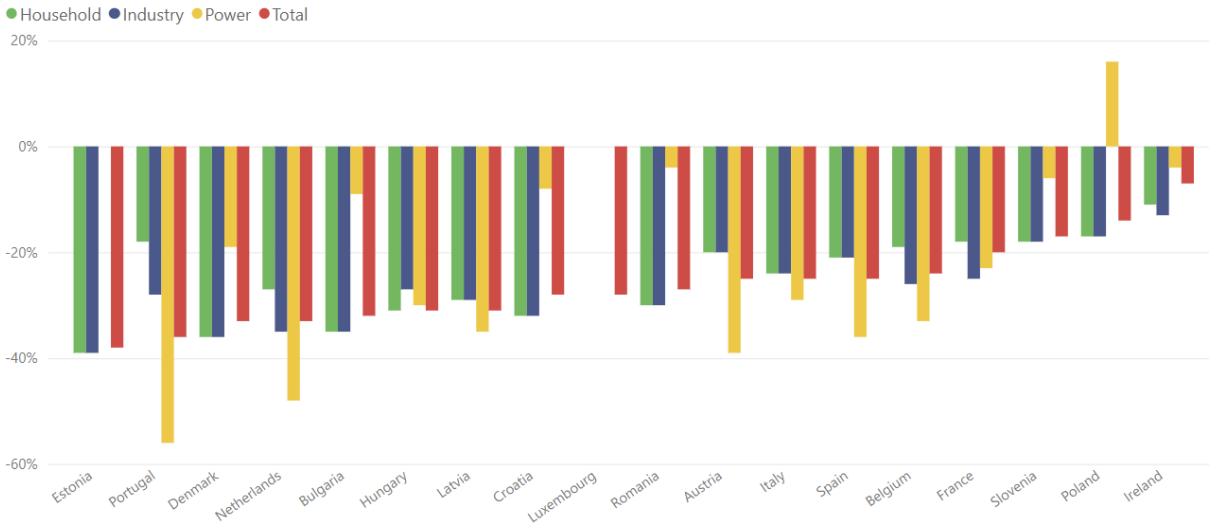
Figure 6: Comparison of daily demand evolution at selected[32] MSs – 2021 - 2023 (TWh/day)



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

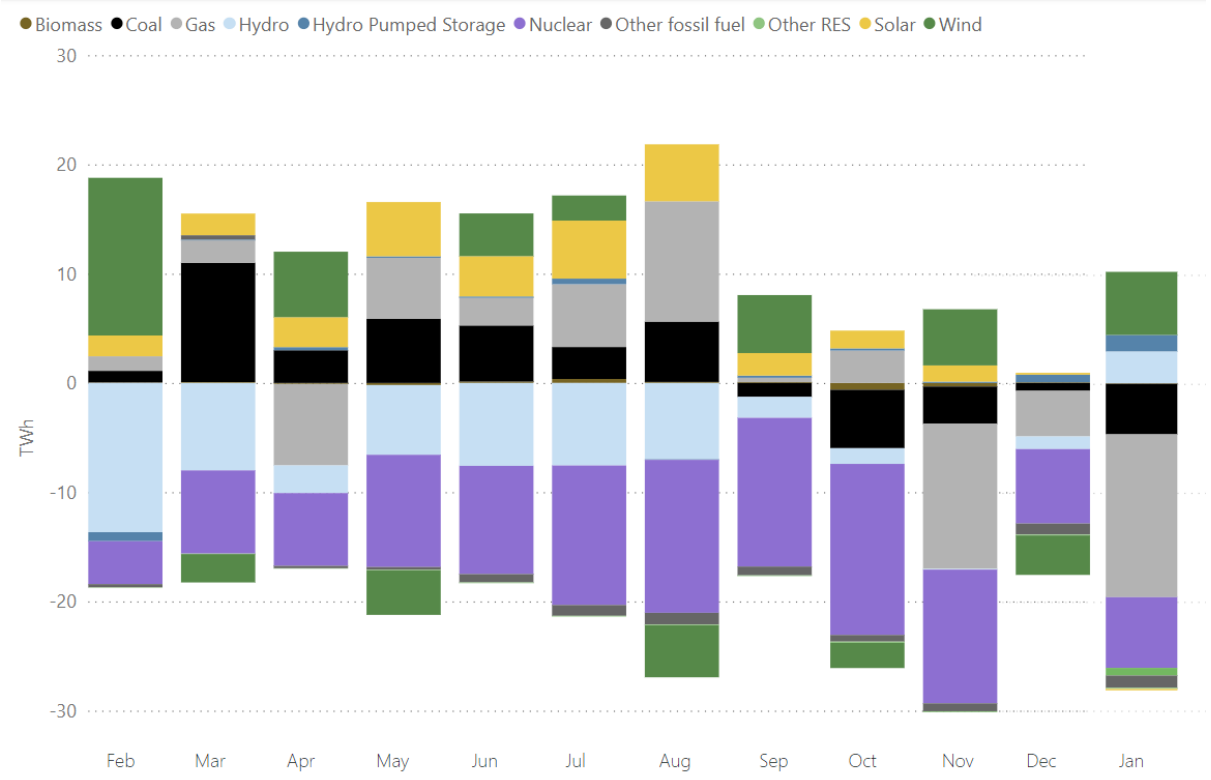
[32] Belgium, Bulgaria, Estonia, France, Croatia, Hungary, Italy, Latvia, Netherlands, Poland, Portugal, Romania, Slovenia, Spain and Germany considered.

Figure 7: Percentage change of total and sectorial demand evolution in selected Member States – January 2023 compared to average values in 2019-2022 (%)



Source: Bruegel European natural gas demand tracker

Figure 8 : EU electricity generation year-on-year changes per production technology comparing February 2022-January 2023 to February 2021-January 2022 (TWh)



Source: ACER calculations based on ENSTO-E Transparency Platform

Observed results

- Total EU gas demand has fallen by 17.6% from 20 December 2022 to 21 February 2023 in comparison to the same period of the previous year. Accumulated heating-degree days[33] were 6.7% lower during the same period in the selected Member States[34].
- Demand was already falling year-on-year before the adoption of the MCM Regulation. The demand decline has even intensified in response to milder temperatures of the last weeks and the rise in renewable power generation, energy efficiency improvements, and higher nuclear generation prospects. Industrial consumption has been steady despite occasionally lower gas prices.
- Figure 7 shows an overview of sectorial demand evolution per Member State in 2023 in comparison to 2022, showing the different reductions across sectors and countries. The demand decline during January year-on-year has been most significant in Estonia (-38%) and Portugal (-36%). This contrasts for example with Ireland which recorded a much lower decline in gas demand (-7%) and Poland which saw an increase in gas demand for power usage (14%).
- Overall, during the year 2022[35], more modest demand reductions have been observed in different sectors. For example, EU gas consumption for power generation was moderately down (-3%), while industrial and household consumption registered larger reductions at -21% and -20% respectively[36].

Understanding factors of demand reduction

- In line with the IEA, demand reduction can be disaggregated into structural changes (energy efficiency, thus technical improvements) and non-structural changes (external weather conditions, production curtailment, and behaviour). Fuel switching is considered to match both criteria.
- Given those factors, structural demand reduction can be estimated to represent about 20% of the decrease in 2022, while an estimated 80% was due to non-structural changes, these being respectively favourable weather (35%), industrial demand destruction (20%) and fuel-switching (25%)[37].

Observed market and security of supply effects

- No rise in demand has been observed since the MCM Regulation was introduced. On the contrary, gas demand has kept decreasing consistently, here assisted by milder and windier winter weather. Therefore, despite lower prices perhaps suggesting otherwise, demand reductions have remained in line with Member States' gas saving objectives.

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. It also allows for assessing the evolution of gas imports after specific events, such as the activation of the MCM or other changes in trading activity potentially resulting from the activation of the MCM.

[33] 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.

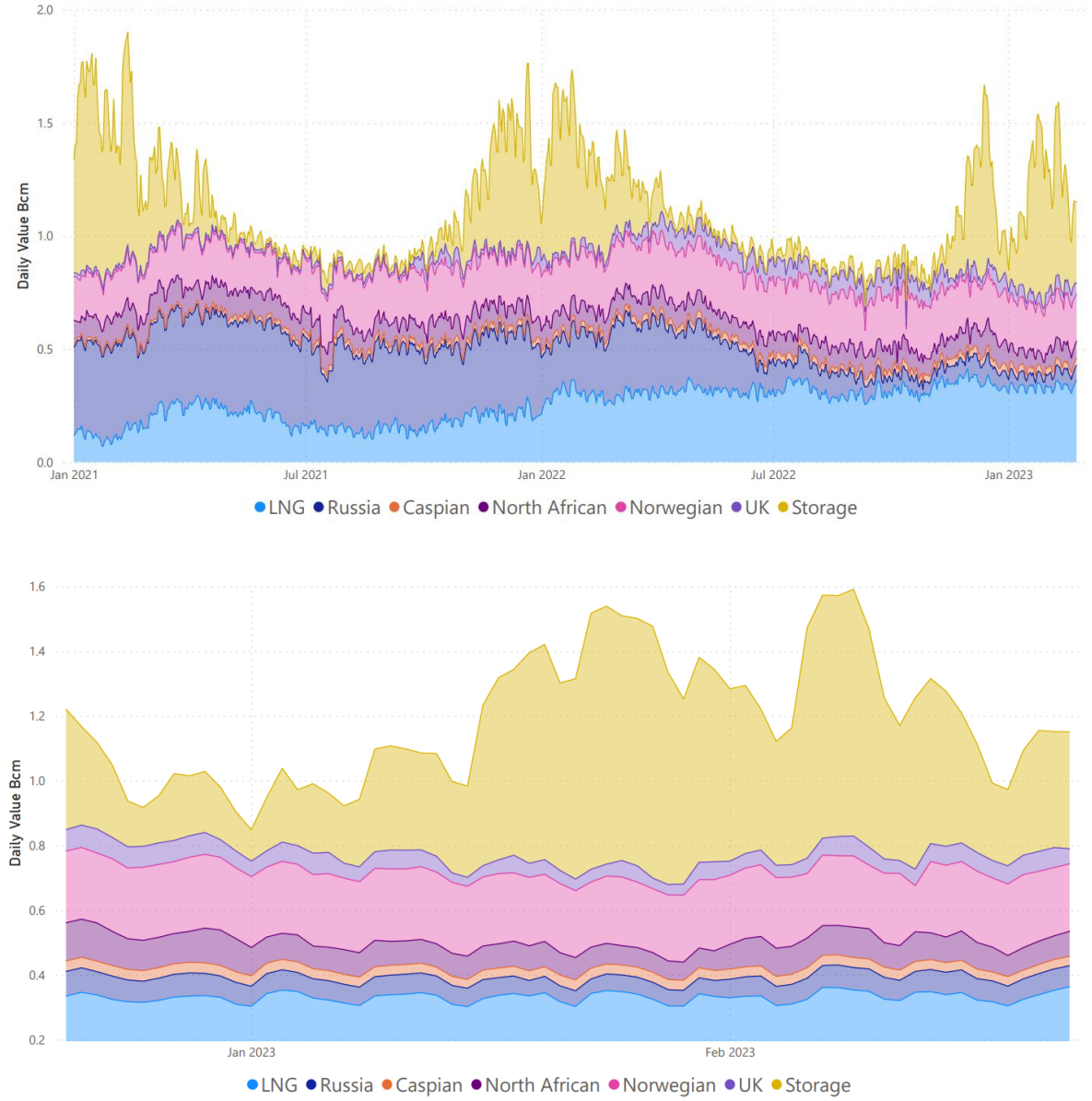
[34] France, Germany, Belgium, Hungary, Italy, the Netherlands, Poland, Romania, Slovakia, Spain and Sweden.

[35] See Figure 6.

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

[37] Statistics from February 2023 IEA Report Natural gas supply-demand balance of the EU in 2023.

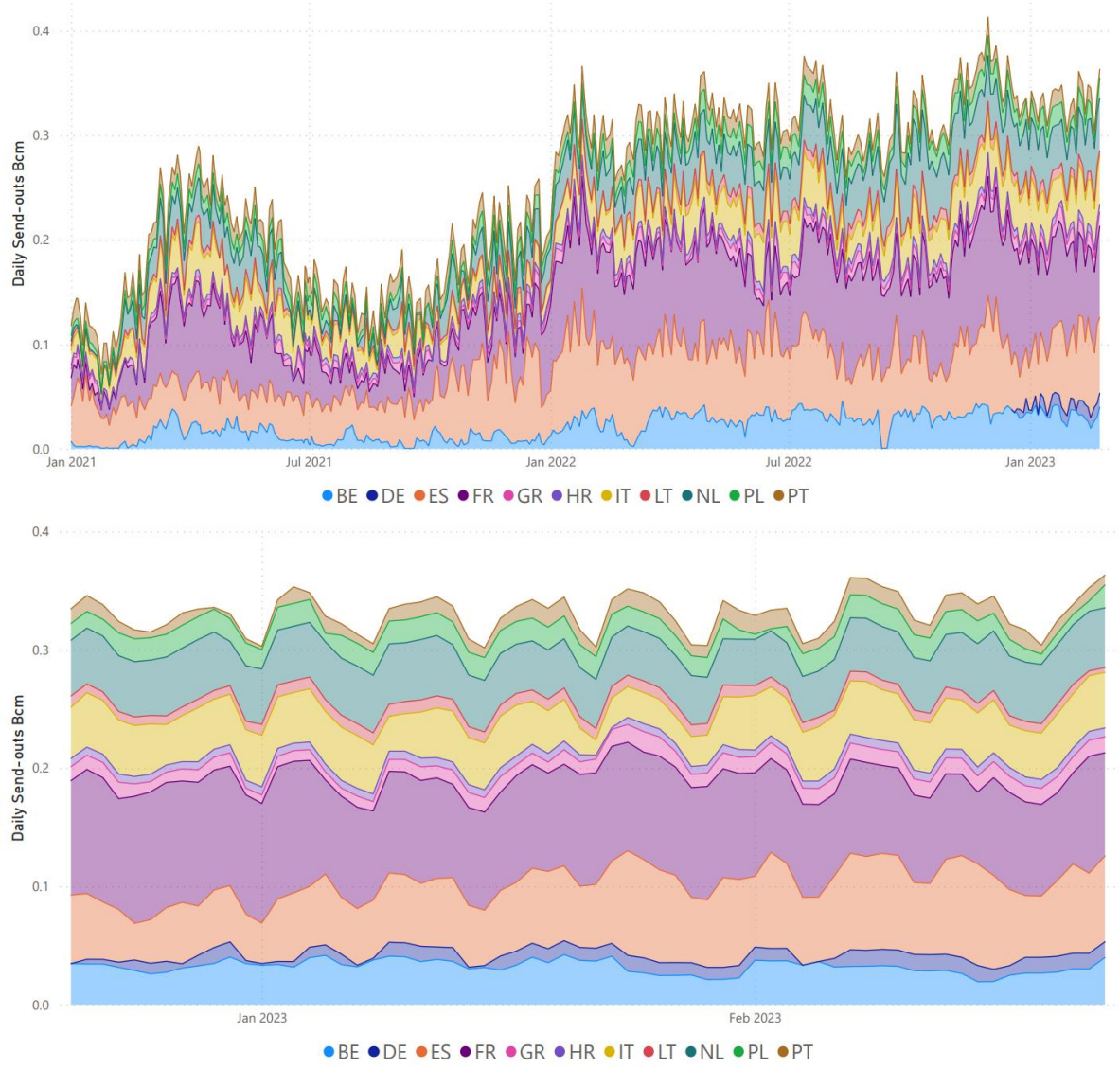
Figure 9: Daily evolution of imports by supply route for different timeframes from January 2021 to February 2023 (bcm/day)



Source: ACER calculation based ENTSOG TP and GIE ALSI

Note: a) January 2021 – February 2023 and b) 20 December 2022 – 23 February 2023

Figure 10: Daily evolution of EU LNG imports for different timeframes from January 2021 to February 2023 (bcm/day)



Source: ACER calculation based on GIE ALSI

Note: a) January 2021 – February 2023 and b) 20 December 2022 – 23 February 2023

Observed results

- Since the introduction of the MCM, total EU gas imports have fallen by 16.5% in comparison to the same period one year before. The decline is consistent with demand evolution.
- Overall, the loss in Russian pipeline flows (– 34.4 bcm lower in the period from 1 October to 23 February in winter 2022-2023 in comparison to the same period in 2021-2022) continues to be partially offset by rising EU LNG deliveries (+ 14.5 bcm for the same period in 2022-2023) next to minor pipeline delivery increases from exporting countries, such as Norway.
- The decline 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 not increased on average in the period October 2022 to February 2023 in comparison with the same period in winter 2021-2022. This shows that, despite less Russian supply, the combination of record LNG deliveries and reduced demand has not resulted in higher storage outflows to meet EU winter demand in 2022-23 so far. Storages remain well stocked above 60% during the last week of February 2023 and could end the winter above 40% filling level if the demand profile and EU imports remain unchanged.

- Net flows across the interconnectors with the UK have predominantly flowed from the UK to the EU since the publication of the MCM Regulation. However, flows are below the levels registered in summer and autumn 2022, when the EU imported larger quantities of gas from the UK in response to the higher congestion at EU LNG terminals in comparison to UK LNG terminals.
- LNG imports on spot and short-term basis[38] 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. In terms of target markets, 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 stable following the adoption of the MCM Regulation and security of supply risks declined over the previous months. Demand reduction and mild weather conditions have contributed to ensuring security of supply.
- The lost import volumes from Russian pipeline supplies during 2021/2022 have been partly replaced by increased LNG imports and alternative pipeline imports (e.g., from Norway) at the order of 42%[39]. The remainder is attributed to demand reduction. This, together with higher levels of underground gas stocks, is contributing to ensuring security of supply in the EU.

[38] 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.

[39] Comparison between the periods from 1 October 2021 to 23 February 2022 and from 1 October 2022 to 23 February 2023.

Flow indicator 3: Utilisation ratios of gas infrastructure

Aim: This indicator measures the utilisation rates of selected EU gas infrastructure. It allows for the capture of significant changes affecting the transport of gas across the EU, one of which might potentially include effects due to the MCM.

Figure 11: Overview of the utilisation ratio in selected EU IPs– January 2018 – February 2023 – (% of firm technical capacity)

Interconnection Point	Direction	Average utilisation 2018-2021	Average utilisation 2022	Average utilisation 01/11/22 to 19/12/23	Average utilisation 20/12/22 to 15/02/23
Bacton (BBL)	NL to UK	25%	63%	55%	0%
Bacton (BBL)	UK to NL	11%	1%	1%	0%
Baumgarten	AT to SK	0%	0%	0%	0%
Baumgarten	SK to AT	61%	34%	23%	14%
Mosonmagyarovar	AT to HU	61%	61%	23%	13%
Mosonmagyarovar	HU to AT		0%	0%	0%
Tarvisio (IT) / Arnoldstein (AT)	IT to AT	0%	3%	8%	5%
Tarvisio (IT) / Arnoldstein (AT)	AT to IT	67%	25%	9%	14%
VIP France - Germany	FR to DE		44%	45%	55%
VIP France - Germany	DE to FR	45%	14%	0%	0%
VIP Oberkappel	AT to DE	10%	5%	30%	5%
VIP Oberkappel	DE to AT	52%	79%	28%	60%
VIP PIRINEOS	ES to FR	3%	32%	51%	35%
VIP PIRINEOS	FR to ES	51%	20%	8%	8%
VIP THE-ZTP	DE to BE		0%	0%	0%
VIP THE-ZTP	BE to DE		138%	119%	127%
VIP TTF-THE-H	DE to NL		0%	0%	0%
VIP TTF-THE-H	NL to DE		47%	77%	70%
VIP-BENE	NL to BE	5%	0%	0%	0%
VIP-BENE	BE to NL	24%	79%	64%	66%
VIRTUALYS	FR to BE	3%	271%	332%	482%
VIRTUALYS	BE to FR	26%	0%	0%	0%
Zeebrugge IZT	UK to BE	25%	218%	146%	168%
Zeebrugge IZT	BE to UK	11%	1%	0%	0%

Source: ACER calculation based ENTSOG TP

Note: Utilisation ratios are assessed dividing physical flows by firm technical maximum 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 12: Overview of the utilisation ratio in EU LNG terminals – January 2018 – February 2023 (% of maximum send-out capacity)

Terminal	Country	Average utilisation 2018-2021	Average utilisation 2022	Average utilisation 01/11/22 to 19/12/23	Average utilisation 20/12/22 to 15/02/23
Zeebrugge LNG Terminal	BE	29%	61%	74%	69%
Wilhelmshaven LNG Terminal 1 (FSRU)	DE		35%	0%	60%
Barcelona LNG Terminal	ES	23%	23%	24%	16%
Bilbao LNG Terminal	ES	60%	76%	84%	70%
Cartagena LNG Terminal	ES	16%	37%	27%	29%
Huelva LNG Terminal	ES	33%	39%	53%	49%
Mugardos LNG Terminal	ES	42%	55%	69%	78%
Sagunto LNG Terminal	ES	16%	46%	44%	21%
Dunkerque LNG Terminal	FR	25%	75%	82%	66%
Fos Cavaou LNG Terminal	FR	48%	92%	114%	100%
Fos Tonkin LNG Terminal	FR	49%	51%	57%	62%
Montoir de Bretagne LNG Terminal	FR	53%	86%	102%	87%
Revythoussa LNG Terminal	GR	27%	39%	47%	49%
Krk LNG Terminal (FSRU)	HR	60%	87%	94%	89%
FSRU OLT Offshore LNG Toscana	IT	41%	65%	56%	76%
Panigaglia LNG Terminal	IT	42%	54%	84%	72%
Porto Levante LNG Terminal	IT	91%	89%	97%	85%
FSRU Independence	LT	37%	72%	86%	83%
EemsEnergy LNG Terminal	NL		43%	20%	16%
Rotterdam Gate Terminal	NL	41%	92%	96%	91%
Świnoujście LNG Terminal	PL	61%	80%	99%	91%
Sines LNG Terminal	PT	77%	82%	76%	65%

Source: ACER calculation based GIE ALSI

Note: Due to the recent infrastructure deployment and lack of reported data only one German LNG Terminal has been analysed.

Observed results

- Interconnection points flowing gas into North West Europe from a West to East direction remain the most utilised in relative terms (i.e., in relation to technical capacity). The high utilisation ratios concern entry or exit sides of interconnection points in the Netherlands, Belgium, France, and Germany.
- Overall, the utilisation ratios of the European pipelines considered have not changed considerably since the MCM adoption in December 2022. While the overall trends have not changed, case specific events (e.g., demand developments and the entry into operation of new regasification terminals) have led to some improvements.
- The utilisation ratios of most LNG terminals in Europe have remained relatively high since the adoption of the MCM Regulation. However, some LNG terminals are utilised less compared to the end of 2022. This is in response to lower demand and additional regasification capacity added at several North West European ports.
- While congestion remains high in North West Europe, actions managing the changed gas flow patterns from West to East have already been taken. For example, Belgium increased capacity at the VIP-BENE in the direction of the Netherlands, and VIP THE-ZTP in the direction of Germany by reducing capacity at other borders; lower domestic gas demand facilitating this type of network flow optimisation. Belgium also boosted compression power in the direction of Germany to enable higher flow at the German side of the border, enabling an increase of maximum flow from 540 GWh/d to approximately 840 GWh/d. German TSOs have also reallocated unused network capacities, aiming at enlarging capacity offering at locations where it was highly demanded[40]. France boosted compression to optimise flow entering from Spain (additional 40 GWh/d on interruptible basis), and,

[40] Within the limits of its network constraints. For further information see the principles of capacity reallocation at the German trading hub: BK7_Positionspapier_Kapazitätsverlagerung_final_en (bundesnetzagentur.de).

in collaboration with German TSOs, enabled physical flow of 100 GWh/d to Germany which was not possible before. France, Germany and the Netherlands added LNG receiving capacity and integrated it into their national networks with further expansion planned or being considered. In addition, TSOs and governments are planning network capacity expansions to further alleviate congestion. Belgium is the most advanced, having taken already an investment decision to expand internal capacity by the end of 2023 that will help alleviate physical congestion in the direction of Germany.

Observed market effects

- Intra EU-gas flows have not experienced significant variations since the introduction of the MCM Regulation. Section 3.4.2 of this Report analyses the evolution of cross-border flows at relevant interconnection points, with a focus on the TTF VTP and price spread dynamics.

2.4. Gas trading developments: results and market effects

This section includes indicators to monitor 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 the Regulation on wholesale energy market integrity and transparency ('REMIT'). ACER's trading analysis is complementary to ESMA's report.

ACER's trading indicators include:

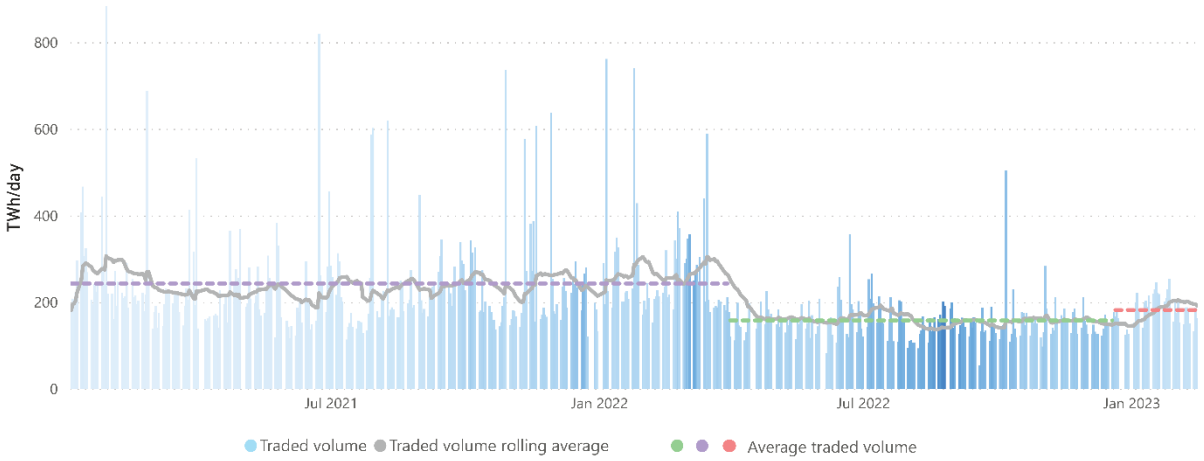
- Total volumes[41] traded at different trading venues and the evolution of the split between volumes traded on exchanges and via brokers,
- The breakdown of these traded volumes per type of contract (e.g. day-ahead, month-ahead, etc.),
- The evolution in the number of active market participants.

[41] Physical volumes differ from the notional volumes (in EUR) presented by ESMA.

Trading indicator 1: Traded volumes at organised markets

Aim: Measure the evolution of TTF exchange and brokered traded volumes. The indicator aggregates transactions across different organized markets (ICE Endex, EEX, Marex Spectron, GFI, etc.) and across different product types (day-ahead, month-ahead, etc.), before and after the introduction of the MCM Regulation.

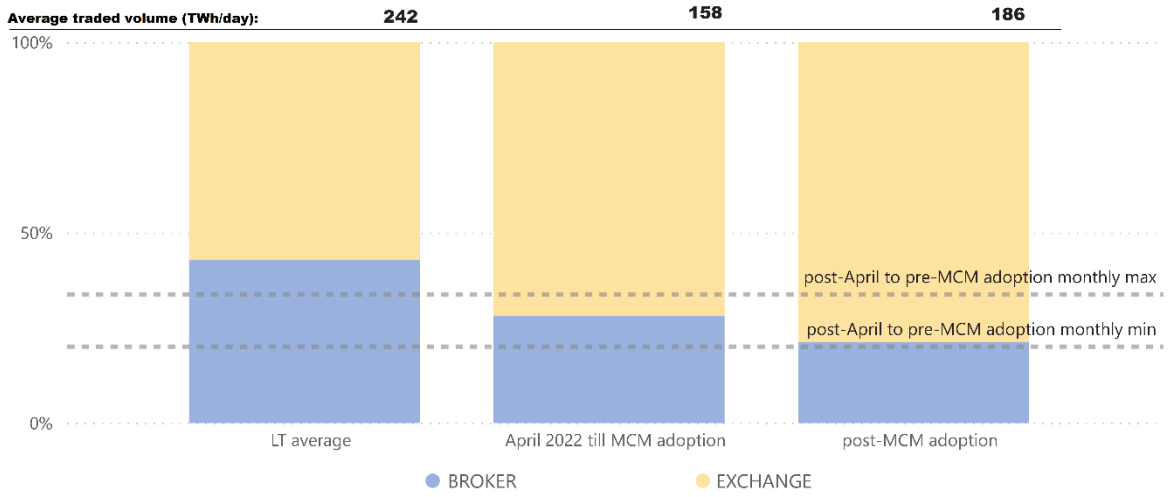
Figure 13: Exchange and brokered traded volumes at the TTF hub – 01 January 2021 – 15 February 2023 (TWh/day)



Source: ACER calculation based on REMIT

Note: The rolling average corresponds to the average trades concluded in the preceding 30 days on a rolling basis. The average traded volumes correspond to averages observed between 1 January 2022 – 31 March 2022 (purple); 1 April 2022 – 19 December 2022 (green); and 20 December 2022 – 15 February 2023 (red). 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 14: Share of brokered and exchange traded volumes at TTF and total hub traded volumes – 01 April 2022 – 15 February 2023 (% of total hub traded volumes; TWh/day)



Source: ACER calculation based on REMIT

Note: 'LT average' includes data from 1 January 2021 till 1 April 2022, 'post-MCM adoption' includes data up to 15 February

Observed results

- Estimated average TTF exchange and brokered traded volumes have increased to more than 180 TWh per day since the adoption of the MCM Regulation. This compares to an average below 160 TWh per day observed in the period following the Russian invasion of Ukraine and before the adoption of the MCM Regulation. However, in comparison to average TTF traded volumes observed in the period prior to the Russian invasion of Ukraine (i.e. approximately 240 TWh per day), the estimated average traded volumes after adoption of the MCM Regulation remain low.
- The share of brokered TTF traded volumes is estimated to have increased marginally compared with exchange traded volumes (i.e. by less than half a percentage point) in January and the first half of February 2023 compared with December 2022. However, following the adoption of the MCM Regulation the estimated share of the brokered market remains at the lower range (22%) of what had been observed on a monthly basis since the Russian invasion of Ukraine. Furthermore, the share of the brokered market remains significantly below the observed long term average. Volatile and rapidly increasing energy prices accelerated the migration of TTF trading from brokers to exchanges in the second half of 2021.

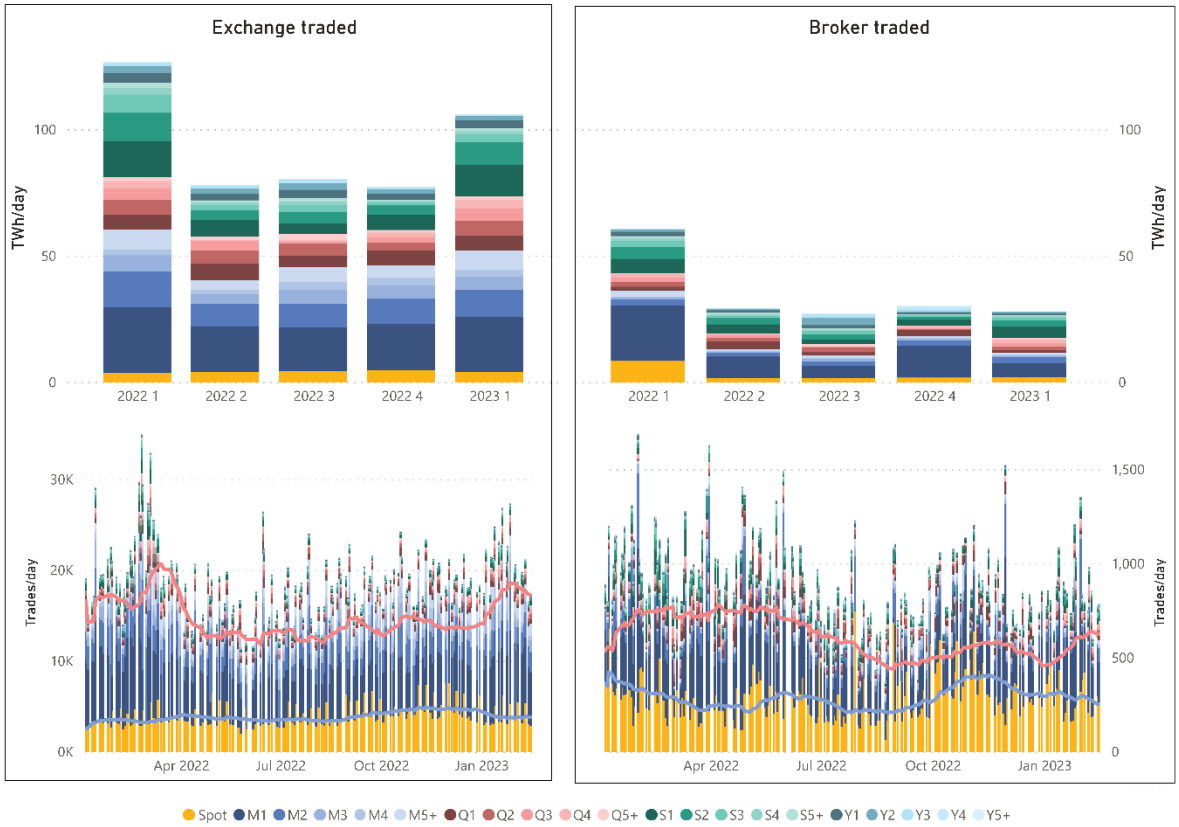
Observed market effects

- TTF trading activity has increased in January and the first half of February of 2023 when compared to Q3 and Q4 of 2022. A less stressed gas demand and supply balance than previously foreseen by markets (e.g. above average gas storage stocks, above average LNG supply, etc.) has not only de-risked contracts for delivery until the end of the current winter season but also contracts for gas winter 2023/2024 delivery. Lower prices may have in turn freed up capital for hedging or speculating on gas futures and forwards, contributing to increased trading activity. It is unlikely that the MCM Regulation, in the current environment characterised by the aforementioned fundamentals, is having an impact on market participants' trading behaviour.
- Exchange and OTC trading platform 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 for delivery at the TTF before and after the adoption of the MCM. Measure also the number of trades concluded for each product type.

Figure 15: Comparison of average daily exchange and brokered traded volumes per product type per quarter and product trading frequency at TTF– 1 January 2022 – 15 February 2023 (average TWh/day; weekday number of trades of the product)



Source: ACER calculation based on REMIT

Observed results

- The average traded volume of TTF spot products were similar during January and during the first half of February of 2023 as observed in Q3 and Q4 of 2022. However, the share of spot products in total TTF traded volumes decreased marginally as TTF trade growth was concentrated on longer dated products.
- The month-ahead remained the most traded product type representing roughly one fifth of TTF trade. This was lower when compared to Q4 2022 when it accounted for an above average share of almost one third of traded volumes.
- The largest change was observed in trade for longer term contracts with considerably higher volumes of season and quarter products being traded in January and the first half of February 2023 than levels observed in Q4 of 2022.

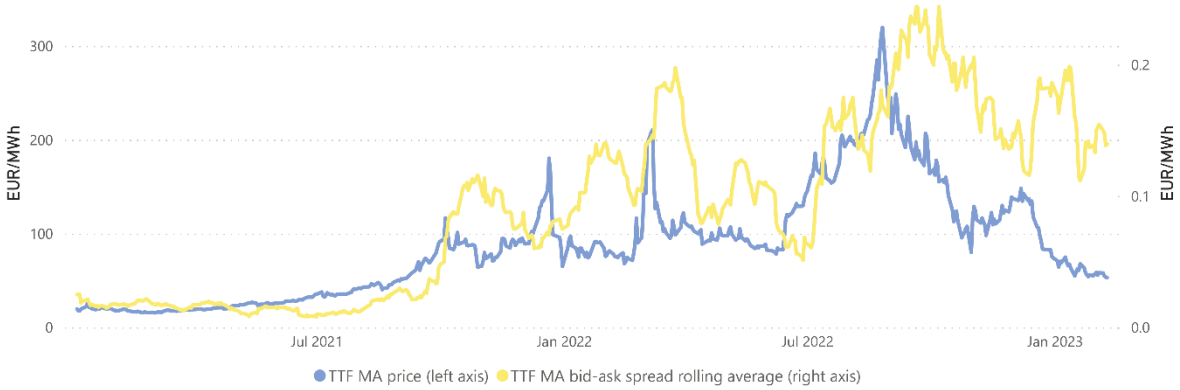
Observed market effects

- The introduction of the MCM Regulation has not resulted in an identifiable shift in trading activity from derivatives into short-term products since December 2022. 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 the front-month product, thereby assessing the evolution of transaction costs. Lower spreads are associated with lower transaction costs and higher market liquidity.

Figure 16: Evolution of the TTF front-month hub product price and its bid-ask spread – 01 January 2021 – 09 February 2023 (EUR/MWh)



Source: ACER calculation based on ICIS Heren

Observed results

- The introduction of the MCM Regulation has not prompted an identifiable 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 partially with the absolute price level of the front-month product on the trading day.
- Since October 2021, higher prices reduced total traded volumes and 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 of active players on those days could have led to higher concentration and hence rising bid-ask price spreads. Bid-ask spreads tend then to partially fall at days with more modest prices, although the correlation is not always maintained as price spreads could also normalise 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, thereby contributes to the assessment of the liquidity and competition in these.

Figure 17: The number of market participants trading TTF on energy exchanges and brokers – 01 October 2021 – 09 February 2023 (estimated on a weekly basis)

Source: ACER calculation based on REMIT data

Observed results

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

Observed market effects

- No discernible drop in the number of market participants trading at TTF has 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 is unrelated to the MCM Regulation. Financial market participants and hedge funds closed their preceding positions primarily to reduce exposure under the high-price and volatile EU market environment.

3. Extension of the MCM to other VTPs

This section outlines ACER's technical considerations related to the decision to extend the MCM to other VTPs pursuant to Article 9(2) of the MCM Regulation. The referred article tasks ACER and ESMA to assist the European Commission in its decision to extend the MCM to the derivatives traded at EU VTPs other than TTF. Such extension is foreseen as of 31 March 2023 through the publication of the European Commission's implementing act.

3.1. Design elements

There are three main design elements linked to the decision to extend the MCM to derivatives traded at EU VTPs other than TTF:

- Whether to extend the MCM to all EU VTPs or exceptionally exclude certain;
- Whether the MCM activation - in case of an extension - should be based on the prices of the derivative products traded at the individual VTPs or on a common basis (i.e. the TTF ICE Endex (front-month) price;
- Whether the price bidding limits - in case of an extension - should be the same across all EU VTPs' gas derivatives or whether the dynamic price bidding limits of non-TTF EU gas derivatives should be different than the dynamic price bidding limits applied to TTF derivatives.

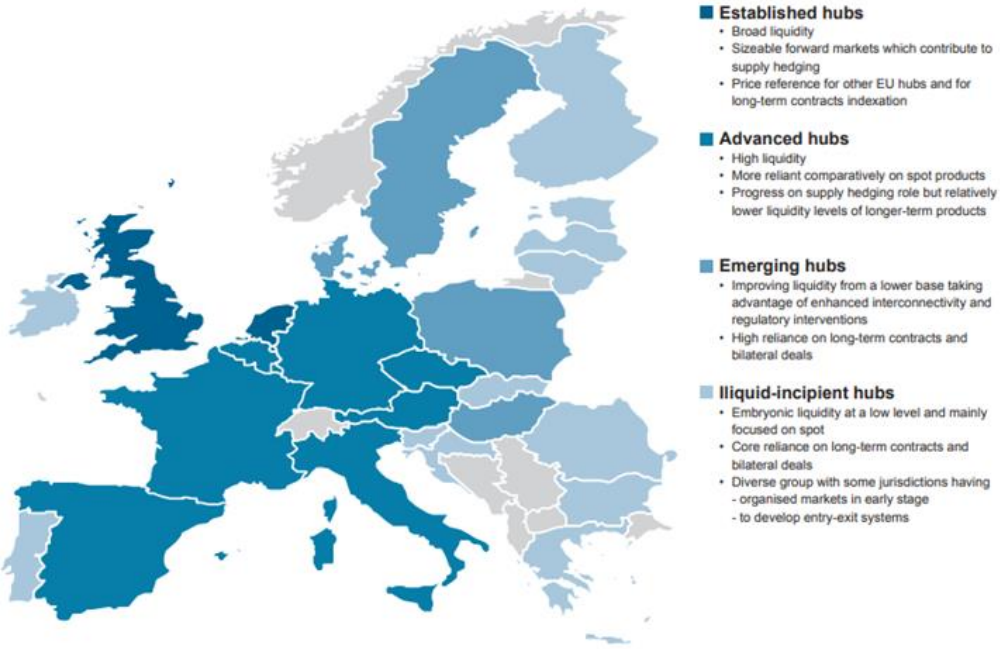
As stated in the Executive Summary, the decision for extending the MCM has political and technical considerations. ACER's analysis focuses on the technical considerations.

3.2. VTPs subject to the MCM

The political intention expressed in the MCM Regulation is to extend the MCM to all EU VTPs to avoid fragmenting the integrated gas market in the spirit of solidarity.

However, EU gas hubs are at significantly different levels of maturity, leading to different market and price hedging roles that they can play. ACER considers TTF in the Netherlands and NBP in the UK to be the only two 'established' European hubs with sizeable forward markets and relevant options for supply hedging. In other hubs, market participants have access to a small variety of commercial options and these other venues are often used to balance the positions of the market participants (in other words their role is more focused on spot trading).

Figure 18: ACER MMR Ranking of EU hubs, based on monitoring results



Source: ACER estimate based on AGTM metric results

ACER's analysis ranks the EU hubs by combining exchange and over-the-counter trading registries. Taking a narrower focus like derivatives trading on exchanges shows larger quantifiable disparities in the volumes and the trading frequency of the products at TTF in comparison to other EU VTPs. Namely, in 2022, 95% of derivatives traded in the EU were related to TTF contracts. The German VTP holds the second position with less than 1% of the volumes. The other hubs following the German VTP have less and less traded volumes to report and their sizes are outlined below.

Figure 19: Overview of EU VTPs gas exchange trade – 2022

VTP	Futures traded volume (TWh)	Spot traded volume (TWh)	Futures number of transactions	Spot number of transactions
NL-TTF	31,522	1,541	3,650,933	1,024,505
DE-THE	758	1,093	39,494	954,328
FR-TRF	252	297	9,456	236,918
AT-VTP	226	198	16,226	193,212
PL-VTP	117	25	18,363	53,811
IT-PSV	103	101	4,071	71,413
RO-VTP	94	15	1,844	52,674
ES-PVB	92	92	9,903	287,069
BE-ZTP	54	276	2,580	224,425
CZ-VTP	16	37	1,043	51,819
BG-VTP	11	5	212	7,148
HU-MGP	1	25	906	38,712
LT-VTP	1	1	1,420	10,930
DK-VTP	0	18	200	18,857
BE-ZEE	0	8	4	2,290
FI-VTP	0	0	155	7,036

Source: estimate based on REMIT data

Note: not all the futures processed fall under the category of derivative products as from the MCM Regulation. Options, swaps and auctions not included. Futures include contracts with at least monthly delivery (i.e. Months, quarters, seasons and years) while spot include contracts with duration shorter than a month (within-day, days, weekend, balance-of-month, etc.)

Taking this into account, ACER highlights the importance of the liquidity of the various venues related to the extension of the MCM to EU VTPs other than TTF. The liquidity is to be appreciated in conjunction with basic competition criteria, to prevent that a market participant can make changes in its favour in an uncompetitive (and illiquid) market environment.

Moreover, the implementation of the MCM carries administrative and logistical burdens. Those may be significant for smaller commercial venues. The costs will be primarily carried by exchange operators, central clearing entities and their members. (ESMA offers further considerations on the subject in its final report[42]). The MCM extension also entails some risks (although arguably relatively minor ones), associated with the possibility of draining trading activity if the mechanism is perceived as burdensome and/or discouraging for the market.

On the other hand, an extension would most probably have limited impact on price formation, in view of the relatively low volumes of non-TTF EU gas derivative products being traded at these VTPs.

These costs and limited impact on price formation should be assessed against the risk of current derivatives' trading activity shifting from TTF, and if so, to where this activity would most likely shift. In ACER's view, TTF trade is unlikely to shift to non-TTF EU VTPs, even if the latter were not subject to the MCM Regulation, as more attractive possibilities to avoid the MCM are already available to traders. In light of this, the inclusion of smaller and less liquid hubs does not seem necessary while it may result in negative consequences which could outweigh the benefits associated with such an extension. Hence, this may require closer assessment.

Such trade would likely move to derivative markets located in jurisdictions and venues not subject to the MCM Regulation, such as ICE Futures Europe at London (IFEU) and/or increasing trading frequency at over-the-counter markets[43]. ESMA further discusses the alternative trading venues that market participants could opt to migrate to in order to circumvent the dynamic bidding limits related to the MCM. They include EEX Organised Trading Facility ('OTF'), within the EU but outside of the scope of the MCM Regulation[44]. Such views have been supported by engagements that ACER has had with relevant financial and non-financial trading companies actively trading at EU VTPs and with trading associations (e.g., EFET, AIMA).

ACER finds that there are valid arguments for extending the MCM only to VTPs where the liquidity of gas derivative trading is modest to high. ACER considers that the extension of the MCM to other VTPs would not likely lead to significant negative effects in gas markets.

3.3. Individual VTP or TTF prices to activate MCM?

The liquidity and market depth of most exchange platforms offering derivative products at the individual VTPs is limited. The TTF VTP (with ICE Endex exchange in the lead), being the exception, attracts approximately 95% of the total derivatives traded in the EU.

The limited trading activity of derivative products at most EU VTPs results in significantly less robust and transparent price signals, complicating the daily calculation of the MCM activation and adapting its

[42] See footnote 16.

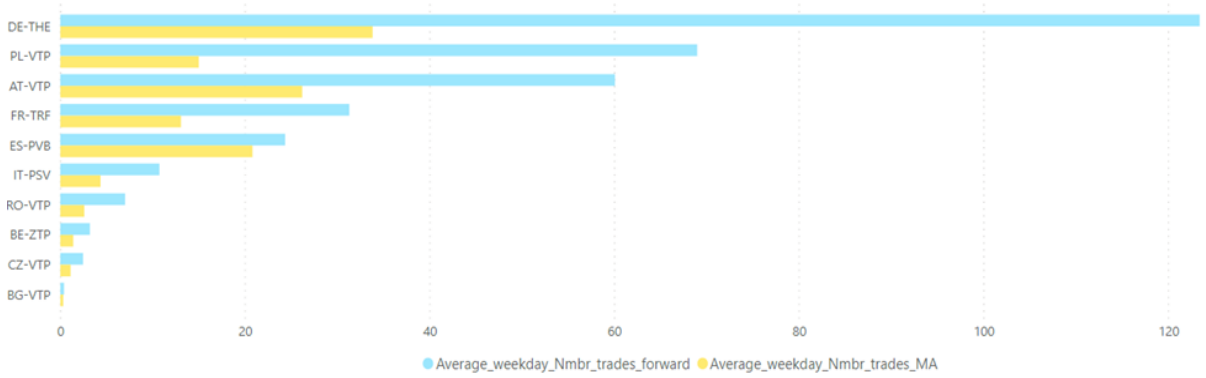
[43] Different market participants could decide differently about shifting their trading activity. (The composition of their boards and their ownership structure would influence their decision to shift trading).

[44] See ESMA's report Section 3, which highlights the alternative trading channels for existing clients of ICE and EEX to trade outside of the scope of the MCM Regulation.

conditions to EU VTPs other than TTF[45]. Furthermore, since derivate trading at almost all these VTPs is highly illiquid, prices are more open to and more susceptible to changes triggered by a few players, and thus unsuitable to trigger the MCM. Hence, applying a separate price setting criterion per VTP is not straightforward in terms of technical implementation.

Figure 20 shows the number of concluded trades at a selection of EU VTPs during 2022, excluding TTF. The Dutch TTF has a sizeable dimension, as it registers more than 10,000 derivative transactions per day, as opposed to the next largest hub, the German VTP (referred to as THE) that registers on a daily average 120 derivatives' trades.

Figure 20: Average daily trading frequency of gas futures at EU hubs (excluding TTF) – 2022 (number of trades)



Source: ACER based on REMIT data

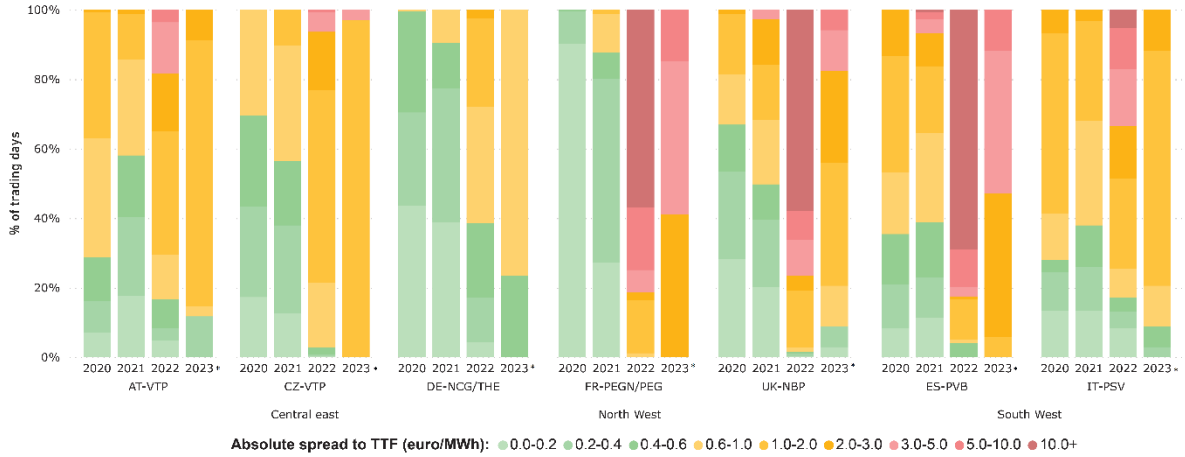
*Note: *Not all energy exchanges offering gas futures are regulated markets*

Another key element of the decision on whether TTF prices or custom-made conditions shall activate the MCM is to assess the price convergence and price correlation amongst EU gas hubs. Hubs' price convergence has significantly increased in the course of the last five to seven years. Typical hub price differences since the end of the last decade were in the order of 1-2 EUR/MWh, with the differences between lowest and highest priced hubs usually staying below 3-4 EUR/MWh. However, as an outcome of the Russian invasion of Ukraine the EU lost a significant amount of its Russian gas imports and had to restructure its gas import portfolio. As a consequence, the price convergence of EU VTPs worsened in the course of 2022, with price spreads above 10 and 20 EUR/MWh being frequent in summer and autumn months between North-West and Central markets in comparison to Southern ones, the latter taking advantage of more available LNG import capacities.

Figure 21 offers an overview of EU hubs' price convergence developments since 2020. The analysis reveals for the majority of trading days prior to the Russian invasion of Ukraine, the price spreads of most EU gas hubs relative to TTF tended to be at or below 1-2 EUR/MWh. Higher price differences to the TTF appeared in more distant markets, explained by transportation costs and local market specifics. Higher price differences in 2022 related to the exceptional market circumstances after the Russian invasion of Ukraine.

[45] In the absence of concluded transactions, exchange operators apply different considerations to issue the settlement prices of derivative products.

Figure 21: Overview of gas hubs price convergence – 2020 – 2023 (spreads in EUR/MWh)



Source: estimate based on ICIS Heren

Note: 2023 includes data up to 15 February*

In ACER's view, the price differences between the EU VTPs during normal market circumstances are relatively modest (i.e., the average hub price spread accounts for approximately 1% of the first MCM activation condition set at EUR 180/MWh). Moreover, in the absence of robust derivative price signals in all EU VTPs, the use of TTF as a price reference to determine the MCM activation at EU VTPs seems reasonable. While a reappearance of very high gas price locational spreads seen in the second and the third quarter of 2022 cannot be fully ruled out, the moderation of price differences between the EU VTPs observed from December 2022 onwards shows that the market has readjusted. This readjustment in conjunction with commissioning of gas infrastructure which will help alleviate physical network congestion indicates that gas spreads in the future should be lower than in the recent past (barring significant gas infrastructure outages).

ACER finds that there are strong arguments for using the same activation and de-activation conditions making use exclusively of the Dutch TTF front-month price at all VTPs (as selected for extension) as foreseen in Article 4(1) of the MCM Regulation.

3.4. Price bidding limits at EU VTPs

Another element under consideration is whether – in case of extension of the MCM to EU VTPS other than TTF - different dynamic price bidding limits or the same should be implemented for the derivatives traded at individual VTPs, when the MCM is activated.[46]

ACER highlights two considerations in this respect. On the one hand, a different price bidding limit per VTP[47], if set correctly, would assist the price-arbitrage trading of derivative products between nearby markets. That trading activity is important for the efficient price formation of derivative products at VTPs and adds liquidity and depth to the market[48]. Moreover, derivative price spreads signal the market value of gas at distinct locations and at different moments in time, and as such assist in determining the optimal direction of gas flows.

On the other hand, the price levels at which the dynamic price bidding limits should be implemented would be subject to an arbitrary decision. Technically, a sound estimate cannot be performed in the very short timeframe for implementation, as it involves the consideration of multiple aspects such as transportation tariffs between adjacent hubs, the net firm supply positions resulting from exchange trades, and whether the VTP has direct access or not to LNG imports. These elements could be the drivers for an eventual price bidding limit segmentation.

Therefore, a decision to implement different dynamic price limits without a proper and conclusive modelling could lead to errors with unjustified consequences, such as promoting a potential shift in trading activity to the benefit or detriment of individual VTPs.

Identical bidding limits and potential impact on cross-border flows

When deciding about the dynamic bidding limit value, a critical aspect to consider is whether identical bidding limits for gas derivatives across all EU VTPs would hamper intra-EU gas flows or not.

On the one hand, it can be argued that derivative prices signal the market value of gas at distinct locations and as such assist in determining the level and direction of gas flows. However, on the other hand, there are several other aspects that limit the role played by derivatives' prices in cross-border flow developments. As it will be further elaborated below, long-term supply contracts, day ahead price spreads and over-the-counter trades are among such aspects.

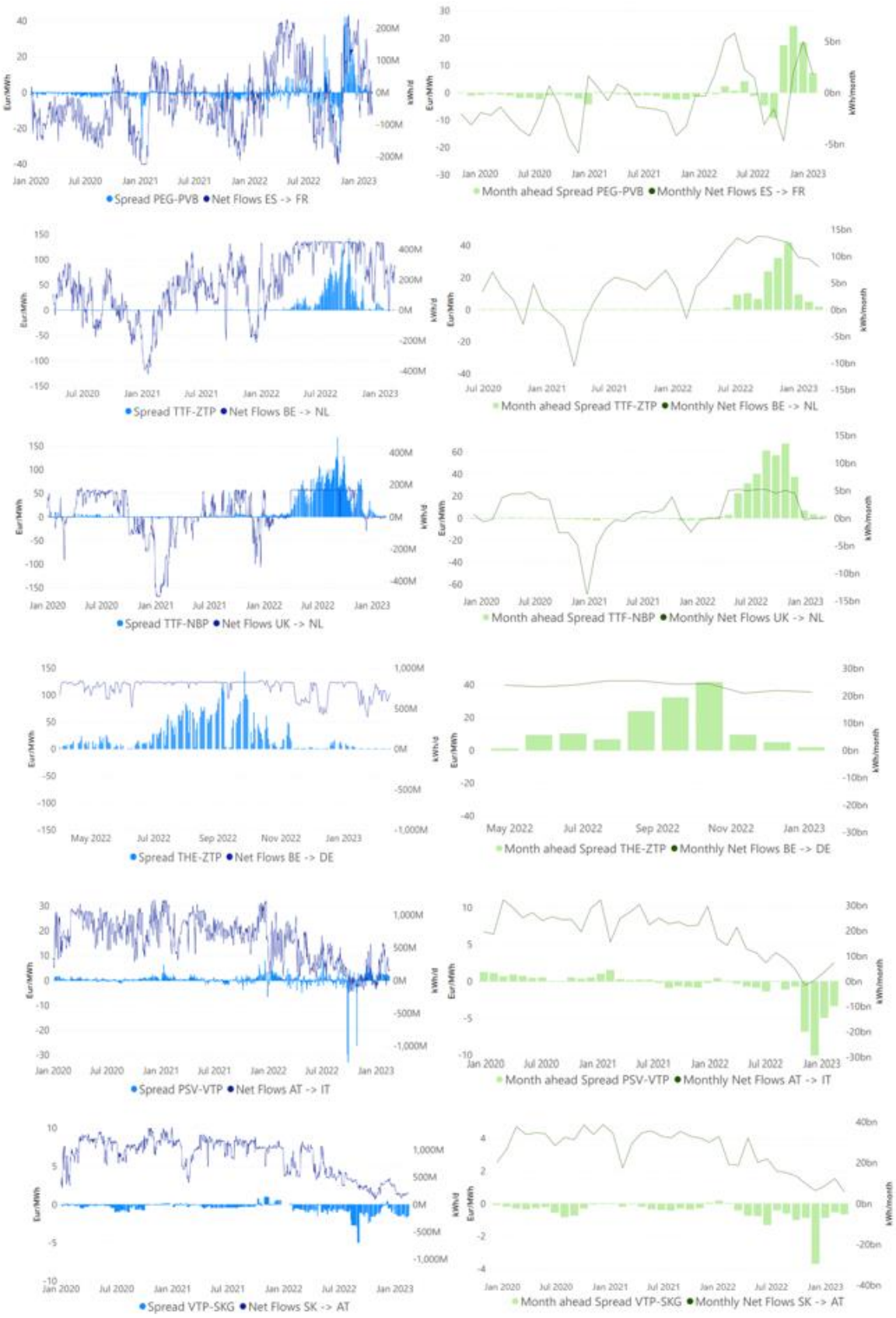
To illustrate the role that EU hub price spreads play in setting gas flows, Figure 22 offers an overview of the relationship between flows and day-ahead and month-ahead hub price spreads for a selection of representative interconnection points in the EU.

[46] And eventually, if different price bidding limits should be implemented for different maturities.

[47] Article 4(5) of the MCM Regulation establishes that in the event of a market correction notice, market operators shall not accept orders for TTF derivatives with prices of EUR 35 above the reference price published by ACER on the previous day ('dynamic bidding limit'). For example, the European Commission implementing acts could however propose a higher limit above the reference price at selected individual VTPs (e.g., EUR 40).

[48] Similarly, different price bidding limits at derivatives with distinct maturity encourage speculative trading, which is also essential to provide liquidity in gas markets, help price discovery and support hedging positions. As described for example by Oxera, exchange trading attracts a diverse range of participants to derivatives markets. There are among others, *price arbitrageurs*, which take offsetting positions in different markets or instruments to lock in profits, *hedgers*, which use derivatives to reduce the risk they face from potential gas price movements, and *speculators*, which take positions on the future direction of the price.

Figure 22: Net flows and spreads for day- and month-ahead prices for a selection of EU IPs and VTPs – 2020 – 2023 (kWh/day and EUR/MWh)



Source: ACER calculation based on ENTSOG Transparency Platform and ICIS.

Note: Reference period might vary depending on the entry in operation of virtual interconnection points in later dates (e.g. Belgian VIP to Germany).

Note 2: The left-hand graphs assess the correlation between day-ahead prices and net flows. The day-ahead price spreads of the products traded in day D-1 are correlated to the physical flows on day D. The right-hand graphs assess the correlation between month-ahead prices and net flows. The month-ahead price spreads correspond to the monthly average of the daily spreads between front-month products traded at the adjacent markets across the month M-1. The flows correspond to the sum of the daily gas flows across the IP across month M.

Figure 22 analyses reveal that day-ahead price spreads (i.e., the left side figures, in blue) tend to have larger influence over daily gas cross-border flows than month-ahead price spreads (i.e., the right side figures, in green). The larger influence of daily prices could be observed, even when both hub products' effects are quite aligned. This alignment is due to the strong convergence and correlation between spot and month-ahead prices (see Section 2.2, Price Indicator 3).

The overall responsiveness between cross-border flows and hub spreads is case specific though. For example, the analyses reveal that the daily flows between Spain and France or between the UK and the Continent tend to more closely relate to the relative position of hub price spreads. On the other hand, the links between hub spreads and daily flows are narrower across the interconnectors connecting Belgium to Germany or Slovakia and Italy to Austria[49]. This is because total cross-border gas flows result from a combination of two main elements: flows related to nearby hubs' price signals[50] and flows linked to long-term supply contracts. The long-term supply contracts flows stem from gas producers' cross-border sales and EU shippers gas transit needs and are still very present and dominant at most EU interconnection points.

Gas cross-border flows ensuing from long-term supply contracts will remain in place, regardless of the MCM activation. Day ahead products are outside the scope of the price bidding limits imposed by the MCM and consequentially the MCM would not limit price differences on a day-ahead basis. Last but not least, transactions concluded at the more physically oriented over-the-counter markets offer another option to bypass the derivatives' price bidding limits imposed by the MCM and allocate gas where it is more needed. Bearing these three considerations in mind, in ACER's view, identical dynamic price bidding limits for derivative products for all EU VTPs are unlikely to create a significant risk of limiting gas supply flows across the EU.

Moreover, even if identical dynamic price bidding limit would, under exceptional circumstances, partly limit intra-EU flows, this would occur only when the market correction event occurs. If such critical developments were to be observed, in ACER's view the suspension mechanism under the MCM should be considered and used to alleviate potential obstacles to intra-EU-flows.

Given the above circumstances, **ACER finds strong arguments to implement the same dynamic price bidding limit at all EU VTPs (as selected for extension) pursuant to Article 4(5) of the MCM Regulation**.

[49] The analyses for these two last interconnection points show the critical drop in Russian East to West flows since summer 2022.

[50] Transportation tariffs being also a crucial driver behind interconnection points' capacity use. The latest ACER's Gas Wholesale Market Monitoring reports have analysed these aspects and correlations in last editions.

4. Review of the MCM conditions

Article 8(4) of the MCM Regulation specifically tasks ACER and ESMA to assess whether the following elements of the MCM need to be reviewed, in response to developments at financial and energy markets and security of supply[51]:

- the elements taken into account for calculating the reference price;
- the conditions set out in Article 4(1) of the MCM Regulation[52];
- the dynamic bidding price limit.

The European Commission may, where appropriate and after consulting among others ACER and ESMA, propose an amendment to the MCM Regulation adapting the choice of the products covered by the MCM[53].

In this section, ACER presents its analysis and considerations about a potential revision of elements of the MCM Regulation.

4.1. Elements of the reference price

The reference price is a price basket, calculated as the average of eleven price indexes subdivided into five groups according to Article 2(6) of the MCM Regulation. The referred price indexes are representative of the European spot LNG prices, the spot LNG price at Asian regions and the NBP hub prices[54]. The inclusion of the Asian price reference offers a proxy for the global spot LNG price trends. The price indexes – except for the NBP hub price, which is not specific to any LNG product – focus on spot LNG cargoes[55]. Spot LNG prices can deviate from the prices of long-term liquefied gas contracts, which are indexed to a variety of energy commodities prices, including oil and international gas hub prices. In fact, spot LNG cargoes tend to be more expensive than LNG long-term supply contracts in the last couple of years, depending on the exact price indexations used in the latter and inverting price trends observed in the past.

As spot LNG cargoes tend to shore according to regional price signals, they offer a good representation of the actual price at which LNG buyers acquire gas in the short-term. By setting the bidding limit on the basis of a reference price built on spot LNG prices (plus a safety margin of EUR 35) the MCM Regulation intends to ensure that short-term security of supply is not put at risk[56]. The inclusion of LNG price elements related to long-term contracts – and/or actual LNG production plus shipments costs – would offer a complementary angle to the LNG price formation. However, long-term LNG prices are contract

[51] Over time, once monitoring data indicate a need for revision of key elements of the MCM, ACER reserves the opportunity to alert the European Commission on the necessary changes.

[52] The conditions are as follows: (a) when the front-month TTF derivatives settlement price exceeds 180 EUR /MWh for 3 working days, and (b) when this settlement price is 35 EUR/MWh higher than the reference price during the same 3 working days.

[53] Recital 49 of the MCM Regulation.

[54] Prices related to front-month derivatives related to NBP are included in the calculation of the reference price due to their high liquidity, as referred in Recital 21 of the MCM Regulation.

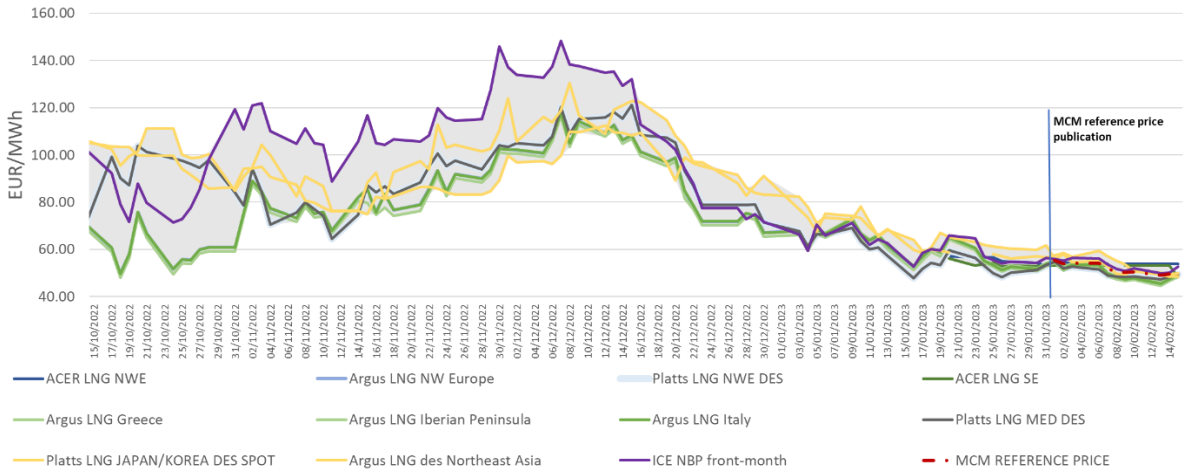
[55] Spot volumes refer to discrete cargoes offered by LNG producers or trade portfolio aggregators for delivery within months of the transaction date. The price indexes can include cargoes originating in portfolio contracts subject to short-term redirections stemming from price arbitrages. Mid and long-term contracts refer to bilateral supply agreements signed between counterparties for larger volumes over longer periods, customarily of several years with various cargoes' executions across the year.

[56] Recital 22 of the MCM Regulation.

specific. They are influenced by price formulas applied, contracted volumes and duration as well as the parties involved. Therefore, including long-term LNG contracts in the basket would make the basket less representative of the prices at which global buyers actually compete to procure LNG, especially in the short-term[57].

Figure 23 provides an overview of the price development in the last months of the eleven price indexes that are used to calculate the MCM reference price (October 2022 – February 2023).[58]

Figure 23: Price evolution of the price indexes part of the reference price – October 2022 – February 2023 (EUR/MWh)



Source: Argus, Platts, ICE Endex and ACER.

Given the low liquidity and the non-standardised nature of LNG contracts, the spot LNG price indexes used to calculate the MCM reference price are LNG price approximations underpinned by complex methodologies. Given this, it is not surprising that the indexes published by the two distinct price reporting agencies, and that are well-known in the sector[59], can diverge slightly from each other and from ACER's own LNG price assessments. With the exception of NBP, the daily LNG price assessments rely on a very limited number of transactions. That circumstance can also result in similar assessments on some days (e.g. for the ACER LNG price assessment[60]).

The combination of the different price indexes offers a sufficiently valid approximation for the price of spot global LNG for delivery in the EU. The price difference between the indexes in the basket have varied by less than 8 EUR/MWh across the first months of 2023.

The price of the NBP front-month derivative product tends to set the maximum price level of the basket, as NBP settlement prices are in many trading days determined by the price of spot LNG deliveries plus the British VTP access costs (including LNG terminals fees). Yet, NBP inclusion is beneficial given that its price signal is reliable and transparent as it is connected to a highly liquid trading venue. Moreover,

[57] For example, building the reference price on the basis of LNG production costs, or e.g., Henry Hub plus EUR 35, would most probably result in a lessened reference price in average. But such a reference price would not be closely connected to the prices at which LNG is sold in the short-term market.

[58] Some indexes tend to converge, hence are less visible in the graph itself.

[59] ICIS Heren and Spark also publish relevant LNG price assessments.

[60] ACER's LNG price publication commenced on 20 January 2023. ACER's LNG price assessment is based on a methodology built on reported information. The methodology is being revised and improved with the support of a group of LNG experts it. The revised approach aims to limit the number of repetitions in the daily assessments.

the EU is interconnected with the UK network and EU and UK buyers compete for the same volumes of gas[61]. Therefore, it is useful to include this index to ensure an appropriate bidding limit which is not substantially lower than the UK gas price.

When assessing the evolution of these price indexes, one can observe that the prices of the LNG delivered in North West Europe tend to be at a slight premium to the price of LNG delivered in South European markets. This was particularly noticeable during autumn 2022. Despite this, the price differences between the LNG price indexes were minor. The price differences between the relevant Northern and Southern EU hubs were actually higher, reflecting the additional costs of infrastructure access and congestion[62]. More recently, from the beginning of 2023, Northern and Southern EU LNG price references have gradually aligned.

Regarding the Asian price references, ACER observes that they were at a discount during most of last year. This trend has reversed since mid-autumn 2022. In recent months, the Asian spot price references have surpassed EU spot LNG price indexes. This indicates an increasing LNG demand recovery in the Asian markets and a less-tight LNG supply market in Europe. Asian markets rely comparatively more on long-term LNG supply contracts[63] than Europe.

At this stage, there are no clear indications that a different composition of the basket would provide for a better reference price. ACER finds it expedient to closely follow each price index over a longer period, including times of potential tighter supply scenarios.

All in all, **ACER could not identify a need for revising the price references used for calculating the MCM reference price**.

The MCM Regulation tasks ACER to calculate the daily reference price every day, based on the information received pursuant to its price monitoring obligation established by the MCM Regulation.[64] As of 1 February 2023 ACER publishes the calculated reference price on its website every weekday[65] no later than 23:59 CET.[66] ACER is working closely together with the European Commission concerning these tasks.

4.2. MCM activation conditions

The MCM is designed as an instrument to guard against extraordinarily high gas prices. It shall be activated only if prices reach exceptional levels in the EU compared to global gas markets[67]; this based on the two activation conditions mentioned earlier.

Figure 1[68] has shown the evolution of the MCM reference price relative to the front-month TTF price, and illustrates the proximity of the two activation conditions to the market prices. It is clear from this

[61] The NBP front-month derivative price usually sets the maximum price in the basket, as it tends to be built on spot LNG prices plus system access fees. It is important to keep the NBP price in the basket, because it is the most reliable and transparent price signal that derives from a highly liquid market.

[62] While in September and October 2022 Northern and Southern EU LNG prices could deviate by 1 or 2 EUR/MWh, the spreads between TTF and the Spanish PVB or the French TRF hubs could surpass 20 EUR/MWh.

[63] This strategy better protects from spot price developments and assumes a more robust long-term prospect for gas demand.

[64] Articles 3 and Article 4 of the MCM Regulation.

[65] Working days means days when the European Commission in Brussels works.

[66] See the dedicated ACER MCM portal.

[67] See Recital 15 of the MCM Regulation.

[68] See Section 2.2 Price indicator 1.

overview that since September 2022 there have been no occasions in which both MCM activation conditions would have been met.

The current market environment makes it unlikely that either of the two activation conditions would be triggered in the near-term. There are currently no clear signals pointing to a risk of gas supply scarcity in North West Europe that could result in a wider spread between TTF and global spot LNG prices, whilst the LNG import capacity in North West Europe has increased and will continue to increase, making significant congestion less likely. However, it cannot be excluded that in a situation of exceptional market circumstances, for example an outage at a main North West European LNG terminal or an unforeseen bottleneck at a key interconnection point, larger price spreads might ensue. A worsening demand-supply balance resulting for example from higher LNG competition from Asia, from a significant cold spell and/or from an exceptional draught could also put increased pressure on gas prices compared to the current near-term outlook.

It is not possible to predict with certainty how the gas market fundamentals, and as such the prices relevant for the MCM activation conditions, will evolve over the coming year. At the same time, ACER notes that the exact activation thresholds chosen were the outcome of political negotiations at the time[69].

Therefore, **ACER could not identify any technical reason to change the current activation or de-activation conditions at this stage.**

4.3. Dynamic price bidding limits

Should a market correction event occur, Article 4(5) of MCM Regulation defines the dynamic price bidding limit as a price of 35 EUR/MWh above the reference price calculated and published by ACER on the previous day. Market operators shall not accept and market participants shall not submit orders for TTF derivatives above this limit. If the reference price were to be below EUR 145/MWh, the dynamic bidding limit shall remain at the sum of EUR 145 and EUR 35.

The MCM Regulation specifies that the derivatives' price bidding limit should be adjusted in a dynamic manner on a daily basis.[70] The dynamic bidding limit should act as a safety-net and assist to attract LNG volumes in line with global LNG market developments.

ACER acknowledges the positive feature that the dynamic bidding limit[71] adds to the MCM. Bearing in mind, as well, the limited market effects that so far can be attributed to the adoption of the MCM Regulation, the more supressed market environment with prices well below the MCM activation levels, **ACER could not identify technical reasons to change the dynamic price bidding limit.**

[69] According to the MCM Regulation, the aim of the MCM is avoiding the abnormal prices reached in August 2022, which guided the definition of the price levels at which the MCM should be triggered. In August 2022 the front-month prices for TTF-derivatives reached levels above 180 EUR /MWh for weeks and the price difference between the LNG markers and the TTF and other VTPs was around 35 EUR /MWh between June and August 2022.

[70] See Recital 23 of the MCM Regulation.

[71] Namely the mark-up of 35 EUR /MWh.

5. Potential risks of MCM implementation

The MCM Regulation recites several risks associated with an intervention in EU gas derivatives market. The MCM Regulation foresees, however, the possibility of suspending the MCM if such risks were to materialize in the financial and energy markets. In addition, ACER and ESMA have also identified potential risks associated with the MCM – primarily to inform future MCM suspension monitoring.

This section lists a number of potential risks that might arise due to the activation of the MCM. The potential risks relate to the market assessments presented in Section 2 and offer considerations related to potential effects in gas markets, security of supply and gas trading. Given the uncertainty as regards probability and significance of these risks, they require further monitoring in the future.

Nevertheless, given its remit, ACER has focused on identification and assessment of potential risks of the MCM related to gas market functioning such as potential risks to security of gas supply, potential risks to gas price formation and potential risks to gas markets liquidity. However, given that gas supply, market liquidity and price formation are interdependent it is possible that the potential risks manifest themselves in a mutually reinforcing fashion and therefore should be considered holistically. For example, a deterioration of gas security of supply may lead to gas prices rising towards the MCM activation levels which may lead to deteriorating gas derivatives liquidity as market participants migrate their trading activity to trading venues/products outside of the MCM's scope. The potential risks presented in the following subsections might therefore occur in combination.

5.1. Risks to price developments

This subsection sums up the potential risks which cannot be fully ruled out in relation to price developments. They are listed as follows, based on ACER's own assessment and a selected number of stakeholder discussions:

- Careful monitoring remains key to assess the potential effects of the MCM, in particular whether the MCM might result in higher settlement prices at EU gas hubs and/or in rising prices for spot EU LNG deliveries. While such dynamics are unlikely in the current market context, a possible supply shortage may lead to a worsening market environment where gas prices might rapidly accelerate offers up towards the MCM's 180 EUR/MWh threshold. Such an escalation could be driven by risks perceived by market participants if they were to expect possible MCM activation to be close; this again per rapidly increasing price levels[72].
- The MCM could potentially lead to lower trading activity and liquidity at gas trading venues. Should a significant drop in liquidity occur, market participants might increase the price of their orders for both spot and future contracts in view of reduced trading markets' depth and breadth.
- The MCM could 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.
- A rise in day-ahead hub prices relative to front-month prices could occur, if gas procurement shifts towards non-capped shorter-term markets away from the markets where the MCM has been activated.

Closely aligned with its price monitoring tasks pursuant to the MCM Regulation, ACER will monitor the evolution of the settlement prices as mentioned under the first bullet and keep track of its possible development, whereas for the other aforementioned risks, monitoring will likely prove more challenging.

[72] A number of stakeholders have referred to such a scenario as a so-called magnetic effect resulting from the MCM.

5.2. Risks to flow developments

This subsection sums up the potential risks which cannot be fully ruled out in relation to flow developments. They are listed as follows, based on ACER's own assessment and a selected number of stakeholder discussions:

- The activation of the dynamic bidding limit could lessen the incentives to reduce gas demand compared to a situation where the MCM has not been activated[73]. This concern is included in the MCM Regulation under Article 6(2)(b).
- The MCM could limit gas supply imports to the EU. The objective of the LNG reference price 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 activation of the MCM bidding limit could reduce, even if just marginally, the incentives to attract LNG volumes to the EU and might reduce, as a consequence, LNG imports. Such decline would be more noticeable for spot LNG cargoes, which are subject to higher global price competition, than cargoes originating from long-term portfolio contracts.
- The MCM might lead to contract litigation from parties that perceive themselves at a disadvantage per the MCM price limits and/or perceive that the mechanism affects the validity of existing gas supply contracts by altering the contractual state-of-play in a tight supply market. This issue has been recognised in the MCM Regulation[74] and specifically Article 6(2)(f) sets the criterion to monitor these contracts and suspend the MCM if needed. ACER's understanding, based on limited own research and non-exhaustive input from industry stakeholders, is that a typical gas supply contract with a floating price (as opposed to an outright price) will be indexed to price assessment(s) produced by price reporting agencies (e.g. ICIS, Argus, etc.) rather than gas derivatives' exchange settlement prices. Furthermore, it is ACER's understanding that price reporting agencies do not use exchange trade data as input for their price assessment process but rather rely primarily on input related to the brokered and bilateral OTC market. This together with the fact that the MCM only interferers in the price formation of exchange traded derivatives implies that the risk of the MCM regulation triggering litigation related to gas supply contracts may be limited.
- The activation of the MCM could lead to identical prices of derivative products of different maturity, including season-ahead products. These products are regularly used to determine the underground gas storage utilisation strategies. Reducing the price differential between the contracts delivered over summer and winter periods could undermine the commercial success of storage capacity sales and potentially limit the injections of gas during the summer season. This being said storage regulation in some instances targets and manages with some instruments the risk of unattractive price spreads; and in so doing, can be said to mitigate this risk.

Closely aligned with the indicators presented in Section 2, ACER can follow the evolution of gas demand and the LNG supply connecting to the two risk factors presented under the first two bullets, whereas for the other risks highlighted in this subsection, monitoring will likely prove more challenging.

[73] The impact of the MCM on demand may be direct, but not easy to isolate. It can be anticipated that demand will already decrease to a relatively low level before the prices reach the MCM activation levels.

[74] The MCM Regulation in its Recital 30 states that "It is important that the MCM is designed in such a manner so as not to alter the fundamental contractual equilibrium of gas supply contracts, but rather to address episodes of abnormal market behaviour. If the triggers for the intervention are set at a level where they correct existing problems with price formation and do not intend to interfere with the demand and supply equilibrium, the risk that the contractual equilibrium of existing contracts will be altered through the MCM or its activation can be minimised".

5.3. Risks to trading developments

This subsection outlines the potential risks which cannot be fully ruled out in relation to trading developments. They are listed as follows, based on ACER's own assessment and a selected number of stakeholder discussions:

- In their engagement with ACER, exchange operators have stated that exchange trading activity could decline significantly[75] should exchange prices approach the first activation threshold of 180 EUR/MWh. The spread between the 'reference price', built mainly on LNG price markers, and TTF front-month prices, would also influence such a change.
- Part of the trading activity exiting those exchanges subject to the MCM could shift to over-the-counter markets. However, there are factors suggesting that not all the trading activity potentially moving away from exchanges would move to over-the-counter:
  - Financial traders could exit markets and invest in other assets if they perceive that they could 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 restrictions[76].
  - Potential complications for market participants to hedge their exposures could potentially reduce the willingness to transact, once the MCM is invoked. This would be the case when a market participant would be able to buy physical gas at a price above the MCM price bidding limit but would be unable hedge this position in the EU.
- Trading activity could move outside of the EU to trading platforms not subject to the MCM Regulation (by way of example, ICE has recently announced the offering of TTF derivatives at ICE Futures Europe at London)[77] and/or venues not subject to the dynamic price limit, such as the British NBP, which would be used as a proxy hedge for EU gas deliveries[78].
- A decrease in total EU hub traded volumes could negatively impact price formation, result in higher market concentration and reduced price transparency.
- Higher counterparty default risks could also materialise. The ESMA report further elaborates on this aspect[79].
- 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 aspect[80].

Closely aligned with the indicators presented in Section 2, ACER can follow the evolution of the price spread in relation to the MCM reference price and the evolution of the trading per its indicators, as outlined under the first bullet, whereas for the other risks monitoring will likely prove more challenging unless some of them could be followed up by other entities, for example ESMA.

[75] Some increase in trading activity could potentially still occur at other EU and probably non-EU exchanges by means of diverting trades previously concluded at TTF. 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 other venues outside the scope of the MCM Regulation.

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

[77] See for example Platts article on the subject.

[78] As reflected as a potential outcome of the MCM in Article 8(3)(b) of the MCM Regulation.

[79] See ESMA's report, more specifically, Section 4 on Default management towards clients

[80] See ESMA's report, more specifically, Sections 3 and 4.

Table of figures

List of abbreviations

Acronym	Meaning
AIMA	Alternative Investment Management Association
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
IFEU	ICE Futures Europe at London
IP	Interconnection Point
LNG	Liquefied Natural Gas
MCM	Market Correction Mechanism
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
PRA	Price reporting agency
PSV	Punto di Scambio Virtuale
PVB	Punto Virtual de Balance
THE	Trading Hub Europe
TSO	Transmission System Operator
TTF	Title-Transfer Facility
VTP	Virtual Trading Point